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Psi Chi functions as a federation of chapters located at over 1,180 senior colleges and universities around the world. The Psi Chi Central Office is located in Chattanooga, Tennessee. A Board of Directors, composed of psychology faculty who are Psi Chi members and who are elected by the chapters, guides the affairs of the Organization and sets policy with the approval of the chapters.

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In Memory of Ed Diener, PhD

We dedicate this issue to Dr. Ed Diener. His work on happiness changed how scientists think of mental health. He is published over 400 times, and his work will continue to influence the field of psychology. “Dr. Happiness” was a great scientist, but he never forgot his students. He has won many teaching awards and mentored hundreds of students. I personally was able to work with him on the NOBA project. I was also able to attend many of his talks and chat with him at several conferences. He was always a delight, and he was always happy to stop and talk to as many people as possible.

On behalf of the Psi Chi family, we dedicate this issue to Dr. Diener to thank him for sharing his happiness.

Rest in happiness,
Debi Brannan, PhD, Journal Editor
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*Faculty mentor
INVITED EDITORIAL: A Call to Action for Psychology in the Wake of Anti-Asian Violence

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Behavioral Sciences Division, Western Oregon University

ABSTRACT. Anti-Asian violence has been on the rise since March 2020. Recent data on rates of discrimination and violence as well as the impact on Asian American and Pacific Islander (AAPI) mental health is presented and discussed in the context of common stereotypes about AAPIs. Suggestions for how the field of psychology can be helpful in responding to anti-Asian hate are offered. The article concludes with a message to AAPI psychology students about caring for themselves and finding community.

Keywords: Asian American, stereotyping, discrimination, COVID-19, unrest

Acts of discrimination, hate, and violence directed toward Asian American and Pacific Islander (AAPI) communities have been on the rise since March 2020. These acts coincide with rhetoric from public officials tying COVID-19 to China by referring to COVID-19 as the “kung flu” and “Wuhan virus.” Yet anti-Asian discrimination and violence is not new in the United States. For instance, in 1875, 15 Chinese immigrants were lynched by an anti-Chinese mob in Los Angeles, the largest mass lynching in the United States to date. The 1882 Chinese Exclusion Act was one of the first laws in the United States to ban immigration specifically based on race. Executive Order 9066 forced American citizens of Japanese ancestry into internment camps based on fear and racial prejudice. These historical moments have preceded more contemporary examples. Following the terrorist attacks of 9/11, South Asian Americans were targeted with profiling and violence including the 2012 murder of six Sikh members of the Oak Creek Gurdwara in Wisconsin. More recently, in January 2021, Vicha Ratanapakdee, an 84-year-old Thai immigrant, was attacked and killed in San Francisco. In March 2021, Vilma Kari, a 65-year-old Philipina woman was repeatedly kicked and stomped on while witnesses looked away. On March 17, 2021, six Asian women, Xiaojie Tan, Daoyou Feng, Hyun Jung Grant, Soon Park, Suncha Kim, and Yong Yue were murdered in Atlanta.

Recent Data
On March 17, the Stop AAPI Hate Reporting Center also released a new report documenting the nearly 3,800 instances of anti-Asian bias that occurred between March 2020 and February 2021 (Jeung et al., 2021). Reported incidents of bias occurred in all 50 states. Gender differences were also evident with women being 2.3 times more likely to report hate incidents than men. Most incidents (68%) involved some form of verbal harassment such as being sworn at or called derogatory slurs, although 11% reported physical assault such as being pepper sprayed, punched, and spat at. An April 2021 New York Times analysis breaking anti-Asian hate down by month found that, although there was an initial surge in hate crimes in March 2020, March 2021 has had the highest volume of hate crimes directed toward the AAPI community since the pandemic began (Cai et al., 2021).

A new follow-up study (Saw et al., 2021) conducted between January and March 2021 examined the psychological impact of experiencing these acts of bias with the approximately 1,400 individuals who initially reported incidents of bias to Stop AAPI Hate. Of the 413 respondents, 42% were currently experiencing anxiety symptoms, 30% were experiencing depression symptoms, and 95% felt less safe in their community. AAPI individuals reporting COVID-related discrimination were also more likely to report symptoms of posttraumatic stress, even after controlling for pre-existing mental health diagnoses. These findings make sense considering research that has demonstrated that the exposure and reexposure of race-based stress can lead to PTSD-like symptoms (Comas-Díaz et al., 2019).
Stereotyping and COVID

If the acts of violence themselves were not enough, much of the hate being directed at AAPI communities are directly tied to long-standing stereotypes about Asian Americans, which can bring up memories of similar incidents that have happened in the past. Hearing about act after act of discrimination can also bring feelings of dehumanization, fetishization, not belonging, silence, and invisibility. For example, the idea that, because COVID-19 fetishization, not belonging, silence, and invisibility. Further, the model minority myth erases the diversity that exists in the AAPI community. It perpetuates the idea that Asian Americans do not struggle or need help, and it sets the expectations that Asian Americans are quiet and do not make waves. The delay of attention and response to rising anti-Asian violence, perhaps out of a belief that Asian Americans have it “better” than other ethnic minority groups, is the rotten fruit of the model minority stereotype.

A Call to Action

Although these statistics and the times we are in may feel sobering, I hold great hope that psychology students and faculty are particularly well-positioned to offer the tools needed to begin to address the epidemic of hatred and violence. First though, we must agree that we cannot fix the problem simply by punishing the perpetrators. That is like trying to fix a broken arm by prescribing pain killers, chasing after symptom reduction rather than the root cause. Psychologists need to start speaking out about what we see as those root causes of hate and violence. Psychologists are experts in human behavior and development. We study cognitive biases, stereotyping, prejudice, and discrimination. We develop interventions and evaluate outcomes. We are immersed in understanding mental health and the factors that increase both risk and resilience. It is time that we make our voices heard in national conversations on these topics, speaking from a position informed by evidence. Here are some steps, both long-term and short, that psychology faculty and students can take to help:

1. Understand what unique and valuable skills you possess given your training in psychology and leverage that training in an applied and meaningful way to help address hate and discrimination.

Use your research skills to more deeply understand factors that perpetuate discrimination or help to combat bias. Use your ability to synthesize information to understand patterns and identify needs. Use your verbal and written communication skills to share your knowledge with others. Students, if given the option to select your own topic, focus your term paper or final project on an issue that advances this conversation (or another social issue that you care about); write an op-ed for your local paper; or partner with a community organization and offer...
your skills. For those further along in their training, give expert testimony rooted in psychological science to lawmakers. Look at programs like The Green Dot bystander intervention program and Hollaback for inspiration and examples of psychological knowledge informing training programs that combat harassment and violence.

2. Operationalize aspirational practices.
Many campuses are putting out statements denouncing hate and reaffirming a commitment to diversity, equity, and inclusion. The current American Psychological Association (APA) Guidelines for Undergraduate Psychology Majors includes the learning goal, “ethical and social responsibility in a diverse world,” with the subgoal of “adopt values that build community at local, national, and global levels” (APA, 2013). It is wonderful that we have started talking about these issues. Now we need to decide how we will translate these intentions into specific, measurable action. Psychology faculty should have conversations with their colleagues about how ethical and social responsibility is operationalized, embedded in the curriculum, and assessed. Given the skills mentioned above, psychology faculty may also emerge as natural leaders for campus-wide conversations about translating good intentions into sustainable action. Students, do not be afraid to hold your faculty and administration accountable by asking hard questions. If you have suggestions or advice about what you would like to see in your department or on your campus, organize and present your ideas. If your school has a student body government, that may be a helpful outlet for making a collective request.

3. Continue to educate yourself.
The AAPI story is often erased when we talk about American history. See Figure 1 for a list of resources, which includes readings to learn more. Do not feel you have to limit your learning to academic readings; also check out music, films, fiction, and poetry that center AAPI stories, and not just stories around struggle or immigration.

As discussed earlier, invisibility and the denial of struggle are intricately woven into the AAPI experience. Believe and acknowledge the experiences of AAPI students, faculty, and staff.

A Message to AAPI Students
I want to end with a message directly to the AAPI students who may be reading this article. If you are feeling increased levels of stress, anxiety, or depression in response to hearing about ongoing racial violence directed toward your community, know that you are not alone or making a “big deal” out of nothing. A robust body of research supports the idea that racial discrimination is linked with distress and mental health symptoms (see Vines et al., 2017, for a review). Take your health seriously. Help is available. It may feel confusing and frustrating to try to process anti-Asian hate in the wake of the Black Lives Matter movement of the summer. Some of you may feel angry about the lack of a similar wave of outrage and public demonstration. Others may feel conflicted about centering the struggle of AAPIs when Asian Americans as a monolithic group tend to enjoy relative privilege compared to other communities of color. Our struggles are not the same, but they are interconnected. You might need to take care of yourself right now so that you can continue to show up for others in the future, and that is okay.

It is important, especially now, to have a community where you feel supported, seen, and valued. The need for community applies both personally and professionally. The idea of a professional community may be new to you, but having a community of scholars, sometimes beyond the walls of your university, who share your interests and value your work and ideas can help sustain you on your academic journey. Find the people who will help keep you going professionally because there is much work to be done. For some of you, Psi Chi may be that community. Personally, I have found my professional home within the Asian American Psychological Association (AAPA), an organization founded in 1972 by brothers Derald Wing Sue and Stanley Sue. AAPA strives to advance the mental health and well-being of Asian American communities through research, professional practice, education, and policy. APA’s Division 45: The Society for the Psychological Study of Culture, Ethnicity and

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**FIGURE 1**

**Resources for Support and Continued Learning**

- [https://stopaapihate.org/actnow/](https://stopaapihate.org/actnow/)
- [https://www.ncfr.org/resources/resource-collections/resources-dismantle-racism-asian-american-community](https://www.ncfr.org/resources/resource-collections/resources-dismantle-racism-asian-american-community)
- [https://apidisabilities.org/recent-events/aapi-community-resources/#resources](https://apidisabilities.org/recent-events/aapi-community-resources/#resources)
- [https://www.ncfr.org/resources/resource-collections/resources-dismantle-racism-asian-american-community](https://www.ncfr.org/resources/resource-collections/resources-dismantle-racism-asian-american-community)
- [https://www.napaba.org/page/HateCrimeResources/](https://www.napaba.org/page/HateCrimeResources/)
- [https://api.disabilities.org/recent-events/aapi-community-resources/#resources](https://api.disabilities.org/recent-events/aapi-community-resources/#resources)
- [https://stopaapihate.org/actnow/](https://stopaapihate.org/actnow/)
- [https://www.napaba.org/page/HateCrimeResources/](https://www.napaba.org/page/HateCrimeResources/)
- [https://www.nytimes.com/interactive/2021/04/08/arts/asian-american-photos-love.html?referringSource=articleShare](https://www.nytimes.com/interactive/2021/04/08/arts/asian-american-photos-love.html?referringSource=articleShare) (This is a beautiful photo essay that depicts love within the AAPI community in a time of hate.)

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Race, and the other ethnic minority psychological associations: the American Arab, Middle Eastern and North African Psychological Association; the Association of Black Psychologists; the National Latinx Psychological Association; and the Society of Indian Psychologists may also be important sources of community. Many of these associations offer mentoring opportunities for students, culturally informed professional development, and have annual conferences where you can learn about new research in the field or present your own work. Beyond just being your major or your academic focus, psychology can also be your community if you want it to be.

References


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I have no known conflict of interest to disclose.

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As the world’s population continues to grow, and medical advancements aid in the treatment of previously fatal illnesses, individuals are living longer (Crimmins, 2015; Semenova & Stadtlander, 2016). With advanced age comes a higher likelihood that an individual will experience cognitive decline (Aartsen et al., 2002; Fritsch et al., 2005). Recent findings showed that, globally, the number of individuals who experienced cognitive decline in 2016 was 43.8 million (Global Burden of Disease [GBD] 2016 Dementia Collaborators, 2019). In 2016, 4,029,450 United States citizens suffered from Alzheimer’s Disease or other dementias (GBD 2016 Dementia Collaborators, 2019). Due to the increase in lifespan, the increase in global population, and improved detection since 1990, there was an increase in the prevalence of cognitive decline (1.7%), making dementia the fifth leading cause of death globally in 2016 (GBD 2016 Dementia Collaborators, 2019). The decline in cognitive functioning caused by memory disorders can cause a loss in self-identity and an increased dependence on others to perform instrumental activities of daily living (Canonici et al., 2012).

Patients with memory disorders are not the only ones who suffer; many family members of the patient are also affected (GBD 2016 Dementia Collaborators, 2019). In addition to witnessing the decline in their loved one, these family members often serve as informal (or unpaid) caregivers (Centers for Disease Control and Prevention [CDC], 2018). As an individual with declining cognitive functioning becomes more dependent,
Caregivers are left to shoulder the responsibility of caring for this individual. In addition to caregiving, the caregiver is typically juggling other responsibilities, such as their career and caring for children and other family members (O’Sullivan, 2015; Schulz & Beach, 1999). This emotional strain, combined with the physical, familial, and financial costs that result from caregiving are commonly known as caregiver burden (Yeh et al., 2002; Zarit et al., 1986).

**Negative Outcomes of Caregiving**

Caregiver burden often becomes harmful to the caregiver’s health, to the point of increasing caregiver mortality rates within four years from becoming a caregiver by 50–65% (Perkins et al., 2012; Schulz & Beach, 1999). Schulz and Beach (1999) reported that 63% of spousal caregivers over the age of 65 who report caregiver burden are more likely to die, as compared to those who did not have a spouse with health issues. In light of these alarming statistics, researchers have investigated factors that influence caregiver burden, as well as factors that can help alleviate the stress of caregiving.

**Predictors of Caregiver Burden**

Some caregivers experience more burden than others (Fredman et al., 1995; Swinkels et al., 2017). This variability in the experience of burden has been partially attributed to demographic variables such as race and gender, such that White caregivers reported more burden than Black caregivers, and women reported greater partner caregiver burden than did men (Fredman et al., 1995; Swinkels et al., 2017). In addition to demographic characteristics, psychosocial factors such as religious attendance, participation in private prayer, religious coping, and social support have been associated with caregiver burden (Herrera et al., 2009; Karlin, 2004; Moen et al., 1995; Wright et al., 1985).

**Religious Attendance and Participation in Private Prayer**

Past research has demonstrated a negative relationship between caregiver burden and both religious attendance and participation in private prayer. A cross-sectional study of caregivers found that that caregivers who reported greater religious attendance and greater participation in private prayer reported less caregiver burden (Herrera et al., 2009). Taking a different approach, Karlin (2004) asked caregivers to report their involvement in organized religion and nonorganized religion (e.g., prayer or religious reading) both retrospectively, before the onset of caregiving, as well as currently. Results indicated that less involvement with nonorganized religion prior to the onset of caregiving, but more involvement with nonorganized religion at the time the study was conducted, were associated with less caregiver burden.

As evidenced by Karlin (2004) and Herrera (2009), there is a need to examine the unique contributions of religious attendance and private prayer to caregiver burden. It is also important to explore the mechanism by which religious attendance and private prayer might reduce caregiver burden. As indicated by past literature, the negative relationship between religious attendance, participation in private prayer, and caregiver burden might be explained by religious coping and social support (Clement & Ermakova, 2012; Heo & Koeske, 2013; National Alliance for Caregiving and the AARP, 2004).

**Religious Coping**

Religious coping refers to a person using their religious beliefs to understand and respond to stress (Clement & Ermakova, 2012). In a survey of American caregivers, 73% of caregivers reportedly prayed to cope with caregiving demands (National Alliance for Caregiving and the AARP, 2004). Religious coping strategies can be positive (e.g., seeking God’s love and care, surrendering to God, and trying to see the stressful situation as a way to become stronger; Pargament et al., 2011; Rathier et al. 2015), or negative (e.g., feeling punished by God for a lack of devotion, deciding the devil caused the situation, questioning God’s love; Pargament et al., 2011). Particularly applicable to dementia caregivers, Masters (2008) argued that coping can occur through trust in a benevolent God, the belief that God will provide a means to cope with stressful events, and the belief that there will be a reward in the afterlife.

**Social Support**

Social support, defined as the act of providing assistance or comfort to others to help cope with stressors (American Psychological Association [APA], 2018), is another factor negatively associated with caregiver burden (Choo et al., 2003). Social support can be conceptualized by both the type of support provided and by the source of the support. Types of support include tangible (e.g., doing chores, providing financial or material assistance) or emotional (e.g., listening, providing encouragement; Ko et al., 2013). Both tangible and emotional support can be provided by family, friends, or significant others (Haley et al., 1987; Zimet et al., 1988). Haley et al.
Caregiver Burden in Dementia Caregivers | Mashinchi, Williams, and Cotter

(1987) reported that larger social support networks, more social activities with family and friends, and greater satisfaction with the social support being received were significantly associated with greater life satisfaction in caregivers, emphasizing the importance of the source of the support.

Religious Attendance, Social Support, and Religious Coping. Suggesting the importance of social support in predicting caregiver burden, Heo and Koeske (2013) proposed that religious attendance can lead to fostering social support networks, which then can lead to reduced caregiver burden. Likewise, Clement and Ermakova (2012) argued that regular church attenders gather with the same individuals for religious activities, and this contributes to their number of social relationships (Clement & Ermakova, 2012). However, Koenig (2007) found that religious attendance explained variance in caregiver burden beyond social support, suggesting that the relationship of religious attendance to caregiver burden may not be solely attributable to social support. Alternatively, it is possible that some of the variance in caregiver burden can be attributed to religious coping. We examined all of these possibilities in the present study.

Present Study
The purpose of the current study was to expand upon the concepts explored in Karlin’s (2004) study, which examined the association between caregiver burden, religious attendance, and participation in private prayer. Karlin surveyed 31 current familial caregivers of patients with Alzheimer’s disease who were recruited through Alzheimer’s Associations, adult day-care centers, and physicians in Colorado and western Nebraska. Consistent with their hypothesis, Karlin found that higher levels of overall burden were reported by participants who indicated less religious attendance and less participation in private prayer.

The present study shared some key characteristics with Karlin (2004): It was conducted in a dementia support group setting, and the participants were all familial dementia caregivers. The present study also examined religious attendance and participation in private prayer as predictors of caregiver burden. As an expansion of Karlin’s study, the present study included two additional predictor variables: social support and religious coping. Including these two variables allowed us to examine their unique relationships to caregiver burden, and also explore potential mediating mechanisms by which religious attendance and participation in private prayer can be related to caregiver burden through social support and religious coping. Based on previous research, we hypothesized that greater caregiver burden would be associated with less religious attendance, private prayer, religious coping, and social support.

Method
Participants
Caregivers were contacted through an email list because they were affiliated with an Alzheimer’s/Dementia support group in Northern or Central California. Eighty-two participants signed up for the study. Twenty-one participants were excluded from the final sample because more than 5% of data were missing from their survey. One participant was excluded because they did not attend support group sessions. Thus, final analyses are based on 59 dementia/Alzheimer’s disease caregivers. A post-hoc power analysis for a linear multiple regression, fixed model, single regression coefficient was conducted on G*Power 3.1. This power analysis yielded .83 actual power and an effect size $\chi^2 = 0.15$ with this sample size. This power analysis was two-tailed, and the alpha error probability was set to .05.

Design and Measures
In the present study, there were four predictor variables and one outcome variable. The four predictor variables were religious attendance, participation in private prayer, religious coping, and social support. The outcome variable was caregiver burden.

Religious Attendance and Participation in Private Prayer
Unlike other studies that have examined religious attendance and private prayer together as one construct (Herrera, 2009; Karlin, 2004), we divided religious attendance from private prayer in the present study. We measured religious attendance using the first item of the Duke University Religion Index (Koenig & Büssing, 2010), which asked participants how often they attend religious services. This item was scored on a 6-point Likert-type scale, where higher scores indicated greater religious attendance. Participation in private prayer was measured using the second item of the Duke University Index, which asked participants how often they spend time engaged in private religious activities. Similar to the first item, higher scores on a 6-point Likert-type scale indicated greater participation in private prayer (Koenig & Büssing, 2010).
Religious Coping
To specifically examine how religious attendance can be applied as a coping strategy for caregivers, and to delineate religious coping as a separate construct from religious attendance and personal prayer, religious coping was included as a third predictor variable. Religious coping refers to a person using their religious beliefs to understand and respond to experienced stress (Clement & Ermakova, 2012). The Religious Coping Scale (RCOPES; Pargament et al., 2011) is the most tested instrument to measure religious coping (Clements & Ermakova, 2012). The Brief Form (Brief RCOPES; Pargament et al., 1998) was selected for the current study. The Brief RCOPES is an internally consistent and concurrently valid 14-item self-report measure designed to assess how individuals respond to life stressors with their religion or spirituality in mind using a 4-point Likert-type scale. The first 7 items comprised the Positive Religious Coping subscale (e.g., “tried to put my plans into action together with God”), which has been found to have high internal reliability in a sample of hospital patients with mental illness ($\alpha = .87$; Pargament et al., 1998). The latter 7 items comprised the Negative Religious Coping subscale (e.g., “wondered what I did for God to punish me”), which has been found to have high internal reliability in a sample of hospital patients with mental illness ($\alpha = .69$; Pargament et al., 1998). The first seven items were summed such that higher scores indicated more positive religious coping, and the latter 7 items were summed such that higher scores indicated more negative religious coping. The Positive Religious Coping subscale was found to have high internal reliability in our sample ($\alpha = .94$), whereas the Negative Religious Coping subscale required dropping four items due to low reliability. The resulting 3-item scale was found to have an internal reliability of .80. In addition, three participants excluded items in their responses, so these participants were not factored into the analysis.

Social Support
Social support was measured using the Multidimensional Scale of Perceived Social Support, an internally consistent and factorially valid 12-item self-report measure scored using a 7-point Likert-type scale ($\alpha = .85 - .91$; Zimet et al., 1988; Zimet et al., 1990). This measure also had high internal reliability for our sample ($\alpha = .88$). This measure distinguishes between family support, friend support, and significant other support subscales, addressing the importance of the source of support. The items for each of the three individual subscales were grouped and averaged such that higher scores indicated greater support from each source. These subscales were found to have high internal reliability in our sample: Significant Other ($\alpha = .88$), Family Member ($\alpha = .90$), Friends ($\alpha = .88$).

Caregiver Burden
The outcome variable, caregiver burden, referred to the amount of stress and burden a caregiver feels due to their responsibility of caring for another individual. Consistent with Karlin (2004), who measured caregiver burden with the Zarit Burden Interview (Zarit et al., 1980), we measured caregiver burden by the participants’ scores on the Zarit Burden Interview-Short Form, an internally consistent 22-item self-report measure scored on a 5-point Likert-type style scale ($\alpha = .92$; Hébert et al., 2000, as cited in American Psychological Association [APA], n.d.). The Zarit Burden Interview-Short Form also proved to be internally reliable for our sample ($\alpha = .91$). To calculate a score of caregiver burden, responses to items were totaled, with higher scores indicating higher caregiver burden.

Procedures
The Psychology Institutional Review Board at California State University, Stanislaus approved this study prior to data collection. The survey was distributed to various Alzheimer’s disease/dementia support groups in Northern/Central California both electronically and physically.

Online Version
The researcher created and posted the questionnaire on the survey software Qualtrics. A link to this questionnaire, along with a brief synopsis and instructions of how to complete the survey, was sent to the administrator of the Alzheimer’s disease/dementia support group. The administrator attached the link to this questionnaire, the instructions, and the brief synopsis of the study in one email sent to all individuals on the caregiver email list associated with the support center, which included individuals who had been or were then currently caregivers. If participants were not caregivers at the time of the survey, they were instructed to think back to when they were a caregiver and answer the questions in that frame of mind.
Once participants followed the email link, they were taken to the survey on Qualtrics. First, they were shown the informed consent form. If participants gave their consent, they were taken to the measures, which were administered in a randomized order. After these items, participants were taken to a demographics form. Finally, participants were presented with a debriefing sheet, were thanked for their participation, and then exited the survey.

**Paper Version**

A paper copy of the survey was also sent to the administrators of the support groups. Data for completed surveys were manually entered into the secure electronic data file by the researcher, and the anonymous paper copies were stored securely, separate from consent forms, to ensure protection of participant data.

**Results**

**Demographic Characteristics of Sample**

Participants’ ages ranged from 23 to 86 years (M = 64.5, SD = 14.81). Seventy-one percent of participants were women. Fifty-four percent of participants were past caregivers, 32.2% were current caregivers, and 13.6% of caregivers had been caregivers twice: once in the past and also currently. Twenty-four percent of caregivers had cared for a loved one for 10 or more years. Forty-nine percent of caregivers were currently caring for or had cared for their spouse, whereas 32% caregivers currently were or had cared for a parent. Thirty-five percent of caregivers reported that the care recipient currently lived with them. Thirty-two percent of caregivers were employed while caregiving, and 57.8% of these employed caregivers worked 40 hours a week or more. Seventy-one percent of participants indicated Christianity as their religious preference. See Table 1 for the full demographic statistics of the sample.

**Hypothesis Tests**

A collinearity analysis was conducted to examine any problematic correlations between predictor variables. In accordance with Denis (2016), which stated that a VIF score of 10 suggests that our parameter β was not being precisely estimated due to a large standard error, we used a VIF cutoff score of 10. All VIF scores passed this cutoff, with the largest, positive religious coping, being 2.76. A multiple linear regression analysis was conducted to determine the unique relationships between religious attendance, participation in private prayer, religious coping, social support, and caregiver burden (see Table 2 for descriptive statistics). Variables explained 24.4% of the variance in caregiver burden, R² = .24, Adj. R² = .14, F(7, 49) = 2.26, p = .045 (see Table 3). Lower family support was related to greater caregiver burden (β = −.28, p = .045), as predicted. Contrary to our hypothesis, greater participation in private prayer predicted higher levels of caregiver burden, but at the trend level (β = .39, p = .064). Of note, lower levels of religious attendance also predicted higher levels of
caregiver burden, but not significantly ($\beta = -0.23, p = .16$). In addition, we investigated religious coping as a global construct, and then separately with the individual positive and negative subscales. Neither analysis yielded significant results. Table 3 details beta weights, structure coefficients, and squared semipartial correlations. Table 4 details the bivariate correlations with all the variables.

Sobel tests of mediation were conducted to examine multiple mediation possibilities: social support as a mediator of the relationship between religious attendance and caregiver burden, religious coping as a mediator of the relationship between religious attendance and caregiver burden, social support as a mediator of the relationship between private prayer and caregiver burden, and religious coping as a mediator of the relationship between private prayer and caregiver burden. Furthermore, the analyses were conducted separately for the three different sources of support (i.e., significant other, family, and friend). No statistically significant results were found ($ps$ all $>.14$). In addition, three independent-samples, $t$-test analyses were conducted to examine potential differences between part-time and full-time caregivers, between past and present caregivers, and between male and female caregivers on the predictor and outcome variables. None of these analyses yielded statistically significant results ($ps$ all $>.11$).

**Discussion**

**Findings**

Consistent with one of our hypotheses, there was a significant, moderate, negative linear relationship between family social support and caregiver burden. Our finding suggests that caregivers benefit from external support from family. This external support may be emotional (e.g., being able to discuss shared observable changes in loved ones) and/or tangible (e.g., provide meals and other resources; Cohen et al., 1985). However, spousal support was not found to be significantly related to caregiver burden, and this might be due to our sample: 49% of caregivers took care of their spouses, so it is possible that the person these caregivers were caring for (the care recipient) do not or cannot provide support to the caregiver. Interestingly, the results regarding friend support did not reach statistical significance either, although the relationship was in the predicted direction. These results suggest a unique benefit regarding the support received from relatives.

Further, the results did not support three of our hypotheses, which stated that religious attendance, participation in private prayer, and religious coping would be negatively related with and each uniquely contribute to caregiver burden. Most surprisingly, and in opposition with Karlin (2004), religious coping would be negatively related with and each uniquely contribute to caregiver burden. Most surprisingly, and in opposition with Karlin (2004),

**TABLE 2**

<table>
<thead>
<tr>
<th>Burden</th>
<th>Sig. Other</th>
<th>Family</th>
<th>Friend</th>
<th>Pos. Cope</th>
<th>Neg. Cope</th>
<th>Religious Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sig. Other</td>
<td>$-0.15$</td>
<td>$-0.23^*$</td>
<td>$-0.17$</td>
<td>$-0.65^*$</td>
<td>$-0.23^*$</td>
<td>$-0.03^*$</td>
</tr>
<tr>
<td>Family</td>
<td>$-0.23^*$</td>
<td>$-0.17$</td>
<td>$-0.05$</td>
<td>$-0.09$</td>
<td>$-0.04$</td>
<td>$-0.12$</td>
</tr>
<tr>
<td>Friend</td>
<td>$-0.22^*$</td>
<td>$-0.65^*$</td>
<td>$-0.23^*$</td>
<td>$-0.02$</td>
<td>$-0.20$</td>
<td>$-0.12$</td>
</tr>
<tr>
<td>Religious Attendance</td>
<td>$-0.03$</td>
<td>$-0.13$</td>
<td>$-0.14$</td>
<td>$-0.48^*$</td>
<td>$-0.007$</td>
<td>$-0.12$</td>
</tr>
</tbody>
</table>

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participation in private prayer was positively, not negatively, related to caregiver burden \((p = .06)\), suggesting that more burden was experienced for those who engaged in greater participation in private prayer. Similarly, religious attendance was positively related to caregiver burden, although this finding was not statistically significant \((p = .16)\). This finding contrasted past literature, particularly Karlin, who found that religious attendance was negatively associated with caregiver burden (Heo & Koeske, 2013; Herrera et al., 2009; Moen et al., 1995; Wright et al., 1985).

Two explanations for the positive associations between religious attendance, participation in private prayer, and caregiver burden are important to note. First, it is possible that caregivers who feel burdened attend religious services and engage in private prayer because it provides caregivers with the energy to continue their caregiving duties, as suggested by Stolley et al. (1999). Alternatively, caregivers who attend religious services and participate in private prayer may accept the burden associated with caregiving because suffering and offering sacrifices are accepted or welcomed as part of their worldview or faith, such as with fasting for Islamic and Christian religions (Fitzpatrick et al., 2016). In our study, statistical significance was not reached for either positive religious coping \((p = .82)\) or negative religious coping \((p = .33)\). This second explanation might also explain why religious coping was not related to caregiver burden because the acceptance of suffering might not help alleviate the financial, emotional, or physical burden of caregiving. It is important to note, as well, that the present study was cross-sectional, and so we cannot determine causal direction (e.g., higher spirituality caused greater burden).

Finally, although we found a significant negative relationship between family support and caregiver burden, family support was not found to be a statistically significant mediator in the relationship between religious attendance and caregiver burden, as suggested by Heo and Koeske (2013). This might be due to the inverse relationship between religious attendance and caregiver burden mentioned above (e.g., higher levels of caregiver burden result in less time to attend religious services). In addition, no other mediation possibilities were found to be significant, suggesting instead direct relationships between both family support and participation in private prayer with caregiver burden.

Limitations and Suggestions for Future Research

Limitations of the present study included a small sample. The results of our post-hoc power analysis notwithstanding, there was a possibility of failing to detect a significant linear relationship between religious attendance, friend support, significant other support, religious coping, and caregiver burden, resulting in a Type II error. The findings of this study should be considered in light of this small sample.

The present study also included a homogenous sample. Most participants were women (71%), 60 years old or older (74.6%), and practiced Christianity (71%). In addition, a large group of caregivers cared for a spouse (49%) and were past (not current) caregivers (54%). This lack of variation could decrease the external validity of our findings, and retrospective accounts from former caregivers could bias the internal validity (e.g., thinking back to the time more fondly or more harshly than it felt in the present; Walker, 2003). In addition, our \(t\) tests might not have detected differences between groups because of unequal subsample sizes.

Future research should retest these hypotheses with a larger and more diverse sample. For example, future research comparing male and female dementia caregivers might shed light on differences in how men and women deal with stress, both psychologically and physiologically (Verma et al., 2011). Verma et al. (2011) reported that men are more likely to be susceptible to hypertension and infectious diseases, whereas women are more susceptible to autoimmune diseases, as well as anxiety and depression disorders. These susceptibilities that arise due to stress, specifically stress as the result from caregiving, should be studied by future researchers to further examine the mortality risk that is associated with caregiving (Schulz & Beach, 1999).

The present study found that family support was associated with lower caregiver burden. To further address the protective factors associated with caregiver burden, future research should more closely examine which aspects of family relationships are most supportive to caregivers (e.g., being able to discuss shared observable changes in loved ones, providing meals for the caregiver, and/or sharing the load of caregiving; Cohen et al., 1985; Pillemer & Holtzer, 2016). Of note, the present study was conducted at a support center where caregivers gather to share their experiences. In this case, it is possible that our sample reported having had...
higher-than-average friend support if participants felt that they were friends with those at the support center. It is possible that this affected the external validity of the study because our participants might have had access to friends experiencing the same emotions and situations they were, as compared to the general population that might not interact with others on a routine basis. To analyze this concept further, future research should include measures that ask about formal/professional support and informal/friendly support separately.

Future research could also examine the association between the caregiver-recipient relationship type and caregiver burden. This direction can be especially important when examining multigenerational caregiving relationships and nontraditional caregiving relationships (e.g., same sex relationships, domestic partnerships). Motivations behind these caregiver-recipient relationships can further be examined as a predictor of burden (e.g., wedding vows, reciprocating the love that parents gave when raising their child). Examining differences in caregiver-recipient relationship types can also be important for the next generation of caregivers. As the Baby Boomer generation begins to enter older adulthood, a higher frequency of children, as compared to spouses, may become primary caregivers while potentially also balancing their career and family of their own (O’Sullivan, 2015).

Conclusion
Based on our findings, having social support, especially from family, is related to lower caregiver burden. It is important that caregivers have adequate support, which may lower an individual’s risk of premorbid mortality that can arise from the stressful nature of caregiving (Schulz & Beach, 1999).

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Active Shooter Protocols: Perceptions, Preparedness, and Anxiety

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ABSTRACT. The national concern about active shootings has pushed schools to implement intense drills without considering unintended consequences. Studies have found that, although training had the potential to increase preparedness, it also increased anxiety. These findings apply to short-term effects, but there is a lack of empirical research on long-term effects of active shooter drills. The present study investigated whether active shooter training completed in high school impacts current levels of anxiety and preparedness of undergraduates. Collegiate participants (N = 364) completed an online survey and answered questions about their perceived knowledge of protocols, protocol actions, and training methods from high school followed by the same set of questions, this time referring to their current university. Participants then completed an anxiety measure (Spielberger, 1983) and a preparedness measure. Two hierarchical regression analyses were conducted to predict anxiety and preparedness. This study expanded findings on the effects of active shooter training by demonstrating long-term effects for high school training. Evacuation protocols (β = −.13, p = .03; β = .16, p = .007) and perceived knowledge (β = −.16, p = .004; β = .14, p = .01) positively impacted anxiety and preparedness, respectively, of university students. Experiences at the university level had an additional, larger impact on student anxiety, ΔR² = .11, F(8, 347) = 5.88, p < .001, and preparedness, ΔR² = .26, F(8, 347) = 17.32, p < .001, which seems to overshadow the effects from high school. This may be problematic because the perceived knowledge that leads to higher feelings of preparedness may not translate into appropriate actions in a real-life situation, potentially risking lives.

Keywords: active shooter protocols, long-term effects, anxiety, preparedness, knowledge
### Types of Protocols

Due to the national concern about active shootings in schools, several types of protocols to prepare for a potential active shooting situation have been developed. For the purpose of the present study, protocols are guidelines that are to be used when faced with an active shooting situation. The National Association of School Psychologists (NASP) and the National Association of School Resource Officers (NASRO) have stated that lockdowns are the most common active shooter protocol and are proven most effective thus far when performed based on best practice guidelines (Blad, 2018; NASP, 2018; NASP & NASRO, 2017). These guidelines advise using developmentally appropriate drills and informing students and staff that a drill is occurring (NASP & NASRO, 2017). Lockdown drills involve announcing that there is no real emergency, relocking the door, moving students out of sight, and remaining quiet in a room (NASP & NASRO, 2017). According to D. Brock, school psychologist and national expert on school safety and crisis response at California State Sacramento (personal communication, May 9, 2019), only .004% of violent deaths in schools occurred when a student was behind a locked door.

Options-based protocols are becoming increasingly popular throughout schools and provide students and staff with a range of alternative procedures to implement depending on the emergency situation (NASP & NASRO, 2017). These protocols provide people with the training and information to decide on the best course of action to take during an emergency, rather than learning one type of response that may not be applicable to every situation (NASP & NASRO, 2017). Options-based protocols allow students and staff to make independent decisions regarding evacuation, lockdowns, or countering an intruder (NASP & NASRO, 2017). Lockdowns are more beneficial for kindergarten through 12th grade (K–12) schools due to the simple single building layout that most schools have, but when other factors arise, such as a more open layout or older students with more decision-making abilities who can better understand how and when to use different steps, then options-based protocols may be more beneficial (NASP & NASRO, 2017).

### Training Methods

There are numerous ways to prepare individuals for an active shooter situation, and each can vary in intensity. The U.S. Department of Education (2013a, 2013b) proposed guidelines about what students and staff should know and do regarding active shooter drills, and NASP & NASRO (2017) provided information on different ways to implement training that follows those guidelines. Some of the simpler methods are more informational-based and include email communications, online training modules, and printed materials like signs throughout a school (NASP & NASRO, 2017). Each of these methods do not include any direct, hands-on training and are passive ways of training employees or students. For the current study, these training methods have been categorized as uninvolved training because these are among the least intensive methods.

Other training methods that are more discussion-based involve orientations and walk-through drills. These discussion-based training methods are categorized as involved trainings and are more intense than uninvolved methods but are not the most intense method available. Orientations involve verbally describing the actions to be taken during a potential active shooter situation, which can be completed by teachers or professors with students (NASP & NASRO, 2017). Walk-through drills are untimed, and individuals calmly walk through a school building while discussing the actions to be taken and asking questions for clarification (NASP & NASRO, 2017).

There are also operations-based trainings, which include preannounced and unannounced drills, and functional and full-scale exercises (NASP & NASRO, 2017). These training methods have been categorized as real-time training to account for the direct, hands-on involvement of participants, which is the most intense method of training. Preannounced drills are an announced rehearsal of emergency responses, so participants know it is just a practice drill and there is no real emergency. Unannounced drills provide no notifications and allow for a rehearsal of real-time responses (NASP & NASRO, 2017). Functional exercises often incorporate actors and other parties to simulate a real experience, and full-scale exercises include multiple agencies that would be involved in a real crisis, including the school, police, fire, first responders, and community response agencies (NASP & NASRO, 2017). First responders and law enforcement can also be engaged in discussion-based exercises and drills, through lessons or workshops on school safety.

The Federal Commission on Student Safety (2018) proposed seven cognitive developmental
levels that impact safety awareness: early (pre-K and kindergarten), developing (early elementary), practiced (upper elementary), proficient (intermediate/middle school), independent (high school, adult), advanced (professionally trained adults or staff members), professionals (first responders, military, security professionals). These developmental levels differentiate what students can and should do. Younger students heavily rely on adult directives and cognitively are not able to make independent decisions (Federal Commission on Student Safety, 2018). Older students and adults are capable of learning various protocols and then making independent decisions of which protocol(s) are best to execute given the circumstances, especially regarding protocols related to fighting an intruder (Federal Commission on Student Safety, 2018). The intensity of training can increase as developmental levels increase but not without risk. More intensity increases risk for greater traumatic impact as a result of participating in the training (NASP & NASRO, 2017).

Training Outcomes
Knowledge and Preparedness
Research has shown that knowledge of emergency protocols and the ability to respond in a real event differ depending on the type of training that is implemented. For example, children can gain behavioral skills through training and role-play simulations for emergencies such as fires (Jones & Randall, 1994; Miltenberger et al., 2005), but little research has focused on intruder or active shooter drills. Zhe and Nickerson (2007) found that children gained knowledge about intruder crisis drill procedures through participation in a training session that involved developmentally appropriate, preannounced drills utilizing discussion and operations-based techniques paired with practice based on best practice guidelines. Although children who participated in an intruder crisis drill had increased knowledge about the procedures, they applied that knowledge only to the exercise from the study, and it did not generalize to real-life crisis events (Zhe & Nickerson, 2007). Therefore, children can gain theoretical or perceived knowledge, but that knowledge may not translate into appropriate actions during a real-life crisis event (Zhe & Nickerson, 2007).

Research has also shown that different types of training can impact feelings of preparedness. Dorn (2018) found that options-based training had the potential to cause faculty and staff to have strong psychological reactions or physically become harmed when “fighting” the intruder, thus causing more harm than helping preparedness. Thus, the U.S. Department of Education, NASP, and NASRO recommend lock downs be the foundation of active shooter protocols based on evidence of increasing skills for responding, as lives have been saved when students and staff were secured behind a locked door (Federal Commission on Student Safety, 2018; NASP, 2018; NASP & NASRO, 2017).

While Lui et al. (2015) found that staff (e.g., janitors, office staff) had higher levels of perceived feelings of preparedness compared to faculty (e.g., professors), little research has addressed preparedness among students. Peterson et al. (2015) compared an active shooting protocol training video to a control video of a documentary about an actual school shooting incident and found that both videos have the potential to increase feelings of preparedness. However, the training video produced higher feelings of preparedness compared to the control video.

Anxiety
Although training has been shown to increase knowledge and preparedness, unintended consequences also arise. Even following best practice guidelines, some lock downs may produce stress, anxiety, and traumatic symptoms in students or staff (NASP, 2018). Christakis (2019) reported anecdotal accounts from students who experienced stress and anxiety. One young boy wrote his parents a goodbye letter during an unannounced drill, and many others sobbed and even became physically ill (Christakis, 2019). Fieldstadt (2015) provided anecdotal instances of teachers who went through highly sensorial active shooter training drills being physically harmed or emotionally traumatized, with some suffering from posttraumatic stress disorder. Additionally, school staff reported feeling vulnerable and nervous about going into work (Will & Blad, 2018). In support of these anecdotal accounts, Peterson et al.‘s (2015) comparison of a training video to a control video about school shootings found that both videos increased students’ anxiety along with fear that a shooting would happen on campus, with higher feelings of fear and anxiety demonstrated specifically by female students. On the contrary, Zhe and Nickerson (2007) found that, when children participated in drills that incorporate best practice recommendations and preventative measures, the children experienced anxiety comparable to normal, everyday levels of
anxiety. Whereas there is an abundance of anecdotal accounts portraying the negative impact of active shooter training, the few empirical studies that have investigated the impacts of active shooter training had conflicting results.

In active shootings that have occurred, such as the shooting at Marjory Stoneman Douglas High School, Columbine High School, and Virginia Tech, the total casualties might have been higher if the school had not provided active shooter training, but there is no research that specifies that functional, highly sensorial drills saved more lives than discussion-based or operations-based conducted drills (Federal Commission on Student Safety, 2018). The findings on how training can impact anxiety are conflicting. In addition, research has only focused on the immediate effects on students and staff in K–12 schools who have been exposed to training, but previous research has not addressed any long-term effects of training, or any effects found within university students.

**Present Study**
The current study examined the effects of training at one specific university. The purpose of the current study was to expand on previous findings by exploring the long-term effects that active shooter training may have on feelings of anxiety and preparedness when measured in college-aged students.

Although no research has examined the long-term effects of active shooter training, research on trauma has shown that traumatic events can have lingering negative effects on mental health (Steel et al., 2002). These findings showcase how negative events can have lasting negative effects. Because there have been some findings of short-term effects from active shooter training (Christakis, 2019; Fieldstadt, 2015; Lui et al., 2015; Peterson et al., 2015; Zhe & Nickerson, 2007), there may be a possibility that these effects could be long-term, which leads into the first hypothesis: Active shooter protocols and drills that were completed in high school would impact current levels of anxiety and preparedness in college students at the present university.

All participants in the current study have had limited formal training at the university level, and the primary source of training is through printed signs around campus. Previous findings found that participants with no training have lower levels of knowledge and preparedness (Peterson et al., 2015; Zhe & Nickerson, 2007). With no new training to replace what was learned at the K–12 level, students’ current levels of knowledge may decrease from the levels in high school, which leads into the second hypothesis: Limited training at the university level may not provide students with enough updated information to apply to a university setting, therefore causing students to have lower levels of knowledge about their current campus active shooter protocols than their high school active shooter protocols.

**Method**

**Participants**
There were 364 total student participants who attended a midsize public university in the Southeast. All volunteered to participate in the study with some participants receiving extra credit from their professors. Due to the relatively recent development of active shooter training, participants had to be 18–30 years old. Of the total 463 participants, data from 99 had to be discarded because they skipped one or more items. Participants included 281 women, 74 men, and nine who identified as other. Participants were 204 White/European American, 111 Black/African American, 22 Multiracial, 14 Hispanic/Latino(a), 10 Asian, two identified as Other, and one Native Hawaiian/other Pacific Islander. The type of high school attended by participants was 339 public, 16 parochial (Christian, Jewish, other religious affiliation), and nine private/independent. There were 72 participants who attended a high school with less than 500 students, 170 participants with a high school of 501–1,500 students, and 122 participants with a high school of more than 1,501 students. All participants attended the same university. Ages ranged from 18–29 years of age ($M = 20.30, SD = 1.98$).

**Materials**
The survey measured three knowledge variables (perceived knowledge, protocol knowledge, type of training received), current anxiety about active shooter situations, and perceived preparedness for an active shooting occurrence on campus. Any modifications made to existing scales were made with an effort to ensure that the new scales have comparable meaning, reliability, and validity. Although efforts were made, any modifications to an existing scale have the potential to change its psychometric properties.

**Knowledge and Perceived Knowledge**
Students’ perceived knowledge, protocol knowledge, and type of training received were measured
to assess students’ knowledge of active shooter protocols. Each set of questions was administered twice, once referring to high school and once for university. Perceived knowledge represented how much information participants felt they knew regarding high school/university active shooter training. It was measured using five statements from Wrench’s Crisis Knowledge Index (Lui et al., 2015; Wrench et al., 2007) modified to address high school and college campus active shooter drills (e.g., “I know the details of my high school/campus’s active shooter training”). Participants indicated their agreement using a 5-point scale from 1 (strongly agree/very much so/extremely confident) to 5 (strongly disagree/not at all confident). The answers were averaged together, with higher scores indicating higher perceived knowledge of active shooter training. Reliability was very good; high school Cronbach’s $\alpha = .93$, university $\alpha = .91$.

Protocol knowledge was measured with a 15-item yes/no checklist with details and actions that might have been a part of active shooter training. Protocol knowledge measured participants’ actual knowledge of what to do in an active shooter situation. The checklist allowed participants to select the types of response options that were included in training they received. Protocol actions were divided into four main categories, three of which (i.e., lockdown, evacuate, fight) are included in different drill protocols that follow best practice guidelines (NASP, 2017). A fourth category contained several misconceptions. Sample responses included “get behind a locked door,” (lockdown) “if run and/or evacuate report to a predesignated meeting location,” (evacuate) and “take down intruder using physical force” (fight). Four common misconceptions were included to differentiate between actual protocols and what participants might have thought were actual protocols. Sample misconceptions included “immediately exit from farthest point” and “alert friends or family through phones or social media.” Protocol knowledge was the number of yes answers for the protocols in each category.

How training was implemented was measured with a 10-item yes/no checklist that included descriptions for orientations, walk-through drills, preannounced drills, unannounced drills, functional exercise, full scale exercise, printed materials, online training, or email (NASP, 2017). These protocol methods were divided into three groups based on level of intensity: uninvolved (printed materials, online, email), involved (orientations, walk through), and real time (preannounced, unannounced, functional, full scale). Participants were classified at the highest intensity level at which they reported experiencing one or more training method.

**Anxiety**

Anxiety about school shootings was measured using seven statements that were modified from Spielberger’s (1983) State-Trait Anxiety Inventory from the State scale to address current anxiety related to active shooter situations. Students rated their agreement with statements like “I feel frightened of an active shooter at my school” and “I feel nervous about an active shooter coming to my school” using a 4-point Likert-type scale. Responses to the items were averaged and higher scores indicated greater anxiety, $\alpha = .79$.

**Perceived Preparedness**

Preparedness was measured using two questions based on a 10-point scale (Lui et al., 2015; Zhe & Nickerson, 2007). Questions included “Would you know what to do if a shooting happened on campus?” and “How prepared do you feel if a shooting happened on campus?” Items were summed, and higher scores indicated greater feelings of preparedness, $\alpha = .91$.

**Procedure**

Institutional review board approval at Winthrop University was received on May 7, 2019, prior to data collection. Participants were sent a link to an anonymous, online survey. After completing the informed consent form that stated that the purpose of the study was to explore how different active shooter protocols relate to people’s perceptions and preparedness, participants were told to take a moment to think about the active shooter emergency training they received in high school. Participants then answered questions regarding what type of high school was attended to ensure that their focus was on training received in high school, followed by the questions about their perceived knowledge of active shooter protocols used in their high school. Next, participants indicated what types of response options were taught in their active shooter training by completing the protocol knowledge checklist. Then participants indicated how this training was implemented in high school. Participants then repeated the process with the next set of questions referring to the current college/university.

After the questions for both high school and college/university, participants completed the
anxiety measure followed by the preparedness questions. Last, participants completed demographic questions before viewing the debriefing form. The survey lasted about 10 minutes.

**Results**

A three-stage analysis was used. Bivariate correlations and two hierarchical linear regression analyses were used to examine the first hypothesis, the impacts of active shooter drills on current levels of anxiety, preparedness, and perceived knowledge. A dependent t-test was used to examine the second hypothesis that students would have lower levels of knowledge about their current campus active shooter protocols than high school active shooter protocols.

**Correlations Among Study Variables**

**Anxiety**

Table 1 presents correlations between anxiety, preparedness, perceived knowledge, protocol actions, and methods. Preparedness was negatively correlated with anxiety ($r = -0.50$, $p < .001$). The more prepared students felt, the less anxious they were. Perceived knowledge ($r = -0.34$, $p < .001$) and evacuation protocols ($r = -0.15$, $p = .004$; $r = -0.16$, $p = .002$) at the high school and university level, respectively, were also negatively correlated with anxiety, which supports the first hypothesis. Other high school level factors related to anxiety include real-time training methods ($r = -0.12$, $p = .04$). The more intense training students experienced in high school, the more anxious they felt. Other university-level factors that correlated significantly with anxiety include uninvolved training methods ($r = -0.12$, $p = .02$) and lockdown ($r = -0.15$, $p = .01$), fight ($r = -0.15$, $p = .01$), and evacuation ($r = -0.16$, $p = .002$) protocol actions.

**Perceived Preparedness**

Similar to anxiety, levels of preparedness and evacuation protocol actions ($r = 0.21$, $p < .001$; $r = 0.24$, $p < .001$) were positively correlated with levels

**TABLE 1**

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Note. PK = Perceived Knowledge. HS = high school. UNI = university. Other = Other Protocol. Uninvolved, Involved, and Real Time refers to training methods. Means refers to the averages of specific protocol actions or training methods used in high school or university.
of perceived knowledge \((r = .16, p = .002; r = .52, p < .001)\) at the high school and university levels, again supporting the first hypothesis. The more knowledgeable students felt, the more prepared they felt. Other high school level factors related to preparedness include misconception protocol actions \((r = .18, p = .001)\). Other university level factors include lockdown \((r = .23, p < .001)\), fight \((r = .28, p < .001)\), and misconception \((r = .22, p < .001)\) protocol actions. Students seemed to feel more prepared if they had received training specifically within the protocol actions mentioned.

**Predicting Anxiety and Preparedness with High School and University Variables**

Perceived knowledge of high school and university protocols correlated with anxiety and preparedness. They also correlated significantly with each other \((r = .15, p = .01)\). There were several correlations with many factors. Due to the abundance of correlations, an additional analysis was used to determine which factors actually contributed to anxiety and preparedness and which factors had produced spurious correlations. To examine the unique contributions of the variables to anxiety and preparedness, two hierarchical regression analyses were conducted to predict anxiety and preparedness (see Table 2). Both regression analyses consisted of two steps. Step 1 included all of the high school variables: perceived knowledge, four protocol actions, and three methods of training. Step 2 added the same variables at the university level.

**Anxiety**

At Step 1, the high school variables (perceived knowledge, training actions, and training type) accounted for 5% of the variance in anxiety, \(R^2 = .05, F(8, 355) = 2.39, p = .02\), which was a significant effect. The variables that uniquely contributed to feelings of anxiety were perceived knowledge in high school and evacuation protocol actions, as shown in Table 2. The more that students perceived they knew about training in high school and the more evacuation protocols they reported, the less anxious they were.

In Step 2, the university variables significantly accounted for an additional 11% of the variance in anxiety, \(\Delta R^2 = .11, F(8, 347) = 5.88, p < .001\). As shown in Table 2, perceived knowledge from high school dropped yet still predicted anxiety, whereas perceived knowledge of university protocols was the only significant university level predictor of anxiety, further supporting the first hypothesis and providing evidence of long-term effects on anxiety from high school. Evacuation protocol actions from high school were no longer significant and perceived knowledge was still the main variable lessening feelings of anxiety. The more knowledgeable someone felt the less anxious they were, even if there were no specific training methods or protocols that also contributed to less anxiety.

**TABLE 2**

<table>
<thead>
<tr>
<th>TABLE 2 Hierarchical Multiple Regression Analyses Predicting Anxiety and Preparedness From Perceived Knowledge, Training Methods, and Action Protocols</th>
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**Note.** PK = Perceived Knowledge. Other = Other Protocol. HS = high school. UNI = university. Uninvolved, Involved, and Real Time refer to training methods. \(*p < .05.* *p < .01.* **p < .001.**
Active Shooter Perceptions, Preparedness, and Anxiety | Worthington, Hayes, and Reeves

**Perceived Preparedness**

At Step 1, the high school variables accounted for 8% of the variance in preparedness, $R^2 = .08$, $F(8, 355) = 3.59, p = .001$. Similar to the effects on anxiety, perceived knowledge in high school and evacuation protocols in high school predicted preparedness, shown in Table 2. The more students perceived they knew about training in high school the more prepared they felt.

In Step 2, the university variables accounted for an additional 26% of the variance, $\Delta R^2 = .26$, $F(8, 347) = 17.32, p < .001$, driven by several factors. The variable most strongly related to preparedness was perceived knowledge at the university level, which overshadowed high school perceived knowledge, again supporting the first hypothesis, as shown in Table 2. More reported lockdown and fighting protocols increased feelings of preparedness but uninvolved training decreased preparedness. The uninvolved training may bring awareness to the issue of school shootings but fails to provide direct instructions lessening students’ preparedness. Although the high school variables, specifically perceived knowledge and evacuation protocols, have effects on current feelings of anxiety and preparedness, once the university variables are introduced, perceived knowledge is what effects anxiety and preparedness the most.

**Knowledge in High School and University**

The second hypothesis, that students have lower levels of knowledge about their current campus active shooter protocols than high school active shooter protocols, was evaluated using a dependent-samples $t$ test. The hypothesis was supported. Students’ perceived knowledge of current campus/university active shooter protocols ($M = 2.36, SD = 1.06$) was significantly lower than students’ perceived knowledge of high school active shooter protocols ($M = 2.81, SD = 1.17$), $t(363) = 5.83, p < .001, d = .40$.

**Discussion**

In the present study, the types of protocols and training methods differed between high school and university, and both high school and university protocols and training methods had consequences on current anxiety and preparedness among undergraduates. The hypothesis that active shooter protocols and drills that were completed in high school impact current levels of anxiety and preparedness was supported. The present study expanded Zhe and Nickerson’s (2007) findings, showing that lockdown training received in high school did not have any long-term negative effects on anxiety. However, the protocols reported at the high school level followed best practice guidelines for the most part, in that study participants did not report highly sensorial lockdown training experiences. This may indicate that following best practice guidelines when implementing active shooter training does not have long-term effects. Overall, perceived knowledge of high school training contributes to lower levels of current anxiety, but perceived knowledge of university training contributes to lower levels of anxiety the most. Thus, levels of perceived knowledge, especially at the university level, is the main factor that lessens anxiety; the more people feel they know, the less anxious they feel.

Similar to the findings with anxiety, preparedness was related to perceived knowledge and evacuation protocols at the high school level. In contrast, perceived knowledge at the high school level no longer impacts current feelings of preparedness. The perceived knowledge at the university level seems to overshadow the knowledge from high school. Although Lui et al. (2015) found that the more knowledgeable people were, the more knowledgeable and confident they felt, there is no guarantee that higher levels of knowledge will always produce more informed and effective behaviors when reacting to real emergencies (Lui et al., 2015).

Although perceived knowledge had the largest impacts on anxiety and preparedness, the two also had a strong negative relationship with each other. As participants’ feeling of preparedness increased, their anxiety decreased. Having lower anxiety and increased preparedness is a positive outcome of training and is beneficial if one is faced with an actual crisis. At this particular university, these findings are concerning due to the high levels of preparedness that are paired with limited training. This raises the question of what concrete training and knowledge students are pulling from to feel prepared for an active shooter situation, especially because knowledge levels from the university level were low.

The second hypothesis was supported; students had lower levels of knowledge about their current campus active shooter protocols. There was a higher level of knowledge regarding high school protocols, and although this knowledge was low, knowledge regarding university protocols was even lower. The present study found that averages of knowledge from high school leaned toward feeling neutral.
about knowing what to do in an active shooter event. Averages of knowledge at the university level leaned toward disagreeing with knowing what to do. Because there was a lack of training at the university level, it was expected that knowledge of active shooter protocols would be lower. This is concerning because although knowledge was very low, people still reported that they felt currently prepared for active shooter events but may not actually possess the skills needed to mitigate loss of life if an actual response is required.

Although the low levels of knowledge and the limited training at this university still contributed to higher levels of preparedness, this could lead to a false sense of preparedness. Because university response protocols require students to be well-versed in more than just lockdown protocols, high school training may be helpful but insufficient for translating into the actual skills needed for a real-life situation on a university campus. Increasing perceived knowledge is seemingly easy, but an increase in perceived knowledge does not mean there is an increase in skills or application of that knowledge. This hypothesis has preliminary support by findings conducted by Safe Havens International (Dorn, 2018), which found that individuals who received options-based training then reacted in ways that would more likely harm other individuals rather than save them in subsequent simulations. Dorn (2018) also found that the uninvolved type of training, the kind used at the university in the present study, was linked with lower levels of preparedness. Although the university in the current study is providing some form of informational training, the uninvolved method may bring awareness to the issue of active shooters, but not provide concrete skills and solutions that can be used in a real crisis.

College students who report greater perceived knowledge of their high school protocols also feel less anxious and more prepared; however, once university knowledge is established the high school knowledge is overshadowed. Due to this overshadowing effect, the knowledge learned at the high school level may not automatically translate into knowledgeable actions and skills at the university level. Therefore, having set training using options-based drills based on best practice guidelines at the university level may help produce actual skills needed for an actual life situation on a university campus. Increasing perceived knowledge is seemingly easy, but an increase in perceived knowledge does not mean there is an increase in skills or application of that knowledge. This hypothesis has preliminary support by findings conducted by Safe Havens International (Dorn, 2018), which found that individuals who received options-based training then reacted in ways that would more likely harm other individuals rather than save them in subsequent simulations. Dorn (2018) also found that the uninvolved type of training, the kind used at the university in the present study, was linked with lower levels of preparedness. Although the university in the current study is providing some form of informational training, the uninvolved method may bring awareness to the issue of active shooters, but not provide concrete skills and solutions that can be used in a real crisis.

College students who report greater perceived knowledge of their high school protocols also feel less anxious and more prepared; however, once university knowledge is established the high school knowledge is overshadowed. Due to this overshadowing effect, the knowledge learned at the high school level may not automatically translate into knowledgeable actions and skills at the university level. Therefore, having set training using options-based drills based on best practice guidelines at the university level may help produce actual skills and actions (Zhe & Nickerson, 2007). The relationship between perceived knowledge and anxiety and preparedness implies that perceived knowledge of current university protocols can decrease anxiety and increase preparedness. Because there is no official training at this university, any effects on preparedness may be stemming from participants implementing protocols from high school, which could potentially have negative or positive consequences. Using protocols from high school may pose a potential danger in an actual active shooter situation because there are other factors to be considered when preparing at a university, such as campus layout and the developmental levels of students. On the contrary, using protocols from high school may be beneficial if the protocols focus on lockdown, which follows best practice guidelines. The relationship between perceived knowledge in high school and university means that college students are replacing or updating their knowledge from high school with new information. This is a potential concern because this study revealed limited training at the current university. To ensure the current knowledge replacing older knowledge is anchored in best practice recommendations, further training may be needed.

Limitations and Future Directions

Although the current study found long-term effects of active shooter protocols, these findings are specific to one university and may not generalize to schools with different training protocols. Therefore, findings from the current study cannot apply to institutions that may have less or more robust training. To combat the institutional homogeneity of this study, future studies may conduct a multi-institutional collaborative study to explore differences in training between institutions and any different effects that may arise. Future studies may also replicate the current study at various institutions to explore similarities or differences in training and the effects of training.

Although feelings of preparedness at the university level positively impacting anxiety and preparedness may indicate that active shooter training can mitigate negative impacts of that training, these findings are also concerning because it is unclear where most students are gaining new knowledge from. It is possible that students carefully read the notices posted in classrooms, but it is also possible that students may have conflated the sources of their knowledge or misinterpreted some of the definitions used in the survey. Another possible confounding variable is that a university shooting took place at another university within 30 miles of this university within a few weeks of this survey being distributed. Thus, the increased media coverage over what to do in an active shooter situation might
have contributed to higher levels of perceived preparedness. This study did not measure anxiety and preparedness while students were in high school and again when they were in college, so future studies may implement a longitudinal design to better measure which training protocols and methods were employed while students were in high school and college. With the increased push for more in-depth and intense drills, the consequences of these drills should further be explored. This study demonstrated that there are long-term consequences that need to be investigated.

References


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psychological-effects-of-lockdowns


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The transition from high school to college can be a difficult adjustment for many students. Self-compassion, however, has been found to be associated with a range of positive psychosocial outcomes, and may also be associated with college adjustment. The goal of the present study was to examine the relationship between self-compassion and overall college adjustment. Fifty-seven female college students (\(M = 19.20\) years, \(SD = 1.05\)) recruited from psychology classes participated in the study. Students completed the Self-Compassion Scale and Student Adaptation to College Questionnaire and responded to open-ended questions about their adjustment to college. Pearson's correlations revealed significant linear associations between total self-compassion and overall college adjustment, \(r(57) = .28, p = .04\), and between various subscales of self-compassion and college adjustment. Multiple regression analysis found that first-generation and commuter student status significantly predicted mindfulness, measured as a component of self-compassion, \(F(3, 52) = 3.47, p = .02, R^2 = .17\). Finally, hierarchical regression analysis indicated that, after controlling for student group status, higher levels of self-compassion were significantly associated with higher college adjustment scores, \(F(4, 51) = 3.18, p = .02, R^2 = .20\).

Analysis of the open-ended questions revealed 3 overarching themes regarding students' beliefs about college adjustment: (a) the importance of friends, (b) the importance of parental support, and (c) the importance of self-kindness. Overall, this study contributed to the understanding of college adjustment by looking at the role of self-compassion. Preliminary considerations for interventions and resources aimed at promoting self-compassion and improving college adjustment are discussed.

**Keywords:** self-compassion, college adjustment, students, college
however, is self-compassion (Neff, 2003a; Neff, 2012; Terry et al., 2013). Self-compassion is a way of relating to oneself that involves being mindful, kind to oneself during times of distress, and aware that difficult feelings are a part of the human experience (Neff, 2003b). Increased self-compassion has been found to be associated with lower levels of depression and anxiety (Neff, 2012), as well as less rumination, perfectionism, and fear of failure (Neff, 2003a). Self-compassion has also been found to be negatively correlated with homesickness and depression in incoming first-year students, and positively correlated with students’ decisions to attend their university (Terry et al., 2013). Self-compassion has also been found to be a predictor of student well-being (Neely et al., 2009). The relationship between self-compassion and overall college adjustment encompassing multiple, broader factors of adjustment such as academic, social, and personal-emotional adjustment, and institutional attachment, however, has not been widely studied. As such, research on the role that self-compassion may play in college adjustment within and across these domains may be important for understanding students’ experiences during this challenging transition.

While many students report difficulties adjusting to college, some groups of students have a more difficult time adjusting to college than others. Kroshus et al. (2021), found that, on average, first-year college students experienced an increase in depression and anxiety during their initial transition to college. Along with the increased stress, anxiety, and depression, it has been found that first-year college students are also more likely to experience symptoms of adjustment disorder (Rodgers & Tennison, 2009). Rodgers and Tennison (2009) found, in a sample of 426 first-year college students, that each of the six major symptom categories of adjustment disorder were reported at higher rates than would be expected in a community sample with emotional symptoms, sleep disturbances, and academic difficulties being endorsed by 47%, 38%, and 26% of students, respectively.

Another group of students who may experience challenges adjusting to college are first-generation college students. In a study looking at competition, anxiety, and depression in college students by student identity, Posselt and Lisbon (2016) found that, for first-generation college students, perceived competition in their classes was associated with a 5.9% point increase in the probability of screening for anxiety and a 7.2% point increase in the probability of screening for depression. Additionally, it has been found that being a first-generation college student is associated with higher odds of experiencing chronic stress as a first-year student (Kroshus et al., 2021).

Reversely, some groups of students may have an easier time adjusting to college and are protected from negative college adjustment, such as commuter students. In a study looking at first-year nursing students, McDonald et al. (2018) found that those students who did not move away from their home community scored higher on academic adjustment to college than their peers who did relocate.

Regardless of specific group membership, research suggests that self-compassion plays an important role in the lives of college students. While a number of studies have examined the role of self-compassion in college students’ well-being (Booker & Dunsmore, 2019; Kroshus et al., 2021; Terry et al., 2013; Neely et al., 2009), to our knowledge, the association between self-compassion and overall college adjustment has not been widely studied. Therefore, this study aimed to look at the relationship between self-compassion and overall college adjustment among students at a New England university by administering psychological measures of self-compassion and college adjustment. Additionally, we hoped to better understand students’ own adjustment to college and how they coped with this major life transition by asking open-ended questions. Finally, we explored college students’ adjustment based on their identification with certain groups (i.e., first-year student, first-generation student, commuter student).

It was hypothesized that self-compassion would be positively correlated with college adjustment so that higher levels of self-compassion would be related to higher scores of overall college adjustment, and lower levels of self-compassion would be related to lower scores of overall college adjustment. Additionally, it was expected that the positive subscales of self-compassion (i.e., mindfulness, self-kindness, common humanity) would be positively correlated with the four college adjustment subscales (i.e., academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment), while negative subscales of self-compassion (i.e., self-judgement, over-identification, isolation) would be negatively correlated with the same four college adjustment subscales. It was also hypothesized that identification with certain student groups (i.e., first-year students, commuter students, first-generation college students) would predict adjustment to college.
and self-compassion such that commuter student status would predict higher self-compassion and better college adjustment and first-year student or first-generation student status would predict lower self-compassion and worse college adjustment. Analysis of qualitative findings related to college adjustment and coping with difficult situations was expected to help better understand students’ own adjustment to college and how they coped with this major life transition.

Method

Participants
Fifty-seven female college students ($M = 19.20$ years, $SD = 1.05$) in psychology classes at a primarily women’s centered institution in New England participated in the study. Students were eligible to participate if they were enrolled in a psychology course that required research participation or provided optional extra credit through research participation. No student was excluded due to year in school or class standing. Participants were compensated one hour of course credit or extra credit for consenting to participate in the study. Of the 200 students informed about the opportunity to participate, 60 students signed up for the study and were granted credit. Two participants were excluded from data analysis due to significant missing data. A third participant was excluded because her age suggested that her experiences adjusting to college would differ from that of a traditional college-aged student. Most participants identified as White (77.2%), with the next largest ethnic group identifying as Asian/Pacific Islander (15.8%). Participants’ current class standing varied, with 36.8% of students reporting sophomore standing, 33.3% of students reporting first-semester first-year student standing, and 22.8% reporting junior standing. Finally, 21.1% of students identified as commuter students and 19.6% identified as first-generation college students (see Table 1 for all demographic data).

Materials and Procedure
Participants were recruited through in-class announcements in psychology classrooms requiring research participation or offering extra credit opportunities through research participation. During these announcements, students were informed of an optional research participation opportunity involving filling out a survey on student wellness. If students chose to participate, they signed up for the study online through the college’s research portal and were redirected to a Qualtrics survey. After consenting to the study, students were asked to fill out a measure of Self-Compassion (Neff, 2003a), the Student Adaptation to College Questionnaire (Baker & Siryk, 1989), and answer demographic questions and open-ended questions meant to further capture the college experience. The study was approved by the Simmons University institutional review board.

Self-Compassion
Self-compassion was measured using the 26-item Self-Compassion Scale (SCS; Neff, 2003a). Responses are indicated on a 5-point Likert-type scale from 1 (almost never) to 5 (almost always) and scored into a full scale and six subscale scores (i.e., Self-Kindness, Self-Judgement, Common Humanity, Isolation, Mindfulness, and Over-Identified). Three of the subscales (i.e., Self-Kindness, Mindfulness, and Common-Humanity) address the positive components of self-compassion. As an example, higher scores on the Self-Kindness scale indicate a greater ability to be kind and understanding to oneself. The other three subscales (i.e., Self-Judgement, Over-Identified, and Isolation) address the opposing

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<td>Participant Characteristics</td>
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<td><strong>Ethnicity</strong></td>
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<td><strong>Student Group Membership</strong></td>
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<td><strong>Age (years)</strong></td>
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negative components of self-compassion. As an example, higher scores on the Self-Judgement subscale indicate higher levels of self-criticism. The total self-compassion score was calculated by reverse scoring negative subscale items and calculating mean scores. Internal reliability was high for total self-compassion ($\alpha = .91$) and reported reliability for this scale is high, $\alpha = .91$ (Leary et al., 2007). Subscale scores were calculated using mean scores. The Self-Kindness subscale consists of five items that assess one’s ability to be kind and understanding toward oneself rather than harshly self-critical (Item 5: “I try to be loving towards myself when I’m feeling emotional pain”). The Self-Judgement subscale consists of five items that assess how harshly one criticizes oneself (Item 1: “I’m disapproving and judgmental about my own flaws and inadequacies”). The Common Humanity subscale consists of four items that assess how well one views negative experiences as a normal part of the human condition (Item 3: “When things are going badly for me, I see the difficulties as part of life that everyone goes through”). The Isolation subscale consists of four items that assess isolative qualities (Item 6: “When I fail at something that’s important to me, I tend to feel alone in my failure”). The Mindfulness subscale consists of four items that assess one’s mindful acceptance or one’s ability to hold painful thoughts and feelings in mindful awareness as opposed to over-identifying with them (Item 9: “When something upsets me I try to keep my emotions in balance”). The Over-Identified subscale consists of four items that assess over-identification with painful thoughts and feelings (Item 2: “When I’m feeling down I tend to obsess and fixate on everything that’s wrong”). The current study’s alpha coefficients for the four subscales were .84, .84, .79, .70, .70, and .70 for the six subscales reported above, respectively. These are similar to the alpha coefficients reported by the author of the scale (.78, .77, .80, .79, .75, and .81, respectively; Neff, 2003a).

**College Adjustment**

College adjustment was measured using the 67-item Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1989). Responses are indicated on a 9-point Likert-type scale from 1 (applies very closely to me) to 9 (doesn’t apply to me at all) and scored into a full-scale score and four subscale scores (i.e., Academic Adjustment, Social Adjustment, Personal/Emotional Adjustment, Attachment). Internal reliability of the full scale was high ($\alpha = .93$). Reported reliability of the full scale is high, $\alpha = .94$ for first semester students and $\alpha = .95$ for second semester students (Baker et al., 1985). It is recommended that the subscales of the SACQ be treated as separate constructs (Baker & Siryk, 1989). The Academic Adjustment subscale consists of 24 items that address the various educational demands of the college experience (Item 3: “I have been keeping up with my academic work” and Item 17: “I’m not working as hard as I should at my course work”). The Social Adjustment subscale consists of 20 items that refer to the interpersonal-societal demands of college, asking about participation in social activities and feelings of loneliness (Item 1: “I feel that I fit in well as part of the college environment”). The 15-item Personal-Emotional Adjustment subscale focuses on how the student is feeling psychologically and physically, with items pertaining to mood and health (Item 7: “Lately I have been feeling blue and moody a lot” and Item 55: “I have been feeling in good health lately”). Finally, the 15-item Attachment subscale explores how the student is feeling about the college they are attending and the bond between the student and the institution (Item 16: “I am pleased now about my decision to attend this college in particular”). The current study’s alpha coefficients for the four SACQ subscales were .90, .86, .86, and .86, respectively. These are similar to the alpha coefficients reported by the author of the scale (.88, .91, .85, and .90, respectively; Baker et al., 1985).

**Demographic Questions**

Students were asked to fill out demographic questions relating to age, sex, race and ethnicity, major, and current class standing. Because the SACQ normative scores are determined by class standing, it was important to differentiate if participants were first-semester first-year students or if they had already completed a semester of college (Baker & Siryk, 1989).

**Open-Ended Questions**

Open-ended questions were used to further capture students’ own college experiences and adjustment to college (see Table 2). All students were asked questions regarding college adjustment and self-help. Students were also prompted to describe their experiences further if they were commuter students, or first-generation college students.

**Data Analysis**

Quantitative data was analyzed using SPSS software version 25. Descriptive statistic of means and total scores were computed for the total scale and
subscales of both measures (see Table 3). Pearson’s correlation analyses were run for student groups status and both total scales and subscales for each measure (see Table 4). Multiple regression models were used to identify the best model of the criterion variables from the predictor variables (see Table 5). Finally, a hierarchical regression analysis was used to identify whether total self-compassion predicts overall college adjustment above and beyond student group identification.

Qualitative data was analyzed using thematic analysis (Braun & Clarke, 2006). Responses to the open-ended questions were analyzed individually by three team members and recurring themes were discussed in group meetings. Through discussion, three main themes emerged from the qualitative data. There were no discrepancies.

Results

Quantitative Data

Data was collected from October 4 through October 18 to capture students’ experiences during the midterm period. It has been suggested that measures of academic adjustment be conducted in the first 6 weeks of the semester so students are less likely to imagine that future semesters will be less difficult (Terry et al., 2013). Three responses from the SACQ were missing from three different participants and were replaced using the guidelines for missing data laid out in the SACQ manual (Baker & Siryk, 1989), to use the mean response for the subscale score the item belongs to. Analysis focused on participants’ mean and sum scores on the SCS and the SACQ. Descriptive statistics for both scales can be found in Table 3. Descriptive statistics were also computed for four groups of students: those who were in their first semester at college (first-year students), those who were not in their first semester at college (not first-year students), those who identified as commuter students, and those who identified as first-generation college students.

Pearson’s correlation coefficients were
calculated to determine linear associations between self-compassion and college adjustment (see Table 4). There was a significant positive linear association between total self-compassion and college adjustment, \( r(57) = .28, p = .04 \). Additionally, total self-compassion was linearly associated with the personal-emotional adjustment subscale of the SACQ, \( r(57) = .40, p = .002 \). Overall college adjustment also showed a significant negative linear association with the self-judgement subscale of the SCS, \( r(57) = −.31, p = .02 \), and the isolation subscale of the SCS, \( r(57) = −.28, p = .03 \). Results also indicated significant correlations between the personal-emotional adjustment subscale of the SACQ and four subscales of the SCS. There was a significant positive linear association between the personal-emotional adjustment subscale of the SACQ and the self-kindness subscale of the SCS, \( r(57) = .38, p = .004 \). Finally, there was a significant negative linear association between the personal-emotional adjustment subscale of the SACQ and the isolation subscale of the SCS, \( r(57) = −.31, p = .02 \), the self-judgment subscale of the SCS, \( r(57) = −.44, p = .001 \), and the over-identified subscale of the SCS, \( r(57) = −.29, p = .03 \).

Correlations were also run to determine any association between student group status and both self-compassion and college adjustment. There was a significant negative association between commuter student status and mindfulness, \( r(57) = −.27, p = .05 \), and self-kindness, \( r(57) = −.28, p = .03 \).
Commuter student status was also significantly positively associated with the SACQ academic adjustment, \( r(57) = .26, p = .05 \), and attachment, \( r(57) = .33, p = .01 \), subscales.

Multiple regressions were conducted to investigate the best prediction of total college adjustment across domains, academic adjustment, social adjustment, personal/emotional adjustment, attachment, total self-compassion, mindfulness, self-kindness, common humanity, self-judgement, isolation, and over-identification from first-year status, commuter-student status, and first-generation status (see Table 5). Results of the multiple regression model to test if commuter-student status, first-generation status, and first-year status predicted mindfulness indicated that the model explained a significant amount of the variance in mindfulness, \( F(3, 52) = 3.47, p = .02, R^2 = .17 \). Both commuter-student status (\( b = -0.65, t = -2.53, p = .01 \)) and first-generation student status (\( b = 0.61, t = 2.44, p = .02 \)) contributed significantly to the model, however, first-year status did not contribute to the model (\( b = 0.02, t = .09, p = .93 \)).

A hierarchical regression analysis was conducted to investigate whether total self-compassion predicts total college adjustment above and beyond student group membership. Commuter student, first-generation student, and first-year student status were all entered at step one and self-compassion was entered at step two. The results of step one indicated that commuter student status, first-generation student status, and first-year status accounted for the 9.8% of the variance (\( R^2 \)) in total college adjustment and was not significant, \( F(3, 52) = 1.89, p = .14 \). When self-compassion was added in step two, however, the model accounted for 20% of the variance (\( R^2 \)) in total college adjustment (\( \Delta R^2 = .10 \)) and was significant, \( F(4, 51) = 3.18, p = .02, \Delta F = 6.45, p = .01 \). Specifically, after accounting for student group status, self-compassion predicted college adjustment such that higher levels of self-compassion were associated with higher college adjustment scores, (\( b = 40.40, t = 2.54, p = .01 \)).

**Qualitative Data**

To gain a further understanding of college adjustment, qualitative data was analyzed from open-ended questions. Fifty-seven participants responded to the qualitative questions and were included in the analysis. After thematic analysis by three lab members, three overarching themes emerged related to students’ own adjustment to college and how they coped with this major life transition: (a) the importance of friends, endorsed by 44% of students, (b) the importance of parental support, endorsed by 23% of students, (c) the importance of self-kindness, endorsed by 32% of students.

**The Importance of Friends**

Just over half of participants noted that social support from college friends was important to their adjustment to college. One student commented on how her friends allowed her to break out of her shell: “Definitely finding a group of friends that I could confide in—they make me know I’m not alone and they’re able to break me out of my shell.”

Another commented on how her friends eased her transition to college: “Finding and having friends who I can spend time and de-stress with has been most helpful in my transition. I think my transition would have been a lot worse if I had not found people to be close to.”

It was also noted that a lack of friends or social support could make the adjustment to college more difficult. One student mentioned how, as the years went on, she seemed to have fewer friends and it resulted in more stress in her personal life:

> Adjusting was easy for me. my [sic] first semester freshman year I did very well and had lots of friends. As the years have gone on, I find myself with less friends and not doing quite as well as freshman year. I am still doing well academically, but very stressed with academics and also personal life.

Lack of social support from friends also emerged when asking commuter students about their experiences adjusting to college. About half of the commuter students endorsed that being a commuter student made it harder to connect to the student body and make friends. Because commuter students spend less time on campus and have fewer interactions with other students, it can make building a social support system difficult. One student commented on how commuting makes her feel less connected to the college campus: “Being a commuter student has made my adjustment to Simmons University more difficult. I feel like I can’t connect well with other students who live on campus.” Another commuter student mentioned how she tends to isolate herself more, making it harder to make friends: “It has made it more difficult for me to make friends and I tend to isolate more.”

These quotes reflect the importance of social support through friends in a student’s adjustment to college. They also demonstrate how a lack of
support from friends can lead to feelings of isolation from the rest of the student body.

The Importance of Parental Support

Along with social support from friends, emotional support from parents also aided in the college adjustment process for many students. When asked what made the adjustment process easier, some students mentioned contact with family: “having a very supportive family,” “keeping in touch with parents,” and “my family keeping in close contact.”

Although keeping in contact with family was often mentioned as making adjustment easier, being away from family made the adjustment to college difficult for some students. One student mentioned that, because she has always spent a lot of time at home, being away from home made her adjustment to college more challenging: “It has been very hard for me lately as I am a homebody, and my family members are very special to me so I’m used to having people to hang out with all the time.”

Another student mentioned how being an international student made her adjustment difficult because her family was so far away: “It’s hard. I’m an international student and my family is very far away, and everything here is very foreign to me. Some days it’s easier, and some days it’s harder.”

Although most students who described the importance of family support mentioned emotional support, over half of first-generation students described a lack of informational family support around how to navigate college. One student mentioned how her family’s lack of understanding the pressures she is under at school made her adjustment to college more difficult:

It’s very difficult because I have no guidance from my family and they have no understanding of my stresses and coursework. I’m always tired and overworked because I’m paying for college myself and Simmons University is not very supportive of working students and the expenses are out of control.

Another student mentioned that she feels like she cannot turn to her family for help during stressful times because she will be viewed as ungrateful for her college education:

Freshman year was very hard for me. I couldn’t talk to my parents about things because any minor frustration I would speak about they would see me as ungrateful and tell me to focus on my studies. However I dont [sic] know what I want to do and I cant [sic] talk to them about that. I cant [sic] talk to anyone in my family because we are all going to college for the first time together.

From these quotes, it is clear family plays an important role in a student’s adjustment to college. Reaching out to a supportive family member was helpful for many students yet being away from family made adjustment more difficult. The experiences of first-generation college students also indicated that a lack of guidance from parents made adjustment for these students more difficult.

Importance of Self-Kindness

Finally, students also mentioned the importance of self-kindness when dealing with the stressors of college. Using different self-care techniques helped students through difficult periods. Many of these techniques were self-focused. For example, many students mentioned how they will watch TV or do leisure activities they enjoy: “I meditate and try to relax at home,” “I do art or work in my bullet journal or I watch Netflix,” “read, make and listen to music, watch TV, knit, exercise,” and “after a stressful day I typically like to clear my head and spend time outside maybe going for a walk and listening to some music or writing in my journal to get out how I am feeling.”

When asked what self-help means, recognizing one needs to take the time to do these self-focused, de-stressing activities was often mentioned. One student commented how self-help is doing what is best for you: “I believe self-help is taking time to yourself to relax and do what is best for you when you are having a difficult time.”

Other self-care techniques included reaching out to the social support systems identified as important to college adjustment in the above themes. One student commented that, although she takes time to herself to de-stress, she also enjoys talking to friends and family as a way to unwind: “After a difficult or stressful day I usually try to eat a good dinner and take a break from work by watching a movie or hanging out with my friends and calling my parents.”

When asked what advice one would offer to a new student to help with their adjustment, self-kindness was often recommended. One student advised new students to remember that they are not alone and that there are other students going through the same things they are:
Everyone reacts to college in their own ways, you’re not alone if you’re having a rough time. Be kind to yourself and do little things that make you happy. Make a routine and stick to it. Explore the city. Eat some good food (don’t restrict yourself to [the dining hall])

Another student mentioned that new students should take it easy on themselves and that adjustment takes time: “I would suggest being easy on yourself, and not expecting to have every aspect of your new life in college perfectly pulled together within the first few months.”

The importance of self-kindness is demonstrated through these quotes as students explained how they cope with the stressful aspects of college and what they would advise new students to do during their adjustment. Self-kindness is described as realizing when one needs to relax and taking the time to do self-focused activities or reach out to support systems.

Discussion

Adjusting to life in college can be challenging academically, socially, and emotionally. Because college is a time of change in the lives of students, it can also be a time of increased stress, depression, and anxiety. The goal of the present study was to examine whether aspects of self-compassion, which have been found to be associated with decreased stress (Neely et al., 2009), would be associated with students’ adjustment to college.

Our first hypothesis that self-compassion would be positively correlated with college adjustment was supported through our correlation analysis. Self-compassion and overall college adjustment were positively correlated, suggesting that students who have higher self-compassion scores also have higher adjustment to college scores. Additionally, the results of the hierarchical regression analysis indicated that after adjusting for student group status, self-compassion still significantly predicted overall college adjustment in that higher levels of self-compassion were associated with higher overall college adjustment scores. This finding suggests that above and beyond student group status, self-compassion still significantly predicts college adjustment. In our qualitative themes, we found that self-kindness (a component of self-compassion) in times of stress was expressed as very important to help cope with the stresses of college. Self-compassion has been similarly found to be associated with satisfaction with social life, academic life, and a student’s decision to attend college in a sample of first-year students (Terry et al., 2013). Reversely, overall college adjustment was negatively correlated with isolation and self-judgement, suggesting that students who isolate and judge themselves more are less well adjusted to college. This was also reflected in the qualitative findings in that spending time with friends and staying connected with families was very important to college adjustment. One student even mentioned how, as she lost some of her friends throughout her years at school, she felt more stressed than when she had more friends during her first year. Similarly, Terry et al. (2013) found that students who scored lower in self-compassion and disliked their social lives experienced greater homesickness and were overall less satisfied with their decision to attend their university.

Our second hypothesis that positive subscales of self-compassion would be positively correlated with the four college adjustment subscales, while negative subscales of self-compassion would be negatively correlated with the same four college adjustment subscales, was partially supported. Self-compassion was positively correlated with personal-emotional adjustment, suggesting that students who are more self-compassionate are adjusting better psychologically and physically. Although the design of our study did not allow us to determine causality, in other studies, self-compassion has been found to predict student well-being (Booker & Dunsmore, 2019; Neely et al., 2009; Terry et al., 2013). In a study of first-year undergraduate students, self-compassion was found to be negatively associated with depression and anxiety (Terry et al., 2013). Self-compassion was also found to predict lower depression and anxiety scores in first-year undergraduate students and higher levels of thriving (Kroshus et al., 2021).

In our study, personal-emotional adjustment was also positively correlated with self-kindness, suggesting that students who are kinder to themselves are better adjusted personally and emotionally. This was reflected in the qualitative responses in that self-kindness techniques were expressed as very important to college adjustment. Learning to practice self-kindness was also suggested as advice for incoming students. One student encouraged incoming first-year students to take it easy on themselves as they adjust to their new lives. Reversely, personal-emotional adjustment was negatively correlated with isolation, self-judgement,
and over-identification, suggesting that students who isolate, self-judge, and over-identify with painful thoughts struggle more psychologically and physically. Similar results have been found when looking at the role of self-compassion with student well-being. Booker and Dunsmore (2019) found that in a group of incoming college first-year students and a group of undergraduate students in all class standings, after controlling for covariates (age, sex, transfer student status, and study cohort), self-compassion was positively associated with gratitude, positive affect, subjective happiness, and life satisfaction. As expected, self-compassion was also negatively associated with negative affect.

The third and final hypothesis that identification with certain student groups would predict adjustment to college and self-compassion was also partially supported. Commuter student status was positively correlated with academic adjustment and attachment to the institution such that commuter students exhibited lower academic adjustment scores and less feelings of attachment to the institution. Reversely, students who lived on campus reported higher academic adjustment scores and more feelings of attachment toward their institution. This contradicts our prediction that living at home would protect students against negative college adjustment and contradicts findings by McDonald et al. (2018) indicating that nursing students who relocated from their home scored significantly lower on academic adjustment (as measured by the SACQ) than students who did not relocate. In other areas of college adjustment, however, commuter student status has been found to be negatively associated with college adjustment (Melendez, 2019). Melendez (2019) found that residential status was negatively associated with social adjustment and institutional attachment (as measured by the SACQ) in that students who lived on campus were better socially adjusted and felt a higher attachment to their institution. While the current study did not find a significant association between commuter student status and social adjustment, qualitative findings did suggest that commuter students had a harder time finding a social support system of friends at their institution. In another study looking at commuter students’ attitudes and behaviors, it was found that commuter students were less likely to view their school as distinct or having a good reputation and similarly were less likely to identify with the institution than non-commuter students (Newbold et al., 2011). These findings indicate that commuter students may have a harder time adjusting to college academically and socially while also feeling less attached to their institution. Colleges and universities may consider further exploring the experiences of commuter students to better support these students in their adjustment to college.

Commuter student status was also negatively correlated with mindfulness and self-kindness in that commuter students exhibited lower self-kindness and mindfulness scores than non-commuter students. Results of the multiple regression analysis identified similar findings. The only significant regression predicted mindfulness from commuter student status, first-generation student status, and first-year status. Commuter student status significantly contributed to the model in that living at home predicted an increase in mindfulness. When looking at stress management, a similar relationship has been found. In a study looking at commuter and residential students, Forbus et al. (2011a) found that commuter students displayed higher mean values for passive stress management (operationalized as “when things aren’t going so well, I put things in a broader perspective, organize, and prioritize”) than residential students. This suggests that commuter students may be more mindfully aware of their stress. One explanation for why commuter students may be more mindful and display increased negative active stress management is due to the fact that commuter students are often non-traditional college students or students who are older and more likely to be married and as a result may be more mature (Forbes et al., 2011b). The students surveyed in our study, however, were of similar age to the traditional college student and so it may be that even younger commuter students exhibit traits that help them be more mindful of their situation. More research needs to be done on this group of students however, to better understand this relationship between commuter student status and mindfulness.

The results of the multiple regression analysis also indicated that being a first-generation college student predicted a decrease in mindfulness. For first-generation college students, a lack of navigational support from parents was expressed as contributing to adjustment. On top of all the other stressors associated with the transition to college, first-generation college students also lacked support from their families, which could contribute to the decreased feelings of mindfulness. Similarly, Gibbons et al. (2019) found that one of the barriers to going to college for first-generation students was their parents’ lack of experience and
complete understanding of the transition to college. Additionally, when looking at communication between first-generation college students and their parents about college, Palbusa and Gauvain (2017) found that first-generation college students found conversations with their parents less helpful and of poorer quality than students whose parents did attend college. Without the support from their families in understanding their experiences, first-generation college students may find it harder to stay mindful during stressful situations that arise during college.

Limitations
There are several limitations to this study. First, an a priori power analysis was not conducted to determine the appropriate number of students needed to achieve significant power. In future studies, a power analysis should be used to determine an appropriate sample size. Second, because the survey was only available for two weeks, this limited the time students could sign up for the study. It could be that those who did not sign up might have responded differently than those who did, thus changing the outcomes of the study. The setting and recruitment methods of the study also limit the ability to generalize the findings to other populations of college students. Since the study was conducted at only one women-centered institution, this limited the sampling pool to a majority female population and resulted in an all-female sample. Additionally, the majority of the current study’s sample identified as white. Thus, findings may not be generalizable to other institutions or to students who identify as another gender, race, or ethnicity. Students were also recruited from psychology classrooms in which students could receive course credit for their participation. This further limited the sample to students taking psychology classes, and the experiences of students who take psychology classes may not be the same as those taking other courses. The layout of the survey is also a limitation to the study. Since students were asked to rate traits of self-compassion first, followed by questions of college adjustment, the order of the survey questions could have influenced students’ answers to qualitative questions asking about self-care and adjustment.

Implications
The findings of this study suggest that commuter students and first-generation students may have a unique college experience that impacts their adjustment to college. Because these groups have a harder time adjusting to college, more attention should be paid to them. To further understand their experiences, universities could ask these groups about their adjustment to college through yearly surveys; this way administrators could learn more about specific resources that could be offered to help increase positive adjustment. For example, because it has been found that commuter students struggle to create social support groups at school, creating a time at the beginning of the year for commuter students to connect with the on-campus student body may allow them to start building larger peer groups. While not observed in commuter students specifically, Mattanah et al. (2010) found that first-year students’ participation in a social support group intervention during their first semester of college enhanced social adjustment to college. Additionally, students in the social support intervention group experience less loneliness than control students (Mattanah et al., 2010). It was also found that some first-generation students feel a lack of support from their family because they have not experienced college themselves. Creating a program for first-generation students’ families about college life and how to support their student may increase family support for this group.

Finally, self-compassion was positively associated with college adjustment, and self-kindness was specifically endorsed across student group membership as an important factor in positive college adjustment. Self-compassion is a skill that can be taught, as demonstrated by a recent meta-analysis of self-compassion intervention studies (Ferrari et al., 2019). Intervention programs could be run at the beginning of the semester then, in which students can learn a variety of techniques that could help them cope with the stresses of college life. One such self-compassion program that has been found to increase self-compassion, mindfulness, life satisfaction, connectedness, optimism, and self-efficacy, while decreasing rumination in female college students is the Mindfulness Self-Compassion program (MSC; Neff & Germer, 2013; Smeets et al., 2014). In addition, a version of the MSC has been created specifically for young people. Making Friends with Yourself (MFY; Bluth et al., 2016), like MSC, focuses on teaching skills to build resilience and improve emotional wellbeing. MFY has also been found to increase self-compassion. In combination, these findings suggest that offering programs on campus designed to increase self-compassion may be helpful to students as they adjust to college life.
Conclusion

This study contributed to the understanding of college adjustment by looking at the role of self-compassion and by exploring the unique experiences of specific groups of students as they adapt to college life. Further studies need to be conducted, however, to see if associations between college adjustment and self-compassion can be found in larger, more diverse samples. Additionally, future research on this topic should take into account the effects of other variables that may be correlated with college adjustment such as academic self-efficacy and other academic skills such as test taking ability. Finally, more research needs to be done on other groups of students that have been identified as being at risk for negative adjustment such as ethnic minority groups or nursing students, as well as groups of students who may be protected from negative adjustment such as athletes.

References


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Student Adaptation to College Survey | Scott and Donovan
Acceptance of Transgender Veterans in Social Settings: An Experimental Study

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ABSTRACT. U.S. society has become more exposed to and aware of the issues facing veterans who identify as transgender, but there is limited research surrounding this topic and the levels of acceptance society has of these individuals in social settings. With the growing “out” transgender population and changing views within political and military realms on transgender identities, there are concerns for the mental health and equal treatment of these individuals. This experimental study examined how participants reacted to a scenario in which they met a veteran in a social setting who shared a similar hobby (conditions: someone who either self-discloses they are transgender or an identical scenario except with no self-disclosure of transgender identity). This study explored the psychological attitudes that may impact these judgments and examined participants’ expected future behavior regarding the extent to which they would want further contact with that person. Results regarding likability were in the opposite direction hypothesized, such that participants reported the individual to be more likable in the condition where the person self-disclosed their transgender identity compared to the condition where transgender identity was not indicated, $t(120) = -2.87, p = .005, d = 0.52$. Perceptions of similarity and willingness to spend more time with the person were not significantly different across conditions. These results suggest more positive attitudes toward transgender veterans than initially expected, which is surprising and also promising for future research with the veteran transgender community, yet future research to further understand how generalizable these findings are may be critical.

Keywords: transgender, veterans, social settings, bias, likability

*Faculty mentor

Public awareness revolving around experiences of individuals in the transgender community has grown in the past decade compared to years past but requires further research to examine how people who identify as transgender are perceived in various specific settings. For example, research surrounding this topic and the levels of society’s acceptance of these individuals in social settings is still limited, as is research about transgender veterans’ experiences. The term *cisgender* is “used to describe an individual whose gender identity and gender expression align with the sex assigned at birth,” whereas the term *transgender* is “an umbrella term encompassing those whose gender identities or gender roles differ from those typically associated with the sex they were assigned at birth” (A glossary: Defining transgender terms, 2018, p. 32). Thus, the term *transgender* or *gender nonconforming* is used to identify several groups within the transgender community. The word...
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transgender, or “trans” for short, is commonly used to refer to someone transitioning from one gender to another. This could be through medical procedures, legal means, or through clothing in a way that allows the individual to express how they identify.

Although categorization can help create definitions and contribute to one’s understanding of an identity, it can also have several limitations. Hogg et al. (2004) explained that one of the dangers of categorization is that it can limit the public’s perception of an individual in the transgender community to be seen only as part of a specific group, rather than as a unique individual. Categorization can also create stress and anxiety if an individual does not fit into an expected category’s parameters, such as with the categorization of gender role norms. Budge et al. (2018) explained that gender role norms are learned through socialization and suggested that society’s acceptable behavior for men and women are not interchangeable. This means that someone presenting as a woman in the United States should be subservient, domestic, and attractive, whereas someone presenting as a man in the United States should be self-reliant, control emotional expression, and act tough, according to typical gender norms. Even if an individual is a cisgender male, they can still experience anxiety in a social setting if they do not have the expected traits associated with the gender norm.

Furthermore, Tarrant et al. (2001) examined adolescent behavior affected by social categorization. They found participants stated that their own ingroup was better off than the outgroup because, within their ingroup, they perceived being able to relate to one another better and that people were more personable compared to their perceptions of the outgroup. The effects of this outcome can be both positive and negative, depending on the context. Although most people have more positive attitudes toward their ingroup and this can help bond the group, this ingroup bias can become negative if their ingroup is disparaging toward the outgroup. However, having a positive ingroup experience during adolescence can be valuable to individuals who are part of a minority group because they may be more accepted and welcomed by their peers there than they may be outside of that group, thus providing some sense of belonging.

With the number of people openly identifying as transgender on the rise, there are growing concerns about the health, mental stability, and equality of these individuals. Stieglitz (2010) described the immense amount of discrimination and abuse this population faces in educational, workplace, and healthcare settings. She also explained that transgender youth often experience rejection from others in their community based on their racial or ethnic background, or due to their gender identity. Lindsay et al. (2016) conducted research focusing on transgender veterans who had been through military sexual trauma from the Iraq and Afghanistan conflicts. About 15% of these individuals experienced sexual trauma in the military. Overall, male survivors were more prone to being diagnosed with posttraumatic stress disorder (PTSD) and personality disorders, whereas female survivors were more prone to being diagnosed with depressive disorders, bipolar disorder, PTSD, and personality disorders.

There is evidence to suggest the connection made through friendship can be enough to maintain a working relationship with others, even when the individuals are different. Baumeister and Leary (1995) stated this connection is through the views people form of those they spend time with. According to these authors, favorable opinions form even if those individuals were previously a member of an outgroup. Similarly, Vezzali et al. (2018) intergroup contact and found that individuals who lived in a multicultural environment were more prone to being open to new and different experiences along with having positive interactions with diverse individuals.

Vezzali et al.’s findings may also help explain situations with negative intergroup contact. Individuals who live in a close-minded, prejudiced environment may be more likely to be hesitant to new experiences than open to them, including spending time with someone who identifies as transgender. For example, Olson and Enright (2018) found that transgender children and siblings of transgender children were more likely to be accepting of nonconforming gender roles in different aspects of life, such as sports and school, and were less likely to gender stereotype than other children. Also, in a study of college students about their perceptions of the transgender community, McCullough et al. (2019) found that individuals who have not encountered a transgender individual tend to have more anxiety toward this group than those who have, supporting the contact hypothesis by Gordon Allport that appropriate intergroup contact can break down ingroup bias and prejudice toward the outgroup (e.g., Allport, 1979).

A military environment is a specific diverse setting that causes culture shock to many service
members. An advantage of the growth of the “out” transgender population in the military is that potentially more support will be provided for those within the community by other members. Barr et al. (2016) described that seeing oneself as transgender can increase one’s sense of pride and connection to the transgender community. They demonstrated this through several studies, which found that sense of belonging connected to one’s identity can bolster these individuals’ perceptions of having a connection to the community itself. The authors suggested this may lead to a better understanding of the transgender community overall and may force the world to adjust to a new normal.

Although there have been improvements in the treatment of individuals in sexual minority communities, a limited number of studies examined the public’s perceptions and acceptance levels of transgender veterans in social settings. Some of the most recent improvements include the Supreme Court ruling in June 2020, clarifying that Title VII of the Civil Rights Act of 1964 is also applicable to banning discrimination based on sexual orientation and gender identity, and there is also increasing research revolting around issues relevant to this population. However, some recent studies have suggested an ongoing bias against the transgender community, such as Callahan and Zukowski’s study (2019), which demonstrated that cisgender individuals’ reactions of transgender individuals using public bathrooms were that they felt transgender people should use the restroom of their birth sex over that of their gender identity and that they personally would feel uncomfortable sharing a bathroom with someone identifying as transgender.

Regarding existing research on sexual minority communities in the military, a large portion of existing studies have focused mostly on lesbian, gay, and bisexual (LGB) military service members and did not include the transgender community (e.g., Evans et al., 2019). Evans et al. (2019) indicated that LGB veterans who do not live “out” openly have higher psychological distress, elevated minority stress, disrupted interpersonal relationships, and a higher prevalence of mental health disorders. Their study also stated that the concealment of an LGB preference negatively affects unit cohesion and that revealing to others personal information such as LGB status had a positive effect on unit cohesion. Studies such as Evans et al.’s (2019) are useful in helping to understand transgender individuals’ experiences within the military. Nonetheless, it is also still necessary to further understand how other individuals, especially civilians, perceive the transgender military community in social settings, as this present study does.

One of the few studies that did research acceptance levels for sexual minorities in a military setting versus a civilian setting by cisgender individuals demonstrated a drastic difference in perceptions across the two groups (Coronges et al., 2013). In Coronges et al.’s (2013) study, the two cohorts consisted of United States military cadets compared to civilian college students. Cadets in this study were more likely to believe in banning LGB individuals from serving in the military compared to civilian students. More specifically, male Republican cadets were most opposed to LGB service members, whereas female civilian Democrats were the least likely to oppose LGB service members. However, the study did not evaluate the reasoning for lower levels of LGB acceptance by military cadets, nor the higher levels by civilians.

In an attempt to understand the reasons some individuals hold gender biases and others are more accepting, Parco et al. (2016) focused on an individual who was transitioning while working in a military environment. This transition and the study occurred prior to the “Don’t Ask, Don’t Tell” Act repeal. The “Don’t Ask, Don’t Tell” Act prohibited any lesbian, gay, bisexual, or transgender (LGBT) individual from serving in the military. This individual was not a service member, but was working as a civilian contractor in an office setting. The individual identified as transgender in the sense that they were transitioning from male to female. The study followed the individual for several months and conducted interviews with the individual, the individual’s command leadership, the individual’s coworkers, and various individuals within the same unit who may or may not have had any contact with that person. The study showed that most people who were interviewed were supportive of the individual. There were some military personnel who did not fully understand the situation or were just against it personally, but no violence ever occurred.

Participating in a group is important to an individual’s identity, especially after a major change (Amiot et al., 2007). A prime example would be immigrants in a new host nation. Immigrants come from certain customs, traditions, and social groups and have to adapt to the new environment by integrating into their new surroundings as best as they can. Meleady et al. (2020) supported this with four studies focused on hierarchy levels and open-mindedness among British adults. These
studies showed that there can be an increase in positivity in the environment along with having a higher tolerance for each other through intergroup contact. These findings demonstrate that change can occur within a society through intergroup contact to help shift how people view the world and social issues around them.

The same is true about coming out, which is an important step in an individual’s life to embrace their chosen path. In doing so, it may feel like a new world or understanding, but it is truly being able to affirm one’s identity. However, others’ unknown reactions and the fear this can cause, as well as dealing with the several risks and concerns involved in coming out as transgender, are factors that can still be daunting to many individuals. According to Katz-Wise and Budge (2015), this is an experience that many members of the LGBT community have dealt with at some point, especially in the United States where a cisgender individual is considered the majority and believed to be superior.

Matarazzo et al.’s (2014) study of suicide risk among the LGBT community, including transgender military personnel and veterans, also found that individuals within this community who have a strong support group (e.g., friends, family, or an LGBT group) have a lower risk of attempting suicide. This finding supported a recent study inquiring about similar implications. According to Tucker (2019), the risk of suicide-related thoughts and behaviors increases with stigma-related minority stressors, such as what transgender veterans may endure during and after their service. Access to transition-related medical care with veteran community support and connections may reduce the risk of suicide-related thoughts and behaviors. These findings are supported through multiple studies examining stress in transgender individuals. Meyer (2003) stated that sources of stress that lead to negative physical and mental issues consist of personal events and conditions in the social environment. Lebavot et al. (2016) further supported this finding with 212 transgender veterans, indicating 57% of individuals in the sample reported suicidal thoughts in the past year and 66% had either planned a suicide or had a suicide attempt. Not only did these results show high rates of suicidal thoughts and attempts, but they also demonstrated that these individuals faced stigma throughout their military service and later developed mental health disorders such as PTSD and depressive disorder, which are significant influences on suicidal ideation.

Another possible contributing factor to the low levels of mental health in this population is the fear of losing a close relationship and the connection one has with them. Baumeister and Leary (1995) observed that the connections individuals make with friends and other ingroups can seem spontaneous and/or appear to lack obvious advantages. However, they indicated that relationships often occur fairly naturally and individuals put effort and time into these relationships, which they find supportive. Not only could losing a connection like that hurt an individual emotionally, but it could also lower the number of supportive people they have access to.

One method to lower the negative effects of discrimination for transgender and gender-nonconforming individuals is to get support from social workers or social-service organizations, according to Klein et al. (2018). A study by these authors investigating discrimination against transgender individuals in social-service settings showed some disturbing results. The findings suggested that services created to mitigate the effects of racism and transphobia could be increasing discrimination. There could also be stress created by psychological and social discrimination. This can cause significant issues for a transgender individual. Budge et al. (2013) explained that social support can influence a transgender individual’s transition. Coping, well-being, and smoothness of transition are essential processes of transitioning, which can be affected by how others interact with the individual.

Although there is increasing public advocacy for veterans in the transgender community, the low prevalence of research conducted on their experiences during social interactions must be remedied. The small number of existing studies in this domain gives an indication of the difficulties facing those identifying as transgender or gender nonconforming. Transgender acceptance has interested the first author for several years. The initial idea for studying acceptance levels in a social setting grew from her experiences transitioning, including before, during, and after her time in the military. She found more acceptance through her military connections than through family or civilian friends. Therefore, our study sought to further this body of research. This study seems to be one of the first studies published in English about perceptions of transgender military veterans in social settings. Based on prior research, we set forth the following hypotheses.

H1: Participants in the condition where the individual self-discloses that they identify as being
transgender would perceive this individual to be less likable compared to those in the condition where the individual does not self-discoe this.

H2: Participants in the condition where the individual self-discloses that they identify as being transgender would perceive this individual as less similar to them compared to those in the condition where the individual does not self-disclose this.

H3: Participants in the condition where the individual self-discloses that they identify as being transgender would be less likely to report willingness to spend more time with this individual compared to those in the condition where the individual does not self-disclose this.

H4a–c: Participants’ scores on the Attitudes Towards Transgender Individuals Scale would predict their scores on (a) perceived likability and (b) similarity, as well as (c) their willingness to spend more time with this individual in the experimental condition (condition in which the individual self-discloses they identify as transgender).

**Method**

After institutional review board approval from Southern New Hampshire University (#2018-093), participants were randomly assigned to one of two conditions (62 participants were in each condition): a transgender condition and a nontransgender condition. Once assigned a condition, participants read a hypothetical description of a person they met through a shared hobby. The selected hobby was exercise, and through a conversation, the participants discovered that the individual is a veteran. They found a shared interest in music as well. Within the description, the individual either was explicitly described as transgender or not (depending on the assigned condition). Materials are available at [https://osf.io/94kdb/](https://osf.io/94kdb/). Participants then completed a questionnaire in which they made various evaluations about the individual (e.g., likability and perceived similarity), followed by questions about participants’ attitudes toward individuals who are transgender and participants’ demographic information. Debriefing participants about the purpose of the study (to understand acceptance levels of individuals in social settings who identify as transgender) occurred at the end of the online survey. We analyzed data with SPSS through descriptive analyses, independent-samples t tests, and regression analyses to test for the impact of the condition on levels of acceptance, similarity, and intent to be in contact with that individual again.

**Participants**

Recruitment of participants via social media platforms and email resulted in a snowball sample. One hundred twenty-four people participated in this study through an online survey via Qualtrics. Participants’ ages ranged from 18 to 63 years old (M = 24.85, SD = 9.35). Participants were 76.6% women, 14.5% men, 4.8% chose not to indicate, and 4% stated other. Also, 20.2% identified as LGBTQ and 75% reported that they did not. European Americans made up 80.6% of the sample, 4.8% were Latino/a, 4.8% identified as “other” but did not specify, 4% chose not to answer this question, 3.2% of the sample were Asian American, 1.6% were African American, and 0.8% were Middle Eastern. Most participants were from the United States (94.4%). Of these, 97% were from the Northeast, 7% from the Midwest, 6% were from the Southeast, 3% from the West coast, and 3% from the Southwest regions of the U.S. Sixty-two percent reported living in a suburban area, 35% reported living in a rural location, and 21% of participants reported living in an urban area. Most participants said they had not served in the military (87.1%), 8.1% stated that they had served, and 4.8% chose not to respond to this question. Out of the 8.1% who stated that they served, 5.6% stated they did so in the Marine Corps/Navy, 0.8% were in the Army, 0.8% were in Air Force, and 0.8% stated they were in the Coast Guard.

**Measures**

Measures of likability, perceptions of similarity, and the items on the Attitudes Toward Transgendered Individuals Scale were all on a 5-point Likert scale anchored from 1 (strongly disagree) to 5 (strongly agree) for our study. However, the original Attitudes Toward Transgendered Individuals Scale items were on a 7-point Likert-type scale anchored from 1 (strongly disagree) and 7 (strongly agree). We used a 5-point Likert scale for these items to be consistent with the response scale of the other items included in the study. Higher scores on all these measures represent higher perceptions of likability, similarity, and more positive attitudes toward transgender individuals.

**Likability**

The measure used for assessing the likability of the person in the scenario originates from the
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Likability of Refuser scale from Cramwinckel et al. (2013; 12 items; $\alpha = .93$). An example question is, “To what extent do you think the other participant is pleasant?”

**Similarity**

Items regarding perceptions of similarity with the person in the scenario (five items; $\alpha = .87$) originates from the Perceived Values Similarity scale from Varma et al. (2011). An example question is, “I believe we would have similar personal values.”

**Attitudes Toward Transgendered Individuals**

Participants also completed the Attitudes Toward Transgendered Individuals Scale (Walch et al., 2012; 20 items; $\alpha = .95$). Example questions are, “It would be beneficial to society to recognize transgenderism as normal” and “Transgenderism is immoral” (reverse scored).

**Likelihood to Spend More Time**

Participants also answered the following question about the person in the scenario: “Given the situation and all the information you know of this person, if this were a true experience, how likely is it that you would actually want to spend additional time getting to know this person?” This item was on a 5-point Likert scale anchored from 1 (very unlikely) to 5 (very likely). A higher score represented higher levels of likability compared to the nontransgender condition ($M = 3.93$, $SD = 0.58$), which is opposite of what we predicted, yet very important to the limited research examining attitudes toward transgender individuals in social settings.

**Demographics**

The demographic questions included items about participants’ race or ethnicity (White/European American, multiracial, Asian American/Pacific Islander, Latino/a, Native American, African American/Black, or the option of other), sexual identity (if they identify as lesbian, gay, bisexual, questioning), gender identity (male, female, or other: specify how you self-identify), whether or not they were a veteran (and if so which branch), their age, whether or not they live in the United States (which region if they did), their biological sex, and whether they live in an urban, rural, or suburban area.

**Results**

**Descriptive Statistics**

We examined all means, standard deviations, and alpha coefficients for each scale. For the Attitudes Toward Transgendered Individuals Scale (Walch et al., 2012), the mean and standard deviation were as follows: $M = 4.35$, $SD = 0.74$, with a reliability score estimate of $\alpha = .95$. The Likability Scale (Cramwinckel et al., 2013) had a mean of 4.11 overall ($SD = 0.69$) with a reliability score estimate of $\alpha = .93$. The scale about perceptions of similarity with the person in the scenario (Varma et al., 2011) had a mean of 3.58 ($SD = 0.83$), with a reliability score estimate of $\alpha = .87$.

**H1**

Transgender status had a significant effect on perceptions of likability, $t(120) = -2.87$, $p = .005$, $d = 0.52$. An independent-samples $t$ test showed that, for the condition with the transgender individual ($M = 4.28$, $SD = 0.74$), participants actually reported higher levels of likability compared to the nontransgender condition ($M = 3.93$, $SD = 0.58$), which is opposite of what we predicted. This result is the opposite of what we predicted.

**H2**

Transgender status did not have a significant effect on perceptions of similarity, $t(122) = -1.81$, $p = .07$, $d = 0.32$. An independent-samples $t$ test showed that, for the condition with the transgender individual ($M = 3.71$, $SD = 0.87$), participants reported higher levels of similarity to them compared to the nontransgender condition ($M = 3.45$, $SD = 0.78$). This result is the opposite of what we predicted.

**H3**

An independent-samples $t$ test showed that transgender status had no effect on willingness to spend more time with the person $t(122) = -0.31$, $p = .76$, $d = 0.06$ across the nontransgender condition ($M = 3.26$, $SD = 0.87$) and transgender condition ($M = 3.31$, $SD = 0.90$), thus demonstrating no support for H3.

**H4a–c**

Tests for these hypotheses were done with regression analyses. For those in the transgender identifying condition, participants’ scores on the Attitudes Towards Transgender Individuals Scale significantly predicted their scores on H4a regarding their perceptions of the person as likable, $t(57) = 2.09$, $p = .04$, and accounted for a significant proportion of variance in likability scores, $R^2 = .07$, $F(1, 57) = 4.36$, $p = .04$. The scores on this scale also predicted participants’ scores on H4b regarding their perceptions of similarity with the individual, $t(57) = 2.89$, $p = .005$.
them more or less likable, depending on the participants’ preferences. For example, if they did not find the scenario realistic to them personally because they do not often go to the gym, etc., this could have impacted the perceived realism of the study. Future studies could utilize multiple avenues to gauge the opinions of transgender individuals, including both self-reports as in this study, but also with an Implicit Attitudes Test. This may further the understanding of individuals’ true perceptions of transgender veterans in social settings because it is possible that participants in this study still held implicit biases against the transgender community even if they reported low explicit biases. This study was only distributed to English speaking individuals, mostly from the United States. Other countries’ governments and populations differ on this topic, shown by the open acceptance of transgender individuals in serving in the military.

Demand characteristics may also be affecting the results in our study. Participants in the United States at this time are likely to know that explicitly reporting to dislike or not wanting to spend more time with someone in a hypothetical scenario who identified as transgender is exclusive and viewed negatively, so participants, especially in that condition, might have felt they should respond in a positive way. Lastly, the results might have differed if the transgender identity preceded the veteran status. Further research could determine if the aforementioned variables impact perceptions of transgender or gender nonconforming individuals.

However, it is possible of course that the results are generalizable. If this is the case, it would indicate that United States society may be more accepting of individuals from this community than prior research has suggested (especially given the high suicide rates for this population), which is hopeful. Serious concerns and day-to-day issues still need addressing for this community to receive more equality, and further research on attitudes in other realms (e.g., the workplace, current military personnel) will benefit this community greatly.

Discussion

Implications of Findings and Limitations

There is an interesting pattern when comparing the nontransgender and the transgender conditions in reference to likeability and attitudes. Participants in the transgender condition had more positive attitudes toward the individual compared to those in the nontransgender condition, such that perceived likability was significantly higher. This could suggest less prejudiced against veterans identifying as transgender. Yet, several studies show drastically different results for lesbian, gay, and bisexual individuals (e.g., Coronges et al., 2013), so this is unlikely to be the case for transgender individuals in the United States population at large. Although we found that participants reported higher likability in the condition in which the individual identified as transgender compared to the condition in which the individual did not identify as transgender, which was opposite of what we predicted, it is possible that our sample is not generalizable. This study consisted of a sample of mostly European American women in their 20s, and from the Northeast region of the United States, which could have impacted the results. Due to the participants originating from social media and contacts of the authors, who are either in the LGBTQ+ community or allies of the community, the participants may have been skewed in favor of accepting a transgender veteran. Therefore, our findings may not generalize to the population across the United States; the level of diversity did not allow for a true sample of each demographic. The snowball sample through the authors’ social media may have also limited the exposure of participants due to the authors being members or advocates of the LGBTQ community. Additionally, the nature of the hypothetical scenario in the study might have impacted participants’ impressions of the target individual, making them more or less likable, depending on the participants’ preferences. For example, if they did not find the scenario realistic to them personally because they do not often go to the gym, etc., this could have impacted the perceived realism of the study. Future studies could utilize multiple avenues to gauge the opinions of transgender individuals, including both self-reports as in this study, but also with an Implicit Attitudes Test. This may further the understanding of individuals’ true perceptions of transgender veterans in social settings because it is possible that participants in this study still held implicit biases against the transgender community even if they reported low explicit biases. This study was only distributed to English speaking individuals, mostly from the United States. Other countries’ governments and populations differ on this topic, shown by the open acceptance of transgender individuals in serving in the military.

Conclusion

Because this was one of the first studies to investigate the likability of veterans in the transgender community within social settings, the outcomes showed some potentially promising results. No analyzed data supported the expected hypotheses, which if representative of the United States population as a whole, would be positive for gender minority communities. Although future research will
enhance our comprehension of this topic, this study was an important step toward understanding the daily experiences of transgender individuals and more specifically, the experiences of transgender veterans, as well as the perceptions of those interacting in social settings with people who identify as part of this population.

References
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Navigating the world requires people to distinguish what is important for survival from everything else that can be safely ignored. To focus on relevant information and ignore the irrelevant, humans are equipped with a system of selective attention (Machado-Pinheiro et al., 2010). The Stroop (1935) task is one of the most widely used experimental paradigms in cognitive psychology for studying how people selectively attend to relevant information while ignoring irrelevant distractions (MacLeod, 2005). In a traditional Stroop task, participants view targets that are color words written in ink that is either congruent with the target’s meaning (e.g., the word “Red” written in red ink) or incongruent (e.g., “Red” written in blue ink). When participants are instructed to report the target’s color while ignoring its meaning, the nearly universal result is faster response times (RT) for congruent targets relative to incongruent targets (Whitehead et al., 2018), which is known as the Stroop effect. Although participants are instructed to ignore the target’s meaning, it nevertheless leaks through their attentional filter (Linzarini et al., 2017). However, when the roles of the target’s color and meaning are switched, such that participants report the target’s meaning while ignoring its color, the difference between the RT for congruent and incongruent targets (i.e., the reverse Stroop effect) is typically much smaller than the Stroop effect (Melara & Algom, 2003): This is the classic Stroop asymmetry.

**Manual Responses Are Verbally Mediated in Stroop Identification Tasks**

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**ABSTRACT.** In a typical Stroop experiment, participants view a color word written in a color that is either congruent or incongruent with the word’s meaning and identify either the target’s color (Stroop condition) or meaning (reverse Stroop condition). Incongruent words generally interfere with identifying the target color more than incongruent colors interfere with identifying the target word. A common explanation for this classic asymmetry asserts that vocally identifying the target’s color or meaning relies on a verbal code, which biases attention to the target’s meaning over its color. However, the asymmetry also occurs with nonverbal keypress responses, so participants may covertly map verbal codes onto keys to remember which key represents each color. To verify this verbal mediation hypothesis, we presented Stroop color-word targets along with 4 cues to help participants remember which key represented each color. In one condition the cues were color words, and in the other the cues were color patches. We hypothesized that the word cues would elicit the classic asymmetry and color cues would abolish this asymmetry. The results supported our hypotheses; for word cues the Stroop effect was larger than the reverse Stroop effect, \( p < .001, \eta^2 = .64 \), and color cues abolished this difference, \( p < .001, \eta^2 = .31 \). This study is the first to provide direct confirmation of the verbal mediation hypothesis and suggests that task demands are more important than the response modality (vocal versus manual) for biasing processing toward one of the Stroop target’s features.

**Keywords:** selective attention, Stroop effect, reverse Stroop effect, Stroop asymmetry, verbal mediation hypothesis
Verbal and Visuospatial Processing

Explanations for why the classic Stroop asymmetry occurs rely on the premise that verbal and visuospatial information are encoded and processed by separate mental systems (Song & Hakoda, 2015; Stuart & Carrasco, 1993; Virzi & Egeth, 1985). Keep in mind that the Stroop task entails that participants attend to the target color while trying to ignore the target word, whereas the reverse Stroop task entails attending to the target word while trying to ignore the target color. Thus, the classic Stroop asymmetry implies that mentally processing the target word enjoys an advantage over mentally processing the target color, because incongruent target words interfere with processing target colors (Stroop effect) more than incongruent target colors interfere with processing target words (reverse Stroop effect). For decades, the prevailing explanation of the Stroop asymmetry was that verbally processing the target word proceeds more quickly than visually processing the target color. Accordingly, the target word should become consciously accessible before the target color, which would enable the target word to interfere with color identification in Stroop tasks, but in reverse Stroop tasks the target color would be at a speed disadvantage and therefore have no opportunity to interfere with word identification. Dunbar and MacLeod (1984) noted that this simple “horse race” model implies that the target word should always become consciously accessible before the target color and, thus, the Stroop effect should always be larger than the reverse Stroop effect. But although the Stroop effect is generally larger than the reverse Stroop effect (Blais & Besner, 2006), under some conditions the Stroop effect is actually smaller than the reverse Stroop effect (e.g., Uleman & Reeves, 1971), which contradicts the horse race model.

Even if the Stroop effect is occasionally smaller than the reverse Stroop effect, the question remains as to why it is generally larger. One possible explanation is based on whether one of the target’s features (e.g., the target color) must be translated from one mental code (e.g., visuospatial) to another (e.g., verbal) before the participant can generate a response. For example, participants in the Stroop paradigm have traditionally responded to the target item by vocalizing its color or meaning. Visuospatially encoded information (such as the target color) must be translated into a verbal code in order to generate a vocal response, whereas verbally encoded information (such as the target word) requires no translation to generate a vocal response (Virzi & Egeth, 1985). Because vocalizing the target color as in a Stroop task requires translation from a visuospatial code into a verbal code, incongruent target words have the opportunity to interfere with vocalizing the target color, resulting in a large Stroop effect. On the other hand, vocalizing the target word in a reverse Stroop task does not require translation because the target word is already verbally encoded, so incongruent target colors do not have the opportunity to interfere with vocalizing the target word, resulting in a much smaller reverse Stroop effect.

Therefore, the translation account can explain the classic Stroop asymmetry, but unlike the horse race model, it can be extended to explain inversions of the classic Stroop asymmetry as well. Specifically, the translation account implies that redesigning the traditional Stroop task so response generation requires visuospatial rather than verbal processing should confer an advantage on the visuospatially encoded target color over the verbally encoded target word. Accordingly, instructing participants to localize a target (i.e., report its location in the display), rather than to identify the target color or word, requires participants to rely on visuospatial processing. Consistent with the translation account, localization tasks invert the classic asymmetry: The Stroop effect is smaller than the reverse Stroop effect (Durgin, 2000; Sobel et al., 2020; Song & Hakoda, 2015; Uleman & Reeves, 1971).

Whereas traditional Stroop tasks required vocal responses, localization tasks required participants to respond manually (e.g., press a key or move a mouse cursor) to report the target’s location (Grégoire et al., 2019). Although vocal responses are compatible with verbal processing, manual responses are compatible with visuospatial processing because each response (e.g., a keypress) inhabits its own distinct spatial location. As can be seen in the first row of Table 1, in traditional Stroop experiments both the task (identification) and response (vocal) required verbal processing, which conferred an advantage on the target word over the target color, resulting in a larger Stroop effect than the reverse Stroop effect. Conversely, in localization experiments both the task (localization) and response (manual) required visuospatial processing, which conferred an advantage on the target color over the target word, resulting in a larger reverse Stroop effect than the Stroop effect, as in the second row of Table 1. Thus, in the studies summarized in the upper two rows in Table 1, task demands are confounded with response modality so there is no way to tell whether the direction of
interference (word interferes with color or color interferes with word) is attributable to task demands or response modality.

One way to eliminate the confound between task demands and response modality would be to design an experiment in which the task required verbal processing (i.e., identification) and the response modality required visuospatial processing (i.e., manual response). For such an experiment, if the results revealed a verbal advantage (i.e., Stroop effect > reverse Stroop effect), that would imply that Stroop interference is driven primarily by (verbal) task demands, but if the results revealed a visuospatial advantage (i.e., Stroop effect < reverse Stroop effect), that would imply that Stroop interference is driven primarily by (visuospatial) response modality. Recent studies that employed this design, in which participants identified the target color or word by providing manual responses (as in the third row in Table 1), found a verbal advantage (Fennell & Ratliff, 2019; Sobel et al., 2020). Apparently, Stroop interference is driven primarily by task demands rather than response modality. Nevertheless, although these studies eliminated the confound between task demands and response modality that had afflicted previous studies, they introduced a conflict between the two. This raises the question of how participants resolve the conflict between verbal processing required for identification and visuospatial processing required by manual responses.

The Verbal Mediation Hypothesis

Participants may resolve the conflict between the verbal processing required for identification and the visuospatial processing required for manual responses by mentally transforming the locations of the various manual responses into verbal codes. They could accomplish this by implicitly attaching verbal labels to each response’s location (Blais & Besner, 2006; Sugg & McDonald, 1994). After all, little effort is required to vocalize “Red” to report the target word or color, but pressing the correct key requires an extra step of memorizing which key represents each member of the target set. Thus, although each keypress response has a particular visuospatial location that distinguishes it from other responses, the verbal mediation hypothesis implies that the keys’ locations would be verbally mediated by the covert verbal labels attached to them. We aimed to directly test this hypothesis.

For the experiment we describe in the present study, each display presented a target that was a color word selected from the set “Red,” “Green,” “Blue,” and “Yellow,” made from pixels that were colored one of those four colors. The pixel color either matched or did not match the meaning of the target word. Participants were instructed to report either the target color (Stroop condition) or the target word (reverse Stroop condition) by pressing one of four keys. From left to right on the computer keyboard, the four response keys represented “Red,” “Green,” “Blue,” and “Yellow,” respectively. To help participants remember which key represented each color, there were four cues at the bottom of the display. In the word cue condition, the cues were the four words “Red,” “Green,” “Blue,” and “Yellow” presented in a neutral color, as depicted in the left panel in Figure 1. In the color cue condition, the cues were color patches containing pixels that were red, green, blue, and yellow, as depicted in the right panel in Figure 1.

The results from the experiments summarized in the bottom row of Table 1 (Fennell & Ratliff, 2019; Sobel et al., 2020) imply that in our experiment the verbal task demands, rather than the visuospatial response modality, should confer an advantage on the target word over the target color. Applying the verbal mediation hypothesis to our experiment, we presumed that the task demands associated with identification should motivate participants to covertly attach verbal labels to each manual response.

| Task Demands and Response Modality Are Confounded in the Upper Two Rows, But Not the Bottom Row |
|-------------------------------------------------|-------------------------------------------------|-------------------|
| Task                                            | Response modality                              | Typical result    |
| Identification (verbal)                         | Vocal (verbal)                                 | Stroop > reverse Stroop (verbal wins) |
| Localization (visuospatial)                     | Manual (visuospatial)                          | Stroop < reverse Stroop (visuospatial wins) |
| Identification (verbal)                         | Manual (visuospatial)                          | Stroop > reverse Stroop (verbal wins) |

#### FIGURE 1

Stimulus Displays for Both Cue Conditions

![Stimulus Displays for Both Cue Conditions](image)

Note: Each panel depicts a display from the experiment containing an incongruent target word and four cues. The left panel is from the word cue condition, and the right panel is from the color cue condition.
With this in mind, we developed one hypothesis for each of the cue conditions based on the need for translation between the attended feature (target color for Stroop, target word for reverse Stroop), the cues (word or color), and the responses (verbally mediated), as shown in Table 2. For the word cue condition, the attended feature was visuospatial for the Stroop condition (target color) and verbal for the reverse Stroop condition (target word), the word cues were verbal, and the responses were verbally mediated. Thus, no translation was required in the reverse Stroop condition because the attended feature, cues, and responses were all verbally mediated, but in the Stroop condition translation was required between the visuospatial attended feature and the verbal cues. Because the need for translation gives the unattended feature the opportunity to interfere with the processing of the attended feature, our first hypothesis predicts that the need for translation in the Stroop condition but not the reverse Stroop condition should produce a larger Stroop effect than the reverse Stroop effect: the classic asymmetry. For the color cue condition, the color cues were visuospatial, and the responses were verbally mediated, so translation was required for both the Stroop and reverse Stroop conditions. Our second hypothesis predicts that the need for translation in both the Stroop and reverse Stroop conditions should produce a large Stroop effect as well as reverse Stroop effect: the classic asymmetry should be abolished.

Method

Participants

We obtained permission to carry out the experiment from our university’s institutional review board (IRB proposal number 20-103, The Interaction Between Perception and Cognition in Visual Search) prior to collecting any data and treated all participants in accordance with the ethical guidelines stipulated by the American Psychological Association (2017). To determine an appropriate sample size to reliably detect a difference between a Stroop effect and reverse Stroop effect, we estimated an effect size on the basis of the results from a pilot experiment. The pilot experiment yielded a Cohen’s $d$ of 0.81, which would require a sample size of 39 participants to achieve 80% power at an alpha of .01 (Bausell & Li, 2002). Sixty undergraduate students (50 female, 10 male) between the ages of 18 and 22 ($M = 20.12, SD = 1.18$) in a variety of psychology courses from a midsized university in the southern United States participated in the experiment in exchange for class credit. Researchers in the Stroop paradigm do not customarily report their participants’ race and ethnicity, primarily because these factors are not typically presumed to systematically influence the basic visual and attentional processing implicated by the Stroop effect. Consistent with the Stroop literature, we did not gather the racial or ethnic backgrounds of our participants. Participants were randomly assigned to either the word cue condition or the color cue condition.

Apparatus

The experiment was conducted on a MacBook computer connected to a CRT monitor with a screen resolution of 1024 x 768 pixels. A program written in Xojo Basic presented stimuli to the monitor and gathered responses from the keyboard.

Stimuli

Participants viewed a series of displays that each presented a target word (selected from the following set: “Red,” “Green,” “Blue,” or “Yellow”) in the middle of a black screen. The color of the target’s pixels was either congruent with its meaning (e.g., the word “Red” written with red pixels) or incongruent with its meaning (e.g., the word “Red” written with blue pixels). In addition to the target, each display contained a series of four cues to help participants remember the order in which the response keys were laid out on the keyboard. For participants in the word cue condition, the words “Red,” “Green,” “Blue,” and “Yellow” appeared at the bottom of every display, in that order, as depicted in the left panel of Figure 1. The cue words’ pixels were colored white. For participants in the color cue condition, squares that were colored red, green, blue, and yellow appeared at the bottom of every display, in that order, as depicted in the right panel of Figure 1.
Procedure
The experiment began by presenting a series of instructional screens that participants read at their own pace, then advanced to subsequent screens by clicking a button labeled “Next.” After completing the instructions, the mouse cursor disappeared so it would not visually distract participants, and the computer began to present stimulus displays. At the beginning of every trial, a fixation mark consisting of two orthogonal line segments forming an “X” appeared in the middle of the screen for 750 ms, after which the fixation mark disappeared and a display containing a target and four cues appeared. Participants identified the target color (Stroop condition) in one half of the experiment and the target word (reverse Stroop condition) in the other half; the order of the blocks was counterbalanced across participants. To identify the target’s color or meaning, participants were instructed to press the “d” key to report “Red,” “f” to report “Green,” “j” to report “Blue,” or “k” to report “Yellow.” The target display remained visible until participants pressed one of the response keys. The RT for each trial was the time between the onset of the display and the keypress. When the response was correct, the target display was replaced by a fixation mark to begin the next trial. When the response was incorrect, a display with the word “Incorrect” in the middle of the screen appeared for 1000 ms before being replaced by the fixation mark for the next trial.

For each block (i.e., Stroop block and reverse Stroop block), congruent trials included 12 repetitions of each of the four words for a total of 48 trials, and incongruent trials included four repetitions of every combination of four words and three incongruent colors (e.g., the word “Red” presented in green, blue, and yellow, “Green” presented in red, blue, and yellow, et cetera for “Blue” and “Yellow”) for a total 48 trials. The congruent and incongruent trials were randomly interleaved, resulting in 96 experimental trials in each block. After participants completed six practice trials that were excluded from analysis and 96 experimental trials, the mouse cursor reappeared along with a message indicating that participants had completed the first half of the experiment and reminded them that the attended feature would switch for the remainder of the experiment. That is, participants who reported the target’s color (Stroop condition) in the first block would report the target’s meaning (reverse Stroop condition) in the second block, and participants who reported the target’s meaning in the first block would report the target’s color in the second block. Participants were invited to take a short break, after which they could begin the second half of the experiment by clicking a button labeled “Continue.” After this button was clicked, the mouse cursor disappeared and the fixation mark for the first trial appeared. As in the first block, the second block began with six practice trials that were excluded from analysis, followed by 96 experimental trials. The entire experiment, which included the instructions, 12 practice trials, and 192 experimental trials, required about 15 minutes to complete.

Results
The mean RT across all participants and conditions was 772.09 ms, with a standard deviation of 199.80 ms. We used an alpha level of .01 for all statistical tests. Before analyzing any data, we trimmed each participant’s RTs that were more than three standard deviations longer than the mean for that participant and set of conditions, under the assumption that these outliers represented trials in which the participant was carrying out a different task than in the remaining trials. We trimmed all RTs that were shorter than 150 ms, the minimum latency to initiate a saccadic eye movement to a peripheral location (Carpenter, 1988), under the assumption that participants would have needed at least 150 ms to shift their gaze from the target to the cues.

Because our hypotheses described our expectations for each of the cue conditions, we began the analysis by submitting the results from each cue condition to its own three-way analysis of variance (ANOVA), with attended feature and congruity as within-subjects factors, and block order as a between-subjects factor. Whereas the first hypothesis posited the presence of an interaction between attended feature and congruity, the second hypothesis implied the absence of an interaction. Because evidence consistent with the null hypothesis fails to reject the null but does not confirm it, the lack of an interaction effect in the color cue condition is consistent with the second hypothesis but does not support it. To provide solid evidence supporting the second hypothesis, we wanted to see if the two-way interaction between attended feature and congruity in the word cue condition was different from the two-way interaction in the color cue condition. Because a significant three-way interaction between attended feature, congruity, and cue type would show that the two-way interaction between attended feature and congruity was different in the word cue condition than the color cue condition,
we carried out an ANOVA with attended feature and congruity as within-subjects factors, and cue type as a between-subjects factor.

**Word Cue Condition**

The results from one participant were excluded from analysis because her mean RT was more than three standard deviations higher than the mean of all the other participants’ RTs. For each of the remaining participants and for each of the attended feature (Stroop and reverse Stroop) and congruity (congruent and incongruent) conditions, a trimming program removed all RTs that were less than 150 ms or more than three standard deviations away from the mean for that participant and condition; a total of 1.91% of data points were removed. Mean correct RTs from the word cue condition were submitted to a three-way ANOVA with attended feature and congruity as within-subjects factors, and block order as a between-subjects factor. None of the effects with block order as a factor were significant, so the RTs for the word cue condition in Figure 2 are collapsed across both levels of block order.

Responses were slower in the Stroop condition than the reverse Stroop condition, $F(1, 27) = 29.81$, $p < .001$, $\eta^2 = .52$, and were faster for congruent than incongruent targets, $F(1, 27) = 125.12$, $p < .001$, $\eta^2 = .82$. The slower responses in the Stroop condition may represent the cost of translating the target color from a visuospatial code into a verbal code.

Our first hypothesis predicted that the word cue would elicit a classic Stroop asymmetry: the Stroop effect would be larger than the reverse Stroop effect. The interaction between attended feature and congruity, $F(1, 27) = 47.15$, $p < .001$, $\eta^2 = .64$, shows that the Stroop effect was different from the reverse Stroop effect; specifically, the difference between congruent and incongruent targets was larger when participants identified the target color (Stroop effect) than when they identified the target word (reverse Stroop effect). Simple effects analysis confirmed that both the Stroop effect, $F(1, 28) = 100.76$, $p < .001$, $\eta^2 = .78$, and the reverse Stroop effect, $F(1, 28) = 13.36$, $p = .001$, $\eta^2 = .32$, were significant. Furthermore, the larger effect size in the Stroop condition (199.65 ms, $\eta_p^2 = .78$) than the reverse Stroop condition (36.53 ms, $\eta_p^2 = .32$) supports our hypothesis that the word cue condition would yield a classic Stroop asymmetry.

**Color Cue Condition**

The same trimming program that was used for the word cue condition removed a total of 1.81% of data points. Mean correct RTs from the color cue condition were submitted to a three-way ANOVA with attended feature and congruity as within-subjects factors, and block order as a between-subjects factor. None of the effects with block order as a factor were significant, so the RTs for the color cue condition in Figure 2 are collapsed across both levels of block order.

Just as in the word cue condition, responses were faster for congruent than incongruent targets, $F(1, 28) = 132.02$, $p < .001$, $\eta^2 = .83$. However, in contrast with the word cue condition, for color cues the main effect of attended feature, $F(1, 28) = 0.91$, $p = .35$, $\eta^2 = .03$, was not significant.

Our second hypothesis predicted that the color cue condition would abolish the classic Stroop asymmetry. This hypothesis is consistent with the nonsignificant interaction between attended feature and congruity in the color cue condition, $F(1, 28) = 0.92$, $p = .35$, $\eta^2 = .03$. Simple effects analysis showed that both the Stroop effect, $F(1, 29) = 47.73$, $p < .001$, $\eta^2 = .62$, and the reverse Stroop effect, $F(1, 29) = 57.29$, $p < .001$, $\eta^2 = .66$, were significant. The Stroop effect (124.39 ms, $\eta_p^2 = .62$) was slightly smaller than the reverse Stroop effect (154.63 ms, $\eta_p^2 = .66$), but not different enough for the interaction between attended feature and congruity to reach significance.

However, although the second hypothesis is consistent with the nonsignificant interaction between attended feature and congruity in the color cue condition, we must acknowledge that this cannot be taken as positive evidence of a lack of interaction. As mentioned previously, the nonsignificant interaction fails to reject the null hypothesis but does not confirm it. Nevertheless,
the significant interaction between attended feature and congruity in the word cue condition, together with the nonsignificant interaction in the color cue condition suggests that the three-way interaction between attended feature, congruity, and cue type may be significant. If so, this result would indeed provide evidence that the classic asymmetry observed in the word cue condition was abolished in the color cue condition. We submitted mean correct RTs from both cue type conditions to a three-way ANOVA with attended feature and congruity as within-subjects factors, and cue type as a between-subjects factor. The three-way interaction, \( F(1, 55) = 24.56, \ p < .001, \ \eta_p^2 = .31, \) confirms our second hypothesis that the classic Stroop asymmetry in the word cue condition would be abolished in the color cue condition.

**Discussion**

In the present study we wanted to resolve a puzzling inconsistency in the Stroop literature: Manual responses should be more compatible with visuospatial processing than verbal processing (Grégoire et al., 2019), and yet recent studies in which participants manually reported the target’s color or meaning have revealed a classic Stroop asymmetry (Fennell & Ratliff, 2019; Sobel et al., 2020). This implies that the target’s meaning had an advantage over the target’s color, because incongruent target words interfered with reporting the target’s color more than incongruent target colors interfered with reporting the target’s meaning. One way to explain the presence of the classic Stroop asymmetry in these studies relies on the verbal mediation hypothesis, which asserts that participants covertly attach verbal labels to each response’s location in order to remember what each response represents (Blais & Besner, 2006; Sugg & McDonald, 1994). Accordingly, verbally encoded information can be readily mapped onto the verbal labels, but visuospatially encoded information needs to be translated into a verbal code before being mapped onto the verbal labels. Although the verbal mediation hypothesis is a plausible explanation of why the classic Stroop asymmetry should arise when participants manually report the target’s color or meaning, we are unaware of any prior attempts to directly confirm it.

To find direct evidence supporting the verbal mediation hypothesis, we designed an experiment in which participants manually reported the target’s color or meaning. Accompanying each target was a set of cues to help participants remember the arrangement of the response keys. The verbal mediation hypothesis asserts that, for an identification task, participants generate a set of verbal labels to attach to each response key’s location. In the word cue condition, there was no need for translation between the verbal cues and the verbal labels attached to each manual response. In contrast, the color cues needed to be translated into a verbal format to map them onto the manual response’s verbal labels. We hypothesized that word cues would elicit the classic Stroop asymmetry, and color cues would abolish the classic Stroop asymmetry. The significant interaction between attended feature and congruity in the word cue condition supported our first hypothesis, and the significant three-way interaction between attended feature, congruity, and cue type supported our second hypothesis.

We believe that finding evidence confirming the verbal mediation hypothesis makes an important contribution to the Stroop literature because it explains why the classic Stroop asymmetry arises from experiments in which participants manually reported the target’s color or meaning. Because manual responses have some features that make them preferable to vocal responses in Stroop experiments (MacLeod, 2005), experimenters have some motivation to elicit manual responses rather than vocal responses. For example, if the computer running the experiment is programmed to interpret the onset of a word spoken into a microphone as the RT, the software will mistake a mumbled prelude to a response such as “uhhh...” as the response itself. But even if experimenters are aware of the methodological advantages of manual responses over vocal responses, they may nevertheless hesitate to elicit manual responses in their own experiments because they believe that the manual responses may introduce a bias for the target color over the target word. For that reason, our confirmation of the verbal mediation hypothesis will enable experimenters to embrace the advantages of manual responses while remaining confident that the identification task itself, rather than the response modality, will allow the target word to enjoy an advantage over the target color as in traditional Stroop experiments.

**Extending on Previous Research and Limitations**

To design our experiment, we blended the task demands of traditional Stroop experiments (identification) with displays that were inspired by Stroop matching experiments, in which a single Stroop color-word target appeared among several cues. In word matching experiments the cues were
words written in a neutral color (Blais & Besner, 2007; Yamamoto et al., 2016) and in color matching experiments the cues were color patches (Durgin, 2000; Song & Hakoda, 2015). Participants were instructed to attend to one of the target features, and to report the location of the matching cue by moving a mouse cursor or pressing a key.

One advantage of our experiment over these Stroop matching experiments was that we included both word cues and color cues, as well as both Stroop and reverse Stroop conditions, which allowed us to make comparisons between conditions that could not be made in experiments that did not manipulate these variables. In contrast, the word matching experiments (Blais & Besner, 2007; Yamamoto et al., 2016) included a reverse Stroop condition but not a Stroop condition. The fact that we observed a classic Stroop asymmetry in our word cue condition suggests that these word matching experiments would also have yielded a classic Stroop asymmetry if they had included a Stroop condition.

Although the results from our word cue condition can be extended to make predictions about the word matching experiments, the results from our color cue condition initially seem to be inconsistent with the results from color matching experiments (Durgin, 2000; Song & Hakoda, 2015). In our color cue condition, the Stroop effect was smaller, but not significantly different than the reverse Stroop effect, whereas the color matching experiments found Stroop effects that were significantly smaller than the reverse Stroop effects. This suggests that our sample size was not large enough to provide the necessary power to detect a difference between the Stroop effect and reverse Stroop effect in the color cue condition. However, we are not inclined to believe that the inconsistency between our color cue condition and color matching experiments is attributable to insufficient power. First, we used the results from a pilot experiment to determine an appropriate sample size, and second, our experiment was sufficiently powerful to detect a significant difference between the Stroop and reverse Stroop effect in the word cue condition, as well as the three-way interaction indicating that the classic Stroop asymmetry from the word cue condition was abolished in the color cue condition.

For these reasons, we believe that the inconsistency between the results of our color cue condition and those from color matching experiments may reflect meaningful differences between the experimental methods rather than insufficient power. Specifically, we instructed participants to identify the target word or color and to use the cues merely as mnemonic devices to remember the color assigned to each key, whereas in color matching experiments, participants were instructed to report the location of the cue that matched the target. Is this subtle distinction between the instructions sufficient to yield a meaningful difference in results? One of the limitations of our experiment is that we cannot answer this question because we did not manipulate the instructions while controlling the other variables. Nevertheless, an intriguing follow-up experiment would use identical displays in two instruction conditions; in the identification condition, participants would be instructed to report the target word or color and to use the cues to remember which key represents each response, and in the localization condition participants would be instructed to report the location of the cue matching the target by pressing the key representing the cue’s location.

A second limitation of our experiment can be seen by examining Table 1. Experiments summarized in the first two rows of Table 1 suffer from a confound between task demands and response modality; in the first row, task demands and response modality both rely on verbal processing, and in the second row, task demands and response modality both rely on visuospatial processing. As in recent studies (Fennell & Ratliff, 2019; Sobel et al., 2020), our experiment eliminated the confound by using an identification task that relied on verbal processing and a manual response that relied on visuospatial processing. We have argued that the significant two-way interaction between attended feature and congruity in the word cue condition, and the significant three-way interaction between attended feature, congruity, and cue type in our experiment support the verbal mediation hypothesis. That is, participants transformed the manual responses into a verbal format that is compatible with the identification task. But using a task that relies on verbal processing and a response modality that relies on visuospatial processing is just one way to eliminate the confound present in the first two rows of Table 1. What about a task that relies on visuospatial processing (localization) but a response modality that relies on verbal processing (vocal response)? We can only speculate, because we are unaware of any Stroop localization experiment that elicited vocal responses. Perhaps participants would generate a system of visuospatially (rather than verbally) mediated covert labels to map onto the vocal responses.
Conclusions
Although our study has its limitations, we believe that our experiment allowed us to reach the goal we originally set out to achieve. The classic Stroop asymmetry is a pervasive outcome in traditional Stroop experiments that elicit vocal responses in identification tasks. An inversion of the classic Stroop asymmetry is a reliable outcome in Stroop experiments that elicit manual responses in localization tasks. For both kinds of experiments, the type of processing (i.e., verbal versus visuospatial) is confounded between the task demands and response modality, so there is no way to tell which factor underlies the advantage for the target word in identification tasks with vocal responses and the target color in localization tasks with manual responses. We eliminated the confound by eliciting manual responses (visuospatial processing) to identify (verbal processing) the target color or word. The verbal mediation hypothesis asserts that participants resolve the conflict between a verbal task and visuospatial response modality by attaching verbal labels to the locations of the manual responses. Broadly, the verbal mediation hypothesis suggests that the construction of one’s neural pathways affects how one attaches verbal labels to surrounding objects or stimuli because covertly creating verbal labels allows efficiency in cognitive processing and attentional control when navigating the world. Our study is the first to provide direct evidence supporting the verbal mediation hypothesis. Henceforth, any researchers who instruct participants to manually identify the target color or word can explain why they observe a classic Stroop asymmetry.

References

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Success can be defined and understood as the accomplishment of widely varied goals (Duckworth et al., 2007). Two constructs that emerged as components of success are resilience and grit. Resilience, which underlies grit, focuses on the response an individual has to a setback or adversity (Runswick-Cole & Goodley, 2013). Grit has been understood as a continual persistence in the face of difficulty with the added component of stamina toward long-term goals (Duckworth et al., 2007). The two concepts of grit and resilience can vary based on situation and an individual’s interest. These entities are fluid and must be interpreted within various settings with caution and understanding, as experiences and interests can vary widely between individuals. Although two separate constructs, individuals are likely to exhibit both grit and resilience, as they are often applicable in the same scenarios (Mason, 2018).

Resilience has been heavily investigated in typically developing children, as well as individuals who could be considered disabled (e.g., specific learning disability, intellectual disability, physical disability, disabled geriatric population; Manning et al., 2014; Migerode et al., 2012; Panicker & Chelliah, 2015). Grit is a rather new construct but has had clear connections with success (Duckworth et al., 2007). Grit and resilience have been connected by Duckworth as overlapping constructs, and resilience has also been found to be connected to disability status (Perkins-Gough, 2013; Piers & Duquette, 2016). With this understanding, one can predict grit’s role for students with disabilities based on resilience research with students who

**ABSTRACT.** An established definition of the concept grit is a combination of resilience and stamina for long-term challenges. Although literature on grit has been vast in terms of linking this concept to success for nondisabled individuals, limited research exists for individuals with disabilities. The present study investigated the relationship between grit and disability status within the college population. We surveyed individuals with and without a registered disability at a university, using the Grit Scale to measure responses and later subdividing it into Consistency of Interest and Perseverance of Effort scales. We found a significant main effect, defining significant differences with pvalues <.05, between disability status with total Grit score. Another significant interaction was found when evaluating the relationship of disability and underrepresentation (e.g., Black Indigenous People of Color) on Grit and Consistency of Interest subscores. No significant differences were found within the Perseverance subcategory of Grit. These results indicate that individuals within the underrepresented category, or people of color, as well as students registered with a disability scored significantly lower than their White and nondisabled counterparts. Further investigation is needed for confirmation of results. Suggested future investigations include the relationships of grit with varying disability categories as well as with individuals making up the underrepresented ethnic group.

**Keywords:** grit, resilience, disability status
have disabilities. Although grit has been shown to be crucial to long-term success, adequate literature representation regarding grit in individuals with disabilities has been relatively sparse. This gap warrants attention in order to understand how to best serve individuals, with and without disabilities, in achieving success.

Resilience
To fully understand grit in the context of students with disabilities, one must first explore its precursor: resilience. Researchers have been interested in looking specifically at resilience, which may be a building block to success or the achievement of widely varying goals (Duckworth et al., 2007). Resilience has been associated with the terms of hardiness, mental toughness, and grit, all of which refer to the underlying themes of perseverance and commitment through adverse events. Resilience allows for a cognitive appraisal of adverse events to be interpreted as challenging growth opportunities rather than setbacks that one cannot overcome (January, 2016). Resilience research has focused on the environmental context of an individual functioning as inhibitory or aiding in development (Ungar, 2011).

Although most resilience research has been conducted with typically developing children, some researchers have investigated concepts in individuals with disabilities. Manning et al. (2014) investigated whether resilience acted as a barrier for disability in a population over the age of 50 years who were disabled through chronic illness. They found that resilience buffered against chronic disabilities and the formation of new disabilities. This study has allowed a greater understanding of how resilience might be predictive of positive outcomes, which is useful for a variety of populations. Campbell-Sills et al. (2006) found that high scores of resilience were related with high retrospective emotional neglect and a low incidence of current psychiatric symptoms. This indicates that resilience is not only surviving setbacks, but also learning to thrive from them.

Emerging resilience research focuses on individuals with disabilities (Martinez, 2016; Panicker & Chelliah, 2015; Piers & Duquette, 2016; Runswick-Cole & Goodley, 2013). Panicker and Chelliah (2016) studied the relationship between borderline intellectual functioning, specific learning disorders, and levels of resilience, along with stress level, depression, anxiety, and awareness among parents. The results indicated that around three-fourths of those surveyed with specific learning disorders had lower resilience compared to the individuals with the Diagnostic and Statistical Manual of Mental Disorders IV diagnosis of borderline intellectual functioning, suggesting fewer coping skills and resources (Panicker & Chelliah, 2016). Martinez (2016) also investigated the relationship between resilience and self-discipline in individuals with disability in visual, motor, auditory, and intellectual impairments. Results indicated that psychosocial support is imperative in order for a person to have higher levels of resilience (Martinez, 2016). All of these studies provide evidence for the importance of resources and support for those with disabilities and their relationships with resilience.

Grit
Researchers have shown interest in the concept of grit, specifically questioning why some individuals accomplish more than others of similar intelligence. Duckworth et al. (2007) operationalized the construct of grit to include persistence and passion for long-term goals. Since the initial research, this concept has piqued the general interest of investigators, leading to numerous studies over the basic concept of grit alone. Duckworth et al. (2007) initially investigated grit in West Point first-year cadets in the U.S. Military Academy and Scripps National Spelling Bee contestants. Through two separate studies, one being a validation study for the short Grit Scale (Grit-S), there was a similar conclusion: grit’s two-faceted definition of perseverance and determination toward long-term goals is significant in success (Duckworth & Quinn, 2009; Duckworth et al., 2007). These are introduced within two subscales of the Grit Scale: Consistency of Interest, which addresses changing one’s mind with interest and goals, and Perseverance of Effort, which addresses accomplishing goals over a period of time (Duckworth et al., 2007; Lombardi et al., 2019). Lombardi et al. (2019) investigated the components of the Grit scale in adolescents with and without disabilities, as defined by the Individuals with Disability Improvement Act for K–12 schooling and found that the measure functions comparatively in both populations, an important consideration for the current study. Specifically, Lombardi et al. (2019) found that perseverance and consistency of interests were negatively related, as well as enhanced for those with disabilities. Perseverance was of academic significance because it remained predictive of grade point average (GPA) for students with and without disabilities. These findings indicate that...
fluctuations in consistency of interest are normal and possibly even beneficial for individuals with or without disabilities on the act of perseverance. Lombardi et al. (2019) emphasized the importance of further understanding grit and its components for students with disabilities as they transition to and participate in college curriculum. As the initial inquiry pointed out, grit has been found to have no correlation with IQ measurements (Duckworth & Quinn, 2009; Ivecavic & Brackett, 2014).

Grit has been investigated in high school retention rates, with findings indicating a strong correlation with academic conscientiousness (e.g., self-disciplined, responsible, striving for achievements) and motivation in school (Eskreis-Winkler et al., 2014). In relation to academic success, often defined through GPA and/or degree completion, grit has been found to strongly correlate with orientation for the future, hence the focus on long-term goals as a component in grit (Fleming et al., 2017; Muenks et al., 2017). With regard to the Big Five Personality Model, grit has been identified to overlap with conscientiousness, but with a greater emphasis on stamina of long-term goals (Duckworth et al., 2007). This connection is of great importance because conscientiousness has also been identified as a predictor in academic performance (Poropat, 2009). Eskreis-Winkler et al. (2014) also found the importance of grit within high school students; students with higher grit were more likely to graduate the following year. Although these results indicate that grit is important, Jachimowics et al. (2018) suggested the inclusion of passion for the predictive performance of grit to be fully understood and accurate. When investigating the topic, they found that grit’s predictive power can be fully understood and correctly utilized when combining and considering perseverance and passion.

There has also been research regarding grit in areas outside of academia such as the workplace, relational aspects, military, and others. Duckworth et al. (2007) initially began this inquiry with West Point Military cadets, where they found grit to be a predictor of later success in lasting in the program. Eskreis-Winkler et al. (2014) echoed these findings in two separate studies regarding military personnel. Within the populations of the Army Special Operations Forces course participants and those who competed in an elite military selection program, researchers found that grit was significant when controlling for other factors and did not correlate with physical fitness or intelligence (Eskreis-Winkler et al., 2014). Within the same study, researchers found grit to be correlated with retention in sales occupations and men’s likelihood of remaining married (Eskreis-Winkler et al., 2014). Grit was also analyzed within the population of stroke survivors and caregivers; results indicated that this population embodies higher levels of grit, specifically with articulation of long-term goals (Klappa et al., 2020). Grit has been readily noticed in recent years as an important trait influencing the success of individuals’ lives, as demonstrated through the mentioned literature.

### Grit and Resilience

The constructs of resilience and grit have been heavily investigated in the past decade, especially in regard to academic performance. Not much literature has established a connection between the two constructs. January (2016) compared the separate constructs, identifying that there is an underlying theme of perseverance, commitment, coping, goal orientation, discipline, and determination in both grit and resilience. Prior to an interview with Duckworth, the primary author of the original grit study, there was no formalized discussion as to the connection other than themes between the two subjects. Duckworth acknowledged that resilience is a component of grit, but grit is not always a factor in resilience (Perkins-Gough, 2013). Resilience, as previously stated, is the ability to persevere and bounce back from adversity or life difficulties, whereas grit, on the other hand, has this same component of persistence through difficulties, with an added component of stamina toward long-term goals (Duckworth et al., 2007; Runwick-Cole & Goodley, 2013). There has also been an identification in the overlap of grit and resilience through their relationship with conscientiousness. Both grit and resilience have been found to be positively correlated with conscientiousness, indicating an ability to recover quickly and continue past adversities that may come in an individual’s way (Campbell-Sills et al., 2006; Duckworth et al., 2007; Oshio et al., 2018). Although differences lie within the two concepts, grit and resilience remain similar through the fundamental aspect of perseverance toward goals and continuation despite setbacks (Duckworth et al., 2007). This ties these two related constructs together.

Grit has been measured mostly within the non-disabled population through the 12- or 8-item survey first developed, whereas resilience, a closely related concept, has been measured heavily in the
disabled population (Duckworth et al., 2007). This important connection between grit and resilience leads to conclusions and hypothesis development regarding individuals with disability and grit. Research on grit has been in the early stages and warrants attention to this construct with various populations such as individuals with disabilities. If grit is a predictive component for success similar to resilience, understanding this construct in both disabled and nondisabled populations could aid in developing more efficient ways to hone success.

**Students With Disability and Success**

Though disability status might add complexity and difficulty to academic ventures, it is imperative to recognize that success and disability are not dichotomous variables. As previously mentioned, academic success has been typically defined as GPA or degree completion; traditional literature suggests that individuals with disabilities are less successful in attaining academic success in comparison to students without disabilities (Fleming et al., 2017). Theories regarding difficulty with success point to lack of knowledge regarding services and obtainment of services in the college setting with possible deficits in self-advocacy, increased hesitancy due to stigmatization, and poor experiences or attitudes from faculty (De Los Santos et al., 2019; Fleming et al., 2017; Marsh & Wilcoxon, 2016; Wessel et al., 2009). Although Wessel et al. (2009) reported no difference within retention rate of those with disabilities, research has continued to emphasize the importance of self-advocacy as a point of intervention for individuals with disabilities in higher education (Fleming et al., 2017). Therefore, it is important to consider the avenues educators and university personnel may use to influence change within this population in hopes of promoting academic success. Academic success often leads to positive outcomes financially and occupationally (Fleming et al., 2017). The present investigation continues to build on this literature of success and adds to the discussion of grit as a possibility of using this fluid entity within the population of students with disabilities.

**The Present Study**

Research has established that resilience and grit are closely related but that the construct of grit is more specific and has been established as a predictor for academic success in nondisabled individuals. The current investigation sought to address the relationship between disability status and grit. Previous literature has indicated that students with disabilities who choose to pursue higher education experience challenges in many areas such as transition plans, self-advocacy, disclosure status, and accommodations (Algozzine et al., 2001; Landmark & Zhang, 2012). These challenges help bring forth the question to investigate grit and its relationship to academics for later consideration of grit as a factor of success. This helps future populations consider if grit should be invested in as a factor of success.

Little research has investigated the relationship of grit and disability status; however, some literature has established a relationship between disability status and resilience, a closely related construct. Piers and Duquette (2016) investigated resilience in individuals identified with learning disability; research indicated that, with appropriate environmental supports, resilience can facilitate academic and mental development in a positive manner, moderating the impact of the learning disorder. Resilience and social support have also been identified as protective factors (Rutter, 1987). Campbell-Sills et al. (2006) found resilience to be a protective factor against later psychiatric symptoms for those who experienced early emotional neglect. As mentioned, Lombardi et al. (2019) completed research that demonstrated that students with and without disabilities fared evenly on the score of overall grit. They also found consistency of interest and perseverance to be inversely related, demonstrating that changing interests could be interpreted as a good thing for all students, especially those with disabilities, to experience during their development in high school.

Resilience has also been shown to be a positive buffer against negative life events, even in individuals with disabilities who may face greater and more frequent obstacles. Individuals with a disability at a university, therefore, are likely to have some baseline level of grit. They are engaging in perseverance in pursuing higher education and stamina to reach a long-term goal of graduation. As such, our hypothesis was that grit would be significantly higher in those with a disability, measured through registration with the Office of Disability Services, compared to those without a disability. Understanding grit’s role in the context of disabilities will help fill a gap in the existing literature and may help practitioners develop interventions that support grit within this population.
Method

Participants
Data was collected at Tarleton State University, a midsized state university in the central United States. Of the 291 individuals (aged 18–59, $M = 23.33, SD = 7.74$) who completed the survey, 279 students were included in the analysis, as they met the inclusion criteria for current enrollment at a college or university as well as the minimum age of 18 years old. Of the 279 individuals, 147 (52.69%) were registered with disability services on their campus, resulting in an evenly distributed sample between the two comparison groups. The participants were asked to check “yes” or “no” regarding their disability status registration with the Office of Disability Services with no confirmation of answer in order to ensure confidentiality. Although the proportion of participants who indicated a disability was not reflective of the university community from which the sample was drawn, it allowed researchers to gather more information regarding the experience and characteristics of students with disabilities. Participants were overrepresented by women ($n = 221$), with only 58 men representing the participant sample. The racial/ethnic distribution of individuals was slanted toward White individuals ($n = 209$), followed by Hispanic/Latino individuals ($n = 34$), African Americans ($n = 16$), Other ($n = 9$), Native Americans ($n = 6$), Pacific Islanders ($n = 4$), and Asian Americans ($n = 1$). This distribution was reflective of the university where data was collected.

Materials and Procedures
Prior to the administration of the survey and data collection, approval was received from the university’s institutional review board. Emails were also sent out through the Office for Disability Services to all individuals registered with a disability on the university campus. The survey was also sent out to courses with a requirement for research participation as well as posted on the university’s research survey system. After the initial distribution of emails, we also used snowballing techniques to reach out to other individuals on campus to spread the survey and encourage a higher sample size. Responses on the 8-item Short form of the Grit Scale (Grit-S; Duckworth & Quinn, 2009) as well as demographic information were collected from all participants. Within the demographics survey, individuals were asked if they were a student, if they were registered with a disability with the Office for Disability Services, their age, race, and gender.

| TABLE 1 |
| Grit Scores According to Demographics |
| Demographics | $M$ (SD) of Total Grit Score | Consistency of Interest $M$ (SD) | Perseverance $M$ (SD) |
| White | 3.42 (0.59) | 2.85 (0.84) | 3.99 (0.61) |
| Underrepresented category | 3.55 (0.58) | 3.01 (0.82) | 4.09 (0.52) |
| Women | 3.45 (0.62) | 2.92 (0.86) | 3.97 (0.65) |
| Men | 3.33 (0.57) | 2.69 (0.81) | 3.99 (0.55) |
| Registered with a disability | 3.40 (0.60) | 2.76 (0.90) | 4.04 (0.57) |
| Not Registered with a disability | 3.45 (0.62) | 2.99 (0.79) | 3.90 (0.68) |

Note. The racial categories of Hispanic/Latino, Black/African American, Asian American, American Indian/Alaskan Native, Pacific Islander/Native Hawaiian, and Other have been collapsed into the category of underrepresented.

| TABLE 2 |
| Full Grit Scale ANOVA |
| Predictor | $df$ | $F$ | $p$ | $\eta^2$ |
| Disability | 1 | 4.26 | .04 | .02 |
| Gender | 1 | 0.18 | .67 | .00 |
| Underrepresented | 1 | 0.34 | .56 | .00 |
| Disability x Gender | 1 | 0.66 | .42 | .00 |
| Disability x Underrepresented | 1 | 4.97 | .03 | .00 |
| Gender x Underrepresented | 1 | 0.62 | .43 | .02 |
| Disability x Gender x Underrepresented | 1 | 0.03 | .86 | .00 |
| Residual | 269 | | | |

Note. The racial categories of Hispanic/Latino, Black/African American, Asian American, American Indian/Alaskan Native, Pacific Islander/Native Hawaiian, and Other have been collapsed into the category of underrepresented.
The Grit-S asks participants to rate items from *Not at all like me* to *Very much like me*, on a 5-point scale model. Developed from the original Duckworth et al. (2007) study, the Grit-S was developed by shortening the original 12-question survey to 8 questions (Duckworth & Quinn, 2009). The Grit-S includes two subscales: Perseverance ($\alpha = .64$) and Consistency of Interests ($\alpha = .78$). Perseverance questions are worded positively, whereas Consistency of Interests questions are worded negatively, and therefore reverse-scored as specific to the Grit-S measure. The points were all added up and divided by 8 for the average score, with the maximum score being a 5 (i.e., indicating high Grit) and a minimum score of 1 (i.e., indicating low Grit). The data gathered was then analyzed utilizing the computer system JASP. Due to the relative lack of diversity in the sample, ethnicity was transformed into a dichotomous variable indicating whether or not a participant was a member of an underrepresented group (i.e., non-White) group.

### Results

All 279 participants provided full demographic data and completed the survey in its entirety, so there was no missing data. Table 1 indicates Grit scores according to demographic factors including gender, disability status, and race. An inspection of z scores revealed that there were no data points beyond 3 standard deviations from the mean Grit score ($M = 3.42$, $SD = 0.61$); therefore, no outliers were removed.

There was a significant main effect of disability status on Grit, $F(1, 269) = 4.26$, $p = .04$, $\eta^2 = .02$; students with disabilities had lower grit scores ($M = 3.40$) than their peers without registration at the Office of Disability Services ($M = 3.45$). There was no significant main effect of underrepresentation membership, $F(1, 269) = 0.54$, $p = .56$, $\eta^2 = .00$, or gender, $F(1, 269) = 0.18$, $p = .67$, $\eta^2 = .00$. There was a significant interaction, $F(1, 269) = 4.97$, $p = .03$, $\eta^2 = .02$, (see Figure 1) for disability status and underrepresentation, with those who were members of both groups having significantly lower Grit scores ($M = 3.24$, $SD = 0.53$) than White students with disabilities ($M = 3.45$, $SD = 0.62$). These results are summarized in Table 2.

On the Perseverance subscale, no significant main effects (see Table 3) were found for disability

<table>
<thead>
<tr>
<th>Predictor</th>
<th>df</th>
<th>F</th>
<th>p</th>
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Note. The racial categories of Hispanic/Latino, Black/African American, Asian American, American Indian/Alaskan Native, Pacific Islander/Native Hawaiian, and Other have been collapsed into the category of underrepresented.
Disability Status and Grit | Glover, Robertson, and Geye

status, \( F(1, 269) = 0.27, p = .61, \eta^2 = .00 \), underrepresentation, \( F(1, 269) = 0.01, p = .93, \eta^2 = .00 \), or gender, \( F(1, 269) = 0.60, p = .44, \eta^2 = .00 \). There was also no significant interaction. See Table 1 for the Perseverance scores based on demographics and Figure 2.

The results of the analysis of the Consistency of Interest subscale are consistent with the overall Grit scores. There was a significant main effect (see Table 4) for disability status, \( F(1, 269) = 6.70, p = .01, \eta^2 = .02 \); students with disabilities had lower Consistency of Interest scores (\( M = 2.75, SD = 0.90 \)) than those without (\( M = 3.00, SD = 0.80 \)). There was also a significant interaction (see Figure 3) for disability status and underrepresentation, \( F(1, 269) = 5.23, p = .02, \eta^2 = .02 \), with participants who had a disability and were members of an underrepresented group having lower scores (\( M = 2.56, SD = 0.80 \)) than students with disabilities who were not a member of an underrepresented group (\( M = 2.99, SD = 0.80 \)). See Table 1 for the Consistency of Interest scores based on demographics.

Discussion

This study investigated grit in college students with and without an identified disability, as indicated by registration with the Office of Disability Services. Analysis of variance indicated that, for White students, Grit scores did not differ based on operationalized disability status. However, when exclusively interpreting Grit scores in the underrepresented category, scores were lower for those who were registered with a disability compared to those who did not have a disability. Although not a significant finding, mean differences were found (see Table 1). Grit scores were found to be higher in those in the underrepresented category compared to the White category, for those with and without disabilities. This should be further researched to understand this trend of increased grit for those within the underrepresented category. These findings indicate that disability status and complex factors, such as race, contribute to grit. Analysis of subscores revealed no significant differences between groups on Perseverance of Effort, but scores on Consistency of Interest mirrored overall Grit scores.

Underrepresented students with identified disabilities showed no difference in Perseverance of Effort. Although mean differences appear large, it is hypothesized that Perseverance of Effort scores might be better analyzed through the median. With no significant difference in Perseverance of Effort, Consistency of Interest can be seen as the primary area of consideration. Although Perseverance has been identified as a significant predictor of GPA and extracurricular activities, Consistency of Interest has been identified as a predictor of adult career changes (Duckworth & Quinn, 2009), but not goal accomplishment or overall achievement (Lombardi et al., 2019).

Although Consistency of Interest may not be predictive of goal achievement or success measures, it may be a noncognitive factor that could be improved through direct instruction or career exploration, and students may benefit from enriched career development activities facilitated through Disability Service Offices and other offices on college campuses including but not limited to, specialized first-year experience courses and career counseling. This finding can be utilized for further investigation of career development exploration and Consistency of Interest scores for individuals with disabilities and without disabilities. Individual assessments would be easy to add to intake paperwork for Disability Service Offices and may provide direction in working with students with disabilities. Further, the finding that students within the underrepresented category with disabilities have lower Grit scores than White students with disabilities underscores the need for additional research on the interaction between disability and minority status. It also indicates a possible need for intervention to support those represented within the disability and underrepresented category.

Limitations of this study include the snowballing
of disability, the extent to which a disability is visible, and whether or not participants are receiving academic accommodations. Lastly, future studies should continue to look at grit in individuals within the underrepresented category alone as well as with disabilities because there is a considerable lack of literature in this area.

The present study offers a new perspective and consideration when working with students who are registered with a disability and within the underrepresented racial groups. Research should continue to expand upon this study in order to support these individuals in achieving their highest levels within academia with or without interventional supports. Future research will help to clarify the factors associated with success in order to implement change and develop effective interventions that contribute to success for all students.

References


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The Gender Achievement Gap: Do Teacher–Student Relationships Matter?

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ABSTRACT. Low academic performance in middle childhood/early adolescence has long-term negative implications. The link between early performance and later outcomes is of special concern for boys, who tend to evidence lower levels of achievement than girls by early adolescence. Scholars have demonstrated that variations by gender in quality of teacher–student relationships may partly explain this achievement gap. That is, girls tend to have higher quality teacher–student relationships (i.e., higher levels of closeness and lower levels of conflict) than boys. Centering low-income early adolescents of color, the present analyses found that girls outperformed boys in both English Language Arts (ELA; \( p < .001 \)) and math \( (p = .009) \). Teacher–student closeness fully and significantly mediated the association between gender and ELA \( (p = .05) \) and partially mediated the association between gender and math achievement (effects were nonsignificant). Teacher–student conflict partially mediated associations between gender and ELA and math achievement, although effects similarly did not reach significance. Results have the capacity to inform future interventions aiming to increase the utility of education and decrease school dropout among low-income boys of color.

Keywords: gender, academic achievement, teacher-student relationships

In the United States, about 57% of college degrees are conferred to women (Snyder et al., 2018), who tend to consistently and significantly outperform their male counterparts academically (e.g., Conger & Long, 2010). Substantial evidence has suggested that this gender gap in academic achievement begins at a young age, with some studies showing that, by early adolescence (i.e., ages 10 to 14), girls significantly outperform boys (e.g., Hamre & Pianta, 2001; Malinauskiene et al., 2011) on both standardized tests and school grades. The lower levels of academic achievement that boys, relative to girls, commonly demonstrate are alarming because they have lasting negative implications for both individuals and society at large (Henry et al., 2012). For example, academic underachievement is associated with school dropout, which is, in turn, associated with lower income levels (Levin, 2005). It is, therefore, imperative to identify the factors that lead boys to underperform academically. Investigating this topic is especially important for Black and African American boys because they tend to demonstrate the lowest levels of achievement relative to other groups (Lewis et al., 2010) as a result of systemic oppression (e.g., criminalization).

Research has suggested that early adolescent boys and girls (ages 10–14) both benefit from high-quality teacher–student relationships (Uslu & Gizir, 2016), characterized by high levels of closeness and low levels of conflict. The literature has indicated that, relative to boys, girls tend to have higher quality relationships with teachers (e.g., Hamre & Pianta, 2001). One key benefit associated with students having high-quality relationships with teachers is increased academic achievement (of both genders; Valiente et al., 2019). Although a wide body of research has investigated gender, teacher–student relationships, and achievement among young children, early
adolescents (and specifically early adolescents of color) have been underrepresented. In one of the only studies examining this topic in a racially diverse sample of early adolescents, Hamre & Pianta (2001) found that high-quality teacher–student relationships predicted increased academic achievement. They reported that closeness and conflict with teachers were important for both male and female students and that conflict was more highly associated with students’ achievement levels. Additionally, they found that girls tend to have significantly higher levels of closeness and lower levels of conflict relative to boys. Society at large values aggression (Ewing & Taylor, 2009) and dominance (Bem, 1981) in boys, which offers a possible explanation for this discrepancy. Nonetheless, because achievement in early adolescence has been related to later achievement (Rimfeld et al., 2018) and, consequently, other life outcomes (e.g., income level; Levin, 2005), this body of research must be expanded and specifically center students of color who have been understudied in this domain and in the field of psychology as a collective.

It is clear from prior work that boys generally have lower quality relationships with teachers compared to girls, and that early childhood teacher–student relationships predict later achievement (Hamre & Pianta, 2001). Extant research has not, however, investigated the potential mediating effects of teacher–student closeness and conflict on the association between gender and achievement. The little research in this area tends to have focused on White middle- and upper-class young children (e.g., Hajovsky et al., 2017), providing an incomplete understanding of the topic and misrepresenting many individuals’ experiences (e.g., low-income, Black and African American adolescents). To address these gaps in the current understanding, the present study examined the gender achievement gap among a sample of predominantly Black and African American early adolescents as well as the mediating role of teacher–student relationships on the association between gender and achievement.

**Teacher–Student Relationships**

Attachment theory (Ainsworth & Bowlby, 1991) offers a useful theoretical framework for examining teacher–student relationships. According to attachment theory, many children form strong, secure attachment relationships with caregivers (Ainsworth et al., 1971). These relationships instill a sense of safety in the child, supporting their exploration of the world and providing comfort in times of distress (Blatz, 1966). Children may instead form insecure relationships, characterized by rejection in their attempts to attain proximity to attachment figures (Fearon et al., 2010). Insecure relationships lead children to doubt their caregiver’s support (O’Connor & McCartney, 2007) and, consequently, children must utilize alternative coping mechanisms to deal with challenges (Fearon et al., 2010). Further, youth with insecure attachments to caregivers tend to lack social competence and self-esteem (Hamre & Pianta, 2001) which likely negatively affects their later relationships.

Scholars have previously extended the attachment framework to relationships between teachers and students, conceptualizing teacher–student relationships as attachment relationships (Pianta & Nimetz, 1991). Relying on attachment theory (O’Connor & McCartney, 2007), teacher–student relationships are frequently evaluated in two key areas, which are closely related to attachment constructs: closeness and conflict (e.g., Collins & O’Connor, 2016). Closeness refers to the degree to which the teacher represents a safe haven as well as the warmth and closeness within the teacher–student relationship, whereas conflict refers to the resistance that is present in the relationship (Verschueren & Koomen, 2012). The most positive and beneficial teacher–student relationships have high levels of closeness and low levels of conflict, whereas negative teacher–student relationships entail low levels of closeness and high levels of conflict. Secure attachments can be viewed as analogous to teacher–student relationships with high levels of closeness. Conversely, insecure attachments can be viewed as analogous to teacher–student relationships with high levels of conflict.

Children who maintain high-quality relationships with teachers often exhibit various positive characteristics in the classroom (e.g., the ability to transition between activities smoothly; Howes & Ritchie, 1999). High-quality teacher–student relationships are essential for adolescent populations as they foster social-emotional growth (Murray & Pianta, 2007) during a developmentally challenging time period.

**Gender, Teacher–Student Relationships, and Academic Achievement**

Research has widely documented associations between gender and teacher–student relationships. That is, scholars have consistently found that boys generally have higher levels of conflict...
and lower levels of closeness with teachers relative to their female peers (e.g., Hamre & Pianta, 2001; McKinnon et al., 2018).

A cohesive breadth of literature has also associated early adolescents’ high-quality teacher–student relationships with academic success (e.g., Hamre & Pianta, 2001; Roorda et al., 2017). That is, closeness with teachers fosters students’ academic growth, whereas conflict inhibits it (Hamre & Pianta, 2001). The research on these topics, however, remains underdeveloped. There are inconsistent findings around gender differences in teacher–student closeness, and many studies have reported only correlational data, which does not allow for causal conclusions. Additionally, the extant research has tended to utilize predominantly White samples (e.g., Hamre & Pianta, 2001; Rhoad-Drogalis et al., 2018) despite prior research finding that African American boys and girls have lower quality (teacher-reported) relationships with teachers (McKinnon et al., 2018).

Previous scholars’ gender socialization work provides a helpful lens through which teacher–student relationships can be examined. Although possibly specific to Western cultures, a gender socialization perspective proposes that the divergent roles society prescribes for boys and girls tend to be reflected in their behaviors and the ways in which they relate to others (Ewing & Taylor, 2009). Boys and girls receive messages about behaviors that are appropriate for them to exhibit in the classroom (Koch, 2003). It follows that children are treated differently by others (e.g., teachers) based on their gender. Girls’ roles encourage them to be sympathetic, gentle, and emotionally sensitive (Diekman & Eagly, 2000), likely contributing to the development of closer and less conflictual relationships with their teachers. Conversely, societal expectations for boys include aggression (Ewing & Taylor, 2009), leadership, and dominance (Bem, 1981), traits that almost certainly hinder their development of high-quality relationships with teachers. It is therefore likely that the ways in which boys are socialized contribute to higher rates of conflict with teachers. Given the empirically demonstrated negative relations between teacher–student conflict and achievement (Hamre & Pianta, 2001), gender socialization might inhibit boys’ achievement while supporting girls’ achievement.

It is also possible that the pervasive stereotype that boys are inherently more conflictual or disruptive is internalized by many teachers and reflected in the ways they treat male students, especially boys of color. Given that teachers’ expectations play a key role in determining students’ academic achievement (Friedrich et al., 2015), such biases might be a factor limiting boys’ achievement. Additionally, as Good (1981) described, teachers tend to provide less accurate or thorough support and feedback to lower achieving students; this likely disproportionately affects boys (e.g., Hamre & Pianta, 2001; Malinauskiene et al., 2011), and specifically Black and African American boys who may therefore have lower levels of academic achievement (Lewis et al., 2010). It is also possible that boys internalize their teachers’ negative expectations for their academic achievement or society’s expectations for them to have conflictual interactions with their teachers. These expectations might hinder both boys’ academic achievement directly or negatively impact their relationships with teachers, thereby weakening their academic achievement.

A substantial portion of the literature surrounding gender and academic achievement has studied White middle- and upper-class children under the age of 10, which has left early adolescents (ages 10–14), low-income students, and students of color understudied. Low-income students and Black students, however, often develop lower quality relationships with teachers (Hartz et al., 2017), which may be connected to their lower academic achievement than their peers (Hamre et al., 2011; Owens, 2018). Pertinently, low-income families likely have limited funds for academic resources (Reardon, 2011), which sets children on trajectories for lower long-term achievement as compared to better-resourced children. It must be considered that there is an association between race/ethnicity and socioeconomic status such that Black and African American people are more often economically disadvantaged relative to other racial and ethnic groups (Bond Huie et al., 2005). Consequentially, economic disparities, rather than racial disparities per se, appear to play an important role in upholding educational disparities.

**Current Study**

Although considerable research has examined the association between gender and achievement, wide gaps remain. Most extant literature has suggested that girls outperform boys academically, but there are some mixed findings regarding the academic subjects in which the gender achievement gap persists. A wide body of research has suggested that girls outperform boys in both English Language Arts (ELA) and math achievement (e.g., Voyer & Voyer, 2010). However, some research instead has reported that girls outperform boys only in ELA and
that boys outperform girls in math (e.g., Cimpian et al., 2016) or a minimal discrepancy in math achievement between boys and girls (e.g., Snyder et al., 2018). It is possible that the more pronounced and consistently documented gender achievement gap in ELA can be explained by gender socialization or societal expectations for girls to excel in “softer” subjects, whereas boys are expected to excel in math and science-related fields. Nonetheless, the inconsistency in findings in the current literature warrants further investigation.

Additionally, there is a lack of knowledge surrounding the factors that impact differential gender achievement (Voyer & Voyer, 2014). Previous scholars have found both that gender is associated with teacher–student relationships and that teacher–student relationships are associated with achievement (Hamre & Pianta, 2001). However, research has not investigated the specific mediating effect of teacher–student relationships on the association between gender and academic achievement. Finally, low-income Black and African American early adolescents have not been sufficiently represented in the literature surrounding the topic of gender and academic achievement at large.

Aiming to fill these gaps, the current study examined the gender achievement gap and considered teacher–student relationships as a potential mediating factor in the association between gender and achievement among low-income, predominantly Black/African American early adolescents. Examining this topic will potentially inform interventions aiming to increase the utility of early adolescent education and reduce school dropout. The following two research questions and hypotheses were proposed:

1. Does gender predict math and English Language Arts (ELA) achievement in early adolescence? Consistent with most extant literature, we expected to see a strong association between gender and achievement with girls outperforming boys in both subjects.

2. Do teacher–student relationships (i.e., closeness and conflict) mediate associations between gender and achievement? We expected that teacher–student closeness and conflict would mediate the association between gender and achievement in both math and ELA. More specifically, we anticipated that boys’ lower levels of closeness and higher levels of conflict with teachers would limit, and explain, their lower achievement. We believed this would be the case given previous research reporting strong associations between gender and teacher–student relationship quality as well as between teacher–student relationship quality and academic achievement.

Method

Procedure

The study data are derived from an intervention study of an early childhood temperament-based learning intervention, INSIGHTS Into Children’s Temperament (INSIGHTS; McClowry et al., 2005). Recruitment for the INSIGHTS intervention, which was approved by university and school system research boards, consisted of contacting principals serving low-income students in three districts. All schools served families with similar sociodemographic characteristics. Twenty-three schools were invited and agreed to participate, and one school withdrew as a result of a principal’s transition. Thus, the intervention was implemented in 22 qualifying low-income schools in a large metropolitan city; schools were randomly assigned to either INSIGHTS or an attention-control condition. Students in the INSIGHTS condition completed a temperament-based program that aims to increase social-emotional learning, whereas those in the attention-control condition completed a supplemental reading program. The initial intervention and data collection were carried out when students were in kindergarten or first grade (K/1; Mage = 5.68 years; SD = 0.69) and a follow-up data collection was conducted when students were in sixth grade.

The present study included all participants for which the INSIGHTS team had teacher–student relationship (first grade), academic achievement (sixth grade), and demographic (i.e., gender) data. Eligible student participants were 238 students (122 boys, 116 girls) who attended schools throughout a large metropolitan city at sixth grade follow-up data collection. Two hundred twenty-two of these students’ parents provided information about their income levels; 92% of students came from low-income families (i.e., those students who qualified for free or reduced-price lunch at the beginning of the study). The sample for this study is composed of students who were identified by their parents as Black/African American (76%), bi/multiracial Black (3%), or another race (e.g., Latino; 21%). Racial identity information was not provided to the INSIGHTS team for two participants. Non-Black/African American students are not excluded to increase power, and students were not analyzed separately by race because
such analyses would have had very low power. One parent from each family participated, providing demographic information (i.e., child’s gender, child’s race, and family income status) when children were in kindergarten or first grade. Additionally, students’ first-grade homeroom teachers (N = 238) completed a paper or online survey about their relationship with each respective student.

Measures

Demographics
Demographic information was collected during the initial INSIGHTS study (i.e., when students were K/1) by parent report. Relevant demographic variables included child’s gender, child’s race, and family socioeconomic status (identified based on each child’s eligibility for free or reduced-price lunch). Gender is treated as a dichotomous variable (i.e., male and female gender identities as reported by parents).

Academic Achievement
Academic achievement was measured using standardized test scores administered by and obtained from the New York City Department of Education. Achievement scores for student participants were converted into z scores, which were then normed relative to the school district; this allowed for the comparison of students to others who have had similar school experiences. The math test has questions probing number sense and operations whereas the ELA test includes questions surrounding students’ literary responses and critical analysis skills (Dobbie & Fryer, 2011). The present analyses include students’ sixth grade Math and ELA test scores.

Teacher–Student Relationship Quality
Teacher–student relationship quality was captured with a shortened version of the Student–Teacher Relationship Scale (STRS; Pianta, 2001). There are two subscales, which are completed by participants’ first-grade homeroom teachers. The 8-item Closeness subscale assesses warmth and communication, and the 7-item Conflict subscale measures antagonistic interactions (McCormick et al., 2015) and/or resistance present in the teacher–student relationship (Verschueren & Koomen, 2012). Students’ homeroom teachers rated the degree to which statements accurately described their relationship with students using a Likert-type scale ranging from 1 (definitely does not apply) to 5 (definitely applies; Pianta, 2001). The STRS has been widely used in work centering elementary school-aged children, and INSIGHTS data shows that it yields excellent reliability (α = .91; McCormick et al., 2015).

Data Analytic Plan
All analyses were conducted with SPSS statistical software. We addressed the first research question using an Ordinary Least Squares regression, which assesses the association between gender and ELA/math achievement respectively, controlling for the INSIGHTS treatment condition because these conditions are not relevant to the present study. We investigated the second research question using linear regressions, specifically utilizing mediation models following the Baron and Kenny (1986) method. Mediation aims to assess whether the association between a predictor and outcome variable can be explained through a third variable (i.e., the mediating variable). These analyses assess the mediating effect of teacher–student closeness/conflict on the association between gender and ELA/math achievement respectively. Partial mediation is detected when the standardized beta weight of the initial association between the predictor and outcome variables is reduced when adding a mediating factor. Further, to assess the significance of mediation effects, we utilized the Sobel (1982) test. These analyses similarly control for the INSIGHTS treatment condition. Regressions are run separately for ELA and math achievement as well as teacher–student closeness and conflict to capture variability between relationship dimensions and academic subjects. Figure 1 shows a conceptual model for the mediation analyses. Throughout the study, gender is dummy coded (i.e., male = 0; female = 1).

Results

Prior to addressing the research questions, descriptive statistics and correlations were conducted to provide initial information. A correlation matrix including descriptive statistics (i.e., means, standard deviations) of study variables (aside from gender) can be found in Table 1.
The initial correlations yielded potentially meaningful preliminary findings. There was a significant, moderate, and negative correlation between teacher–student closeness and conflict. Given the findings of previous scholars (Hamre & Pianta, 2001), it was unsurprising that highly significant, moderate, and negative correlations were found between K/1 teacher–student conflict and both sixth grade math and ELA achievement. K/1 teacher–student closeness, conversely, was positively, weakly, and significantly correlated with both sixth grade ELA and math achievement. Finally, a strong, significant, and positive correlation was found between sixth grade math and ELA achievement, which was anticipated because previous research has indicated that achievement tends to remain stable across academic subjects (Ma, 2001).

**Gender and Academic Achievement**

To address the first research question, we ran Ordinary Least Squares regressions between gender and both ELA and Math achievement, controlling for the INSIGHTS treatment condition. The first analysis showed that the model explained 5.5% of the variance in ELA achievement. Moreover, it yielded a statistically significant difference between boys’ and girls’ ELA achievement, $b = .25, t(2, 235) = 3.93, p < .001$, such that girls ($M = 0.08$) outperformed boys ($M = −0.40$). The second analysis found a similar discrepancy in math achievement based on gender, $b = .17, t(2, 235) = 2.63, p = .009$, such that girls ($M = −0.07$) significantly outperformed boys ($M = −0.39$). This model explained less of the variance (2.3%) than the prior model examining ELA achievement. Results of these analyses aligned with various previous scholars’ work (e.g., Voyer & Voyer, 2014), as well as the initial correlations between gender and ELA/math achievement (see Table 1).

**The Mediating Role of Teacher–Student Relationships on the Gender Achievement Gap**

Aiming to investigate the impact of teacher–student relationships on the gender achievement gap, we conducted four mediation analyses. Each mediation analysis controlled for the INSIGHTS treatment condition. A broad conceptual model can be found under Figure 1, and specific models including statistics can be found for each analysis under Figures 2, 3, 4, and 5, respectively. The first mediation analysis included gender as the predictor, teacher–student conflict as a mediator, and math achievement as the outcome. The first pathway within this analysis showed an association between gender and
teacher–student conflict, which indicates that boys had higher levels of conflict with their teachers than did girls. The second pathway showed that teacher–student conflict significantly predicted lower math achievement. Results indicated that teacher–student conflict partially mediated the association between gender and math achievement, such that including teacher–student conflict as a mediator in the model shifted the direct association between gender and math achievement to be weaker than its initial direct association. Based on Sobel’s (1982) test, mediation effects did not reach significance. This suggests that early adolescent boys had overall higher levels of conflict with teachers relative to their female peers, which was, in turn, related to boys’ weaker math achievement in sixth grade.

The second mediation analysis included gender as the predictor, teacher–student conflict as a mediator, and ELA achievement as the outcome. The first pathway in this analysis, identical to the one described above, showed an association between gender and teacher–student conflict such that boys had higher levels of conflict with their teachers. The second pathway showed that teacher–student conflict was highly associated with lower ELA achievement. The significance of the initial pathway between gender and ELA achievement was reduced when adding teacher–student conflict as a mediator. Teacher–student conflict, therefore, partially mediated the association between gender and ELA achievement. Sobel’s (1982) test showed that mediation effects did not reach significance. Results of this analysis suggest that early adolescent boys, overall, have relationships with teachers characterized by higher levels of conflict, which predicts lower math achievement relative to girls.

The third mediation analysis included gender as the predictor, teacher–student closeness as a mediator, and ELA achievement as the outcome. The first pathway within this analysis showed that gender significantly predicted teacher–student closeness such that boys had lower levels of closeness with teachers than did girls. The second pathway showed that teacher–student closeness had associated with higher math achievement. Results indicated that teacher–student closeness fully mediated the association between gender and math achievement, such that including teacher–student closeness as a mediator in the model resulted in the effect of gender on math achievement being nonsignificant although it was previously highly significant. Sobel’s (1982) test indicated that mediation effects are significant \(p = .05\). This finding suggests that early adolescent boys’ lower levels of teacher–student closeness has indirect effects that predict their underperformance in math relative to girls.

The fourth mediation analysis included gender as the predictor, teacher–student closeness as a mediator, and ELA achievement as the outcome. The first pathway in this analysis was identical to the one described in the third mediation analysis; this showed that gender was highly associated with teacher–student closeness such that boys had lower levels of closeness with teachers than did girls. The second pathway showed that teacher–student closeness did not significantly predict ELA achievement. Including teacher–student closeness as a mediator in the model made the direct association between gender and math achievement weaker than the initial direct association, indicating partial mediation. However, Sobel’s (1982) test revealed that mediation effects were nonsignificant.

Although only one of our mediation models reached significance, all four showed partial mediation effects. In context, findings of these analyses provide preliminary evidence that the indirect effects of teacher–student relationships lead female students to outperform their male peers. More specifically, girls’ lower levels of conflict with teachers in first grade predicted their outperformance of boys in both math and ELA. Girls’ higher levels of closeness with teachers in first grade predicted their outperformance of boys in both math and ELA, with effects reaching significance in math.

Discussion

The purpose of the present study was to investigate the gender achievement gap in math and ELA using standardized test scores and examine whether teacher–student relationships mediate the gender achievement gap among low-income, predominantly Black/African American early adolescents. Prior research has suggested that closeness and conflict within teacher–student relationships may contribute to the gender achievement gap (Hamre & Pianta, 2001), yet has not examined this specific mediated pathway. Relative to girls, boys often underperform academically (Hamre & Pianta, 2001; Malinauskiene et al., 2011), and Black early adolescent boys often show lower academic performance as compared to other groups (Lewis et al., 2010). These differences are not products of the groups themselves, but rather structural and systemic barriers. This is a key topic of interest because academic underachievement is associated
with school dropout and, consequently, depressed income levels (Levin, 2005). Results of the present study showed that girls significantly outperformed boys in both ELA and math. Further, to varying degrees, teacher–student closeness and conflict mediated the association between gender and both ELA and math achievement.

Findings of the present study corroborate those in extant literature pertaining to the gender achievement gap. That is, a wide body of research has suggested that girls significantly outperform boys in both ELA and math. Perhaps most notably, Voyer & Voyer (2014) conducted a meta-analysis examining studies with various racial/ethnic breakdowns and found that girls outperform boys across academic subjects. It was, therefore, unsurprising that girls in the present study demonstrated higher academic achievement than boys. Prior literature has additionally drawn a somewhat clear association between gender and teacher–student relationship quality, such that boys tend to have more conflictual and less close relationships with teachers relative to girls (Hamre & Pianta, 2001; McKinnon et al., 2018). Lastly, research has demonstrated the importance of teacher–student closeness and conflict in determining students’ achievement (Hamre & Pianta, 2001; Roorda et al., 2017). Extant literature drew a clear and logical mediation pathway, yet one which had not specifically been investigated.

Previous work has also reported some contrasting findings to those in the present study. Snyder et al. (2018), for instance, found that adolescent girls outperformed boys in ELA but that boys’ slightly outperformed girls in math. Similarly, in a sample of predominantly Black adolescents, Conger & Long (2010) indicated that girls outperformed boys only in ELA. Thirdly, in a similar sample of predominantly African American early adolescents, researchers found that girls no longer outperformed boys in math by eighth grade (Diemer et al., 2016). It is somewhat surprising that the current study found different results as compared to Diemer et al. (2016) given the demographic similarities in our samples. However, these scholars examined slightly older populations than did the present study and used a different index of achievement (i.e., GPA), which may explain discrepancies. There is a clear need for further research in this domain to provide a more comprehensive understanding of the gender achievement gap specifically among Black/African American early adolescents.

The present study made significant and unique contributions to the existing literature. It examined the gender achievement gap, a pressing issue, among a population that is highly underrepresented in the general literature and in psychology specifically. Early adolescents of color were centered in this work to increase knowledge about their experiences, thereby creating a more comprehensive and inclusive understanding of the gender achievement gap. Relatedly, this study extended previous research that has examined gender, teacher–student relationships, and achievement in predominantly White (e.g., Hajovsky et al., 2017) and racially diverse populations (e.g., Hamre & Pianta, 2001) as well as participants from diverse socioeconomic backgrounds (e.g., Caputi et al., 2017). Although utilizing diverse sets of participants is essential, cultural differences necessitate that research in this domain examines differences in results based on cultural identity, ethnicity, and/or race. Doing so will help to prevent generalizations that misrepresent individuals’ experiences.

The present study was the first to investigate the mediating impact of teacher–student relationships on the gender achievement gap. Hamre & Pianta (2001) provided preliminary evidence for kindergarten students’ teacher–student relationships impacting their achievement as they enter adolescence. They found that boys had lower levels of closeness and higher levels of conflict with teachers as well as lower math and reading achievement than girls in adolescence. Despite only one mediation analysis reaching statistical significance, our work provided preliminary evidence that closeness and conflict have indirect effects that predict that girls sustain higher ELA and math achievement than boys.

Given that adolescents’ relationships with teachers can be conceptualized as attachment relationships (Bergin & Bergin, 2009), it is integral to consider attachment theory as a framework when examining teacher–student relationships. Children who have high-quality relationships with teachers, similar to secure relationships with caregivers, often exhibit positive characteristics in the classroom (Howes & Ritchie, 1999). Similarly, it is useful to adopt a gender socialization perspective, as divergent social norms for boys and girls appear to play a role in the development of teacher–student relationships. Results of the present study, in line with gender expectations for boys (Bem, 1981; Ewing & Taylor, 2009), found that boys have substantially higher levels of conflict and lower levels of closeness with teachers. Further, these findings support the notion that societal expectations
might negatively affect boys’ relationships with teachers and consequently, lead to long-term lower academic performance.

The present study has key implications beyond expanding the diversity of the literature surrounding gender and achievement. Firstly, results have the capacity to inform practice. Given the demonstrated impact of teacher–student closeness and conflict on achievement, it is integral for future interventions in schools to focus on cultivating close teacher–student relationships as well as working to reduce negative relational patterns. This can be done in myriad ways. First, it is essential that teachers understand the importance of their willingness to provide time and assistance to students and remain emotionally available to them (Whitlock, 2006). Relatedly, it would be useful for schools to implement individual meetings between students and teachers to establish open communication, address any additional needs and/or issues that have arisen, and foster a sense of emotional security and support. This is especially important for boys, who tend to have lower quality relationships with teachers (Hamre & Pianta, 2001). The implementation of social-emotional learning programs on a large scale might be useful because they have been shown to increase positive social behaviors (Taylor et al., 2017) and decrease disruptive behaviors among youth (McCormick et al., 2015). SEL interventions, therefore, can improve teacher–student relationships, thereby likely bolstering boys’ academic achievement.

Lastly, it would be beneficial for preservice teachers to receive education around the importance of building positive relationships with students and being reflective about potential gender, racial, and intersectional biases that negatively impact such relationships and perpetuate oppression at large. Many training modules surrounding this topic exist, and schools could include such training(s) as a part of annual teacher education.

The present study similarly has implications pertaining to theory. Gender socialization theorists have posited that boys and girls are treated differently, which is reflected in their relational behaviors (Ewing & Taylor, 2009). Our results support this, suggesting that this differential treatment based on gender might be meaningful in determining the quality of teacher–student relationships; this is evidenced by boys demonstrating lower levels of closeness and higher levels of conflict relative to girls. That is, there appear to be differences in the ways early adolescent boys and girls are socialized, which lead to discrepancies in their relationships with teachers. This highlights the importance of expanding research that focuses on mitigating the prevalent and problematic societal norms surrounding gender; they not only prescribe strict roles for boys and girls but seem to inhibit boys’ academic achievement.

Our findings must also be considered in light of a few limitations. First, teacher–student relationships were captured from only the teachers’ point of view; this raises concerns regarding biases (e.g., some male teachers may consciously provide more favorable reports of their relationships with male than female students). It would be useful for research in the future to obtain multidimensional data, perhaps from multiple teachers or students themselves. Multiple measures have been developed for this purpose. Most participants in the current study were identified by their parents as Black/African American; cultural differences may limit the generalizability of findings to other populations (e.g., Asian students). However, the diversity of the sample also limits claims that can be made specifically about Black or African American students. Findings must instead be viewed as preliminary data on the present topic and a potential catalyst for further investigation in this domain. Due to low power, we were unable to examine racial/ethnic differences within our sample. Lastly, it is of note that teacher–student relationship data were obtained only when students were in first grade. This, unfortunately, provides no clarity about trends in teacher–student relationships nor whether teacher–student closeness and conflict remain meaningful mediators throughout adolescence.

Future research should aim to add to the literature surrounding the gender achievement gap in early adolescents of color. More specifically, scholars must work to identify additional factors that are pertinent to the gender achievement gap and work to create sustainable and effective interventions to support the achievement of boys of color. Further research should utilize longitudinal data with multiple time points to develop a more comprehensive understanding of developmental trends in achievement between boys and girls over time. Relatedly, it would be beneficial for scholars to collect data about teacher–student relationships in adolescence to determine whether they remain a meaningful mediator in determining concurrent academic achievement. Additionally, it would be beneficial to utilize experimental data when studying factors affecting the gender achievement gap to draw stronger, causal conclusions. Finally, future
research should study the experiences of people with nonbinary gender identities to create a more inclusive and comprehensive body of work.

The present study fills a key gap in the literature by investigating the gender achievement gap among predominantly Black/African American early adolescents. Although the gender achievement gap at large has been widely documented, it has been investigated less often among students of color and when studied, has found mixed results. This study added to this body of knowledge, finding that girls significantly outperformed boys in this sample of predominantly Black and African American students. Additionally, we identified teacher–student closeness and conflict as factors through which the gender achievement gap is sustained among these students. Although there are certainly other factors upholding this achievement gap, this finding highlights the importance of working to support early adolescent Black and African American boys’ relationships with their teachers to foster academic growth. This is one key way to combat the structural barriers that impair their academic success.

References


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**PSI CHI JOURNAL OF PSYCHOLOGICAL RESEARCH**
Despite recent concerns about the economic and social value of college, research has suggested that more than 90% of American parents hope their children will attend college (Fingerhut, 2017). This makes sense given that the benefits of earning a college degree include an increase in lifetime earnings (Abel & Deitz, 2019; Carnevale et al., 2011). In addition, most college graduates say that their education prepared them for their career and fostered both personal and intellectual development (Heimlich, 2011). From a societal perspective, college graduates contribute to their communities financially and tend to be more civically active than noncollege graduates (Campbell, 2006).

According to a Lumina Foundation Survey, earning a bachelor’s degree increases an individual’s annual income, lifetime earnings, access to health insurance and retirement benefits, job security, and health (Trostel, 2015). College graduates also benefit society, both in terms of their skilled contributions to their communities and the economic benefits of having a strong workforce. They are also more civically and socially engaged (Campbell, 2006; Edelson, 2020).

Unfortunately, starting a degree and completing one are not the same thing. According to the National Center for Education Statistics (2018), only 60% of first-year students who started school in 2010 had obtained a degree by 2016. Research has indicated that, at the individual level, failing to complete a college degree exacts a financial cost in terms of lost tuition and loans (U.S. Department of Education, 2019) and a psychological cost including distress (Hoeschler & Backes-Gellner, 2019). Universities also suffer since poor retention and graduation rates can have a negative impact on their status and recognition. Given these micro- and macro-level costs, it is imperative to increase the understanding of the correlates of student achievement.
Prior Research on Academic Success

Grade point average (GPA) has traditionally been considered the predominant measure of academic success (Mould & DeLoach, 2017), although it is a complex indicator. For example, prior education (Reid & Moore, 2008) is a predictor of academic performance, but the skills necessary to succeed in high school do not always prepare students to excel in college courses (Ferenstein & Hershbein, 2016). Likewise, first-generation status (i.e., being the first member of the family to attend college) has been linked to a reduced GPA (Ramos-Sánchez & Nichols, 2007), but not all studies have found such differences (Aspelmeier et al., 2012). A number of psychosocial factors are also thought to contribute to academic performance and GPA. For example, coping strategies (Skidmore et al., 2016), life satisfaction (Lepp et al., 2014), stress (Mahmoud et al., 2012), social support (Dennis et al., 2005), and self-efficacy (Aspelmeier et al., 2012) are all thought to contribute to academic performance.

Importance of Environmental and Person-Level Factors

One psychosocial factor robustly related to psychological well-being is social support. Social support, or the degree to which one feels connected and supported by others, has been linked to a positive university experience (Lee et al., 2002). Research has suggested that social connections play a key role in first-year student adjustment to college (Rahat & Ilhan, 2016) and may reduce the harmful effects of stress (Whitney, 2010). Similarly, a lack of peer support has been shown to be predictive of poor academic performance (Dennis et al., 2005). It has also been reported that feeling you belong and have support on campus predicts retention in a diverse student population (Gloria & Robinson Kurpias, 1996). The degree to which an individual believes that their campus is a supportive environment may also be a factor in academic success. Gloria and Robinson Kurpias (1996) argued that a student’s perception of how well their university environment meets their personal needs is related to increased life satisfaction and social support. Importantly, believing that their university is a good fit is thought to increase academic persistence in students considering quitting school (Castillo et al., 2006; Gloria & Robinson Kurpias, 1996, 2001). Although prior research has examined the influence of the university environment on academic persistence, few studies have assessed both GPA and university environment as measures of academic success.

Further, there is evidence that numerous factors are linked to academic success at the personal level. Life satisfaction, for example, may be crucial in influencing academic performance in college students. Students who are less satisfied with their current life are less likely to feel supported by peers and more likely to engage in harmful coping strategies (Whitney, 2010). However, research has also found that students with greater life satisfaction have higher GPAs (Lepp et al., 2014) and have better psychological outcomes (Mahmoud et al., 2012) when compared to their peers.

Research has also demonstrated that coping, or the way a person deals with stressful events, is another component of academic success (Struthers et al., 2000). Traditionally, coping has been conceptualized as cognitive, behavioral, and affective process (Lazarus & Folkman, 1984). Relevant to college student achievement, a supportive university environment may reduce the influence of maladaptive coping strategies such as denial and substance abuse that have been shown to positively relate to poor academic performance (Alarcon et al., 2013; Byrd & McKinney, 2012; Chow, 2005). Further, maladaptive coping strategies have been linked to greater feelings of isolation and distress (Dunkley et al., 2000), suggesting an indirect link. In contrast, when students perceive that they are supported and belong on their campus, they are more likely to see their university in a positive light. This perception of the university environment can help them to thrive psychologically and academically.

Present Study

Overall, the literature on college student success indicates that a variety of environmental and person-level factors contribute to a student’s success. The current study was designed to examine the relationships between first-generation status, social support, life satisfaction, coping, and student success in a single model. We know that first-generation students have lower college completion rates than other students, and all three of the other psychosocial factors have been shown to make significant contributions to student well-being and academic success (Gloria et al., 2015).

This study included GPA as a measure of academic success. However, a growing body of research suggests that it doesn’t capture the entirety of a student’s academic accomplishments (Mould & DeLoach, 2017). While some students leave college before graduation because of a low GPA, others in good standing still fail to finish their
degree. Therefore, we also included a measure of student’s perception of their university environment since it has been shown to be a strong predictor of academic persistence (Suhlmann et al., 2018). The central aim of the study was to assess whether the combination of satisfaction with social support, the use of effective coping strategies, and expressed life satisfaction would be associated with academic success as assessed by GPA and positive perceptions of the university environment.

Method

Participants and Procedures
Undergraduate participants were recruited from the University of Texas at San Antonio (UTSA), a large public university in southwest Texas. The present study was approved by UTSA’s institutional review board. Participants were eligible for inclusion if they were at least 18 years old and currently enrolled in an Introduction to Biology course. The study was described to potential participants as an investigation of factors related to student performance. On the date of administration, 230 students were provided with sealed envelopes containing paper surveys. After the completion of these surveys, all responses were collected anonymously. Of the 230 undergraduate students who completed the surveys, 155 (68%) identified as women, 73 (32%) identified as men, and participants ranged in age from 18–34 (M = 20.83, SD = 2.78). Thirty (13%) reported being college first-year students, 76 (33%) reported being sophomores, 48 (21%) reported being juniors, and 54 (24%) reported being seniors, with the remainder not reporting. Forty-three (19%) of the students identified as first-generation college students. Ninety-four (41%) of the students self-identified as Hispanic, 56 (25%) as White, 30 (13%) as African American, 19 (8%) as Asian, 3 (1%) as Middle Eastern, 16 (7%) as Mixed Ethnicity, and 4 (2%) as Other. Sixty-three (27%) students endorsed an A average, 123 (53%) endorsed a B average, 25 (11%) endorsed a C average, and 1 (0.4%) endorsed a D average. Lastly, 135 (59%) students indicated that they work while attending school.

Measures

Demographic and First-Generation Status
Students reported how many credits they had completed at the time of the survey using an open-ended response. These responses were categorized into class year (i.e., first-year = 0–24 credits; sophomore = 25–55 credits; junior = 56–89 credits; senior = 90 or more credits). Participants also endorsed a single-item measure of first-generation status. The item was stated as, “Are you the first person in your family to attend college?” Scores were then dummy coded as 0 (no) and 1 (yes).

Social Support
The Social Provisions Scale is a 24-item scale used to measure a participant’s social support system using a 4-point Likert-type scale ranging from 1 (strongly agree) to 4 (strongly disagree, Cutrona & Russell, 1987). Sample items include statements such as, “There are people I can depend on to help me if I really need it” and “There are people who depend on me for help.” The total scale has been shown to be both valid and reliable for use with college students (Perera, 2016), and demonstrated excellent internal consistency in this study (α = .93).

Problematic Coping
The Brief Coping Orientation of Problem Experience Inventory (BCOPE) is a 28-item scale used to assess a participant’s dispositional and situational coping styles (Carver, 1997). The current study used a composite of six subscales composed of items that describe problematic coping strategies: Self-Distraction Coping, Denial Coping, Venting Coping, Substance Use Coping, Behavioral Disengagement Coping, and Self-Blame Coping. Items were measured on a 4-point scale ranging from 0 (I haven’t been doing this at all) to 3 (I’ve been doing this a lot). Sample items include statements such as “I’ve been turning to work or other activities to take my mind off things” and “I’ve been refusing to believe that it has happened.” Although this is the first study to use a composite problematic coping scale, the problematic coping strategies subscales from the BCOPE have been shown to be both valid and reliable for use with college students (Miyazaki et al., 2008), and demonstrated good internal consistency as a composite variable in this study (α = .82).

Life Satisfaction
The Satisfaction With Life Scale (SWLS) is a 5-item scale used to measure a participant’s global cognitive judgments related to life satisfaction (Diener et al., 1985). Items were measured on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Scores are summed together to yield a continuous measure of life satisfaction. Sample items include statements such as “In most ways, my life is close to my ideal” and “I am satisfied with my life.” The SWLS has
been shown to be both valid and reliable for use with college students (Lepp et al., 2014), and demonstrated excellent internal consistency in this study (α = .86).

**University Environment**
The University Environment Scale is a 14-item scale designed to measure university students’ perception of the university environment (Gloria & Robinson Kurpius, 1996). Items were measured on a 7-point scale ranging from 1 (not at all) to 7 (very true). After reverse-scoring items 1, 4, 5, 11, and 13, items are summed together to yield a continuous measure of university environment. Sample items include statements such as “University staff have been warm and friendly” and “Class sizes are so large that I feel like a number.” This measure is often used as a proxy for student retention (Gloria & Robinson Kurpius, 1996, 2001), has been shown to be both valid and reliable for use with college students (Gloria et al., 2015), and demonstrated excellent internal consistency in the current study (α = .80).

**GPA**
Participants completed a single-item self-report measure of current GPA. The item was stated as, “Estimated total GPA, right now?” Alphabetical responses were then coded numerically (i.e., D = 1, C = 2, B = 3, A = 4). If numerical responses were reported in decimal format, they were rounded off to the nearest whole number. Self-report measures of GPA have been previously used with college students when access to student records was limited (Kuncel et al., 2005).

**Data Analytic Plan**
All statistical analyses were conducted using SPSS version 23 and Mplus version 7. Descriptive statistics were inspected to assess data for normality and influential outliers. No influential outliers were identified during this process and assumptions of normality were met. Correlations were then examined to assess the strength of the linear association between variables and identify potential concerns for multicollinearity during primary testing (i.e., r > .80; Tabachnick & Fidell, 2013). Finally, a path analytic model was used with full information maximum likelihood estimation in which university environment and GPA were each regressed onto four independent variables: social support, first-generation status, problematic coping, and life satisfaction.

**Results**
Descriptive statistics and zero-order correlations can be found in Table 1. Standardized coefficients for the path model can be found on Table 2 and Figure 1. The two demographic variables

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**TABLE 1**
Means, Standard Deviations, and Zero-Order Correlations of Study Variables

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>3.12</td>
<td>0.54</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>UES</td>
<td>72.76</td>
<td>12.26</td>
<td>.04</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Class year</td>
<td>2.61</td>
<td>1.03</td>
<td>-.23**</td>
<td>.00</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>First generation</td>
<td>0.19</td>
<td>0.39</td>
<td>-.06</td>
<td>–.01</td>
<td>.11</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Social support</td>
<td>79.55</td>
<td>12.69</td>
<td>.33**</td>
<td>-.01</td>
<td>.14</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Life satisfaction</td>
<td>23.73</td>
<td>6.96</td>
<td>.12</td>
<td>–.03</td>
<td>.09</td>
<td>.30*</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Problematic coping</td>
<td>9.48</td>
<td>5.63</td>
<td>.18</td>
<td>–.14</td>
<td>.06</td>
<td>.17</td>
<td>–.33**</td>
<td>.03</td>
<td>–</td>
</tr>
</tbody>
</table>

Note: UES = perception of university environment.

*p < .05, **p < .01.

**TABLE 2**
Demographic and Psychosocial Predictors of Academic Success, Path Model Results

<table>
<thead>
<tr>
<th>Class year</th>
<th>First generation</th>
<th>Social support</th>
<th>Life satisfaction</th>
<th>Problematic coping</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA (R² = .11)</td>
<td>-.20**</td>
<td>-.17</td>
<td>.07</td>
<td>.1</td>
</tr>
<tr>
<td>UES (R² = .26)</td>
<td>.02</td>
<td>.08</td>
<td>.33**</td>
<td>.20</td>
</tr>
</tbody>
</table>

Note: UES = perception of university environment.
The values presented are standardized linear regression coefficients.

*p < .05, **p < .01, ***p < .001.

**FIGURE 1**
Path Analysis of Demographic and Psychosocial Predictors of Academic Success

Note: The path analysis shows the relationship between demographic and psychosocial predictors (class year, first-generation status, social support, life satisfaction, and problem coping) and academic success (grade point average and university environment). The values presented are standardized linear regression coefficients.

*p < .05, **p < .01, ***p < .001.
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emerged only as predictors of GPA, and the three psychosocial variables emerged only as predictors of perceived university environment. Specifically, higher class year ($B = -1.11$, $SE = .04$, $p = .004$) and first-generation student status ($B = -2.25$, $SE = .10$, $p = .013$) was related to lower GPA. Higher endorsements of each social support ($B = .31$, $SE = .07$, $p < .001$) and life satisfaction ($B = .36$, $SE = .13$, $p = .005$) were related to more favorable perceptions of the university environment. Alternatively, engaging in more problematic coping habits was related to poorer perceptions of the university environment ($B = -.42$, $SE = .14$, $p = .003$). Altogether, the model accounted for 11% of the variance in GPA and 26% of the variance in university environment.

Discussion

The results of this study indicate that first-generation student status is associated with having a lower GPA. This is consistent with prior studies and is likely due to the fact that students who are the first person in their family to attend college often face significant financial struggles and lack specific guidance on how to succeed academically (Strayhorn, 2006). Students who reported higher levels of social support and greater life satisfaction also had more favorable perceptions of their university environment. In contrast, unfavorable perceptions were associated with the use of problematic coping strategies.

These results are important because they indicate that first generation students and those who lack adequate social support, coping skills, or life satisfaction are at higher risk for academic failure. Fortunately, these variables can be reliably assessed and addressed in systematic ways. Rather than relying on standardized advising or tutoring programs for all students, interventions could be designed to meet specific psychosocial needs. For example, students who lack support, or have difficulty making connections on campus could benefit from participating in support groups led by peer mentors, joining focused dorm living groups, attending ongoing faculty led discussion groups, and taking part in social skills groups led by counseling professionals.

Students who struggle to manage stress because they lack adequate coping skills, engage in maladaptive strategies, or are unhappy about their goals or their lifestyle would benefit from focused interventions as well (Brady et al., 2020). These could include stress management support groups based on cognitive behavioral principles, courses that focus on values clarification, time management, and behavior modification, or experiential activities including volunteer work, recreational challenges, and outdoor adventures (Compas et al., 2017; Chang et al., 2019).

Efforts to provide tailored support to students could also be adapted to their specific circumstances and background. Given that class level is predictive of GPA, it would make sense to provide different types of support to incoming freshman than to rising seniors. The link between first-generation status and lower GPA suggests that outreach efforts should be designed to help them obtain the academic skills, guidance, and financial aid they lack. Interventions for other identifiable groups including Veteran students, Non-traditional students, and Transfer students could take a similar tailored approach.

Implications

The completion of a college degree is a pathway to individual success (Abel & Deitz, 2019). But, for too many students, graduation remains an elusive goal. The results of this study are consistent with other studies suggesting that first-generation students and those who are new to college are more likely to struggle academically as indicated by their grades. In response many schools have increased their advising and academic support services. However, psychosocial factors such as an individual’s perceived social support and ability to cope with stress are significantly related to their sense that they are comfortable and belong at their university. This is important because such mutable variables are associated with levels of academic persistence and success. Fortunately, they are also amenable to interventions that help students develop new skills or abilities. For example, students who are lonely or feel disconnected from their campus could benefit from programs designed to foster effective social skills and peer led activities that promote connection (Mattanah et al., 2010). Students who lack effective means of coping with stress could be offered to educational workshops designed to help them adopt more effective strategies (First et al., 2018). Such targeted outreach programs could be implemented through counseling, academic advising, and faculty led groups, and can be scaled in cost effective ways to meet campus needs.

Limitations

As is often the case, the generalizability of the results is a concern. Although the students surveyed in this study were recruited through several large
lower division biology courses, most were taking the class to meet a core curriculum requirement, so they actually represented a range of majors. The fact that GPA data were obtained through student self-reports is also a limitation. The results of a large meta-analytic study suggested that the accuracy of student grade reports are variable with the greatest discrepancies occurring among students with lower grades (Kuncel et al., 2005). These data suggest that the findings might be even more robust if students at the lower end of the GPA spectrum inflated their grade reports. Future longitudinal research is needed to explore the causal relationships among these variables (Ployhart & Vandenberg, 2009). It would also be useful to further explore factors that potentially mediate these mechanisms (Imai et al., 2010). It is conceivable that understanding how trait variables, such as personality, optimism, resilience, and state experiences, such as depression, anxiety, or lack of self-efficacy, influence the observed links would enhance the utility of the findings at both the personal intervention and the institutional program implementation level.

Conclusion
Failing to complete a college degree can be costly to students, both personally and financially. In addition to a sense of failure and discouragement, students are often left with loans to pay, and the failure to graduate can have an impact on lifetime earnings as well. This study indicated that first generation students, and those who struggle socially, lack good coping skills, or are unsatisfied with their life are less likely to succeed academically. Fortunately, all of these factors can be reliably measured, and the results used to develop targeted intervention programs. Doing so is likely to increase a student’s ability to cope with the stress of college and therefore their chances of reaching their academic goals. In doing so they will also benefit their families, peers and society.

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colleges-impact-on-u-s-but-most-see-benefits-for-workforce-preparation/  

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Materialism and Drinking Motives: Examining the Longitudinal Associations in an Undergraduate Sample

Ishaq Malik, Elaine Toombs, Aislin R. Mushquash*, Daniel S. McGrath*, and Christopher J. Mushquash*
Department of Psychology, Lakehead University

ABSTRACT. Alcohol use is common among individuals attending university and frequent use is associated with several negative effects. It is therefore important to assess individual difference factors preceding alcohol use. Materialism, a value one holds that prioritizes status through the acquisition of money and possessions, has received minimal research focus in relation to alcohol use and has predominantly been examined using cross-sectional designs (i.e., data collected at one time point). The present study was the first to test the association between materialism, risky drinking motives (i.e., motives preceding alcohol use associated with increased consumption and related problems), and risky personality traits (i.e., stable characteristics associated with frequent substance use and related problems) using a short-term longitudinal design. Undergraduate student drinkers (N = 317) completed self-report questionnaires at baseline and follow-up (2 weeks later). Hierarchical regression analyses found that greater levels of materialism significantly predicted each drinking motive while controlling for risky personality traits. Materialism significantly predicted drinking to cope with depression when controlling for trait hopelessness (β = .16, p = .014), drinking to cope with anxiety while controlling for anxiety sensitivity (β = .11, p = .024), and drinking for enhancement while controlling for sensation seeking (β = .24, p < .001). Results provide evidence that materialism is associated with risky drinking motives, which may inform prevention and treatment efforts for problematic use among undergraduate students.

Keywords: materialism, drinking, motives, alcohol, personality

Frequent alcohol use is associated with impairments in an individual’s health and with associated negative outcomes. Impairments include neurocognitive deficits, neurodegeneration, impaired functional brain activity, and decreased cognitive performance (Zeigler et al., 2005). Negative outcomes include altered sleep schedules, poor academic performance (Singleton & Wolfson, 2009), and increased injury rates (Jackson et al., 2005). Young adults attending college and university often partake in greater experimentation and alcohol use (Karam et al., 2007). O’Malley and Johnston (2002) found that approximately 40% of American college students were heavy drinkers (i.e., had 5 or more consecutive drinks in the past 2 weeks), and had increased alcohol use when compared to similar-aged young adults not attending college. It is therefore important to examine individual differences in psychological characteristics predisposing or preceding alcohol use in college students to inform prevention and treatment efforts and reduce overall harms. One factor that may be important and overlooked in the alcohol literature is materialism.

The self-determination theory posited by Deci and Ryan (1985) suggests that individuals have three fundamental psychological needs: competence, autonomy, and relatedness to others. Based on this theory, Kasser and Ryan (1996)
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distinguished intrinsic life goals such as meaningful relationships, community contribution, and personal growth from extrinsic life goals such as wealth, fame, and image. Pursuing intrinsic goals is associated with increased life satisfaction as these goals are thought to fulfill the three fundamental psychological needs (Deci & Ryan, 1985; Kasser & Ryan, 1996). Pursuing extrinsic goals is associated with decreased life satisfaction as these goals fail to fulfill an individual’s basic psychological needs (Kasser & Ryan, 1996). Stemming from this theory, materialism has been conceptualized as a value one holds that prioritizes status through the acquisition of money and possessions (Dittmar et al., 2014). An individual’s orientation to extrinsic rather than intrinsic goals is typically used to assess levels of materialism (Kasser & Ryan, 1996).

Ample evidence has suggested that greater levels of materialism are associated with reduced psychological well-being (Dittmar et al., 2014). For example, emphases on materialistic goals are associated with increased anxiety and depression, reduced life satisfaction, and psychiatric disorders (Burroughs & Rindfleisch, 2002; Kasser & Ryan, 1993; Ryan et al., 1999; Shrum et al., 2011; Sirgy et al., 2013). There are multiple explanations for the association between materialism and reduced well-being. Some researchers have suggested the distress occurs because fundamental psychological needs are not fulfilled, even when extrinsic goals (e.g., financial success) are attained (Kasser, 2002; Williams et al., 2000). Findings linking materialism to reduced well-being have been replicated in a variety of populations and settings including general college students, business students, adults, and children (Burroughs & Rindfleisch, 2002; Christopher et al., 2007; Kasser, 2005; Kasser & Ahuvia, 2002). These findings have also been replicated in Russia (Ryan et al., 1999), South Korea (Kim et al., 2003), and Germany (Schmuck et al., 2000).

In addition to the effects of materialism on psychological well-being, a growing body of research has shown that higher rates are associated with an increase in risky behaviors such as school truancy (Kasser & Ryan 1993), violence (Kasser, 2005), early sexual intercourse (Williams et al., 2000), and alcohol use (Auerbach et al., 2009; Vansteenkiste et al., 2006). For example, cross-sectional studies conducted in the United States and Belgium with individuals ranging from 14–21 years old found materialism was associated with increased alcohol, cigarette, and marijuana use (Kasser, 2005; Vansteenkiste et al., 2006; Williams et al., 2000). In addition, a 6-month longitudinal study of Chinese youth found that greater levels of materialism was associated with more frequent risky behaviors including alcohol use, and that higher levels of negative events (e.g., academic problems and interpersonal conflicts) mediated or explained the relationship (Auerbach et al., 2009).

Kasser (2002) proposed a self-medication model derived from self-determination theory to explain this relationship. He argued that, when people pursue extrinsic goals, they spend less time pursuing intrinsic goals and have more experiences that obstruct their fundamental psychological needs, which results in lower well-being (Kasser, 2002). Faced with decreased well-being and increased negative states, individuals pursuing materialistic goals may seek relief (e.g., via drugs or alcohol; Kasser, 2002; Kasser et al., 2014; Vansteenkiste et al., 2006).

When understanding the research linking materialism with increased alcohol use and the risks associated with frequent alcohol consumption in students, it is important to understand the broader relationship between materialism, personality traits, and motives (or reasons for use) that place an individual at risk for increased alcohol use and related problems (Kasser & Ryan, 2001; Vansteenkiste et al., 2006). Personality traits represent stable characteristics in how individuals think, feel, and behave (Roberts et al., 2008). Many traits have been studied to better understand the reasons people drink along with the rates and consequences of their use. For example, anxiety sensitivity, hopelessness, sensation seeking, and impulsivity are risky personality traits measured by the Substance Use Risk Profile Scale (Woicik et al., 2009). The first three traits are associated with using alcohol to cope with negative emotions, whereas sensation seeking is associated with drinking for enhancement purposes (Comeau et al., 2001; Stewart & Kushner, 2001; Woicik et al., 2009). In terms of rates and consequences of use, anxiety sensitivity and hopelessness are associated with alcohol-related problems (e.g., interpersonal conflicts, inability to control alcohol use; Stewart et al., 1999; Woicik et al., 2009). Sensation seeking is associated with greater alcohol use, and impulsivity is associated with the use of multiple substances and with alcohol-related problems (Woicik et al., 2009). Researchers have also examined motives that an individual holds prior to consuming alcohol. Certain motives are considered risky in that they predict increased use and related problems. In particular, using alcohol for enhancement or...
coping reasons is associated with consuming more alcohol and experiencing more problems related to alcohol use (Cooper et al., 1995; Grant et al., 2007). It is important to note that the findings pertaining to the link between drinking motives, alcohol use, and related problems has been inconsistent, particularly when daily process methods are used to assess intraindividual variability. For example, Littlefield and colleagues (2012) did not find a relationship between coping motives and increased alcohol consumption, which contradicts findings presented above. Additionally, Mohr and colleagues (2013) found that individuals who drank alone and when in a negative mood did not show associated increases in alcohol-related problems and coping motives. Thus, the relationship between drinking motives and alcohol use may be affected by the method of assessment and an individual’s social and emotional context.

Despite the identified link between materialism and alcohol use, its relationship with motivational and dispositional predictors of alcohol use has received minimal attention to date. More importantly, no study to date has assessed the relationship between materialism and drinking motives. Considering the negative outcomes associated with greater levels of materialism (Auerbach et al., 2009; Dittmar et al., 2014), it is important that research continue to assess the potential consequences of prioritizing materialistic values. Thus, more research is needed to better understand the link between materialism, drinking motives, and personality traits.

To address the gaps in the literature, a short-term longitudinal study examining the associations between materialism, drinking motives, and risky personality traits was conducted. A short-term longitudinal design helps establish temporal precedence and the stability of the measured variables. This design also reduces the likelihood of neglecting meaningful short-term relationships, which may occur in a long-term longitudinal design.

The objective of the present study was to test whether materialism would predict risky drinking motives (specifically enhancement, coping with anxiety, and coping with depression) over and above the influence of risky personality traits. In particular, we tested whether materialism contributed to (a) coping with depression drinking motive after controlling for hopelessness, (b) coping with anxiety drinking motive after controlling for anxiety sensitivity, and (c) enhancement drinking motive after controlling for sensation seeking. As a result of the negative states, or absence of positive states, associated with the pursuit of materialistic goals, an individual may be motivated to consume alcohol to either enhance positive affect or remove negative affect (Kasser, 2002; Vansteenkiste et al., 2006). Thus, we hypothesized that materialism (at baseline) would predict the enhancement, coping with anxiety, and coping with depression drinking motives (at follow-up). Controlling for known personality predictors when testing this hypothesis provides a more stringent test for the role for materialism.

Method

Participants
A total of 410 undergraduate students were recruited from two Canadian universities. Out of 410 participants, only those who had consumed at least one drink in the past year were included in the analyses (n = 317). Participants from each university did not significantly differ on demographic variables or on the measures used in the present study. The average age of participants was 20 years old (SD = 4.7). Most participants were women (75.8%) and European American (85.8%). More than half (65.8%) were enrolled in their first year of university.

Measures

Aspirations Index
The Aspirations Index (Kasser & Ryan, 1993, 1996) is a 14-item self-report questionnaire assessing materialism via the level of importance an individual places on extrinsic motives in comparison to intrinsic motives. Items assessing extrinsic motives form three subscales: 4 items for Financial Success (wealth; “You will have a lot of expensive possessions”), 5 items for Social Recognition (fame; “You will have a job with high social status”), and 5 items for Attractive Appearance (image; “Your image will be one others find appealing”). Participants indicate how important each item is on a scale from 1 (not at all) to 5 (very). The average of the item raw scores for each subscale were calculated and then summed to create an overall materialism score (Kasser & Ryan, 1996). This measure has shown strong psychometric properties (e.g., Grouzet et al., 2005; Kasser & Ryan, 1993, 1996; Ryan et al., 1999; Schmuck et al., 2000; Utvær et al., 2014) with test-retest correlations in the range of 0.66 to 0.77 (e.g., Kasser et al., 2014), and Cronbach’s alphas in the range of .60 to .89 (e.g., Kasser & Ryan, 1993, 1996; Sheldon, 2005).
**Substance Use Risk Profile Scale**
The Substance Use Risk Profile Scale (Woicik et al., 2009) assesses personality traits that have been associated with maladaptive drug and alcohol use. The 23-item questionnaire has four subscales: Anxiety Sensitivity (“It’s frightening to feel dizzy or faint”), Hopelessness (“I feel I’m a failure”), Impulsivity (“I often don’t think things through before I speak”), and Sensation Seeking (“I enjoy new and exciting experiences even if they are unconventional”). Each item is rated on a 4-point scale from 1 (strongly disagree) to 4 (strongly agree). Overall this scale has shown good psychometric properties in adolescent samples (e.g., Castellanos-Ryan et al., 2013; Castonguay-Jolin et al., 2013; Chandrika Ismail et al., 2009; Krank et al., 2011; Schlauch et al., 2015; Woicik et al., 2009). Test-retest reliability is as high as 0.80 (e.g., Woicik et al., 2009) and Cronbach’s alphas are satisfactory ranging from 0.65 to 0.76 (e.g., Schlauch et al., 2015; Woicik et al., 2009).

**Modified Drinking Motives Questionnaire-Revised**
The Modified Drinking Motives Questionnaire-Revised is a five-factor 28-item self-report questionnaire created by Blackwell and Conrod (2003) to assess individual motives preceding the consumption of alcohol. The present study used three subscales: Enhancement (“To get a high”), Coping With Anxiety (“To relax”), and Coping With Depression (“To numb my pain”). Each item is rated on a 5-point scale ranging from 1 (almost never/never) to 5 (almost always/always). Items are added up to form a total score for each subscale. The Modified Drinking Motives Questionnaire-Revised has shown good psychometric properties (e.g., Grant et al., 2007). Cronbach’s alphas for the selected subscales range from 0.58–0.74 and test-retest reliabilities range from 0.61–0.78 (Grant et al., 2007).

**Procedure**
Research Ethic Boards at each of the two universities reviewed and approved of the study. All participants were recruited on campus with the use of an online research management system, flyers, and announcements. Participants completed study questionnaires at baseline and follow-up (2 weeks later). Following completion, participants were offered three credit points toward an eligible psychology course or entered into a draw to win $100. There were 14.4 days (SD = 1.8) between baseline and follow-up measures. Only 1 participant of the initial 317 did not attend the follow-up session, resulting in a high retention rate across time.

**Data Analysis**
In Model 1, we assessed whether personality traits (at baseline) would predict the corresponding drinking motive (at follow-up; e.g., hopelessness

### TABLE 1

<table>
<thead>
<tr>
<th>Variable</th>
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<th>SD</th>
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<th>11</th>
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<td>.03</td>
<td>.12</td>
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<td>2. Baseline hopelessness</td>
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<td>.88</td>
<td>−.23</td>
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<td>.47</td>
<td>.34</td>
<td>.15</td>
<td>−.09</td>
<td>.82</td>
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<tr>
<td>3. Baseline anxiety sensitivity</td>
<td>11.47</td>
<td>2.82</td>
<td>.75</td>
<td>−.17</td>
<td>.14</td>
<td>.17</td>
<td>.04</td>
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<td>.20</td>
<td>.74</td>
<td>−.22</td>
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<td>4. Baseline sensation seeking</td>
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<td>3.55</td>
<td>.72</td>
<td>−.09</td>
<td>.12</td>
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<td>5. Baseline depression</td>
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<td>7. Baseline enhancement</td>
<td>12.90</td>
<td>4.80</td>
<td>.86</td>
<td>−.23</td>
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<td>8. Follow-up materialism</td>
<td>2.83</td>
<td>0.79</td>
<td>.92</td>
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<td>9. Follow-up hopelessness</td>
<td>12.10</td>
<td>3.59</td>
<td>.89</td>
<td>−.31</td>
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<td>10. Follow-up anxiety sensitivity</td>
<td>10.64</td>
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<tr>
<td>11. Follow-up sensation seeking</td>
<td>16.33</td>
<td>3.79</td>
<td>.75</td>
<td>−.08</td>
<td>.29</td>
<td>.29</td>
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<td>12. Follow-up depression</td>
<td>11.86</td>
<td>5.49</td>
<td>.83</td>
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<td>13. Follow-up anxiety depression</td>
<td>6.98</td>
<td>3.22</td>
<td>.82</td>
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<td>14. Follow-up enhancement</td>
<td>12.16</td>
<td>5.32</td>
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p < .05. “p < .01. ***p < .001.
predicting drinking to cope with depression). In Model 2, we ran a series of hierarchical regression models to explore our hypothesis that materialism would predict drinking motives after controlling for personality traits. In particular, we tested whether (a) materialism and hopelessness (at baseline) would predict coping with depression drinking motive (at follow-up), (b) materialism and anxiety sensitivity (at baseline) would predict coping with anxiety drinking motive (at follow-up), and materialism and sensation seeking (at baseline) would predict enhancement drinking motive (at follow-up).

Results

Descriptive Statistics

Means, standard deviations, Cronbach’s alphas, and bivariate correlations are reported in Table 1. Means for the study measures used at each time point were comparable to previous research conducted in similar samples (e.g., Grant et al., 2007; MacKinnon et al., 2014; Schmuck et al., 2000; Vansteenkiste et al., 2006; Woicik et al., 2009). Cronbach’s alphas for all scales used in the analyses were satisfactory (α > .72) and the test-retest correlations for study measures were adequate. Bivariate correlations show the expected pattern of relationships between variables. For instance, the correlations between personality traits, drinking motives, and materialism at baseline and follow-up were comparable highlighting the stability in these relationships. Additionally, materialism at baseline was correlated with the drinking motive subscales at follow-up. Furthermore, hopelessness (at baseline) was correlated with the coping with depression drinking motive; anxiety sensitivity (at baseline) was correlated with the coping with anxiety drinking motive; and sensation seeking (at baseline) was correlated with the enhancement drinking motive (at follow-up).

Hierarchical Regressions

Regression analyses are presented in Table 2. In Model 1, each personality trait (at baseline) significantly predicted the resultant drinking motive (at follow-up). In Model 2, materialism (at baseline) significantly predicted drinking motives (at follow-up) over and above the relevant personality traits (at baseline). More specifically and consistent with our hypothesis, materialism significantly predicted (a) coping with depression drinking motive while controlling for hopelessness (β = .16), t(314) = 3.12, p = .014, (b) coping with anxiety drinking motive while controlling for anxiety sensitivity (β = .11), t(314) = 2.09, p = .024, and (c) enhancement drinking motive while controlling for sensation seeking (β = .21), t(314) = 3.86, p < .001.

Discussion

Based on past research linking materialism to increased alcohol use (e.g., Auerbach et al., 2009; Kasser, 2005; Kasser & Ryan; 2001; Vansteenkiste et al., 2006; Williams et al., 2000), the present study was the first to hypothesize that undergraduate students holding greater materialistic values would endorse higher levels of risky drinking motives. Controlling for established personality predictors permitted the assessment of materialism’s unique contribution in predicting risky drinking motives. As hypothesized, materialism significantly and positively predicted drinking motives over and above personality traits.

The results support research linking materialism to poorer mental health (e.g., Burroughs & Rindfleisch, 2002; Dittmar et al., 2014) and more frequent alcohol use (e.g., Auerbach et al., 2009; Kasser, 2005; Kasser & Ryan; 2001; Vansteenkiste et al., 2006; Williams et al., 2000). Consequently, the results provide added evidence for a self-medication model to explain this relationship. Whether or not their goals are attained, an individual who is oriented toward increasing their attractiveness, wealth, and popularity may experience an increase in negative states due to an absence of experiences that promote autonomy, competence, and interpersonal relationships (Kasser, 2002; Williams et al., 2000). Individuals may then consume

<table>
<thead>
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<th>Table 2</th>
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<tr>
<td>Hierarchical Regression Analysis Predicting Drinking Motives</td>
</tr>
<tr>
<td>Predictors</td>
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<tr>
<td>Coping With Depression Motive</td>
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<td>Model 1: Hopelessness</td>
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<td>Model 2: Materialism</td>
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<tr>
<td>Coping With Anxiety Motive</td>
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<td>Model 1: Anxiety sensitivity</td>
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<td>Model 2: Materialism</td>
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<td>Enhancement Motive</td>
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<td>Model 1: Sensation seeking</td>
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<td>Model 2: Materialism</td>
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<tr>
<td>Note.</td>
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<td>p &lt; .05, **p &lt; .01, ***p &lt; .001.</td>
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</table>
alcohol to enhance or cope with their thoughts and feelings. However, research assessing the potential mediational variables in the relationship between materialism and alcohol use has been limited. Recent research has shown the association between materialism and reduced well-being to be mediated by factors such as individual differences in neuroticism (Górnik-Durose & Boroń, 2018). Thus, materialistic individuals may vary in their susceptibility to consume alcohol for reasons that place them at risk for future alcohol use and related problems depending on their level of neuroticism. Future research may benefit from assessing the role that neuroticism (and other potential mediating variables) may play in the relationship between materialism, risky drinking motives, alcohol use, and alcohol-related problems.

Of note was the effect size, $R^2 = .04$, $F(1, 314) = 15.81, p < .001$, and standardized beta value ($\beta = .21$), $t(314) = 3.86, p < .001$, associating materialism and drinking for enhancement reasons, which were the largest in the present study. The association may occur because individuals who prioritize materialistic values pursue money and possessions to enhance their self- and affective states. However, once their distress becomes acute due to a reduction in experiences that foster autonomy, competence, and interpersonal relationships, individuals may then consume alcohol to provide states similar to those temporarily achieved following attainment of their materialistic goals. It is important to mention that the participants in our study were primarily first-year undergraduates, which might have influenced the results. For example, Stewart and colleagues (1996) found significantly higher enhancement motives for students 20 years and under. However, in a sample of first-, second-, and third-year undergraduate students, Martens et al. (2008) only found significant increases for the conformity motive in first-year students (a motive we did not examine in our study). It is also important to note that a meta-analysis conducted by Dittmar et al. (2014) demonstrated that the relationship between materialism and health-risk behaviours decreases in individuals under the age of 18. Considering that our sample included participants under the age of 18, the results might have been attenuated.

The hypotheses of the present study were supported by the findings and add to the relevant literature by demonstrating that greater levels of materialism predict drinking for enhancement, drinking to cope with depression, and drinking to cope with anxiety over and above established risky personality traits. Given the link between these drinking motives, increased alcohol use and related problems, materialism may also be a risk factor relevant for predicting future alcohol use and alcohol-related problems. Future research would benefit from assessing the temporal associations between materialism, drinking motives, alcohol use, and related problems. Furthermore, future research would benefit from assessing whether a significant relationship between materialism and drinking motives occurs when motives are measured using daily process methods (Littlefield et al., 2012; Mohr et al., 2013).

Results may inform future prevention and intervention efforts targeting at-risk undergraduate students in reducing their frequency of alcohol use and related problems. For example, these results may aid personality-matched interventions that apply principles from motivational and cognitive-behavioral theories, and tailor treatments to specific personality traits (e.g., anxiety sensitivity, sensation seeking) that place individuals at risk for substance abuse (Conrod et al., 2000; Conrod et al., 2006). These interventions have been effective in reducing drug-related problems while improving abstinence and remission rates (Conrod et al., 2000; Conrod et al., 2006). Because materialism was shown to predict drinking motives over and above three of these traits, personality-matched interventions may benefit from expanding their treatments to the broader values people hold.

The present findings should be viewed in light of study limitations. Although the study used a longitudinal design, the time period between baseline and follow-up was relatively short. Longitudinal designs spanning greater time periods would aid in further establishing the temporal stability of the findings. The study also obtained information solely via self-reports, which can be susceptible to socially desirable responses and inaccurate recall. Future research may benefit from assessing and controlling for socially desirable responding. Given that our sample was predominantly European American and that most students were in their first year of university, it is unknown whether results would generalize to other samples (e.g., given that evidence suggests first-year students are more likely to consume alcohol; Bishop et al., 2005; Grekin & Sher, 2006).

Overall, higher levels of materialism may predispose individuals to consume alcohol for reasons that place them at risk for increased alcohol use and related problems. Alcohol-use risk-reduction
interventions (e.g., Carey et al., 2007) and personality-matched interventions targeting individuals at risk for substance abuse (e.g., Conrod et al., 2000; Conrod et al., 2006) may benefit from including various prevention and intervention efforts that aim to address individual levels of materialism. Although the present study was the first to assess the hypothesized associations, the results should be viewed critically and motivate researchers to inquire further about various treatments for individuals at risk for alcohol use and related problems.

References


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Social Networking Site Use: Implications for Health and Wellness

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ABSTRACT. Technological advances such as smartphones and tablets have made social media and social networking sites (SNS; e.g., Facebook, Snapchat) increasingly accessible and popular. The literature, however, contains mixed results as to the effects associated with the increased use of SNS, with some studies suggesting benefits and others pointing to detriments to users’ overall wellness (e.g., social, mental, physical). As such, the current investigation examined the wellness of different SNS users among internet users solicited through Amazon’s MTurk (N = 2,083). Participants completed an online questionnaire that assessed their daily use of several SNS and constructs related to social, mental, and physical health. Results suggest that users of image-based SNS (e.g., Snapchat) show the most significant (p < .05) and substantial (d > .20) deficits and users of video-based (e.g., Marco Polo, WhatsApp) and professional (e.g., LinkedIn) SNS manifested the best wellness profiles. However, regardless of SNS type, increased total daily use of SNS was significantly (p < .05) related to worse health and wellness. Thus, differential health and wellness associated with SNS use may be at least partially explained by the type of SNS used such that using certain platforms may be more detrimental or beneficial than others.

Keywords: social media, social networking, well-being, health, technology

Recent technological advances such as smartphones and tablets alongside the proliferation of social media (e.g., social networking sites) such as Facebook, Twitter, Snapchat, and Instagram have fueled increased communication around the world. Social media or social networking sites (SNS) include a variety of platform types ranging from content broadcasted with no particular audience (e.g., Facebook, Twitter) to messaging services that send content directly to a recipient or group (e.g., Marco Polo, WhatsApp). Moreover, SNS can be used virtually anywhere, anytime, and by anyone, with an estimate that more than 70% of Americans use social media regularly (Lenhart, 2018). Although the consequences of increased ability to communicate with people can provide dramatic social benefits (e.g., Clark et al., 2017; Waytz & Gray, 2018), recent research has highlighted negative effects on individuals’ health and behavior (e.g., Andreassen et al., 2017; Huang, 2010; Twenge et al., 2017; Wright et al., 2020). Given these mixed findings, there is an imperative need to investigate these relationships, particularly the relationships between specific SNS use (e.g., Facebook, Instagram) and health-related outcomes (e.g., physical, mental, social). As such, the purpose of the current study was to address this research gap by examining a range of health and wellness variables (e.g., depressive symptoms, loneliness, Body Mass Index) among specific SNS users (e.g., Facebook, Twitter) within a diverse sample of participants.

Social Networking Sites and Wellness

It is well-documented that SNS use is tied to negative health and wellness variables (Song et al., 2014; Tromholt, 2016). According to Huang’s (2010) displacement hypothesis, with SNS so readily available and accessible, time spent on SNS may directly take time away from face-to-face interpersonal interactions. Moreover, social interactions through SNS could be more attractive initially but less satisfying
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and unable to fulfill personal needs, leading to deficits in well-being. For instance, numerous studies have identified a positive association between SNS use and perceived loneliness (e.g., Nowland et al., 2018; Twenge et al., 2017), suggesting that SNS use may provide a more convenient medium for social interaction, though a less fulfilling or meaningful way to engage with others. Moreover, other studies have found that limiting SNS use to 30 minutes per day can decrease the positive relationships SNS use has with depression and loneliness (e.g., Hunt et al., 2018) and that passive use of Facebook, in particular, can undermine well-being by enhancing social envy (e.g., Verduyn et al., 2015), further suggesting a complicated relationship.

Although other factors like motivation for use and number of platforms used are clearly influential, central to the links between SNS and wellness seems to be the daily amount of time spent using them. According to the most recent Pew Research Center statistics on social media use in the USA (Lenhart, 2018), the most common SNS (in order of adults who use social media) are Facebook (68%), Instagram (35%), Snapchat (27%), LinkedIn (25%), Twitter (24%), and WhatsApp (22%). Moreover, investigating wellness outcomes across a broad range of SNS platforms that differ in terms of modality (e.g., text, image, video), popularity (e.g., use), and audience (e.g., one-to-one communication, general broadcast) should provide a contrast that would enable identification of unique relationships. As such, the present investigation focused on Facebook, Twitter, Instagram, Snapchat, Marco Polo, Skype, WhatsApp, and LinkedIn.

In the context of health and wellness, an appropriate distinction between SNS may be the primary mode of communication (i.e., text-based, image-based, video-based). Facebook, the most heavily researched of all SNS, is primarily text-based and has been consistently linked to many negative outcomes including loneliness (Song et al., 2014), low subjective well-being (Tromholt, 2016), poor health behaviors (Dibb, 2019), and high perceived stress (Vanman et al., 2018). Twitter, another text-based SNS, has not been researched as in-depth, but some findings suggest similar relationships, particularly in terms of loneliness (Petrocchi et al., 2015) and life satisfaction (Yang & Srinivasan, 2016). Some have argued that use of text-based sites, such as Facebook and Twitter, have unique outcomes compared to image-based sites such as Instagram and Snapchat. For example, in a study on Instagram and Snapchat use, largely image-based SNS, Pittman and Reich (2016) observed that text-based platforms offer a forum with little intimacy compared to image-based SNSs. Image-based SNS use, they argued, produces less loneliness and improved well-being, consistent with Yang’s (2016) finding that Instagram browsing was related to better outcomes than Instagram posting and social comparisons. However, in a longitudinal study, Frison and Eggermont (2017) found evidence to support a causal effect of Instagram browsing producing future negative outcomes (e.g., depressed mood). Although little research has examined Snapchat, its similarities with Instagram suggest comparable relationships.

Even less research has been conducted on the well-being of users of video-based (e.g., Skype, Marco Polo) or other “mixed-type” SNS (e.g., WhatsApp, LinkedIn). Most of the research to-date has focused on their use as effective vehicles for healthcare consultations (Boulos et al., 2016; Cutler, 2015), improving healthcare access, and presumably, health outcomes. One study found a strong relationship between daily use of WhatsApp and Twitter with poor quality of sleep (Asiri et al., 2018), suggesting that users struggle with sleep hygiene. Another study found a reduction in depressive symptomology among those who used video chat SNS (e.g., Skype, Marco Polo) compared to email, other social media, and instant messaging two years later (Teo et al., 2019). The researchers argued that this more “real-time” video interaction on SNS fosters a greater sense of connection with others.

Finally, in a recent study among 630 undergraduate college students, Wright and colleagues (2020) examined student well-being across SNS users of Facebook, Snapchat, Instagram, Marco Polo, and LinkedIn. Users of image-based SNS (i.e., Snapchat) showed the most deficits in well-being including greater perceived loneliness, negative affect, depressive symptoms, anxiety, and lower levels of life satisfaction compared to those who did not use Snapchat. On the other hand, users of video-based SNS (i.e., Marco Polo) had better well-being including lower loneliness and greater perceived peer support and users of professional SNS (i.e., LinkedIn) had greater positive affect and subjective social status than those who did not use these SNS, respectively. These results provide further empirical support for a difference in health and well-being among users of different SNSs, although this study was conducted among college students, which may limit generalizability.
Importantly, two lines of research have provided some general theoretical framework for these preliminary findings in the literature. First, SNS platforms that use images and video may be perceived as more credible than text-based displays. Sundar’s (2008) model regarding credibility of different technology characterizes visual stimuli such as images and video to be more trustworthy than text due to a “realism heuristic.” This heuristic builds on the assumption that a visual image is more real and accurate than a word description. This, in turn, may lead to a more authentic social experience of the same information (Pittman & Reich, 2016; Teo et al., 2019). Second, SNS use motivations may be influential. In fact, social comparison orientation theory posits that individuals identify others who are perceived as similar to themselves as an appropriate heuristic to evaluate their own accomplishments, situations, and experiences (Buunk & Gibbons, 2006). When these social comparisons portray the individual as being deficient (e.g., not as successful), negative outcomes (e.g., negative mood, lower life satisfaction) often emerge, even in the use of social media (Ilakkuvan et al., 2019; Yang, 2016). Hence, SNS platforms that are primarily image- and video-based and those that primarily advocate professional use (e.g., LinkedIn), should be associated with improved health and wellness.

Despite the importance of potential health differences among users of different SNS and the differential impact of SNS use on health, these relationships have yet to be examined within a diverse and large sample. Thus, the current study explored health and wellness in physical, social, and mental domains among those who used SNS platforms guided by two specific research questions. First, do health and wellness vary among specific SNS users according to their daily use or time spent (dose or level of exposure) on each SNS (specific platform comparisons)? Second, do health and wellness vary between users of these separate platforms and non-users (exposure versus no exposure comparisons)? To do so, we conducted a study among a diverse sample of SNS users via Amazon’s Mechanical Turk (MTurk) website.

Method

Participants and Procedure

Following institutional review board approval (on October 10, 2018) from Brigham Young University-Idaho, we proceeded to conduct a correlational study, where we employed a single-sample cross-sectional design in our data collection. Participants were recruited using MTurk to follow a link to an online survey (Qualtrics) wherein all participants provided informed consent and received $0.75 for survey completion. We selected the MTurk website because it provides an opportunity to recruit many internet users with diverse backgrounds. Moreover, it provides the benefit of being a reasonably inexpensive method of obtaining a large sample size, which enables the detection of unique and complex relationships in the health and wellness of the users of specific SNS. A total of 2,023 responses were gathered and recorded during January 2019. Given concerns regarding the initial low number of Marco Polo users (n = 69), we solicited additional participants through a random sample of Marco Polo app users who had accessed the app recently for an additional 116 respondents, or a total of 2,139 respondents. Participants voluntarily completed the survey in English and received compensation through MTurk. Those solicited outside of MTurk were entered in a random drawing for a gift card.

Participants were required to be at least 18 years old and reside in the contiguous western United States (i.e., AZ, CA, CO, ID, MT, NM, OR, UT, WA, WY). Five responses were omitted due to a failed attention check response along with 51 responses because the survey completion time was below 3 minutes, which was observed as a natural break in the data and deemed insufficient time for accurate survey completion (final n = 2,083). Participant sample characteristics are reported in Table 1, and participant characteristics by each SNS are reported in Table 2. Median completion time of the survey was 12.15 minutes (M = 16.92; SD = 41.45), and the average age of the sample was 35.93 years (SD = 11.93) with a range from 18 to 83 years. A slight majority of the sample self-identified as women (52.1%), White (64%), and full-time employed (51%), and the sample was diverse in other respects (see Table 1).

Measures

Participants responded to a series of questions assessing wellness, social media use, and psychosocial variables. Daily time spent on social media during the past month was assessed using a single item for combined time spent on all social media during the past month. Participants identified SNS they used (i.e., Facebook, Instagram, Snapchat, Marco Polo, LinkedIn, Twitter, Skype, WhatsApp) and how much time they spent daily on each platform. Participants responded to six questions about their attitudes toward social media (Wright, 2016):
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Hardy, et al., 2018; \( \alpha = .91 \) on a 7-point agreement scale from 1 (strongly disagree) to 7 (strongly agree) so that greater values indicated a stronger positive attitude toward social media.

We assessed physical health with a variety of measures. First, overall subjective physical health was evaluated using a single item (Kind et al., 2005), so participants rated their own health on a scale from 0 (worst physical health) to 100 (best physical health). Participants provided estimates of their current weight (in pounds) and height (in feet and inches) for standard Body Mass Index (BMI) calculations. Aerobic exercise per week for the past month was examined using the 5-item Stanford Patient Education Research Center measure (Lorig et al., 1996; \( \alpha = .63 \)). Physical health symptoms were measured using Spector and Jex’s (1998) 18-item Physical Symptom Inventory (e.g., headache, fatigue) during the past 30 days. Sleep quantity was reported in hours per night, and sleep quality was assessed by a single item on a 5-point Likert-type scale from 1 (very poor) to 5 (very good) during the past month. Fruit and vegetable consumption over the past month was assessed using one item for each on a 10-point serving frequency scale (Wright, Hardy, et al., 2018), where serving sizes were specified. Representing an unhealthy diet, frequency of consumption of sugary snacks (e.g., cakes, cookies, donuts) and sugary drinks (e.g., soda, sport drinks) were queried on the same 10-point scale.

Regarding social health, loneliness during the past month was assessed using the 3-item Short Loneliness Scale (Hughes et al., 2004) on a 5-point frequency scale from 1 (never) to 5 (all of the time; \( \alpha = .90 \)). Social integration (i.e., in-person social interactions) was examined using eight items (Twenge et al., 2017) on a daily frequency scale (\( \alpha = .85 \)). Interpersonal conflict was assessed using six items (Wright et al., 2017) on a 5-point frequency scale from 1 (never) to 5 (very often; \( \alpha = .90 \)). Perceived peer social support (Wood et al., 2004; 8 items; \( \alpha = .80 \)) was also assessed on a 7-point Likert-type agreement scale from 1 (strongly disagree) to 7 (strongly agree).

For mental health, affect was captured using an 8-item measure of mood on a 5-point scale from 1 (not at all) to 5 (extremely) regarding how much a mood adjective described their mood over the past month along positive (i.e., happy, alert, enthusiastic, relaxed; \( \alpha = .78 \)) and negative (i.e., sad, irritable, bored, nervous; \( \alpha = .77 \)) dimensions (Wright et al., 2017). Acute depressive symptoms during the past week were assessed using a 5-item measure (Bohannon et al., 2003) on a 4-point scale from 1 (rarely or none of the time) to 4 (most or all of the time; \( \alpha = .81 \)). Perceived stress was examined using seven items from the Perceived Stress Scale (Cohen et al., 1983) on a 5-point frequency scale from 1 (never) to 5 (very often; \( \alpha = .85 \); Butz & Yogeeswaran, 2011). Using a 7-point agreement scale from 1 (strongly disagree) to 7 (strongly agree), satisfaction with life (Diener et al.,

<table>
<thead>
<tr>
<th>Participant Characteristics</th>
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<tbody>
<tr>
<td>Sample Size</td>
<td>2,083</td>
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<tr>
<td>Age</td>
<td>35.93 (SD = 11.93)</td>
</tr>
<tr>
<td>Gender</td>
<td>Women = 1,085 (52.1%); Men = 869 (41.7%); Missing = 129 (6.2%)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>White = 1,334 (64.0%); Asian = 231 (11.1%); Hispanic/Latino(a) = 203 (9.7%); Black/African American = 69 (3.3%); More than one race = 61 (2.9%); American Indian/Alaska Native = 28 (1.3%); Other = 17 (0.8%); Native Hawaiian/Pacific Islander = 11 (0.5%)</td>
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<tr>
<td>Relationship status</td>
<td>Married = 777 (37.3%); Single = 624 (30.0%); Committed relationship = 334 (16.0%); Divorced/separated = 134 (6.4%); Engaged to be married = 68 (3.3%); Other = 17 (0.8%)</td>
</tr>
<tr>
<td>Religious affiliation</td>
<td>Agnosticism/Atheism/Secularism = 739 (35.5%); Catholicism = 310 (15.9%); Nondenominational Christianity = 254 (13.0%); Other = 176 (8.4%); Church of Jesus Christ of Latter-day Saints = 162 (8.3%); Protestant = 128 (6.6%); Baptist = 59 (2.8%); Judaism = 38 (1.8%); Muslim = 23 (1.1%); Hinduism = 15 (0.7%); Other = 17 (0.8%)</td>
</tr>
<tr>
<td>Education</td>
<td>Bachelor’s degree = 771 (37%); Some college = 471 (25.4%); Associate degree = 246 (11.9%); Master’s degree = 220 (10.6%); High school diploma = 169 (9.1%); Professional/vocational = 34 (1.6%); Doctoral degree = 26 (1.2%); Some high school = 17 (0.8%)</td>
</tr>
<tr>
<td>Family income</td>
<td>&lt;$25,000 = 343 (16.5%); $25,000–$50,000 = 602 (28.9%); $50,000–$75,000 = 403 (19.3%); $75,000–$100,000 = 271 (13%); $100,000–$150,000 = 199 (9.6%); Don’t know/not sure/decline = 57 (2.8%); &gt;$150,000 = 79 (3.8%)</td>
</tr>
</tbody>
</table>

TABLE 1
Cohen's $p < .05$ level and have a that are significant at the $t$ for these analyses and due to the high number of Because statistical significance can be misleading aimed to answer our research questions more fully. Hence, by doing both sets of analyses, we conducted another set of $t$ tests because users of one SNS could also be a user of another SNS, we conducted another set of $t$ tests that examined differences between users of each SNS platform (e.g., Facebook vs. Instagram). Next, examined differences between users of each SNS platform. Closely following the analytical approach of a prior study using a student sample (Wright et al., 2020), our $t$ tests were of two types. First, we examined differences between users of each SNS platform (e.g., Facebook vs. Instagram). Next, because users of one SNS could also be a user of another SNS, we conducted another set of $t$ tests that examined differences between users of a specific SNS platform to those who do not use that platform. Hence, by doing both sets of analyses, we aimed to answer our research questions more fully. Because statistical significance can be misleading for these analyses and due to the high number of $t$ tests conducted, we report those relationships that are significant at the $p < .05$ level and have a Cohen’s $d$ effect size $\geq .20$ (at least a small effect).

### Results

Participants reported daily average time spent on all social media of 2.33 hours ($SD = 2.02$) and an average of 4.15 ($SD = 2.21$) social media platforms (of those surveyed). In order of popularity, Facebook was used most ($n = 1,523$, 77.5%), followed by Instagram ($n = 1,062$, 54%), Twitter ($n = 690$, 35.1%), Snapchat ($n = 452$, 23%), LinkedIn ($n = 420$, 21.4%), Skype ($n = 346$, 17.6%), WhatsApp ($n = 338$, 17.2%), and Marco Polo ($n = 150$, 7.6%). Most respondents ($n = 1,751$, 89.1%) used more than one social media app (none reported using no SNSs), women reported spending significantly more time on social media daily ($M = 2.45$, $SD = 2.07$) than men ($M = 2.19$, $SD = 1.96$; $p = .003$), and women spent more time than men on each specific SNS except Facebook. Finally, the gender distribution within each SNS platform varied between the low of 25.5% (Marco Polo) and the high of 51.3% (WhatsApp) for men, and except for WhatsApp (46.4%) and Skype (49.6%), women comprised most users within each SNS.

**TABLE 2**

<table>
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<tr>
<th>Participant Characteristics by Specific SNS Platforms (Users)</th>
<th>FB</th>
<th>TW</th>
<th>IG</th>
<th>SC</th>
<th>MP</th>
<th>SK</th>
<th>WA</th>
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<td>6%</td>
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<td>4%</td>
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<td>4%</td>
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<td>$100,000–$150,000</td>
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<td>&gt;$150,000</td>
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Note. FB = Facebook, TW = Twitter, IG = Instagram, SC = Snapchat, MP = Marco Polo, SK = Skype, WA = WhatsApp, LI = LinkedIn.
Differences Between Specific SNS Users Analyses
Means, standard deviations, and comparisons between users of the different social media platforms using independent-samples t tests and effect sizes are presented in Table 3. Snapchat users, as a group, were significantly younger, used more social media platforms, and reported more health and wellness deficits (e.g., loneliness, negative mood, depressive symptoms) relative to many of the other social media platform users. Marco Polo users, on average, reported many healthy relationships (e.g., peer support, subjective overall health, fruit and vegetable consumption, positive mood), though they also expressed some poor health and wellness associations (e.g., Body Mass Index, physical symptoms, sugary snack consumption) compared to many other SNS users. Compared to other SNS users, WhatsApp users demonstrated many healthy relationships (e.g., social integration, aerobic exercise, sleep quantity, sleep quality) and LinkedIn users reported having greater self-regulation. Thus, Snapchat users, on average, were more likely to have poorer wellness,

### TABLE 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>Facebook</th>
<th>Twitter</th>
<th>Instagram</th>
<th>Snapchat</th>
<th>Marco Polo</th>
<th>Skype</th>
<th>WhatsApp</th>
<th>LinkedIn</th>
<th>Diff between platforms †</th>
<th>Cohen’s d ††</th>
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</thead>
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<tr>
<td>Daily time (hr)</td>
<td>2.19 (3.14)</td>
<td>1.90 (3.58)</td>
<td>2.10 (3.49)</td>
<td>2.10 (3.49)</td>
<td>1.81 (3.49)</td>
<td>1.46 (3.37)</td>
<td>2.24 (3.74)</td>
<td>0.98 (2.48)</td>
<td>WA more than LI, SK</td>
<td>0.40 to 0.22</td>
</tr>
<tr>
<td>Age</td>
<td>35.98 (11.85)</td>
<td>33.55 (11.71)</td>
<td>33.16 (10.09)</td>
<td>28.96 (8.80)</td>
<td>34.20 (10.74)</td>
<td>36.59 (11.75)</td>
<td>33.36 (9.83)</td>
<td>36.83 (12.64)</td>
<td>SC younger than all others</td>
<td>0.72 to 0.44</td>
</tr>
<tr>
<td>SM attitude</td>
<td>4.05 (1.52)</td>
<td>4.25 (1.99)</td>
<td>4.17 (1.46)</td>
<td>4.24 (1.41)</td>
<td>4.04 (1.44)</td>
<td>4.03 (1.59)</td>
<td>4.09 (1.59)</td>
<td>3.88 (1.59)</td>
<td>TW higher than LI, SK, FB</td>
<td>0.24 to 0.13</td>
</tr>
<tr>
<td>Number of SNS</td>
<td>4.61 (2.16)</td>
<td>5.37 (2.30)</td>
<td>5.24 (2.08)</td>
<td>6.00 (2.16)</td>
<td>5.87 (2.33)</td>
<td>5.95 (2.45)</td>
<td>5.82 (2.44)</td>
<td>5.93 (2.46)</td>
<td>SC higher than FB, IG</td>
<td>0.64 to 0.36</td>
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<tr>
<td>Self-regulation</td>
<td>2.80 (0.56)</td>
<td>2.78 (0.59)</td>
<td>2.78 (0.56)</td>
<td>2.74 (0.54)</td>
<td>2.77 (0.49)</td>
<td>2.86 (0.59)</td>
<td>2.76 (0.51)</td>
<td>2.88 (0.55)</td>
<td>LI higher than SC, WA, MP, IG</td>
<td>0.26 to 0.18</td>
</tr>
</tbody>
</table>

Note: Only those that are statistically significant are presented in this column — if blank, no statistical difference was observed; † Effect size (Cohen’s d) is interpreted as such: d > .20 is small, d > .50 is medium, d > .80 is large; A range of Cohen's d values are presented when multiple comparisons are evaluated; SNS = Social media and social networking sites, FB = Facebook, TW = Twitter, IG = Instagram, SC = Snapchat, MP = Marco Polo, SK = Skype, WA = WhatsApp, LI = LinkedIn.

*p < .05.

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whereas Marco Polo and WhatsApp users had better wellness, compared to other SNS users.

As the next step in examining differences among users and nonusers of SNS, Table 4 displays the correlations between daily time spent on specific SNS, number of SNS platforms, and the study variables. These results suggest more total daily time spent on social media, regardless of platform used, is associated with poorer health and wellness (e.g., loneliness, physical symptoms, depressive symptoms). However, the number of SNS used was associated with several negative outcomes (e.g., negative mood, depressive symptoms, conflict), but also some positive outcomes (e.g., peer support, social integration, life satisfaction), suggesting intricate relationships, likely depending on situational characteristics.

Finally, the use of a specific SNS was associated with unique patterns. For instance, Marco Polo users demonstrated both beneficial (e.g., social integration, aerobic activity, positive mood) and detrimental wellness associations (e.g., loneliness, conflict, physical symptoms, sugary snack and drink consumption, depressive symptoms) related to

### TABLE 4

<table>
<thead>
<tr>
<th>Variable</th>
<th>Entire Sample</th>
<th>Facebook</th>
<th>Twitter</th>
<th>Instagram</th>
<th>Snapchat</th>
<th>Marco Polo</th>
<th>Skype</th>
<th>WhatsApp</th>
<th>LinkedIn</th>
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<td>−.13**</td>
<td>−.13*</td>
<td>−.14</td>
<td>−.10</td>
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Note. SNS = Social media and social networking sites.
*p < .05*. **p < .01.
TABLE 5

Specific Platform User vs. Nonuser Difference t-Test Results

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<th>Outcome</th>
<th>User M(SD)</th>
<th>Nonuser M(SD)</th>
<th>Δ</th>
<th>t(df)</th>
<th>d</th>
<th>Better?</th>
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<td>4.75 (2037)**</td>
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<td>4.76 (2037)**</td>
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<td>4.68 (2062)**</td>
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<td>2.72 (1.08)</td>
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<td>+.25</td>
<td>4.30 (2037)**</td>
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<td>+.05</td>
<td>5.40 (2037)**</td>
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<td>Interpersonal conflict</td>
<td>2.41 (0.91)</td>
<td>2.15 (0.88)</td>
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<td>5.63 (2037)**</td>
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<td>Peer support</td>
<td>4.78 (1.00)</td>
<td>4.54 (1.12)</td>
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<td>4.43 (2037)**</td>
<td>.23</td>
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</tr>
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<td>Negative affect</td>
<td>2.52 (0.91)</td>
<td>2.25 (0.88)</td>
<td>+.27</td>
<td>5.73 (2062)**</td>
<td>.30</td>
<td>No</td>
</tr>
<tr>
<td>Anxiety</td>
<td>2.67 (0.86)</td>
<td>2.69 (0.90)</td>
<td>+.18</td>
<td>3.76 (2060)**</td>
<td>.21</td>
<td>No</td>
</tr>
<tr>
<td>Marco Polo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social integration</td>
<td>0.15 (0.24)</td>
<td>0.11 (0.16)</td>
<td>+.04</td>
<td>2.37 (2037)**</td>
<td>.20</td>
<td>Yes</td>
</tr>
<tr>
<td>Peer support</td>
<td>4.94 (1.04)</td>
<td>4.56 (1.10)</td>
<td>+.38</td>
<td>3.98 (2037)**</td>
<td>.36</td>
<td>Yes</td>
</tr>
<tr>
<td>Subjective health</td>
<td>78.16 (17.84)</td>
<td>73.89 (18.35)</td>
<td>+.27</td>
<td>2.74 (2066)**</td>
<td>.24</td>
<td>No</td>
</tr>
<tr>
<td>Fruit consumption</td>
<td>1.35 (1.19)</td>
<td>0.99 (1.00)</td>
<td>+.36</td>
<td>3.58 (2066)**</td>
<td>.33</td>
<td>No</td>
</tr>
<tr>
<td>Sugary snack consumption</td>
<td>0.97 (1.08)</td>
<td>0.74 (0.90)</td>
<td>+.23</td>
<td>2.47 (2067)**</td>
<td>.23</td>
<td>No</td>
</tr>
<tr>
<td>Positive affect</td>
<td>3.39 (0.75)</td>
<td>3.15 (0.85)</td>
<td>+.24</td>
<td>3.77 (2062)**</td>
<td>.30</td>
<td>No</td>
</tr>
<tr>
<td>Negative affect</td>
<td>2.51 (0.84)</td>
<td>2.29 (0.90)</td>
<td>+.22</td>
<td>3.03 (2062)**</td>
<td>.25</td>
<td>No</td>
</tr>
<tr>
<td>Life satisfaction</td>
<td>5.19 (1.32)</td>
<td>4.26 (1.55)</td>
<td>+.93</td>
<td>8.15 (2060)**</td>
<td>.65</td>
<td>Yes</td>
</tr>
<tr>
<td>Skype</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Social integration</td>
<td>0.14 (0.21)</td>
<td>0.10 (0.16)</td>
<td>+.04</td>
<td>2.95 (2037)**</td>
<td>.21</td>
<td>Yes</td>
</tr>
<tr>
<td>Fruit consumption</td>
<td>1.21 (1.08)</td>
<td>0.98 (1.01)</td>
<td>+.23</td>
<td>3.68 (2066)**</td>
<td>.22</td>
<td>Yes</td>
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<tr>
<td>WhatsApp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social integration</td>
<td>0.19 (0.28)</td>
<td>0.09 (0.13)</td>
<td>+.10</td>
<td>6.47 (2037)**</td>
<td>.46</td>
<td>Yes</td>
</tr>
<tr>
<td>Interpersonal conflict</td>
<td>2.36 (0.97)</td>
<td>2.17 (0.88)</td>
<td>+.19</td>
<td>3.26 (2037)**</td>
<td>.28</td>
<td>No</td>
</tr>
<tr>
<td>Subjective health</td>
<td>77.75 (17.34)</td>
<td>73.49 (18.46)</td>
<td>+.26</td>
<td>3.96 (2066)**</td>
<td>.24</td>
<td>Yes</td>
</tr>
<tr>
<td>Body mass index</td>
<td>24.72 (9.58)</td>
<td>26.54 (7.32)</td>
<td>−1.82</td>
<td>3.72 (1798)**</td>
<td>.21</td>
<td>Yes</td>
</tr>
<tr>
<td>Aerobic exercise</td>
<td>42.89 (39.33)</td>
<td>30.80 (29.74)</td>
<td>−12.09</td>
<td>5.41 (2066)**</td>
<td>.35</td>
<td>Yes</td>
</tr>
<tr>
<td>Sleep quality</td>
<td>3.92 (0.75)</td>
<td>3.70 (0.78)</td>
<td>+.22</td>
<td>4.98 (2066)**</td>
<td>.29</td>
<td>Yes</td>
</tr>
<tr>
<td>Fruit consumption</td>
<td>1.25 (1.18)</td>
<td>0.98 (0.98)</td>
<td>+.27</td>
<td>4.03 (2066)**</td>
<td>.25</td>
<td>Yes</td>
</tr>
<tr>
<td>Positive affect</td>
<td>3.34 (0.83)</td>
<td>3.13 (0.85)</td>
<td>+.21</td>
<td>4.08 (2062)**</td>
<td>.25</td>
<td>Yes</td>
</tr>
<tr>
<td>Life satisfaction</td>
<td>4.68 (1.48)</td>
<td>4.26 (1.55)</td>
<td>+.42</td>
<td>4.67 (2060)**</td>
<td>.28</td>
<td>Yes</td>
</tr>
<tr>
<td>LinkedIn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived life stress</td>
<td>2.50 (0.80)</td>
<td>2.66 (0.84)</td>
<td>−.16</td>
<td>3.46 (2062)**</td>
<td>.20</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note. Δ represents difference in user of platform relative to nonusers; Effect size (Cohen’s d) is interpreted as such: d > .80 is large, .50 is medium, .20 is small.

*p < .05. ** p < .01. *** p < .001.

Users and Nonusers Difference Analyses

Next, we examined users of specific SNS compared to all those who did not use that SNS in a series of independent-samples t tests (see Table 5). First, some platform users were significantly younger than those who did not use their respective platforms. Specifically, Snapchat users were younger by more than 9 years (d = 0.86), Instagram users were younger by about 6 years (d = 0.52), and WhatsApp users were also younger by about 3 years (d = 0.28). Second, regarding social media attitudes, users for every platform except LinkedIn reported significantly higher attitudes regarding the importance of social media in their lives, ranging from small (e.g., Skype users d = 0.20) to large effect sizes (e.g., Facebook users d = 0.84). Whereas some specific SNS users demonstrated only one statistically significant association compared to nonusers (i.e., Facebook, Twitter, LinkedIn), others demonstrated many (i.e., Snapchat, Marco Polo, WhatsApp). Some SNS profiles had unilaterally healthy relationships (i.e., Facebook, LinkedIn, Skype) or unhealthy (i.e., Twitter), and others were much more complex (i.e., Instagram, Snapchat, Marco Polo, WhatsApp). Despite substantial variation in the results, users of several SNS had improved health and wellness relative to those who did not use that specific platform. Snapchat users seemed to have the most detrimental associations (with a few positive), and Marco Polo and WhatsApp users seemed to have the most beneficial associations (both with some detrimental) compared to their respective nonuser counterparts.

Discussion

The purpose of the current study was to address the current lack of information regarding how health and wellness may be linked to the use of social media and networking sites (SNS). Specifically, we explored eight contrasting SNS...
among a diverse sample of internet users through Amazon’s MTurk site that represented an older sample than previous similar studies among college students (Wright et al., 2020). Indeed, our results highlighted complex and unique associations with the use of these specific SNS including physical, social, and mental health extending and building on prior research among young adult college students.

First, increased daily use of social media, regardless of the specific SNS used, was related to more detrimental outcomes, especially social and mental (e.g., loneliness, negative affect, anxiety, depressive symptoms), which corroborates many findings in the literature (Andreassen et al., 2017; Song et al., 2014; Twenge et al., 2017; Wright, Hardy, et al., 2018; Wright et al., 2020). Moreover, when specific SNS are considered, daily use of each SNS individually often resulted in poorer self-reported health. Thus, it seems that those who spent more time on social media had poorer self-reported health, or those who had poorer self-reported health spent more time on social media. This may be due to a variety of reasons. For instance, one who is physically unhealthy may be limited in activities they can engage in, thus potentially leading to increased use of SNS. Moreover, those who feel more socially isolated or mentally unhealthy (e.g., depressed) may turn to SNS for social interaction that may be considered more “safe” or less “risky” than direct personal interaction. However, contrary to other studies (Hardy & Castonguay, 2018; Primack et al., 2017), the number of SNS used was related to some positive social health variables including social integration and perceived peer support. Among those who use the internet extensively, an online “presence” by having multiple SNS accounts may increase perceptions of peer acceptance and provide topics of discussion with peers during interactions. Thus, although increased time spent on social media seemed to be related to poorer health outcomes, social media, in this case, may provide a social foundation whereupon relationships with peers can be built and nurtured.

Second, consistent with Wright and colleagues (2020), video-based (i.e., Marco Polo, Skype) and more professional-based (i.e., LinkedIn, WhatsApp) SNS users demonstrated the strongest associations with greater wellness, although the relationships were very complex. For instance, although Marco Polo, WhatsApp, and LinkedIn users manifested better physical, social, and mental health compared to users of other SNS platforms, associations between time spent on all eight SNS with physical and social health outcomes were similar. This suggests that time spent on any SNS, rather than the specific type of SNS, was more important for physical health outcomes. However, in terms of comparing users of different SNS, potentially, the use of videography may promote wellness whereby users can feel more connected with others (beyond text and still images) through a more authentic social experience (Sundar, 2008). Furthermore, Marco Polo and WhatsApp along with Skype deliver messages to a specific recipient rather than a broadcast or post to a general audience, which may reduce unhealthy social comparisons. Similarly, the motivation to engage with someone directly through video or, in the case of LinkedIn and WhatsApp, using an SNS for professional reasons (e.g., locating a job, speaking with a colleague) may elicit improved outcomes (Ilakkuvan et al., 2019; Yang, 2016) because the user is likely not on the SNS for entertainment or comparison purposes (other than for professional development or improvement).

Also noteworthy were the relationships regarding poorer health and wellness for those who used image-based SNS (especially Snapchat) and, to a lesser extent, those who used text-based SNS (i.e., Facebook, Twitter). However, these relationships were also very complex and not easily interpreted. Compared to users of other SNS, Snapchat users demonstrated stronger relationships with poor social and mental health outcomes like loneliness, negative mood, and anxiety, although the users of each SNS demonstrated at least a few associations with poor social and mental health indicators. However, the results regarding Snapchat users are consistent with findings among college students (Wright et al., 2020), but contrary to the findings of Pittman and Reich (2016) who found less depressive symptomatology for image-based SNS users (i.e., Instagram). Two potential interpretations may account for these findings. First, consistent with social comparison orientation (Buunk & Gibbons, 2006), image-based communications may enable social comparisons more readily. Plus, given that people generally post overly positive types of images (Cramer et al., 2016; Yang, 2016) and may possibly trust images more than text (Sundar, 2008), this could activate negative emotions and cognitions. It is difficult to know, however, because Instagram, another primarily image-based SNS, did not manifest similar poorer relationships relative to other SNS users. Second, rather than the use of a specific SNS exerting influence over these health outcomes, it may be that those who have certain
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Preexisting conditions are drawn to certain SNS. As such, perhaps those who want more entertainment, have poor health, or desire social comparisons to others are drawn to image-based platforms such as Snapchat, and those drawn to video-based SNS may already be healthier than their counterparts.

This study has some potential limitations. First, the cross-sectional nature of the data precludes any clear causal conclusions such that those with poor wellness may spend more time on social media or those who spend more time on social media develop poor wellness. Second, despite using a large sample, due to the subjective self-report and self-selection bias inherent in survey-based studies, some of these results may not be generalizable or accurately represent relationships between wellness and social media use. For instance, different cultural or religious practices may encourage or discourage the use of SNS or of the internet altogether. Third, the time spent on each respective SNS could have substantial overlap with the use of other SNS use, as the users could have used them simultaneously, inhibiting our ability to tie specific outcomes to specific SNS use. Many avid internet users may, for example, use multiple SNS at the same time in their browsing or posting. Fourth, we did not investigate motivations for SNS use, which can impact wellness because these motivations can be influenced by different extraneous factors (e.g., job hunting, pornography viewing) that may come with a unique health profile (Barker, 2009; Yang, 2016). Furthermore, how their time was spent when on SNS was not considered, as directly interacting with others could produce different effects than passive observation. Moreover, SNS usage was determined via a single item asking participants to estimate time spent on each SNS in the past month, which may have introduced retrospective self-report bias in this estimation. Finally, it is possible that certain outstanding characteristics of the Marco Polo sample (e.g., 64% Latter-day Saint, 70% married, 89% White) may have influenced the observed associations with health and wellness, suggesting a potentially complex relationship.

The findings from this study invite future research to replicate and further clarify these relationships. Future research should employ carefully constructed studies to investigate the directionality of the relationship between health and SNS use by longitudinal, controlled, and experimental means. One such avenue could be the exploration of SNS withdrawal among those who may show behavioral dependencies by removing SNS access to examine causal relationships between SNS use and health. Moreover, different populations should be investigated such as older adults and children to see if certain populations may be more at-risk for developing detrimental outcomes from SNS use. For instance, children who are just beginning to use social media may be at greater risk for developing detrimental health outcomes faster due to earlier initiation. Additionally, the effects of social distancing or cultural/societal differences that mandate different social norms might have on social media use should be investigated for health implications. Furthermore, future studies could examine objectively measured health outcomes like BMI, blood pressure, or clinical psychological diagnoses, which can be discrepant from subjective measures (Wright, Perkes, et al., 2018).

In sum, although the results of this study were complex, it seems that image-based social media (i.e., Snapchat) use was generally associated with poorer health and video-based (i.e., Marco Polo, WhatsApp), and professional social media (i.e., LinkedIn) use was related to more improved health and wellness. However, the strongest link seems to more clearly be that increased daily use of social media, regardless of the specific platform, had negative impacts on the user’s health. Thus, our results suggest that moderation of SNS use is likely the best behavior for overall health and wellness of the user.

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Factors Associated With Owning a Fake ID: Personality Traits and Problematic Alcohol Use

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Department of Psychology, Loyola University Maryland

ABSTRACT. The purpose of the present study was to examine the correlation between certain personality traits, one’s alcohol use, and owning a fake ID. Many college students use fake IDs to obtain alcohol while underage, which is then related to higher rates of problematic alcohol use. Problematic alcohol use has a number of negative health consequences; as such, efforts to prevent problematic alcohol use among college students need to be identified. The study was conducted with a college student population using an online survey to assess the personality traits of extraversion, neuroticism, conscientiousness, agreeableness, and openness to experience as predictors of fake ID ownership. The relation between fake ID ownership and problematic alcohol use was also assessed. Those who owned a fake ID scored higher in extraversion, $t(151) = 2.10, p = .037, d = 0.34$, and problematic alcohol use, $t(120) = 2.61, p = .02, d = 0.42$, and lower in neuroticism, $t(151) = −1.94, p = .054, d = −0.36$, and openness to experience, $t(151) = −2.48, p = .01, d = −0.40$, than those who did not own a fake ID. The results of this study can aid in identifying who among the college student population should be targeted with alternate socializing events to prevent fake ID ownership and problematic alcohol use.

Keywords: fake ID, extraversion, neuroticism, openness to experience, alcohol use

Problematic alcohol consumption, primarily in the form of binge drinking, is a prevalent concern on college campuses (Wechsler & Nelson, 2001). Binge drinking, defined as the consumption of four drinks for women or five drinks for men in a span of two hours, is most common among people ages 18 to 34 years (Kanny et al., 2018). A national survey conducted by The National Institute on Alcohol Abuse and Alcoholism (NIAAA) in 2015 found that 58% of full-time college students ages 18–22 reported drinking alcohol in the past month and 37.9% reported binge drinking in the past month; the rate of binge drinking among people of the same age who were not in college was 32.6% (NIAAA, 2015). These findings suggest that there are characteristics of the college environment that may increase risk for developing problematic habits involving alcohol consumption, including binge drinking. The consequences of problematic alcohol use may include serious long-term effects on health such as brain damage, liver disease, heart problems, cancer, and infertility (Spanagel, 2009). In addition, 88,000 people die each year from alcohol-related causes, which makes alcohol abuse the fourth leading preventable cause of death in the United States (NIAAA, 2015). For example, 45.8% of deaths attributed to liver disease involved alcohol use as a contributing factor (NIAAA, 2015). In 2014, drunk driving was the cause of 9,967 fatalities, accounting for 31% of driving fatalities that year (NIAAA, 2015).

Problematic alcohol use among those still under the legal age to purchase and consume alcohol (21 years in the United States) is particularly concerning. Most people who drink prior to turning 21 years old report problematic alcohol use, despite it being illegal to purchase and/or consume alcohol at their age (Kanny et al., 2018). Approximately 5.1 million people between the ages of 12–20 years old...
report binge drinking in the past month (NIAAA, 2015). How underage drinkers gain access to alcohol can be explained by various factors such as from family members having alcohol in the home and through using fake or falsified identification to purchase alcohol illegally. Chan and colleagues (2018) found that adolescents with a high exposure to alcohol in their home, either through drinking with family members or taking alcohol from family members, drank more frequently within the past month. Owning a fake ID, which is a crime, also gives underage drinkers easier access to alcohol by allowing them to purchase it at a liquor store or at a bar; as such, owning a fake ID is related to problematic alcohol use (Martinez & Sher, 2010; Nguyen et al., 2011). Given the prevalence of problematic alcohol use among those who are underage, the immediate and long-term negative health consequences associated with alcohol use, and the ease with which underage consumers can obtain alcohol with a fake ID, determining the factors that predict who owns fake IDs can be extremely useful to efforts designed to prevent problematic alcohol use on college campuses.

The current study conceptualized owning a fake ID as a risky behavior due to its illegal nature and potential for legal consequences. The penalty for being caught with a fake ID varies by states, but in most cases, consists of a fine (the lowest maximum fine throughout America is $500, the highest is $100,000), probation or prison time (the shortest sentence being 90 days, the longest being 10 years), points on one’s driver’s license that could lead to increased insurance premiums, and driver’s license suspension or revocation (The Morales Law Firm, 2016). This has not stopped underage drinkers from obtaining and using fake IDs. Martinez and Sher (2010) found that, among college students who owned a fake ID, most obtained that ID from a stranger. This is done today, generally, by buying a fake ID through the internet via websites that are determined to be reliable through trial and error, prior experience, and word of mouth. Previous studies have found that the attainment and use of fake IDs increases greatly when a student is involved in Greek life on university campuses (Nguyen et al., 2011). Aside from being a part of Greek life and alcohol use in general, other predictors of fake ID ownership have not been identified. The present study addressed that gap by examining potential personality traits associated with fake ID ownership.

The Five Factor Model of personality is a widely accepted theory of personality that includes the traits of neuroticism, extraversion, openness, agreeableness, and conscientiousness (McCrae & Costa, 1990). Many studies have looked at these personality traits in relation to risk taking behaviors such as sexual promiscuity, engaging in dangerous sports, and alcohol use (Diehm & Armatas, 2004; Gullone & Moore, 2000; Hoyle et al., 2000; Lauriola & Levin, 2001; Schmitt, 2004; Wagner, 2001; Zuckerman & Kuhlman, 2000). However, no research to date has examined any of these personality traits in direct relationship to owning a fake ID, which could be considered a relevant risky behavior among college students. To address this gap in the literature, the current study examined the association between fake ID ownership and each of the traits from the Five Factor Model.

Neuroticism can be broken down into two subsets of traits: impulsiveness and vulnerability (McCrae & Costa, 1990). Those who score high in neuroticism have an inability to adequately deal with stress and control their desires (McCrae & Costa, 1990). Many studies of undergraduate students have found that neuroticism is negatively related to risk-taking behavior (e.g., Hoyle et al., 2000). For example, Lauriola and Levin (2001) found that those who were more emotionally stable, or lower in neuroticism, tended to participate in more risky behavior; the inverse of that finding is that higher levels of neuroticism were associated with less participation in risk-taking behavior. In a study examining substance abuse, risk-taking, and anxiety sensitivity, Wagner found that high anxiety-sensitivity was negatively correlated with substance abuse. This contradicts other findings that substance use is positively correlated with anxiety as a self-medicating practice; however, Wagner (2001) noted that individuals who are higher in anxiety, which is a marker for higher neuroticism, may be less likely to engage in risk behavior such as substance use out of fear of the physiological arousal associated with thrill-seeking. Collectively, these findings suggest that students who are higher in neuroticism would not be likely to engage in the illegal, or risky, behavior of owning a fake ID. It is important to note that other studies have found no relation between neuroticism and risk-taking behaviors (e.g., Schmitt, 2004; Zuckerman & Kuhlman, 2000).

Extraversion can be sorted into three subtypes of traits reflecting warmth, gregariousness, and assertiveness (McCrae & Costa, 1990). Based on these subsets, an extravert would be friendly, have a strong desire to be around others, and act as a natural leader (McCrae & Costa, 1990). This type
of person is one who converses well with strangers and may make impulsive decisions in the company of others (Deupé & Collins, 1999; Zuckerman & Kuhlman, 2000). Several studies of college students have found that higher levels of extraversion are related to higher levels of risk-taking behavior. Several studies of personality and sexual risk taking have found that extraversion is positively related to sexual promiscuity (Lauriola & Levin, 2001; Schmitt, 2004; Zuckerman & Kuhlman, 2000). Extraversion was also found to be positively related to sensation-seeking activities such as sexual behavior and alcohol consumption (Eysenck, 1976). These are not surprising findings considering that extraverts are more prone to performing activities that will engage them socially, and many social activities in the college context may include underage drinking and sexual activity. With these connections, it is plausible to think that someone who scores high in extraversion would also be more likely to own a fake ID in order to facilitate social interactions involving alcohol use.

Openness encompasses six domains, the most pertinent to this study being openness in actions and openness in values (McCrae & Costa, 1990). Scoring high in openness in these two areas means that someone is willing to try new things without a second thought and that they have a looser set of values than others, meaning that they may believe something society considers wrong is not always wrong (McCrae & Costa, 1990). Several studies of college students have found that openness is positively related to risk taking. In a review of research on personality traits and sexual risk-taking behavior, Hoyle and colleagues (2000) found that openness was positively related to infidelity and promiscuity. Lauriola and Levin (1999) also found that openness was positively related to general risk-taking behavior, which they measured by presenting each subject with 60 risky decision-making trials for which they were forced to pick either a straightforward contract, which offered either a sure gain or a sure loss, or a risky contract, which offered a potential gain or potential loss. Before completing the risk-taking trials, participants were given the Short Adjective Checklist measuring the Big Five personality traits in order to measure their levels of openness. In another study conducted by Diehm and Armatas (2004), openness was considered in relation to participation in surfing, a risky sport activity. The results indicated that surfers had significantly higher scores in openness compared to individuals who were avid golfers (a low-risk sport). A review of studies examining the relation between openness and sensation-seeking, which is highly correlated with risk-taking, reported that sensation seeking positively correlates with openness (Hoyle et al., 2000). With this positive relationship between openness and risk taking well-supported, it is reasonable to propose that those who score high in openness to experiences would have a positive probability of owning a fake ID, another risky behavior. However, there is some inconsistency in the literature, with some studies finding no relation between openness and risk-taking behavior (Schmitt, 2004). In addition, a study of adolescents 15–18 years of age found a negative relationship between openness and risky or rebellious behavior (Gullone & Moore, 2000). The authors of that study speculated that their finding might be due to the fact that they used a measure of riskiness that has been widely used with adults, but not adolescents, suggesting that perhaps they did not accurately capture risk behavior for this age group (Gullone & Moore, 2000).

Those who score high in conscientiousness have been found to be organized, disciplined, careful, deliberate, and precise (Hoyle et al., 2000; Weller & Tikir, 2011). Given these traits, conscientious people are said to thoughtfully weigh the pros and cons for the decision they make, especially when it comes to behaviors that are risky (Weller & Tikir, 2011). Several studies have found lower rates of risk-taking behavior among those who score higher on measures of conscientiousness (e.g., Czerwonka, 2019, Gullone & Moore, 2000; Weller & Tikir, 2011). For example, Czerwonka (2019) found that higher levels of conscientiousness was a significant predictor of lower risk-taking behavior in a study of Polish and American students and Nicholson et al. (2005) and Weller and Tikir (2011) both found that conscientiousness was significantly negatively correlated with several domains of risk-taking behavior. In contrast, Gullone and Moore (2000) found that conscientiousness was significantly negatively correlated with rebellious and reckless acts but not overall risk-taking.

Agreeableness encompasses traits such as being cooperative, patient, tolerant, and forgiving, while those who are lower in agreeableness tend to be argumentative or combative (Weller & Tikir, 2011). As such, lower levels of agreeableness have been found to predict more risk-taking, especially as it relates to violating rules or societal expectations for behavior (Weller & Tikir, 2011); however, the results are inconsistent. For example, Gullone and Moore (2000) found that agreeableness was
significantly negatively correlated with rebellious acts but not with overall risk-taking behavior among adolescents. In two studies on domain specific risk-taking behavior, Nicholson et al. (2005) and Weller and Tikir (2011) found that agreeableness was significantly negatively correlated in several domains of risk-taking behavior. In contrast, agreeableness was not found to predict risk taking in Polish and American college students (Czerwonka, 2019).

The reviewed literature paints a fairly consistent picture linking higher levels of extraversion and openness, and lower levels of neuroticism, with higher levels of risk-taking, particularly in relation to risk behaviors that would be considered normative within the college environment, such as substance abuse and sexual risk behavior. As such, the hypothesized associations between each of these three personality traits and fake ID ownership, another risk behavior that is common among college students, are easily guided by existing research. The literature is less clear with respect to conscientiousness and agreeableness, for which the existing research highlights associations with risk taking behavior that reflect less normative risks, such as rebelliousness and rule violations (e.g., Gullone & Moore, 2000), and less consistent associations with other aspects of risk taking that might be considered more normative in a college setting. The present study examines a risk-taking behavior that is a common practice within collegiate society and would not be considered “outside the norm.” Due to this discrepancy and inconsistency, the foundation on which to base predictions about how conscientiousness and agreeableness might relate to fake ID ownership is less certain. As such, the present study focused on the traits that have been studied more often in terms of risk-taking behaviors common on college campuses: neuroticism, extraversion, and openness to experience. The primary purpose of the study was to understand the relationship between these personality traits and ownership of a fake ID. A secondary purpose of the study was to examine how ownership of a fake ID relates to problematic alcohol use. It was hypothesized that neuroticism would be lower for those who owned a fake ID than those that did not own one. It was also hypothesized that extraversion would be higher in those who owned a fake ID than those who did not. It was hypothesized that openness to experience would also be higher among those who owned a fake ID than those who did not. It was lastly hypothesized that problematic alcohol use would be higher among those who owned a fake ID compared to those who did not.

Participants
The 153 participants for this study were recruited from a small, private, liberal arts university located in a metropolitan area in the mid-Atlantic region of the United States with an enrollment of approximately 4,000 undergraduate students. The average age for participants in the sample was 19.28 years (range = 18–20, SD = 0.76). The sample consisted of 137 women (90%) and 16 men (10%). Most participants (n = 134; 88%) identified as White, 6 (4%) as Asian American, 5 (3%) as Black or African American, 3 (2%) as biracial, and 5 (3%) as other. The sample consisted of 3 (2%) seniors, 33 (22%) juniors, 65 (42%) sophomores, and 52 (34%) first-year students. The sample consisted of 51 (33%) psychology majors, 21 (14%) biology-psychology majors, 14 (0.9%) biology majors, 6 (0.04%) political science majors, 6 (0.04%) speech pathology majors, 6 (0.04%) accounting majors, 6 (0.04%) communications majors, 6 (0.04%) undecided majors, and several other majors with less than 5 participants in each (22%). A summary of participant demographic characteristics, divided by whether or not they owned a fake ID, can be found in Table 1.1

Measures
Demographics
The first part of the survey was the demographic section. It consisted of seven questions with regard to participants’ race, age, major, religion, class, and gender.

Personality Traits
For the purposes of this study, the Big Five Inventory was used to assess personality traits (John & Srivastava, 1999). The scale consisted of 44 questions, which are designed to measure the
prototypical components of the Five Factor Model of personality (John & Srivastava, 1999). The inventory consists of five subscales, one for each personality trait: Extraversion (8 items), Neuroticism (8 items), Openness (10 items), Conscientiousness (9 items), and Agreeableness (9 items). For each item, participants indicated how much they agree or disagree that a given statement describes them using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). In total, 14 questions were reverse-scored, and the rest were scored as answered; items for each subscale were then summed, with higher total scores indicating higher agreement with items reflecting that trait (John & Srivastava, 1999).

In prior studies, responses on the five subscales were shown to have good internal consistency, with alpha coefficients ranging from .75 (openness) to .86 (extraversion; Feldt et al., 2014) and the measure has been validated by examining correlations between subscales and other measures of similar personality traits (John & Srivastava, 1999). For the current sample, alpha coefficients were .88 (extraversion), .65 (neuroticism), .71 (openness), .79 (agreeableness), and .81 (conscientiousness).

Alcohol Use
Problematic alcohol use was measured using the Alcohol Use Disorder International Test, or AUDIT for short (Hayes et al., 1995). The section consisted of 10 multiple-choice questions that assessed participants’ alcohol consumption habits. Sample questions are included in Table 2. Each item was scored so that higher values were assigned to more problematic drinking, and the sum of the 10 items was used to represent the degree to which participants’ drinking would be considered problematic; the higher the total score, the more problematic the alcohol use. As found by Hayes et al. (1995), the internal consistency reliability for responses to all items on the AUDIT was .83. Several other studies cite the fact that the items for the AUDIT have high face validity. The internal consistency reliability for responses to the AUDIT in this study was .83.

Fake ID Ownership and Usage
A set of eight multiple-choice questions developed by the authors was used to assess behaviors related to fake ID ownership and use. These items included whether or not someone owns a fake ID, how/where they use it, if they have been caught using their fake ID, and if there were any consequences that followed being caught. Items in this section were pulled from several studies that have examined fake ID ownership (e.g., Martinez et al., 2010; Nguyen et al., 2011). Each item individually assessed a unique aspect of fake ID ownership or usage, so internal consistency reliability cannot be determined. Because this measure was designed for the current study, its validity has not yet been established.

Procedure
Prior to data collection, this study was approved by the Loyola University Maryland institutional review board (HS-2019-057). Participants were recruited through the psychology department research participant pool, email, and Facebook. Students who took the survey through the participant pool were eligible to receive academic credit for their class, but the other participants did not receive compensation for their participation. The email recruitment was sent to groups accessible by the researcher. This consisted of clubs, classes, and residence halls. The Facebook post was posted to the researcher’s class page. Both the email prompt and Facebook prompt were developed by the researcher. There were no incentives for participation, beyond the possibility of course credit or extra credit as determined by course instructors. Recruitment was designed to target students in many different majors and classes, although there ended up being a heavier concentration of psychology majors (32%) given that the participant pool is geared toward psychology classes.
The study was conducted through an online survey generator. Participants were given a link to follow through the portal or in the email, and once they reached the home page, they were presented with the consent form. Once the participant read the consent form and agreed to participate, they were directed to the survey. The order of the survey was the demographic questions, the Big 5 Inventory (measuring personality traits), the AUDIT (measuring problematic alcohol use), and the fake ID ownership and usage questions. Participants answered the questions as instructed at the top of each page. Once participants completed the survey, they were debriefed and given contact information for who to contact if they have any questions about the survey and to counseling services in case the questions caused them any distress.

Results

Just over half ($n = 83, 54\%$) of the sample reported that they owned a fake ID (see Table 3 for descriptive data for fake ID owners). Most fake ID owners reported obtaining their IDs during their first year of college, and the most frequent method of obtaining a fake ID was purchasing it (as opposed to being given one from someone else). Most students reported using their IDs weekly and using them the mostly in bars, at retailers, and in clubs. Although the most students ($n = 52$) had not been caught using their fake IDs, a notable number of students had been caught ($n = 28$).

Due to the number of significance tests performed, only those results with at least a small effect size (Cohen’s $d = 0.20$) will be considered meaningful. To evaluate each of the study hypotheses, independent-samples $t$ tests were performed comparing those who owned fake IDs ($n = 83$) to those who did not ($n = 70$). In terms of personality traits, results indicated that participants owning a fake ID scored significantly higher on extraversion ($M = 3.40$, $SD = 0.84$) than those who did not own a fake ID ($M = 3.11$, $SD = 0.86$), $t(151) = 2.10$, $p = .037$, $d = 0.34$, which is a small effect. The difference between neuroticism in those who did or did not own a fake ID was marginally significant, with fake ID owners scoring lower on neuroticism ($M = 3.13$, $SD = 0.80$) than nonowners ($M = 3.38$, $SD = 0.79$), $t(151) = −1.94$, $p = .054$, $d = −0.36$, which is a small effect. Those who owned a fake ID also scored significantly lower on openness ($M = 3.47$, $SD = 0.49$) than those that did not own a fake ID ($M = 3.69$, $SD = 0.57$), $t(151) = −2.48$, $p = .01$, $d = −0.40$, which is a small effect. Although not the major focus of the current study, independent $t$ tests were also conducted to evaluate whether the two groups differed in the other two traits in the Five Factor Model. There was no significant difference in conscientiousness between those who owned a fake ID ($M = 3.73$, $SD = 0.65$) and those who did not ($M = 3.84$, $SD = 0.63$), $t(151) = −1.06$, $p = .288$, $d = 0.17$. Likewise, agreeableness did not significantly differ between those who owned a fake ID ($M = 4.06$, $SD = 0.59$) and those who did not ($M = 3.89$, $SD = 0.62$), $t(151) = 1.68$, $p = .095$, $d = −0.28$. Finally, those who owned a fake ID ($M = 7.56$, $SD = 0.49$) scored higher on problematic alcohol use than those who did not ($M = 3.69$, $SD = 0.57$), $t(120) = 2.61$, $p = .02$, $d = 0.42$, which is a small effect. Note that the discrepancy between the degrees of freedom for the comparison for alcohol use is because some of the people who owned a Fake ID did not consume alcohol, so there were fewer cases analyzed in that statistical test.

Discussion

The purpose of the present study was to examine the relationship between personality traits and owning a fake ID. More than half (54\%) of the sample owned a fake ID, which is much higher than the results of previous studies. For example, a study by Martinez and Sher (2010) found that 21\% of their sample of college students (1,098 participants from a large Midwestern university) owned a fake ID, and

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TABLE 3

Descriptive Statistics of Those Who Own a Fake ID ($n = 83$)

<table>
<thead>
<tr>
<th>Question</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>When did you get your fake ID?</td>
<td>Before college: 19</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>1st year: 57</td>
<td>68%</td>
</tr>
<tr>
<td></td>
<td>2nd year: 4</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>3rd year: 3</td>
<td>4%</td>
</tr>
<tr>
<td>How did you get your fake ID?</td>
<td>Bought: 75</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Given: 8</td>
<td>10%</td>
</tr>
<tr>
<td>How often do you use your fake ID?</td>
<td>Weekly: 41</td>
<td>49%</td>
</tr>
<tr>
<td></td>
<td>Monthly: 30</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>Every other month: 9</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>Unanswered: 3</td>
<td>4%</td>
</tr>
<tr>
<td>Where have you used your fake ID (select all that apply)?</td>
<td>Bar: 80</td>
<td>96%</td>
</tr>
<tr>
<td></td>
<td>Club: 55</td>
<td>66%</td>
</tr>
<tr>
<td></td>
<td>Retailer: 60</td>
<td>72%</td>
</tr>
<tr>
<td></td>
<td>Restaurant: 6</td>
<td>7%</td>
</tr>
<tr>
<td>Have you ever been caught using your fake ID?</td>
<td>Yes: 28</td>
<td>34%</td>
</tr>
<tr>
<td></td>
<td>No: 52</td>
<td>62%</td>
</tr>
<tr>
<td></td>
<td>Unanswered: 3</td>
<td>4%</td>
</tr>
</tbody>
</table>

---

2 A multivariate analysis of variance (MANOVA) was also performed to ensure that the results did not reflect an increased risk of a Type I error. All differences found with the $t$ tests were also statistically significant ($p < .05$) within the multivariate analysis.
Nguyen et al. (2011) found that 7.7% of first-year students (7,233 participants from 194 colleges in 37 states) reported owning a fake ID. In this study, 38% of first-year students owned a fake ID and most students initially obtained their IDs during their first year in college. Although the specific demographic characteristics of these comparison schools are not known, it could be suggested that the students in the current study were more affluent and might have more means to purchase fake IDs. Alternatively, the higher prevalence of fake ID ownership in the current sample reflects a sharp increase in the number of students buying fake IDs and suggests the need for further research to understand this problematic behavior, such as the social motivations to get a fake ID (e.g., peer-pressure, access to social events). Further research could also address how much fake ID use is tolerated by owners or managers of the establishments that sell alcohol in college towns and how enforcement of laws prohibiting fake IDs might impact their popularity.

For the current study, the first hypothesis stated that those who owned a fake ID would score higher in extraversion than those who did not. This hypothesis was supported by the data, validating the results of previous studies that found higher rates of extraversion associated with other forms of risk-taking behavior, including alcohol use and sexual risk behavior (Schmitt, 2004; Zuckerman & Kuhlman, 2000). This could be because extraverts are more sociable, and on a college campus, much of the social life centers around alcohol use (Lucas et al., 2000; Murphy et al., 2006; Rabow & Duncan-Schill, 1995; Watson & Clark, 1997). Thus, students who are more extraverted may feel the need to own a fake ID in order to have access to social events or settings where alcohol is served because that is where socializing occurs.

The next hypothesis stated that those who owned a fake ID would score lower in neuroticism than those who did not own a fake ID. The results of the analyses indicated that neuroticism was trending toward a negative relationship with owning a fake ID, meaning that those who owned a fake ID scored lower on neuroticism than those who did not. This finding is consistent with the results of previous literature that found that higher levels of anxiety, as would be experienced by someone who scores higher on neuroticism, are associated with greater risk aversion; in other words, those who are more neurotic would be less willing to break the law by owning a fake ID (e.g., Hoyle et al., 2000; Wagner, 2001). On the surface, the current findings are also inconsistent with research finding a positive association between anxiety and alcohol use, which implies that those who are high in neuroticism would score high in alcohol use because they use the alcohol as a way of coping with their anxiety (Wagner, 2001). This explanation was suggested by Lauriola and Levin (2001) when they found that those who scored high in risk taking behavior scored high in neuroticism only when the act ended in a gain for the person such as alleviating anxiety. However, the association examined in the current study was specific to fake ID ownership, and not general alcohol use. It is possible that those who are higher in neuroticism do drink more alcohol, but do so in a way that does not involve owning an illegal ID.

In contrast to the hypothesized positive association between openness and fake ID ownership, the results of the current study demonstrated that those who owned a fake ID scored lower in openness than those who did not. Although these findings are different than those of most prior research on the association between openness and risk-taking, a study by Gullone and Moore (2000) did find that openness was not a predictor of risk-taking behavior. Schmitt (2004) also found that the lower participants scored in openness the more likely they were to engage in risk taking behavior. This could be because those who are more open to varied experiences may partake in activities other than the usual college social activities centered around drinking alcohol, such as outdoor experiences or events involving the arts or culture. In contrast, those who are lower in openness may have a more narrowly defined set of expectations about social options on campus and may therefore lean toward events that involve alcohol consumption and thus require access to a fake ID.

Though not a primary focus of the study, conscientiousness and agreeableness were also examined in relation to fake ID ownership. The results of these analyses were not significant. Past research on the association between conscientiousness and risk-taking behavior has found significant negatively correlations (Czerwonka, 2019; Gullone and Moore, 2000; Nicholson et al., 2005; Weller and Tikir, 2011). The nonsignificant findings of this study could be explained by the fact that previous research has not looked at conscientiousness and specific risk-taking behaviors, but rather broad domains of risk-taking behaviors that include behaviors that would put someone outside of the social norm, such as rebellious behavior (Gullone
& Moore, 2000). It is possible that owning a fake ID on a college campus, which is less likely to be considered normative within the context of being a college student, is not related to conscientiousness, at least as it was measured in this study. The same logic can be applied when looking at the nonsignificant results for agreeableness. In addition, there has been less consistency in the literature with respect to agreeableness and risk taking; with some studies similarly finding nonsignificant results (e.g., Czerwonka, 2019). Further research is warranted to better understand how these personality traits may be related to fake ID ownership and use.

Finally, alcohol use and owning a fake ID were positively related, which means that those who owned a fake ID scored higher in problematic alcohol use than those who did not. This finding is not surprising, as the motivation for owning a fake ID is likely to increase one’s access to alcohol. Students who owned a fake ID were using it to purchase alcohol, and they drank the alcohol they purchased. Indeed, past research has found that underage people partook in more drinking simply when they had easier access to it (Chan et al., 2018), and undergraduate students have reported that alcohol is relatively easy to obtain, which may largely reflect having access to fake IDs that make purchasing alcohol easier (Nguyen et al., 2011). Such easy access to alcohol is associated with more alcohol consumption, and when underage college students consume alcohol, they tend to do so in a way that constitutes problematic alcohol use (Nguyen et al., 2011).

Although several significant differences in alcohol use and personality traits were found between students who owned fake IDs and those who did not, the results should be interpreted cautiously due to the limitations of the current study. The greatest limitation of this study is the sample size and skew in gender that heavily favored female students. The university from which the sample was drawn has a predominately female student body, which resulted in most of the sample being White. This means that, if students are to be deterred from buying a fake ID, they need to be better educated about the risks and consequences of doing so at the high school level. If fewer students own fake IDs, they will not be able to purchase alcohol while underage and will therefore participate in less problematic alcohol use. It would be interesting to know how many students are aware of the consequences of getting caught using a fake ID and if having that knowledge deters them from purchasing one. These findings also underscore the importance of offering a wide range of social activities and events for students so that those who are more extraverted and open have options for social interaction and new experiences that do not involve alcohol or the need to have a fake ID.

References


Fake IDs, Personality Traits, and Alcohol Use | Deegan and Kotchick


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Materials and data for this study can be furnished upon request. We have no known conflict of interest to disclose. Correspondence concerning this article should be addressed to Beth Kotchick, Psychology Department, Loyola University Maryland, 4501 North Charles Street, Baltimore, MD, 21201. Email: bakotchick@loyola.edu.
The Effect of Differential Susceptibility to Social Influence on Endorsement of College Hookup Culture

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ABSTRACT. College hookup culture is seen on nearly every college campus in the United States with many students partaking in the culture. Many college students feel pressured to hook up because they are misled by the belief that most of their peers are hooking up. For the present study, we examined the effects of a woman’s extent of susceptibility to social influence, college year, and relationship status on her perceptions of college hookup culture. To investigate this topic, 115 female undergraduate participants were gathered from a single-sex college who identified either as an underlevel or upperlevel student and as being single or in a relationship. Then, all participants took an online survey where they completed measures to assess participants’ susceptibility to social influence and perceptions about college hookup culture. Finally, participants were asked their relationship status, year in college, and degree of religiosity, the third of which was used as a covariate in analyses. Results found that participants with high susceptibility to social influence perceived hookup culture more favorably than students with low susceptibility. Furthermore, underlevel students did not perceive hookup culture differently from upperlevel students. Finally, it was found that participants in a relationship did not perceive hookup culture differently than single participants. Implications for the study’s results include the possible development of sexual educational programs to address perceptions about peers’ rates of hooking up versus reality in order to alleviate social pressures that those highly susceptible to influence might feel.

Keywords: college hookup culture, hooking up, human sexuality, sexual behavior

College is a time in life when people further their sense of self, attitudes, and values through new experiences. College students are at a point in their lives where they begin to develop a sense of independence from their families and explore new experiences, identities, and freedoms (Arnett, 2000). This exploration can range from creating friendships and living with roommates to experimenting with new sexual behaviors. Since the 1960s, as a result of the Sexual Revolution, the Women’s Movement, and popular media, there has been a cultural shift such that casual sexual behavior outside of traditional, monogamous relationships has become more typical and socially acceptable (Garcia et al., 2012; Heldman & Wade, 2010). At the college level, most men and women partake in casual sexual experiences within a so-called “hookup culture,”
with between 60% to 80% of North American college students having had a hookup experience (Garcia et al., 2012). Furthermore, one in four college students will hook up more than 10 times during college (England et al., 2008). College hookup culture is found on nearly every U.S. college campus where students may often have a desire to take part in hookup culture to fit in with college life (Aubrey & Smith, 2013). Because “hooking up” can have ambiguous interpretations, for the purposes of this study, we are using Stepp’s (2007) definition that:

Hooking up can consist entirely of one kiss or it can involve fondling, oral sex, anal sex, intercourse, or any combination of those things. It can happen only once with a partner, several times during one week, or well over many months. Partners may know each other very well, only slightly, or not at all, even after they have hooked up...Feelings are discouraged, and both partners share an understanding that either of them can walk away at any time. (p. 24)

Hookup culture, therefore, can be defined as a social environment in which hooking up occurs such that there are agreed-upon rules, assumptions, and practices that (a) establish that sexual encounters (hookups) are free from emotional and relationship commitment, (b) the partners do not need to know each other in order to hookup, and (c) the sexual encounters between hookup partners can occur a single time or multiple times with the assumption that either partner can leave at any point (Aubrey & Smith, 2013). In this way, hookup culture is the overarching social environment where the physical act of hooking up takes place.

The purpose of the present study was to explore the attitudes women have about hookup culture and how these attitudes may be influenced. Specifically, this study examined how college women’s endorsement of hookup culture, or to what extent women agree with the basic rules and norms of this culture, changes with different social factors (Aubrey & Smith, 2013). Although endorsement of hookup culture is not meant to assess actual participant hookup experience, it reflects opinions about hookup culture that may or may not be based on personal experience. Nevertheless, endorsement of hookup culture measures college-aged women’s multidimensional reasons for endorsing, or supporting, college hookup culture and its shared and understood rules, practices, and norms of hooking up (Aubrey & Smith, 2013). These reasons may include that hooking up (a) is harmless, (b) is fun, (c) enhances one’s social status, (d) allows one to assert control over one’s sexuality, and (e) is a reflection of one’s sexual freedom (Aubrey & Smith, 2013). Although women may support college hookup culture for a multitude of reasons, a woman may be more accepting of one reason over another (Aubrey & Smith, 2013). Furthermore, even if a woman has had negative experiences with hooking up, it is possible that she still endorses hookup culture, because endorsement is not a direct reflection of one’s sexual experiences. By this same logic, if a woman has not had any experience in hooking up, she may still be able to evaluate hookup culture because of its large presence on college campuses (Aubrey & Smith, 2013).

Studying these perceptions about hookup culture has implications for women’s mental and physical health because perceptions can ultimately influence hookup behavior (Garcia et al., 2012). For instance, there are many positive and negative consequences of engaging in hooking up. Some positive aspects of hooking up include sexual pleasure, feelings of closeness, and mutual comfort (Armstrong et al., 2009). Negative consequences may include contracting STIs, reinforcing sexism, and developing feelings of shame or regret that can lead to depression. In particular, contraction of STIs is a concern for young women engaging in hookup culture because only 36.8% of sexually active college women use condoms for protection (American College Health Association, 2009). According to Weinstock et al. (2004), nearly half of new STI infections are contracted by young people (ages 15 to 24). As for the negative consequence of developing feelings of shame and regret, in a survey conducted by Herold and Mewhinney (1993), 72% of college-aged women agreed with the statement “I feel guilty or would feel guilty about having sexual intercourse with someone I had just met.” Analyzing how women’s perceptions of hookup culture change with different social factors can lead to differences in mental and physical outcomes by developing educational programs aimed for those who possess those social factors.

By studying the characteristics of those most likely to endorse hookup culture, intervention programs can be created with these characteristics in mind in order to reduce the physical and emotional risks associated with partaking in hooking up. Specifically, these programs can reduce the risks associated with hookup culture by providing a
safe space for college women to learn about healthy relationship qualities, sexual communication, safer sex practices, self-esteem and identity building, and other important issues. When women learn how to communicate their sexual and emotional wants and needs in a healthier way, they can reduce any potential conflict that may be associated with hooking up. Moreover, because many college students feel pressured to hook up because they are misled by the belief that most of their peers are hooking up, these programs could help alleviate the social pressure women may feel, so that they may be better able to make decisions about their sexual experiences based more on their own desire and not just fit in.

**Women's Perspectives of Hookup Culture**

In evolutionary terms, human sexual hookups are interpreted as a “fitness-enhancing short-term mating strategy” because it maximizes the number of mates and thus maximizes reproductive output (Buss, 1998; Garcia et al., 2012, p. 165). In accordance with this view, men will try to mate with as many partners as possible, consent to sex quickly, and not commit to long-term partners in order to maximize reproductive output (Buss, 1998; Garcia et al., 2012). As for women in this context, they are expected to commit to their mate long-term in order to obtain the maximum amount of resources for their offspring (Gangestad & Thornhill, 1997; Garcia et al., 2012). These gender differences of sexual behaviors and attitudes can lead to differences in sexual frequencies. Specifically, the differences in evolutionary backgrounds of men and women may lead men to be more sexually permissive and women to be more sexually restrictive (Simpson & Gangestad, 1992). Therefore, there are evolutionary differences between men and women that ultimately may influence sexual behaviors and attitudes between these two genders.

Women may engage in hooking up for several reasons. According to Fielder and Carey (2010), women are motivated to hook up for the following reasons: (a) 80% feel sexual desire, (b) 58% have a spontaneous urge, (c) 56% feel attracted to their partners, (d) 51% are intoxicated, (e) 33% have a willing partner, and (f) 29% want to feel attractive or desirable. In addition, Owen et al. (2011) found that the strongest predictor of women’s hookup behavior is having a previous hookup. In other words, once a woman engages in a hookup, she is more likely to engage in another, and for the women who have penetrative sex during a hookup, they are 600% more likely to do this again over the course of a semester (Owen et al., 2011). Another reason why women may feel a desire to partake in hookup culture is so that they can experience and fit in with college life. Furthermore, college women hook up to derive status and self-esteem from obtaining men’s attention (Aubrey & Smith, 2013). Because hookup culture is so ubiquitous on college campuses, college students who criticize it often feel alienated and ostracized, thus many go along and accept hookup culture to avoid this (Hamilton & Armstrong, 2009). One final reason college women choose to hook up is that they hope a hookup with a partner will turn into a committed relationship. According to Owen and Fincham (2011), 65% of women hoped that their hookup would become a committed relationship. Alternatively, only 45% of men wished for the same, that their hookup encounter would lead to a monogamous relationship (Owen & Fincham, 2011). Furthermore, most women (51%) who hoped that their hookup would lead to a committed relationship reported actually trying to discuss this possibility with their hookup partner (Owen & Fincham, 2011). On the other hand, many college-aged women consider committing to a partner to be a low priority for them because relationships are too much commitment and interfere with their career goals (Arnett, 2002).

Because women choose to hook up in college for a multitude of reasons, there exists a need to study how these factors influence a women’s endorsement of hookup culture. No data currently exists measuring college-aged women’s perceptions of hookup culture and to what extent women support or do not support this culture. Therefore, the present study aimed to dive deeper into the social factors that changes these attitudes toward college hookup culture.

**Susceptibility to Social Influence**

The perceptions of other college students’ hookup behaviors may influence a college student’s own hookup behavior. People in a culture often follow a culture’s social norms and expectations in order to fit in and be accepted within that culture (Kassarjian, 1962). However, people individually differ to what degree they conform to a culture’s norms and beliefs such that for some people, their behavior depends almost exclusively on the expectations and influences of others within their culture, and for others, their behavior is guided by their own values and beliefs and not as much on the opinions of others (Kassarjian, 1962). In this way, people who
have different degrees of susceptibility to social influence would tend to behave differently in various aspects of life (Kassarjian, 1962). Susceptibility to social influence extends into numerous areas of psychology, and for this reason a general definition can be given: “Susceptibility to social influence can be understood as one’s tendency to change attitudes, intentions, communication, and behavior in response to others’ activities” (Stockli & Hofer, 2020, p. 1). A woman’s degree of susceptibility to social influence (SSI), for the purpose of this study, is categorized into four different levels to which a woman would fall into a single category: (1) high SSI, (2) medium-high SSI, (3) medium-low SSI, and (4) low SSI. College women may have varying degrees of SSI when it comes to hookup culture such that those with a lower degree of susceptibility would not feel as socially pressured to hook up relative to other women with a higher degree of susceptibility. Conversely, those with a higher degree of susceptibility may feel more socially pressured to hook up relative to other women with a lower degree of susceptibility. Within the context of college hookup culture, a common motivation to partake in hooking up is to go along with the culture’s norm in order to fit in even if there exists some hesitation on the individual’s part (Kooyman et al., 2011). Therefore, college students may have varying degrees of SSI pertaining to hookup culture such that those with a lower degree of SSI would not feel as socially pressured to hook up while those with a higher degree of SSI may feel more socially pressured to hook up.

A disconnect exists between perceptions of hooking up and the actual prevalence of hooking up on college campuses. In a study conducted by the American College Health Association in 2008, 94.6% of college students perceived that the average student had had vaginal sex one or more times in the past year whereas actually 76.3% of the surveyed students reported having had zero to one sexual partner in the past year. In this way, women who are highly susceptible to social influence may feel pressured hook up in order to “keep up” with their peers and be accepted. Therefore, a woman’s degree of SSI should be analyzed to see if it influences her perceptions about college hookup culture.

College Year
A woman’s year in college may play a role in her perception of college hookup culture. Among women in their first semester of college, 60% have had lifetime experience with oral, vaginal, or anal sex hookups (Fielder & Carey, 2010). Often, college is the first time when a woman may become fully immersed in hookup culture and therefore be behind on the “learning curve” of the norms of hookup culture (Heldman & Wade, 2010). As a result, she may perceive that she is “behind” her peers in regard to her sexual experiences (Heldman & Wade, 2010). First year female college students tend to “go further,” or engage in more intense types of sexual contact, than they otherwise might in a hookup because they hope it will lead to a relationship or do not know how to say no to a partner (Heldman & Wade, 2010). By the time women are in their second year of college, Heldman and Wade (2010) suggest that students’ sexual patterns shift in such a way that they have figured out the social norms and expectations of hookup culture. Because sexual behaviors and attitudes may shift throughout different years of college, it is important to look at how a woman’s year in college may affect her perception of hookup culture.

Relationship Status
The relationship status of a female college student may also influence how she perceives college hookup culture and to what extent she endorses it. In a study analyzing endorsement of hookup culture carried out by Aubrey and Smith (2013), nearly half of their college student sample reported being in a committed, romantic relationship at the time of the survey. As a result of participant relationship status, the researchers believed these participants endorsed hookup culture not because it offered a way of avoiding commitment, but rather that hooking up did not have an influence on commitment (Aubrey & Smith, 2013). In other words, because these participants were in romantic relationships already, the researchers believed that participants did not want to avoid commitment and endorsed hookup culture for a different reason other than lack of commitment that hookups offer (Aubrey & Smith, 2013). Garcia and colleagues (2012) found that 63% of college-aged men and 83% of college-aged women preferred, at the time of the study, a traditional romantic relationship over an uncommitted sexual relationship, otherwise known as a “hookup.” Furthermore, of 500 participants in another survey who all had experiences with hookups, 65% of women and 45% of men reported that they wished their hookup encounter would turn into a committed relationship, and 51% of women and 42% of men reported trying to discuss
starting a committed relationship with their hookup partner (Garcia et al., 2012). In this way, many single individuals who engage in hookups do so in an effort to try to initiate a romantic relationship. Therefore, a college student’s relationship status should be considered when studying her perceptions of college hookup culture.

Religiosity
In addition to SSI, college year, and relationship status, religiosity, or the extent to which one identifies with and practices a religion, may influence how a woman perceives hookup culture. All major religious traditions have certain sexual restrictions that are preached to their followers with particular emphasis that sex before marriage is a sin or wrongdoing (Bartkowski, 2001; Gay et al., 1996). Many of these religions, specifically Catholicism and Protestantism, expect followers to have “sexual purity” such that they do not engage in sexual activities of any kind prior to marriage (Bartkowski, 2001). These sexual activities include sexual touching, oral sex, vaginal sex, and anal sex.

The relationship between an adolescent’s religion and their sexual behavior has been examined in previous studies. The internalized religious self-concept, or how religious people consider themselves to be, has been shown to influence sexual behavior in general as well as within the context of college hookup culture. For example, Bearman and Bruckner (2001) found that highly religious adolescents have fewer sexual partners and delay sexual relations of any kind (touch, oral, vaginal) until later age relative to their less religious peers. Conversely, those with lower religiosity have less sexual conservatism, and thus tend to accrue more sexual experiences as they develop (Aalsma et al., 2013). Because most major religions emphasize abstaining from premarital sexual activities, many women who have internalized religious norms about sexuality often feel inclined to avoid such behavior (Ellison & George, 1994). To engage in hooking up may bring feelings of regret, guilt, and shame for these deeply religious women because it would be violating their religious values (Ellison & George, 1994).

Depending on an individual’s religiosity, the more religious a woman is the more likely she may feel inclined to actively participate in religious activities. For instance, previous research has suggested that religious participation affects moral attitudes about sexuality (Hertel & Hughes, 1987). In particular, the more a college student attends worship and holds religious feelings, the less likely they are to engage in sexual behaviors (Penhollow et al., 2005). Women who participate more in religious activities, therefore, may be less inclined to hook up relative to those who are not as involved in their religion. Some reasons for this phenomenon may include (a) that more religious participation exposes followers to messages reinforcing the importance of refraining from sex before marriage, (b) that more participation in religious organizations may limit college students’ time to participate in nonreligious environments involving hooking up (parties and other nonsecular socializing events), and (c) that more religious participation may increase time spent engaging in wholesome social activities with other religious peers such as church-sponsored functions or volunteering, which are both alcohol and drug free and not nearly as conducive to hooking up (Ellison & George, 1994). Because religiosity has been shown in previous studies to influence sexual behavior, it is essential to consider how religiosity can influence perceptions of hookup culture because religiosity seems to change the desire a woman has to hook up at college.

Present Study
Past studies have primarily looked into the statistics surrounding the prevalence of hookup culture in college. The results of these studies are limited, thus pointing out the need for further research into the effects of relationship status, college year, and religiosity on students’ attitudes toward college hookup culture. Furthermore, no studies have evaluated how a woman’s SSI affects her perceptions of college hookup culture. It is important to examine the relationships between a college student’s SSI, year in college, relationship status, and religiosity and their endorsement of hookup culture because there are many positive and negative consequences of hooking up in college, as mentioned previously. By studying the characteristics of those most likely to endorse hookup culture, intervention programs can be created with these characteristics in mind in order to reduce physical and emotional risks associated with partaking in hooking up.

The present study aimed to examine the effects of participant susceptibility to social influence, college year, relationship status, and religiosity on perceptions of hookup culture. One dependent measure as criteria of perception of hookup culture was measured: endorsement of hookup culture. The key hypothesis was that participant susceptibility to social influence would have an effect on
the perceptions of college hookup culture such that women with high SSI would perceive hookup culture more favorably than women with low SSI. Furthermore, participant year in college would have an effect on the perception of hookup culture such that underlevel students would perceive hookup culture more favorably than upperlevel students. As a third hypothesis, participant relationship status would have an effect on the perception of hookup culture such that women in a relationship would perceive hookup culture less favorably than single women. Finally, as the fourth and final hypothesis, SSI would most strongly predict endorsement of hookup culture of four variables: SSI, college year, relationship status, and religiosity.

Method
This study consisted of a quasieperimental design, which examined the effect of three independent variables on one dependent variable: endorsement of hookup culture. These three independent, categorical variables included (a) college year (underlevel or upperlevel), (b) relationship status (single or in a relationship), and (c) susceptibility to social influence (low, medium-low, medium-high, and high). Additionally, degree of religiosity (religious, not religious, and somewhat religious) was included as a covariant. Group assignment was based on these three intrinsic participant characteristics (college year, relationship status, and degree of susceptibility to social influence) and therefore was not randomized. In addition, the design of the study was between subjects due to the nature of the four independent variables (participants could not possess multiple conditions of a variable at the same time).

Participants
Participants included 115 female students enrolled at a single-sex college in the United States. Students were aged between 18 and 23 years old (M = 19.79, SD = 1.35). Students either identified as being an underlevel student (53.0%) or an upperlevel student (47.0%). Participants were placed in one of four SSI groups: low SSI (25.2%), low-medium SSI (24.3%), medium-high SSI (24.3%), or high SSI (26.2%). Students either identified as being in a romantic relationship (33.9%) or being single (66.1%) at the time of the survey. Participants were recruited via flyers placed around the college and the snowball effect. They were selected based on self-identification as female and self-identification as an underlevel or upperlevel student at the participating college. Participants were not compensated for their participation. Only women were used because the single-gender school is a women’s college.

Measures and Materials

College Year
This variable had two levels: one of underlevel college students and one of upperlevel college students. Participants were grouped in one of two levels based on their own intrinsic group membership: underlevel (first- and second-year students) or upperlevel (third- and fourth-year students) at the participating college. Participants reported their college year in the demographic questions section of the online survey.

Relationship Status
This variable had two levels: currently in a relationship or currently single. Group assignment was based on these participant intrinsic characteristics of either being single or in a relationship at the time participants took the survey. Of those who indicated they were in a relationship, participants indicated if the length of the relationship was between 0 and 6 months (30.2%) or if it was longer than 6 months (69.8%). Participants reported their relationship status in the demographic questions section of the online survey.

Susceptibility to Social Influence
Participants’ SSI was measured by the Inner-Other Directedness Scale (Kassarjian, 1962). The Inner-Other Directedness Scale measures social conformity to the norms of one’s membership group where an inner-directed person follows their own inner values to guide their behavior and an other-directed person follows the group’s values to gain its approval. Therefore, the Inner-Other Directedness Scale was used to measure participant SSI because of its ability to assess how likely a person is to conform to social values within a culture.

Participants responded to 36 two-choice items on a 4-point rating scale that measured responses on a continuum from other- to inner-directedness. Totaled scores could range from 0 (complete other-directed) to 144 (complete inner-directed) where 72 was the division between inner- and other-directedness. Participant score was calculated by assigning −2 for a strong other-directed answer, −1 for a slight other-directed answer, +1 for a slight inner-directed answer, +2 to a strong inner-directed answer, and 0 for no answer. To ensure there was a not a negative total score caused by consistently answering −2
responded to 20 items using a 5-point rating scale in order to measure the extent to which they agreed with the statements. The 5-point rating scale ranged from 1 (strongly disagree) to 5 (strongly agree). Scores could range from 21 to 100 and participant score was calculated by summing the individual item scores. Some example statements included, “I hook up to have a good time,” “College is a good time to experiment with hooking up,” and “It would improve my reputation to hook up with someone who others find appealing.” The internal reliability for this index was .93.

Procedure
Female undergraduates from a women’s college were given a URL to an online survey via the psychology department, flyers, and the snowball effect. After signing a consent form, participants completed the Inner-Other Directness Scale (Kassarjian, 1962) and the EHCI (Aubrey & Smith, 2013), which were counterbalanced and displayed on separate pages within the survey so participants could not view any previous page once they had proceeded. Finally, participants answered demographic questions about their current relationship status, year in college, age, ethnicity, as well as neutral filler questions pertaining to college life such as dining hall experiences, roommates, major, and religiosity. The survey took participants about 15–20 minutes in total to complete. Participants were debriefed immediately following completion of the survey.

Results
A series of one-way between-subjects analyses of covariance (ANCOVAs) were conducted to determine if there were relationships between participants’ SSI, relationship status, and college year on their overall endorsement of college hookup culture as well as their endorsement of five beliefs (or subcategories) of hookup culture. These five beliefs are that hooking up is (a) is harmless, (b) fun, (c) enhances one’s social status, (d) allows one to assert control over one’s sexuality, and (e) is a reflection of one’s sexual freedom. Religiosity was found to covary with SSI, relationship status, and college year, and thus, the following results use participant religiosity as a covariate.

Susceptibility to Influence
Participant susceptibility to social influence was predicted to affect overall endorsement of college hookup culture such that those with high SSI would perceive hookup culture more favorably than those
with low SSI. A series of one-way between-subjects ANCOVAs were conducted to analyze the relationship between SSI and endorsement of hookup culture as well as the five beliefs of hookup culture.

First, a post hoc power analysis tested the difference between four equally sized independent group means (low, medium-low, medium-high, and high SSI). This analysis showed that, for a sample size of 111 participants and an alpha of .05, the effect size was small ($d = 0.45$), and the power was .92. Therefore, the power was very sufficient for the susceptibility to social influence factor.

A one-way ANCOVA showed that the effect of SSI on endorsing college hookup culture in general was significant, $F(3, 108) = 6.02, p = .001, d = 0.85$. Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the EHCI was significantly higher in the most susceptible group ($M = 58.41, SD = 14.01$) than in the least susceptible group ($M = 46.39, SD = 14.42$). Furthermore, post hoc pairwise comparisons using a simple contrast indicated that the average score on the EHCI was significantly higher in the most susceptible group ($M = 58.42, SD = 14.01$) than in the medium-high susceptibility group ($M = 44.30, SD = 15.63$). In another pairwise comparison, the average score on the EHCI was significantly higher in the medium-low susceptibility group ($M = 56.26, SD = 16.29$) than in the medium-high susceptibility group ($M = 44.30, SD = 15.63$). There were no significant differences between the following pairwise comparisons for the average score on the EHCI, as seen in Table 1: (1) low and medium-low, (2) low and medium-high, (3) medium-low and medium-high, and (4) high and medium-low susceptibilities.

A one-way ANCOVA showed that the effect of SSI on endorsing the belief that hooking up allows one to assert control over one’s sexuality was significant, $F(3, 108) = 5.95, p = .001, d = 0.68$. Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the control subcategory was significantly higher in the most susceptible group ($M = 12.90, SD = 3.82$) than in the least susceptible group ($M = 10.14, SD = 4.27$). Furthermore, post hoc pairwise comparisons using a simple contrast indicated that the average score on the control subcategory was significantly higher in the medium-low susceptibility group ($M = 13.37, SD = 4.61$) than in the medium-high susceptibility group ($M = 9.52, SD = 3.63$). Moreover, the average score on the control subcategory was significantly higher in the medium-low susceptibility group ($M = 13.37, SD = 4.61$) than in the low susceptibility group ($M = 10.14, SD = 4.27$). There was no significant difference between the following pairwise comparison for the average score on control subcategory, as seen in Table 1: (1) low and medium-high susceptibility.

A one-way ANCOVA showed that the effect of SSI on endorsing the belief that hooking up is a reflection of one’s sexual freedom was significant, $F(3, 108) = 3.66, p = .015, d = 0.55$. Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the sexual freedom subcategory was significantly higher in the most susceptible group ($M = 12.55, SD = 4.41$) than in the least susceptible group ($M = 9.59, SD = 4.66$). Furthermore, post hoc pairwise comparisons using a simple contrast indicated that the average score on the fun subcategory was significantly higher in the most susceptible group ($M = 12.55, SD = 4.41$) than in the medium-high susceptibility group ($M = 9.26, SD = 4.11$). There were no significant differences between the following pairwise comparisons for the average score on the fun subcategory, as seen in Table 1: (1) low and medium-low, (2) low and medium-high, (3) medium-low and medium-high, and (4) high and medium-low susceptibilities.

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**TABLE 1**

<table>
<thead>
<tr>
<th>Degree of Susceptibility</th>
<th>EHCI</th>
<th>Fun</th>
<th>Control</th>
<th>Sexual Freedom</th>
<th>Harmless</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>Low</td>
<td>46.39a</td>
<td>9.59a</td>
<td>10.14a,d</td>
<td>11.28a</td>
<td>10.03</td>
<td>5.55</td>
</tr>
<tr>
<td>Medium-low</td>
<td>56.26</td>
<td>11.93</td>
<td>13.37c,d</td>
<td>13.32</td>
<td>11.93</td>
<td>6.11</td>
</tr>
<tr>
<td>Medium-high</td>
<td>44.30b</td>
<td>9.26b</td>
<td>9.52c</td>
<td>10.48b</td>
<td>9.07</td>
<td>5.96</td>
</tr>
<tr>
<td>High</td>
<td>58.41a,c</td>
<td>12.55a</td>
<td>12.90a</td>
<td>13.53a</td>
<td>11.77</td>
<td>6.87</td>
</tr>
</tbody>
</table>

Note. EHCI = Endorsement of the Hookup Culture Index. EHCI is the composite measure of 20 items. Subscripts indicate significant post hoc differences within a column.}

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significantly higher in the most susceptible group ($M = 13.53$, $SD = 4.01$) than in the medium-high susceptibility group ($M = 10.48$, $SD = 4.02$). There were no significant differences between the following pairwise comparisons for the average score on the sexual freedom subcategory, as seen in Table 1: (1) low and medium-low, (2) low and medium-high, (3) medium-low and medium-high, and (4) high and medium-low susceptibilities.

A one-way ANCOVA showed that the effect of SSI on endorsing the belief that hooking up is harmless was not significant, $F(3, 108) = 2.28$, $p = .083$, $d = 0.42$. Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the harmless subcategory was not significantly different in the most susceptible group ($M = 11.77$, $SD = 4.03$) than in the least susceptible group ($M = 10.03$, $SD = 4.26$). Furthermore, there were no significant differences between the following pairwise comparisons for the average score on the harmless subcategory, as seen in Table 1: (1) low and medium-low, (2) low and medium-high, (3) medium-low and medium-high, (4) high and medium-low, and (4) high and medium-high susceptibilities.

A one-way ANCOVA showed that the effect of SSI on endorsing the belief that hooking up enhances one’s status was not significant, $F(3, 108) = 0.89$, $p = .45$, $d = 0.43$. Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the status subcategory was not significantly different in the most susceptible group ($M = 6.87$, $SD = 3.61$) than in the least susceptible group ($M = 5.55$, $SD = 2.37$). Moreover, there were no significant differences between any of the other following pairwise comparisons for the average score on the status subcategory, as seen in Table 1: (1) low and medium-low, (2) low and medium-high, (3) medium-low and medium-high, (4) high and medium-low, and (5) high and medium-high susceptibilities.

Overall, participant SSI had a significant effect on endorsing hookup culture in general (see Figure 1). Furthermore, SSI had a significant effect on endorsing the beliefs that hooking up is fun, allows one to assert control over one’s sexuality, and is a reflection of one’s sexual freedom (see Figure 2). Participant SSI did not have a significant effect on endorsing the beliefs that hooking up is harmless and enhances one’s social status (see Table 1).

**College Year**
Participant college year was expected to affect overall endorsement of college hookup culture such that upperlevel students would perceive hookup culture more favorably than underlevel students. A series of one-way between-subjects ANCOVAs were conducted to analyze the relationship between college year and endorsement of hookup culture as well as the five beliefs of hookup culture.

First, a post hoc power analysis tested the difference between two equally sized independent group means (underlevel and upperlevel). This analysis showed that, for a sample size of 115 participants and an alpha of .05, the effect size was small ($d = 0.36$), and the power was 0.48. Therefore, the power was not sufficient for the college year factor.

A one-way ANCOVA showed that the effect of college year on endorsing college hookup culture in

![FIGURE 1](image1.png)

**Figure 1** Average Score on the EHCl for Four Groups of Susceptibility to Social Influence

Note: Participants’ average score on the Endorsement of the Hookup Culture Index (EHCl) based on level of personal susceptibility to social influence.

![FIGURE 2](image2.png)

**Figure 2** Average Scores on the EHCl Subcategories for Four Groups of Susceptibility to Influence

Note: Participants’ scores on the subscales of the Endorsement of the Hookup Culture Index (EHCl) based on level of personal susceptibility to social influence.
Social Susceptibility and Perceptions of Hookup Culture | Goyette and Spencer

general was not significant, \( F(1, 113) = 0.64, p = .95, d = 0.35 \). Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average overall score on the EHCI was not significantly different in the underlevel group \( (M = 48.89, SD = 17.02) \) than in the upperlevel group \( (M = 54.67, SD = 16.05) \).

A one-way ANCOVA showed that the effect of participant college year on endorsing the belief that hooking up is fun was not significant, \( F(1, 113) = 0.76, p = .73, d = 0.31 \). Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the fun subcategory was not significantly different in the underlevel group \( (M = 10.27, SD = 4.63) \) than in the upperlevel group \( (M = 11.71, SD = 4.65) \).

A one-way ANCOVA showed that the effect of college year on endorsing the belief that hooking up allows one to assert control over one’s sexuality was not significant, \( F(1, 113) = 1.31, p = .21, d = 0.38 \). Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the control subcategory was not significantly different in the upperlevel group \( (M = 10.74, SD = 4.30) \) than in the upperlevel group \( (M = 12.37, SD = 4.19) \).

A one-way ANCOVA showed that the effect of college year on endorsing the belief that hooking up is a reflection of one’s sexual freedom was not significant, \( F(1, 113) = 1.47, p = .12, d = 0.37 \). Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the sexual freedom subcategory was not significantly different in the underlevel group \( (M = 11.52, SD = 4.97) \) than in the upperlevel group \( (M = 13.13, SD = 3.53) \).

A one-way ANCOVA showed that the effect of college year on endorsing the belief that hooking up is harmless was not significant, \( F(1, 113) = 0.64, p = .84, d = 0.34 \). Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the harmless subcategory was not significantly different in the underlevel group \( (M = 9.91, SD = 4.20) \) than in the upperlevel group \( (M = 11.35, SD = 4.15) \).

A one-way ANCOVA showed that the effect of college year on endorsing the belief that hooking up enhances one’s status was not significant, \( F(1, 113) = 1.03, p = .43, d = 0.00 \). Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the status subcategory was not significantly different in the underlevel group \( (M = 6.11, SD = 2.98) \) than in the upperlevel group \( (M = 6.11, SD = 3.22) \).

Overall, participant college year did not have a significant effect on endorsing hookup culture in general or any of the five beliefs of hookup culture.

**Relationship Status**

Participant relationship status was predicted to affect overall endorsement of college hookup culture such that those who were single would perceive hookup culture more favorably than those in a relationship. A series of one-way between-subjects ANCOVAs were conducted to analyze the relationship between relationship status and endorsement of hookup culture as well as the five beliefs of hookup culture.

First, a post hoc power analysis tested the difference between two equally sized independent group means (in a relationship and single). This analysis showed that, for a sample size of 115 participants and an alpha of .05, the effect size was small \( (d = 0.12) \), and the power was 0.13. Therefore, the power was not sufficient for the relationship status factor.

A one-way ANCOVA showed that the effect of relationship status on endorsing college hookup culture was not significant, \( F(1, 113) = 1.11, p = .34, d = 0.16 \). Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the overall average score on the EHCI was not significantly different for those in a relationship \( (M = 49.95, SD = 15.94) \) than those who were single \( (M = 52.45, SD = 16.12) \).

A one-way ANCOVA showed that the effect of participant relationship status on endorsing the belief that hooking up is fun was not significant, \( F(1, 113) = 0.56, p = .88, d = 0.11 \). Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the fun subcategory was not significantly different for those in a relationship \( (M = 10.61, SD = 4.46) \) than those who were single \( (M = 11.10, SD = 4.81) \).

A one-way ANCOVA showed that the effect of relationship status on endorsing the belief that hooking up allows one to assert control over one’s sexuality was not significant, \( F(1, 113) = 1.06, p = .41, d = 0.10 \). Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the control subcategory was not significantly different for those in a relationship \( (M = 11.21, SD = 4.65) \) than those who were single \( (M = 11.66, SD = 4.15) \).

A one-way ANCOVA showed that the effect of relationship status on endorsing the belief that hooking up is a reflection of one’s sexual freedom
was not significant, $F(1, 113) = 0.79, p = .69, d = 0.04$. Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the sexual freedom subcategory was not significantly different for those in a relationship ($M = 12.38$, $SD = 4.32$) than those who were single ($M = 12.22$, $SD = 4.49$).

A one-way ANCOVA showed that the effect of relationship status on endorsing the belief that hooking up is harmless was not significant, $F(1, 113) = 1.13, p = .34, d = 0.007$. Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the harmless subcategory was not significantly different for those in a relationship ($M = 10.59$, $SD = 3.94$) than those who were single ($M = 10.56$, $SD = 4.39$).

A one-way ANCOVA showed that the effect of relationship status on endorsing the belief that hooking up enhances one’s status was not significant, $F(1, 113) = 0.88, p = .37, d = 0.31$. Post hoc analyses using a simple contrast as a post hoc criterion for significance indicated that the average score on the status subcategory was not significantly different for those in a relationship ($M = 5.51$, $SD = 2.46$) than those who were single ($M = 6.42$, $SD = 3.33$).

Overall, participant relationship status did not have a significant effect on endorsing hookup culture in general or any of the five beliefs of hookup culture.

**Regression Analysis**

A regression analysis was conducted to determine if participants’ susceptibility to social influence, relationship status, and college year could predict their endorsement of college hookup culture. Religiosity was found to covary with SSI, college year, and relationship status, and thus, religiosity was included in the regression analysis. A simple linear regression was used for analyses. Overall, the variables significantly predicted endorsement of hookup culture $R^2 = 0.15, p = .002$.

When endorsement of hookup culture was predicted, it was found that SSI ($\beta = -0.23, p = .014$), college year ($\beta = 0.28, p = .004$), and religiosity ($\beta = 0.26, p = .005$) were significant predictors. Relationship status was not a significant predictor ($\beta = -0.17, p = .075$). Therefore, college year most strongly predicted endorsement of hookup culture, followed by religiosity, susceptibility to social influence, and relationship status, in that order.

**Discussion**

The present study aimed to examine the effects of participant susceptibility to social influence, college year, and relationship status on perceptions of hookup culture. One dependent measure as criteria of perception of hookup culture was measured: endorsement of hookup culture. Furthermore, participant degree of religiosity was used as a covariate in all analyses.

The results of the study were somewhat consistent with the predictions. Results were consistent with the prediction that a participant’s SSI would have an effect on their endorsement of hookup culture. However, results were inconsistent with the prediction that college year and relationship status would have effects on endorsement of hookup culture. Instead, underlevel and upperlevel students did not differ in their endorsement of hookup culture and women in a relationship and women who were single did not differ in their endorsement of hookup culture. Instead, college year was the strongest predictor of endorsement of hookup culture.

Women with high and low SSI perceived hookup culture differently from one another. Specifically, participants with high SSI endorsed college hookup culture more than those with low SSI. Furthermore, women with high susceptibility were more likely than those with low susceptibility to endorse the beliefs that hooking up (a) is fun, (b) allows one to assert control over one’s sexuality, and (c) is a reflection of one’s sexual freedom. However, the two groups of high and low susceptibilities endorsed the following beliefs about hooking up no differently from one another: that hooking up is harmless and enhances one’s social status. Therefore, a woman’s SSI had an effect on perceiving college hookup culture, as well as endorsing the beliefs that hooking up is fun, allows one to assert control over one’s sexuality, and is a reflection of one’s sexual freedom. When religiosity as a covariate was taken out of the analyses, women of high and low SSI still perceived hookup culture in general and the same three out of five beliefs differently. Therefore, whether a participant indicated they were religious or not does not seem to make a difference in how they perceive hookup culture and the five beliefs about hooking up when pertaining to a woman’s SSI.

As for the intermediate differences between women with low, medium-low, medium-high, and high SSI on overall endorsement of hookup culture,
women with high SSI endorsed college hookup culture more than women with medium-high SSI. Interestingly, women with medium-low SSI endorsed hookup culture more than women with medium-high SSI. It is not clear why the medium-low group tended to score higher than medium-high group on overall endorsement of hookup culture and the five subcategories. It is reasonable to believe that SSI is a continuous variable, and thus as degree of SSI goes from low to high, endorsement of hookup culture should increase. However, this is not the case between the medium-low and medium-high groups. Future research can more closely examine if and why these differences exist.

Some findings were inconsistent with the predictions of this study. First, underlevel and upperlevel women did not perceive hookup culture differently from one another. Specifically, underlevel students did not perceive hookup culture more favorably than upperlevel students. Furthermore, women of both types of college year (underlevel or upperlevel) perceived the following beliefs about hooking up in the same way: hooking up is fun, allows one to assert control over one’s sexuality, is a reflection of one’s sexual freedom, is harmless, and enhances one’s social status. In this way, underlevel students were no more likely than upperlevel students to perceive hookup culture more favorably, and to endorse the five beliefs about hooking up more favorably. However, it is perplexing to note that when the covariate of religiosity was taken out of the analyses, women of both types of relationship status still perceived hookup culture and the five beliefs about hooking up in the same way. Therefore, whether a participant indicated they were religious or not does not seem to make a difference in how they perceive hookup culture and the five beliefs about hooking up when pertaining to a woman’s relationship status.

Four variables including susceptibility to social influence, college year, relationship status, and religiosity were analyzed to see which most strongly predicted a woman’s endorsement of hookup culture. Of the four variables, college year most strongly predicted a woman’s endorsement of hookup culture, followed by religiosity, SSI, and finally, relationship status, which did not predict endorsement of hookup culture at all. Therefore, whether a woman was an underlevel or an upperlevel student most strongly predicted her endorsement of hookup culture. This finding differed from the hypothesis that SSI would most strongly predict endorsement of hookup culture. Another interesting point is that, although college year when examined alone did not have a significant effect on endorsement of hookup culture, college year did remain important to note and most strongly predicted endorsement of hookup culture when examined with other variables. A possible explanation for this is that, because there was not sufficient statistical power for the college year variable, a significant effect might not have been captured between college year and endorsement of hookup culture.

When looking at participants’ college year, the results of this study fill a hole where previous research was lacking. Specifically, prior research suggested that first- and second-year students may differ in their sexual patterns within hookup culture, but this prior research did not touch on how upperlevel (third- and fourth-year students) may differ with regards to hookup culture (Heldman & Wade, 2010). Therefore, the present study found that the participants’ college year did not have an effect on perceiving college hookup culture differently (although this may be disproven in a future study with sufficient power for the college year variable). When responding to statements about hookup culture on the EHCI, participants of different college years did not differ in their responses from one another. This is a new finding from previous literature because upperlevel students were neglected from studies about perceptions of hookup culture.
The results of this study pertaining to relationship status fill in gaps previous research missed. Aubrey and Smith (2013) found that, of the college students who reported being in a committed relationship at the time of the study, they endorsed hookup culture not because it offered a way to avoid commitment, but instead for a different reason. Apart from this finding, little to no research has compared perceptions of hookup culture in those who are single and those who are in a relationship. The present study found that participant relationship status did not have an effect on perceiving hookup culture differently; however, there was not sufficient power for the relationship status variable, and so this result may be disproven in a future study. When responding to statements about hookup culture on the EHCI, participants of different relationship statuses did not differ in their responses from one another. This is a new finding from previous literature because the comparison between the two groups were neglected from studies about perceptions of hookup culture.

Finally, because the effect of susceptibility to social influence has not been directly studied in past research, the results found in this study contribute to new and important information about hookup culture. Although no direct research exists about an individual’s SSI and how it affects perceptions of hookup culture, some literature has discussed a common motivation for students in wanting to engage in hooking up. Specifically, Kooyma et al. (2011) found that a college student may often go along with the culture’s norms and decide to hook up in order to fit in even if there exists some hesitation on the individual’s part. The present research, therefore, builds on the understanding of why a student may partake in hookup culture: A woman who is highly susceptible to social influence may feel increased pressure to hook up in order to fit in with college hookup culture. In contrast, a woman who is not as susceptible to social influence may not feel as much pressure to hook up in order to fit in.

The results of this research are important for studying hookup culture and the direct and indirect consequences that come with hooking up, such as STIs and emotional or mental health issues. Moreover, it is essential to know the demographics of people who endorse hookup culture the most because they are more likely to partake in the culture. As indicated by previous research, many college students feel pressured to hook up because they are misled by the belief that most of their peers are hooking up, and they want to fit in by hooking up. Because the present study found that women who are more susceptible to social influence endorse hookup culture more than those who are less susceptible, sexual education programs can be developed to address myths about peers’ rates of hooking up and reality. This type of educational program could help those more susceptible to social influence alleviate the social pressure they may feel to hook up, so that they may be better able to make decisions about their sexual experiences based more on their own desire and not just to fit in.

The limitations of the present study should be acknowledged. First, the sample of primarily White women at an all-women’s college may limit the generalizability of the results. Another limitation could be that the present study only measured perceptions about hookup culture and not actual experiences with hooking up, and so participant perception and actual experience may differ. However, a strength of assessing only participant perception is that participants might have felt more comfortable answering hypotheticals and not having to admit any actual experience within the EHCI, and therefore, participants might have been more truthful in their responses.

Further research can discover if gender differences exist in regard to endorsement of hookup culture. It is unclear at this point if there are differences between male and female college students with regard to their endorsement of college hookup culture. Furthermore, future research should sample college students at public institutions with varying ethnicities and sexualities. Thus, future research can explore even more factors that influence why college students perceive hookup culture differently. An additional point of future research may include exploring why women with high SSI differ from women with low SSI in endorsing hookup culture. Finally, religiosity could be examined in future research as to how exactly it influences perception of hookup culture among college students, as results pertaining to college year changed after religiosity was added in as a covariate.

References


Social Susceptibility and Perceptions of Hookup Culture | Goyette and Spencer


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Social Media Use: Relation to Life Satisfaction, Narcissism, and Interpersonal Exploitativeness

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ABSTRACT. The present study sought to clarify contradictory literature about the relationship between social media use and life satisfaction by using data from the Emerging Adulthood Measured Across Multiple Institutions 2 (EAMMI2) collaboration. This study examined emerging adults’ frequency of social media use for various reasons, and the relation to life satisfaction, narcissism, and interpersonal exploitativeness. As expected, life satisfaction was associated with social media use for maintaining connections but not for gaining information or creating new connections. Narcissism and exploitativeness were associated with greater social media use across all reasons. Life satisfaction correlated negatively with exploitativeness. Post hoc analyses revealed that life satisfaction was highest in participants whose primary reason for social media use was maintaining connections. This study added to existing literature by suggesting that reasons for social media, specifically using social media to maintain existing relationships, are relevant to predicting life satisfaction in relation to social media use.

Keywords: social media, emerging adults, narcissism, life satisfaction, exploitativeness

RESUMEN. Esta investigación busca aclarar la literatura contradictoria sobre la relación entre el uso de las redes sociales y la satisfacción con la vida a través del uso de los datos de la colaboración Emerging Adulthood Measured Across Multiple Institutions 2 (EAMMI2). Este estudio examina la frecuencia del uso de las redes sociales por parte de los adultos jóvenes por diversas razones y la relación con la satisfacción con la vida, el narcisismo y la explotación interpersonal. Como se anticipó, la satisfacción con la vida fue asociado con el uso de las redes sociales para mantener conexiones, pero no para obtener información o crear nuevas conexiones. El narcisismo y la explotación fueron asociados con un mayor uso de las redes sociales por todas las razones listadas. La satisfacción con la vida se correlacionó negativamente con la explotación. Los análisis post hoc revelaron que la satisfacción con la vida era más alta en los participantes cuya razón principal para el uso de las redes sociales era mantener las conexiones sociales. Este estudio se suma a la literatura existente al sugerir que las razones de las redes sociales, específicamente el uso de las redes sociales para mantener las relaciones existentes, son relevantes para predecir la satisfacción con la vida en relación con el uso de las redes sociales.

Palabras clave: redes sociales, adultos emergentes, narcisismo, satisfacción con la vida, explotación

*Faculty mentor
Emerging adulthood refers to a period from age 18–29 in which young people have left adolescence but believe they have not completely entered adulthood (Arnett, 2000). Pew Research Center estimated that 90% of emerging adults have used social media with most users reporting engaging with social media daily (e.g., Facebook, Instagram, Twitter, Snapchat; Duggan et al., 2015; Perrin, 2015). In a survey of college students, nearly half demonstrated problematic social media use (Tanega & Downs, 2020). Problematic social media use is shown through mood changes, negative affect when social media is unavailable, and experiencing negative consequences in real-life because of extreme social media use (Bányai et al., 2017). Frequent social media use is also linked with loneliness, negative mood, anxiety, depression, lower well-being, and decreased life satisfaction (Horwood & Anlimg, 2019; Lin et al., 2016; Wright et al., 2020). Additionally, associations were found between frequent social media use and cyber-bullying in college students (Potts & Weidler, 2015). Despite these noteworthy links between social media use and poor outcomes in emerging adults, some studies have shown a correlation with positive outcomes such as subjective happiness and life satisfaction (Asbury & Hall, 2013; Brailovskaia & Margraf, 2019). Orben and colleagues (2019) suggested that practically no significant direct relationship exists between social media and life satisfaction; however, they noted that examining nuances within the data may reveal additional effects.

Given the lack of consistent relationship between social media use and life satisfaction, it may be that certain aspects of social media use, beyond merely frequency, may predict favorable outcomes. Wright and colleagues (2020) suggested that using image-based social media (e.g., Snapchat) is linked with more negative outcomes compared to video-based (e.g., Youtube) or professional (e.g., LinkedIn) social media. Another study found no problematic outcomes from using social media to obtain information, but those who used social media to alleviate boredom experienced increased stress and anxiety (Stockdale & Coyne, 2020). Based on this research, it seems possible that the reasons for use, and not merely the platform, are predictive of psychosocial correlates of social media use.

The disparity between psychosocial outcomes of social media use may also correlate with attributes of the users themselves. Narcissism refers to a grandiose sense of self, feelings of entitlement, and a dominant interpersonal style, and interpersonal exploitativeness refers to one’s willingness to take unfair advantage of others (Brunell et al., 2013; Gentile et al., 2013). Emerging adults who were high in narcissism and interpersonal exploitativeness were more likely than peers to engage in cyber-bullying and self-destructive behavior in relation to social media use (Fan et al., 2019; Hawk et al., 2019). Furthermore, Singh and colleagues (2018) found that those who exhibited interpersonal exploitativeness reported higher selfie posting/sending frequency through self-interest motivation. Therefore, it may be that these personality attributes mediate the relationship between social media use and psychosocial outcomes.

Given conflicting findings about the psychosocial correlates of social media use, the primary objectives of this study were (a) to clarify conflicting evidence by examining how frequency of social media use relates to life satisfaction, (b) to extend the literature by examining how the relationship between social media use and life satisfaction differs across different reasons for use, and (c) to consider how narcissism and interpersonal exploitativeness relate to social media use and life satisfaction.

Social Media and Life Satisfaction
Life satisfaction refers to the personal evaluation of whether one’s needs and desires are being met (Diener et al., 1985). Social media use may predict life satisfaction as some individuals report using social media to increase their sense of life satisfaction and self-esteem (Houghton et al., 2020). However, other findings have shown that frequent use of social media is associated with decreased self-esteem, life satisfaction, and well-being (Errasti et al., 2020; Hawi & Samaha, 2017). The association between social media use and poor well-being persists across several reasons for use. Those who reported using social media to compensate for boredom or to improve their image both endorsed low affective well-being associated with use (Hall et al., 2019; Sheldon & Bryant, 2016). Perhaps this was due to frequent use creating opportunities for social comparison, which is negatively associated with subjective well-being (Gerson et al., 2016).

Despite the consistent connection with negative well-being when users sought social media to improve self-image, one study found that heavy Facebook engagement is associated with higher life satisfaction in college students (Asbury & Hall, 2013). However, in this study heavy engagement included use for connection with others, rather
than merely consuming content. When emerging adults utilize social networking sites for maintaining interpersonal connections, there is a positive association with subjective happiness and life satisfaction (Brailovskaia & Margraf, 2019; Houghton et al., 2020). It is possible that the feelings of connection fostered by maintaining relationships through these platforms may lead to both high usage and positive well-being for those using social media in this way. Therefore, it seems that reasons for social media use may predict outcomes in relation to frequency of use. However, some studies have demonstrated that even social media for socialization is not related to psychological well-being or self-esteem (Lee et al., 2014). These inconsistencies in findings suggest the need for further investigation of the relationship between social media use and life satisfaction, particularly regarding use for forming and maintaining social connections.

Social Media and Narcissism
Those high in narcissism report greater life satisfaction and self-esteem compared to peers (e.g., Rohmann et al., 2019; Žemojtel-Piotrowska et al., 2017). Similarly, Miller and colleagues (2019) found that individuals who present with narcissistic superiority, the belief that one possesses more competence and intelligence than others, are likely to report higher life satisfaction. Considering third factors, like that of social media use, could further explain this relationship.

Individuals high in narcissism report devoting a great amount of time and energy to social media engagement, including posting selfies and using comments/likes (Martin et al., 2019; Singh et al., 2018). Users high in narcissism report perceiving social media use as beneficial (Arpaci et al., 2018; Lee & Sung, 2016). These users report frequent social media use when self-esteem is low, suggesting they may utilize social networking sites in an attempt to invoke greater self-worth (March & McBean, 2018). Additionally, emerging adults with high levels of narcissism report using social media to feed their ego, prevent negative self-esteem, and portray themselves as “cool” (Andreassen et al., 2017; Sheldon & Bryant, 2016). Twitter users who are high in narcissism report greater numbers of tweets regarding personal achievements to seek attention, though they report also being motivated by a desire for social connection (Marshall et al., 2018). There is evidence that emerging adults who are high in narcissism use social networking sites in an effort to boost their grandiosity and avoid negative self-perception.

Although those high in narcissism view their social media use positively, this use is associated with negative behavioral and emotional outcomes. Overall, emerging adults who are high in narcissism are likely to participate in cyberbullying perpetration and victimization (Fan et al., 2019). Additionally, those high in narcissism who report greater attention-seeking social media use to compensate for social rejection are also likely to report self-destructive behaviors (Hawk et al., 2019).

Despite the aforementioned evidence, some studies failed to find any relationship between social media postings and narcissism (e.g., Frederick & Tianxin, 2019). Frederick and colleagues (2019) utilized an adult sample with a mean age of 30, which may explain why the findings are inconsistent with emerging adult samples. Recent studies have found no association between narcissism and selfie-posting, hypothesizing that frequency of selfie posts may no longer be associated with narcissism due to the growing prevalence of this behavior in emerging adults (Barry et al., 2019). This suggests that behaviors which might have been considered attention-seeking in the past may now be normalized, indicating that the relationship between narcissism and social media may change over time. The present study sought to clarify the relationship between narcissism and social media use by examining narcissistic users’ reasons for use, as well as the link with life satisfaction.

Narcissism, Interpersonal Exploitativeness, and Social Media
Narcissism can be conceptualized using three different subtypes: grandiose exhibitionism, leadership/authority, and entitlement/exploitativeness, which refer to self-absorption, self-perceived ability, and one’s sense of deserving respect and willingness to manipulate others, respectively (Ackerman et al., 2011). Individuals with high narcissism are likely to engage in interpersonal exploitative behaviors, such as taking advantage of others (Brunell et al., 2013). Furthermore, emerging adults who are high in narcissism and exploitativeness are more likely to partake in risky behaviors, such as substance abuse, illegal behaviors, and gambling which have been linked with negative physical and mental health outcomes (Buelow & Brunell, 2014).

Social media use may create a space for narcissistic users to engage in exploitative behaviors. Research has suggested that individuals with high levels of narcissism and interpersonal exploitativeness use social media to seek attention, which can
be problematic when their attention needs are not met. Emerging adults with high narcissistic exploitativeness are likely to want to be perceived as popular on social media platforms and to avenge those who are not responsive to their desired attention (Zell & Moeller, 2017). This is particularly problematic because emerging adults with high narcissism and exploitativeness are less likely to receive comments and likes from others on their status updates (Choi et al., 2015). These findings suggest that the lack of responsiveness may relate to greater exploitativeness from narcissistic users. Consistent with this hypothesis, those high in narcissism report greater willingness to benefit at others’ expense when they do not receive the desired attention on self-promoting posts, demonstrating similar behavioral patterns to those with exploitativeness (Carpenter, 2012). Those with high exploitativeness are likely to engage in cyberbullying and aggression toward others as they report considering it acceptable (Ang et al., 2011).

Although narcissistic exploitativeness has been associated with negative social media behaviors, some studies have found no relationship between the two. Surprisingly, exploitativeness was unrelated to frequency of posting selfies; however, other narcissistic traits like leadership/authority and grandiose exhibitionism were related to frequent selfie posting (Weiser, 2015). Contrary to other research, some researchers found no association between entitlement/exploitativeness and self-promoting behaviors on social media platforms (Moon et al., 2016). It seems that narcissistic exploitativeness is associated with negative correlates of social media use, whereas exploitativeness alone is not. The present study sought to clarify these conflicting findings by examining exploitativeness separately from narcissism.

Present Study
This investigation adds to existing literature by clarifying conflicting evidence about the relationship between social media use and life satisfaction. This study also explored whether that relationship differs based on reasons for social media use or personality characteristics such as narcissism and exploitativeness. Consistent with Brailovskaia & Margarff (2019), we hypothesized that social media use for maintaining existing connections and creating new connections would be associated with higher life satisfaction. However, we expected no relationship between life satisfaction and social media use for seeking information. Because previous research has suggested that users high in narcissism and interpersonal exploitativeness use social media to improve self-image, we expected that narcissism and exploitativeness would be associated with greater social media use for creating and maintaining connections, but not for gaining information (March & McBean, 2018). Consistent with Gentile and colleagues (2013), we expected that narcissism would be positively correlated with interpersonal exploitativeness; however, we chose to include these variables separately because we expected there might be differences in the magnitude of relationships for each variable. Lastly, we expected that narcissism and exploitativeness would mediate the relationship between social media use and life satisfaction.

Method
Participants and Procedure
Data was collected through the Emerging Adulthood Measured Across Multiple Institutions 2 (EAMMI2) collaboration, a multicampus project including 32 institutions (Grahe et al., 2018). Each recruitment site received approval from the appropriate institutional review board. Data collection methods included recruiting a convenience sample via various methods including university classes, university participant pools, honor society chapters, email, and social media.

For the present study, participants included emerging adults ages 18 to 29 (N = 2,016), who completed the online questionnaires via Qualtrics. Respondents whose ages were not in this range were excluded from analysis. The mean age was 20.26 years (SD = 2.28). Most of the sample (73.6%, n = 1,483) identified as women, with 25% identifying as men, and 1.4% indicating another gender identity. Most of the sample (94.1%, n = 1,897) had attended some college, and most (84.8%, n = 1,710) were currently in college. Most participants identified as White/European American (60.4%, n = 1,218). Ethnic identification of the remaining participants included 10.5% Hispanic/Latino (n = 212), 10% multicultural (n = 201), 8.1% Black/African American (n = 163), 6.8% Asian/Pacific Islander (n = 137), and 0.4% Native American (n = 8). A full description of the sample, measures, and data gathering procedures is included in the Open Science Framework (OSF) project page (https://osf.io/te54b/).

Materials
The following measures from the EAMMI2 survey were used in the data analysis for this project. Participants completed the Social Media Use Scale, an 11-item self-report questionnaire assessing the
frequency of social media use for various reasons (Yang & Brown, 2013). The three subscales include Making New Connections, Maintaining Existing Connections, and Gaining/Sharing Information. Respondents used a 4-point Likert-type scale from 1 (almost never) to 4 (very often) to rate their frequency of social media use for different purposes. The three subscales include Making New Connections (5 items; \( \alpha = .82 \)), Maintaining Existing Connections (4 items; \( \alpha = .80 \)), and Gaining/Sharing Information (2 items; \( \alpha = .75 \)). The three subscales demonstrated acceptable internal consistency reliability. Total social media use frequency was calculated by summing all items, and this yielded acceptable reliability as well (11 items; \( \alpha = .87 \)).

**Life Satisfaction Measure**
Participants completed the Satisfaction with Life Scale to assess life satisfaction (Diener, 1985). Participants used a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree) to indicate their agreement with five statements about life satisfaction (e.g., “I am satisfied with my life”). The scale demonstrated acceptable interim reliability (5 items; \( \alpha = .87 \)).

**Narcissistic Personality Measure**
Participants completed the Narcissistic Personality Inventory-13 to assess narcissism (Gentile et al., 2013). Participants responded to 13 forced-choice items, such as, “I find it easy to manipulate people.” The full scale (\( \alpha = .66 \)) yielded marginal internal consistency reliability.

**Interpersonal Exploitativeness Measure**
Lastly, participants completed the 3-item Interpersonal Exploitativeness Scale, which assesses one’s willingness to take unfair advantage of others (Brunell et al., 2013). Participants used a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) to rate items such as, “Using other people doesn’t bother me very much.” The scale demonstrated acceptable interim reliability (3 items; \( \alpha = .81 \)).

**Results**
Pearson’s correlations between life satisfaction, total social media use, reasons for use, narcissism, and interpersonal exploitativeness are presented in Table 1. Given the large sample size, correlations were considered significant at the \( p < .001 \) level. Total frequency of social media use was related to greater life satisfaction. As expected, life satisfaction was associated with frequent social media use for maintaining existing connections, and it was not significantly associated with using social media to seek or share information. Contrary to expectations, life satisfaction was not positively associated with using social media to create new connections.

Consistent with hypotheses, narcissism and interpersonal exploitativeness were associated with using social media to maintain existing connections and to create new connections (see Table 1). Unexpectedly, those high in narcissism and interpersonal exploitativeness also used social media frequently to obtain or share information. As expected, interpersonal exploitativeness was positively correlated with narcissism. Life satisfaction was not significantly correlated with narcissism and was negatively correlated with exploitativeness.

![Table 1](image.png)

**TABLE 1**

<table>
<thead>
<tr>
<th>Measure</th>
<th>M</th>
<th>SD</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>1. Life Satisfaction</td>
<td>4.45</td>
<td>1.37</td>
<td>.09</td>
<td>.12</td>
<td>.05</td>
<td>.03</td>
<td>.06</td>
<td>.12</td>
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<td>2. Total Social Media Use</td>
<td>34.49</td>
<td>8.56</td>
<td>.0</td>
<td>.15</td>
<td>.11</td>
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<td>3. Social Media for Existing Connections</td>
<td>3.09</td>
<td>0.86</td>
<td>.58</td>
<td>.43</td>
<td>.11</td>
<td>.08</td>
<td></td>
<td></td>
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<tr>
<td>4. Social Media for New Connections</td>
<td>3.08</td>
<td>0.97</td>
<td>.50</td>
<td>.15</td>
<td>.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Social Media for Information</td>
<td>3.37</td>
<td>1.04</td>
<td>.13</td>
<td>.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Narcissism</td>
<td>3.81</td>
<td>2.56</td>
<td>.29</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7. Exploitativeness</td>
<td>2.38</td>
<td>1.36</td>
<td></td>
<td></td>
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</tbody>
</table>

Note. Frequency of social media use for maintaining existing connections, making new connections, and gaining/sharing information were assessed by the Social Media Use Scale (Yang & Brown, 2013). Total social media use represents the total score for this scale. Correlations between the subscales and total score were not included, because they represent overlapping data. \( p < .001 \).

![Table 2](image.png)

**TABLE 2**

**ANOVA Based on Primary Reason for Social Media Use**

<table>
<thead>
<tr>
<th>Primary Reason for Social Media Use</th>
<th>Maintain Connection (n = 449)</th>
<th>New Connection (n = 410)</th>
<th>Information (n = 818)</th>
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<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Life Satisfaction</td>
<td>3.78</td>
<td>.01</td>
<td>4.56</td>
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<td>Narcissism</td>
<td>4.67</td>
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<tr>
<td>Exploitativeness</td>
<td>3.41</td>
<td>.01</td>
<td>2.23</td>
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</tbody>
</table>

Note. Reasons for social media use for maintaining existing connections, making new connections, and gaining/sharing information were assessed by the Social Media Use Scale (Yang & Brown, 2013). Life satisfaction was measured with the Satisfaction With Life Scale (Diener, 1985). Narcissism was assessed with the Narcissistic Personality Inventory-13 (Gentile et al., 2013). Exploitativeness was measured by the Interpersonal Exploitativeness Scale (Brunell et al., 2013). \( p < .05 \).
We conducted parallel mediation analysis to assess whether the relationship between social media use and life satisfaction is mediated by narcissism and exploitativeness. We confirmed that assumptions of linearity, homoscedasticity, normality of estimation error, and independence of observations were not violated (Hayes, 2017). Across all three reasons for social media use, the indirect effects of social media use on life satisfaction through both narcissism and exploitativeness were not significantly different than zero (−0.012 to 0.007 for maintaining connections, −0.015 to 0.008 for new connections, and −0.008 to 0.011 for information). This indicates that narcissism and exploitativeness do not mediate the relationship between social media use and life satisfaction.

Additionally, we conducted post hoc analyses to examine whether participants’ primary reason for social media use was related to life satisfaction, narcissism, or exploitativeness. Participants’ primary reason for social media use was coded based on the highest item-average of the three social media subscales: Maintaining Connections, Creating New Connections, or Gaining/Sharing Information. Most participants (40.6%) indicated gaining/sharing information as the primary reason for use, with 22.3% participants using social media most often to maintain existing connections and 20.3% using it most often to create new connections (see Table 2). If a participant did not score higher in any single subscale (e.g., the two or three highest subscale scores were equal), no data was entered as their primary reason for social media use (n = 339, 16.8%). A one-way analysis of variance was conducted to examine differences based on primary reason for social media use. Consistent with expectations, life satisfaction was higher in those who used social media to maintain connections compared to those who used social media for information (see Table 2). Narcissism was higher in those who used social media for making new connections compared those who used it to maintain existing connections or gain/share information. Lastly, exploitativeness was greater in those who used social media primarily for making new connections compared to those who used social media for maintaining existing connection.

**Discussion**

Overall, frequency of social media use was related to greater life satisfaction in this study, conflicting with recent work suggesting a positive association between the two variables (e.g., Errasti et al., 2020). However, it is important to note that the correlation was modest, suggesting that there is not a robust direct relationship between these variables. Given the contradictions in the literature, we hypothesized that life satisfaction may be correlated with some types of social media use but not others. As hypothesized, frequent use of social media to maintain existing connections was associated with higher life satisfaction, whereas use to gain/share information was not. Surprisingly, frequent social media use to form new connections was also not linked with life satisfaction. These disparate correlations suggest that the psychosocial correlates of social media use may differ depending on the young adults’ reasons for use, with use to maintain existing connections having the only significant correlation with life satisfaction in this study. This theory is consistent with other recent studies proposing that social media use for maintaining social connections is associated with positive psychosocial outcomes (Brailovskaia & Margraf, 2019; Houghton et al., 2020).

Narcissism and interpersonal exploitativeness were associated with greater social media use across all reasons for use. It was expected that narcissism and exploitativeness would be associated with higher use to maintain existing connections and make new connections, because previous research has indicated greater involvement in social media sites for these groups. We did not anticipate differences in gaining/sharing information, as we expected that information seeking would be a universal online behavior. However, it may be that those high in narcissism and exploitativeness share content online frequently, due to their sense of grandiosity and desire to impact others. In the future, researchers should examine information sharing specifically in narcissistic and exploitative users. Analysis indicated that narcissism and exploitativeness do not significantly mediate the relationship between life satisfaction and the frequency of social media use for making new connections, maintaining connections, or gaining/sharing information. Although narcissism and exploitativeness do not impact the relationship between life satisfaction and frequency of social media use, it may be that these personality variables relate to the nature of social media interactions. Previous research has suggested that those high in narcissism and exploitativeness are more likely to engage in cyberbullying and aggression online, which have been linked to decreased life satisfaction (Ang et al., 2011; Fan et al., 2019; Leung et al., 2018). Future research should utilize social media...
measures that assess the nature of social media use among narcissistic and exploitative young adults.

Independent from the social media component, narcissism and interpersonal exploitativeness were positively related. As implied by previous literature, individuals high in narcissism are likely to engage in manipulation and benefit at the cost of others (Ackerman et al., 2011). Consistent with existing literature, life satisfaction was positively associated with higher narcissism. As Miller and colleagues (2019) suggested, experiencing a sense of grandiosity, especially by emerging adults with high narcissism, could be linked to the perception of satisfaction with life. Life satisfaction was also linked with lower exploitativeness. In turn, engaging in exploitative behavior, particularly online, may be related to experiencing negative relationship consequences that could adversely impact their life satisfaction.

Our post hoc analysis of users’ primary reason for use yielded interesting results, although the effect sizes were very low. The highest levels of life satisfaction were found in emerging adults who use social media primarily to maintain connections, which is consistent with our correlational results. This further supports the notion that one’s reasons for use, and not overall frequency, may be relevant in predicting psychosocial outcomes of social media use. This could be related to the conflicting findings about the correlates of frequent social media use across various studies, as many did not assess reasons for use. Future studies examining social media should collect more nuanced data about the type and reasons for use, as these components seem relevant in predicting outcomes.

Due to the large sample size from many universities, our findings may offer generalizable implications for the population of interest. Clinicians working with young adults may consider assessing reasons for social media use when screening for problematic social media behavior. It may be that encouraging clients to use social media to strengthen relationships might help buffer against the potentially negative impacts of use. In turn, this could potentially benefit emerging adults who are college-educated with establishing healthy social relationships with their peers as it is pertinent to this specific age group. This research has implications for emerging adults who are high in interpersonal exploitativeness as they may be at risk for lower life satisfaction. When treating these individuals, it is important to explore different approaches for fulfilling attention and approval needs rather than depending on social media. For example, clinicians could explore interventions such as The Supporting Our Valued Adolescents (SOVA) web-based intervention that targets approval and esteem in adolescents and young adults with depression or anxiety (Windler et al., 2019). Future research could focus on creating such interventions for this population as they may help teach healthy social media behaviors while also meeting attention and approval needs.

Limitations and Future Research
Several limitations of the present study should be noted. Consistent with criticisms of other emerging adulthood studies, the current sample included primarily college-educated participants. It is therefore important to interpret these findings as applicable to college-educated emerging adults, as social media exposure during college could relate to use patterns in this group. It is important to note that the NPI-13 only yielded marginal internal consistency reliability in this study, which may be due to the few items on the scale or the discrepancies between the three subscales measured (grandiose exhibitionism, leadership/authority, and entitlement/exploitativeness). Due to the collaborative nature of the EAMMI2, assessments were chosen to maximize efficiency; however, considering that there are multiple subscales within this measure, subsequent studies may yield greater reliability using an extensive measure of narcissism.

Although some interesting patterns emerged in our examination of users’ primary reasons for use, the effect sizes indicate that the finding is not practically significant. However, the present study assessed only three types of use. Several previously reported reasons for social media use were not assessed in this study, including self-esteem maintenance, combatting boredom, and entertainment (Hall et al., 2019; Horwood & Anglim, 2019; Houghton et al., 2020; Stockdale & Coyne, 2020). The correlational findings suggest that continuing to explore reasons for social media use may help clarify contradictions about outcomes in the literature. Furthermore, the findings regarding social media use and life satisfaction are correlational, therefore no causal conclusions can be drawn. Longitudinal research may help predict the long-term effects of different types of social media use. Based on the current results, it seems likely that using social media for different reasons may be associated with different outcomes. Investigating which reasons for social media use predict negative outcomes could be beneficial in
preventing harmful use, as clinicians could screen for types of use linked to problematic outcomes.

Researchers should continue to clarify the relationship between narcissism and life satisfaction, as some previous findings contradict results of this study (e.g., Brailovskaia & Margraf, 2019). Investigations might include a qualitative analysis of reasons for life satisfaction as this study was limited to quantitative measures. Additionally, it may be that life satisfaction is negatively related to certain types of narcissism versus others. For instance, researchers have found a positive relationship between life satisfaction and grandiose narcissism, but a negative relationship with vulnerable narcissism, which is characterized by anxiety, defensiveness, hyper-sensitivity, and dependence on others (Rohrmann et al., 2019). Future research could examine various types of narcissism to clarify the relationship with social media.

Researchers should also consider that life satisfaction is defined differently from those of diverse cultural backgrounds. Most of our sample consisted of White and college-educated participants, which is limiting as reasons for life satisfaction may be based on meeting certain cultural expectations. Because reasons for high life satisfaction may differ across culture, conducting qualitative interviews about life satisfaction may provide further insight on the positive correlation found between life satisfaction and social media usage. Longitudinal studies may also help clarify why mediating factors explain the relationship between narcissism and life satisfaction.

Conclusion

This study adds to the literature by suggesting that frequent social media use for maintaining connections predicts greater life satisfaction in emerging adults, whereas use for creating connections or gaining/sharing information does not. Past research has suggested that problematic behaviors are likely to emerge from frequent usage, but the present study suggests that it may depend on reasons for usage. Practitioners working with emerging adults should continue to assess reasons for social media use, as they correlate with expected outcomes for use. Given the prevalence of social media use in emerging adults, researchers should continue to investigate ways in which social media use can be associated with positive outcomes.

References


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The Association Between Racial Microaggressions and Depressive Symptoms: A Cross-Sectional Analysis

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ABSTRACT. The present study investigated whether racial microaggressions, specifically assumptions of inferiority, assumptions of criminality/second class citizenship, and microinvalidations had a relationship with depressive symptoms, and whether this relationship varied by age group (adults vs. adolescents) and race (Black and Latinx). This cross-sectional study compared 194 undergraduate college students who were all over the age of 18 to 168 high school juniors and seniors. All participants identified as either African American/Black or Latinx/Hispanic. The results indicated that respondents identifying as Black/African American, regardless of age, experience higher levels of assumptions of criminality/second class citizenship compared to Latinx respondents, $F(2, 350) = 0.82, p = .442, \eta^2_p = .004$. Results also indicated that, among Black/African American college students, but not high school students nor Latinx participants, higher levels of assumptions of inferiority were associated with depressive symptoms ($b = .34, SE = 0.07, p < .001$). Assumptions of criminality/second class citizenship, on the other hand, were not related with depressive symptoms ($b = .06, SE = 0.08, p = .433$). Lastly, regardless of race, high school students experienced more microinvalidations than college students, $F(2, 350) = 3.97, p = .047, \eta^2_p = .013$. These results underscore developmental changes in how students of color experience race and racism as they transition from adolescence into adulthood.

Keywords: microaggressions, depression, racism, discrimination

ABSTRACTO. El estudio presente investigó si las microagresiones raciales, específicamente los supuestos de inferioridad, los supuestos de criminalidad/ciudadanía de segunda clase y las microinvalidaciones tenían relación con los síntomas depresivos, y si esta relación variaba según el grupo de edad (adultos vs adolescentes) y la raza (negros y latinos). Este estudio transversal comparó a 194 estudiantes universitarios mayores de 18 años con 168 estudiantes de tercer y cuarto año de secundaria. Todos los participantes se identificaron como afroamericanos/negros o latinx/hispanx. Los resultados indicaron que los encuestados que se identifican como negros/afroamericanos, independientemente de la edad, experimentan niveles más altos de supuestos de criminalidad/ciudadanía de segunda clase en comparación con los encuestados latinx, $F(2, 350) = 0.82, p = .442, \eta^2_p = .004$. Los resultados también indicaron que entre los estudiantes universitarios negros/afroamericanos, pero no los estudiantes de secundaria ni los participantes latinx, los niveles más altos de suposiciones de inferioridad se asociaron con síntomas depresivos ($b = .34, SE = 0.07, p < .001$). Supuestos de criminalidad/ciudadanía de segunda clase, por otro lado, no se relacionaron con síntomas depresivos.
According to critical race theorists, the post civil-rights era ushered in a period of “color blind” ideology that continues to dominate race relations in the United States (Pérez, 2017). This ideology is manifested in Americans’ reluctance to engage in overt racial discourse for fear of being labeled as racist (Bonilla-Silva, 2015). However, social science research has confirmed that, rather than disappear altogether, racism has simply taken a new and more insidious form, often expressed through subtle microslights and behaviors, referred to as microaggressions (Sue et al., 2007) or through coded language (Bonilla-Silva, 2015). The current study examined the role that microaggressions play in the lives of students of color who are either in high school (adolescents) or college (adults). Specifically, we explored whether there is a correlation between the perception of three kinds of racial microaggressions: assumptions of mental inferiority, assumptions of criminality/second class citizenship, and microinvalidations and depressive symptoms among Latinx and African American respondents. The study also took a life-course perspective (Gee et al., 2012) by examining whether these associations are different for college (i.e., adults) versus high school students (i.e., adolescents).

What Is Racism?
Racism is a system of dominance in which members of the racial dominant group(s) create or accept their societal privileges through hierarchical structures and ideology (Harrell, 2000). Racialized systems are created and maintained through both societal and cognitive structures that affect both interpersonal relations and institutions that shape living conditions in the United States (Harrell, 2000). As such, racism is manifested as beliefs, attitudes, behaviors, and institutional and cultural conditions that serve to maintain the racial status quo (Hardeman et al., 2016). In research situations, interpersonal displays of racism can be difficult to capture due to social desirability (Pérez, 2017). Dovidio and Gaertner (2000) found that, among White participants, self-reported racial prejudice was significantly lower in 1999 than it was in 1989. However, when these authors set up a simulated hiring task in which the same participants had the opportunity to discriminate against Black applicants without being obvious about their racism, they found that rates of discrimination had not actually changed over the course of the decade (Dovidio & Gaertner, 2000). These subtle racist attitudes and beliefs are also found in the implicit association test literature, which find that many Americans are quicker to connect Black or darker faces with words associated with criminality and danger compared to lighter skinned photographs (Oswald et al., 2013).

Consequently, more recent measures of racism have shifted toward measuring microaggressions, or “daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory and insults toward people of color” (Sue et al., 2007). Microaggressions are expressed in multiple domains: assumptions of inferiority, assumptions of criminality/second class citizenship, microinvalidations, assumptions of similarity, environmental and workforce and school microaggressions (Nadal, 2011). The current study only focused on three of these (assumptions of criminality/second class citizenship, inferiority, and invalidations). Assumptions of inferiority occur when an individual feels like others treat them as intellectually inferior, by assuming they lack an education or work ethic. Assumptions of criminality/second class citizenship are experienced when a person of color feels like others assume them to be dangerous or deviant. Finally, microinvalidations

(b = .06, SE = 0.08, p = .433). Por último, independientemente de la raza, los estudiantes de secundaria experimentaron más microinvalidaciones que los universitarios, F(2, 350) = 3.97, p = .047, ηp² = .013. Estos resultados subrayan los cambios de desarrollo en la forma en que los estudiantes de color experimentan la raza y el racismo a transición que pasan de la adolescencia a la edad adulta.

**Palabras clave:** microagresiones, depresión, racismo, discriminación
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occur when an individual feels like their experience with racism is dismissed as not real, or is accused of “making everything about race.”

Extant research has unequivocally shown that people of color in the United States experience daily microhassles related to their race. For instance, African Americans reported higher levels of microaggressions than Asians and Whites (Cokley et al., 2017; O’Keefe et al., 2015). A study by Bennett et al. (2017) also found that African Americans reported higher levels of assumptions of criminality/second class citizenship compared to other racial groups. In one qualitative study, African American participants described assumptions of criminality in particular on their college campus. One participant told the story of being harassed by campus police while hanging around a university building late at night because they did not believe she was “in graduate school or studying at 2:30 am on a Saturday night in the Engineering School” (Torres et al., 2010). These experiences also extend to Latinx college students; Hwang and Goto (2008) found that Latinx college students were more likely to experience being labeled as criminals or cheaters compared to their Asian counterparts, at a predominantly White university. The same study also found that Latinx college students reported feeling that these racist accusations were personally stressful. In terms of assumptions of inferiority, Nadal et al. (2014) found that African Americans and Latinx students reported the highest levels of inferiority microaggressions compared to other racial groups. To date, little research exists about the experience of microinvalidations among people of color. However, a recent review found that so-called “color blindness” has a negative effect on interracial relations, and reduces sensitivity to racism and discrimination (Plaut et al., 2018). In other words, the belief that race is irrelevant and that racism no longer exists does little to help alleviate racism-related stress among people of color.

Racism and Mental Health Outcomes

The general racism literature has confirmed that racism is a chronic and persistent threat to the mental and physical health of ethnic minority groups in the United States (Brondolo et al., 2008; Clark et al., 1999). Stressful environmental stimuli, such as discrimination and racism, result in exaggerated psychological and physiological stress responses (Clark et al., 1999), which influence psychological and physical health outcomes. One of the negative impacts of racism is that it contributes to negative mood. Several studies have found an association between discrimination and lower mood and depression among Latinx and African American college students (Cokley et al., 2017; Hwang & Goto, 2008; Nadimpalli et al., 2015; Torres & Takint, 2015). Similar findings have emerged in research using microaggressions as a predictor. Torres et al. (2010) found that assumptions of inferiority among African American doctoral students and graduates of doctoral programs were associated with more depressive symptoms. Similarly, Lilly et al. (2018) found that both assumptions of inferiority and assumptions of criminality/second class citizenship increase the odds of depression for undergraduate college students. Two other studies found a positive relation between assumptions of criminality/second class citizenship, assumptions of inferiority and suicidality among college students (Hollingsworth et al., 2017; O’Keefe et al., 2015). Interestingly, few studies to date have looked at mental health correlates of microinvalidations. However, research has suggested that the dismissal of race and racism is perceived as a form of racism by people of color, as it is seen as an attempt to maintain the racial status quo and can lead to mistrust (Plaut et al., 2018).

Developmental Changes

Developmental theories have posited that, to understand the impact of racism in the lives of people of color, it is important to take a life-course perspective, which emphasizes change in the nature, intensity, and salience of racism across various age groups (Gee et al., 2012). Specifically, Gee et al. (2012) proposed a theoretical model in which both maturational and environmental changes shape exposure and reaction to racist events as individuals mature. As such, there is both theoretical and empirical justification for focusing on racism in adolescence and how these experiences compare to those of adults. Gee et al. (2012) argued that, as individuals age, they are exposed to different contexts with varying levels of exposure to racism, and that as individuals mature both socially and cognitively, they go through sensitive periods during which exposure to racism is particularly harmful due to increased plasticity (Gee et al., 2012).

One such developmental sensitive period is adolescence (12–18), during which youth become acutely aware of racism due to rapid cognitive and psychosocial changes (Quintana & McKown, 2012). This increased awareness is partially driven by one’s search for ethnic or racial identity (Phinney, 1992), which increases the salience of discrimination...
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(Jones et al., 2020; Sellers et al., 2003). Additionally, adolescents’ burgeoning cognitive and intellectual skills make them increasingly attuned to the significance of race to their own lives and the lives of others (Greene et al., 2006). Caregivers contribute to this growing awareness of racism by shifting their socialization messages from messages of racial pride to conversations about racial barriers and preparation for bias (Hughes et al., 2006). These changes are supplemented by increased conversations about race with peers and teachers (Adams & Stevenson, 2012) and involvement in collective action related to race and racism, including protests, boycotts, and social movements (Cooper et al., 2014).

Changes to youths’ social context drive some of the increase in exposure to racism in adolescence. School-based discrimination among youth of color is a common experience among both high school and middle school students (Griffin et al., 2017), and Black 8th graders report being treated and punished more harshly than their White counterparts by teachers and administrators (Cogburn et al., 2011). Discrimination from peers also increases both in- and outside of school, and occurs regularly on social media (Jones et al., 2020; Tynes et al., 2019). At the institutional level, Black and Latinx youth are more cognizant of the link between racism and poverty compared to their younger counterparts (Seider et al., 2019). Finally, recent events, such as the killing of Black teenagers by the police (e.g., Michael Brown, Tamir Rice, and others), and scientific studies, demonstrate that Black teens in particular become the target of a racist juvenile justice system as they undergo pubertal changes (Guthrie et al., 2012). Importantly, it is also during the adolescent years that the negative mental health impacts of racism begin to emerge. For instance, there is a documented rise in Black male teen suicide during adolescence (Price & Khubchandani, 2019), and racism is associated with increased self-harm among adolescents (Caldwell et al., 2004). The American Academy of Pediatrics warns that racism is a major factor in poor health outcomes among youth of color (Trent et al., 2019). These changes in teens’ lived experiences combined with increased cognitive awareness, reinforce the need to study microaggressions among Black and Latinx adolescents, especially as they compare to their more mature counterparts.

In terms of changes between adolescence and adulthood, the transition into adulthood (ages 19+) is associated with increased exposure to new social contexts and roles that are shaped by race and racism, such as higher education and employment (Gee et al., 2012). Young adults who are enrolled in college, for example, must navigate financial barriers to their education, which have been both historically and contemporaneously shaped by race (Comeaux et al., 2020), as well as more frequent conversations about race in the college classroom, both formally and informally (Eccles et al., 2003). Similarly, adults are more likely to be exposed to racism related to employment and housing opportunities than adolescents (Jones et al., 2020). In general, adults’ lives take place in a wider variety of contexts (compared to adolescents), thereby increasing potential exposure to racism. Despite this increased exposure, adults may have a better idea of how to successfully cope with racism, simply based on cumulative experiences. Although little research has explored developmental changes in the efficacy of coping techniques, one study did find that strategies improve between adolescence and emerging adulthood (Vannucci et al., 2018). Specifically, Vannucci et al. (2018) found that emerging adults were more likely to engage in active coping and emotional support seeking than adolescents, and that these coping strategies were associated with lower levels of depressive symptoms. In sum, research has yet to directly examine differences in racial experiences between adolescents and adults, but extant data does point to underlying differences that may manifest in unique experiences for each age group.

Current Study

Studies have shown that there are negative mental health consequences to experiencing racial microaggressions. Microinvalidations such as assumptions of inferiority and assumptions of criminality/second class citizenship have been demonstrated to increase depressive symptoms. However, there is limited research on the mental health correlates of microinvalidations. Furthermore, much of the previous research has used either adult or college samples to test these associations. The current study is unique in that it included both adults who are enrolled in college and adolescents who are attending high school. Additionally, the current investigation compared data from both Black/African American and Latinx participants. Although both groups have been exposed to racism in the United States (Nadal et al., 2014), they have also had very different histories and therefore should be explored separately.

In terms of outcomes, the current study focused
on the association between microaggressions and depressive symptoms, because of the widespread prevalence of depression (W.H.O., 2018). It is especially important to examine factors associated with depressive symptoms in college students and adolescents, given the especially high rates of depression among both of these populations (Furr et al., 2001). Both data and theory indicated that the risk of depression rises rapidly after puberty (Thapar et al., 2012). Thus, it is critical to examine factors that might contribute or be associated with depressive symptoms in this particular age group.

The current study explored the following two hypotheses: First, that higher levels of microinvalidation, assumptions of criminality/second class citizenship and assumptions of inferiority would be associated with higher levels of depressive symptoms. This hypothesis was tested separately for Black/African American and Latinx participants, to see if any differences exist between the groups. The second hypothesis was that the association between microaggressions and depressive symptoms would be stronger for high school students than it is for college students. This prediction was borne out of the developmental literature suggesting that adolescents are relatively new to being aware of racism and its implications (Jones et al., 2020), and that general coping strategies become more efficacious with age (Vannucci et al., 2018).

Method

Participants

Two separate samples were used in the current study: one collected on undergraduate college students, and the other collected on high school students. Demographic information for both samples is presented in Table 1. The college sample consisted of 264 students enrolled in an introductory psychology class at a public university located in a large urban center in the United States. This data was collected in fall 2019. The sample consisted of 208 respondents who were primarily identified as women or female adolescents (78.8%). In terms of race/ethnicity, 117 (44.32%) identified as Latinx, 74 as African American or Black (28%), and the remaining 73 (27.65%) identified as either Asian, European American or White, other, Middle Eastern, and biracial. Because no individual group was large enough to be analyzed separately, these individuals were not included in the analyses. Thus, the final college sample consisted of a total of 191 participants (117 Latinx and 74 African American/Black). All participants in the college sample had age information was not collected. The college campus where data were collected is designated as a Hispanic Serving Institution, and the overall student body is comprised of 53% Hispanic and 30% Black (consistent with the sample) students and is predominantly women (68%). The campus is unique in its large number of continuing education and nontraditional students. Only 8% of the student body are first-year students and more than 60% of matriculated students received an associate’s degree from a local community college prior to enrollment, making them older than traditional college students. Overall, 31% of students on campus are under the age of 22, and 14% are over the age of 35 (City University of New York College, 2018).

The high school sample consisted of 308 high school juniors and seniors attending public high schools in the same neighborhood as the college. Participants were enrolled in college-level courses at the first author’s university campus. These students voluntarily signed up for a college preparedness program designed for “middle of the pack” high school students. All participating students were required to be enrolled in public high schools with a minimum GPA requirement, therefore high school students in this sample came from various high schools which are part of the local Department of Education. According to the program director, the average high school GPA for students in this program is 80 (out of 100). In terms of race, participants were categorized in the same three racial categories described above, because of the low number of students identifying as anything other than African American or Latinx. There were 88 African American or Black students in the sample (29%), 91 Latinx (30%), and the rest were classified as “other” (n = 124 or 41%). The “other” category consisted of those who identified as European American or White (n = 31), Asian (n = 43) and simply as other and non-Latino (n = 50). Of the latter group, most identified as Arab or Middle Eastern in a qualitative follow-up question. Again, those not identifying as either African American or Latinx were dropped from the final analyses, due to their small sample size. The final high school sample consisted of a total of 179 participants (88 African American/Black and 91 Latinx). The high school sample was primarily male adolescents (65%). The sample had an average age of M = 17.29 (SD = 1.31). The department of education for the city in which data were collected reports that 41% of students in the
city are Hispanic and 26% are Black or African American, also consistent with the sample (New York City Department of Education, n.d.).

**Measures**

**Racial Microaggressions**

The Racial and Ethnic Microaggressions Scale (REMS) was created by Nadal et al. (2011) to measure individuals’ perceptions of their experiences with racial microaggressions. For the current study, we only used three subscales from the measure. First, Second-Class Citizen and Assumptions of Criminality consisted of items such as “Someone assumed I would physically hurt them because of my race” and “I received substandard service in stores compared to customers of other racial groups.” Second, Assumptions of Inferiority consisted of items including “Someone assumed that I would have a lower education because of my race” and “Someone assumed that I would not be intelligent because of my race.” Third, Microinvalidations consisted of items including “I was told I should not complain about race” and “Someone told me that he or she was color blind.” All items were measured on a scale of 0 (“I did not experience this event at all in the past 6 months”) to 5 (“I experienced this event 5 or more times in the past 6 months”). In our study, the REMS demonstrated a good internal consistency for Assumptions of Inferiority, $\alpha = .89$. For Second-Class Citizen/Assumptions of Criminality, acceptable internal consistency was $\alpha = .82$. The internal reliability for the Microinvalidations subscale was $\alpha = .87$.

**Depressive Symptoms**

Depressive symptoms were measured using the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). The scale consists of 20 items, assessing perceptions of depressive symptoms. Example of the scale includes statements such as “I was bothered by things that usually don’t bother me” and “I thought my life had been a failure.” All items were measured on a scale of 0 (Rarely or none of the time—less than 1 day) to 3 (Most or all of the time, 5–7 days). The CES-D demonstrated high internal consistency, $\alpha = .90$.

**Procedure**

Institutional review board approval was received prior to data collection from City University of New York as well as the New York City Department of Education.

**College Sample**

Participants were recruited from an Introductory Psychology course. The researchers went to each section of the course and spoke to students about the current study. Students were informed that the study would examine experiences with racial discrimination and overall psychological well-being, and that participation was voluntary and confidential. Those students who were interested were required to write down their emails on the piece of paper that the researchers handed out to the classes. Then, those students were sent a link of the survey by email. Data were collected online through the use of Qualtrics survey software. Participants were given course research credit for doing the survey. All college data were collected during fall 2019.

**High School Sample**

High school students were recruited through college-level classes that meet either after the regular school day or during lunch period. The students in the program were all junior seniors at local public high schools, and took the classes voluntarily and for free. Those who pass the class are eligible to receive college credit once they are accepted into university. Students in these classes were approached by one of the authors during class time. The classes listened to a 10-minute presentation about the project and were then given parental consent forms to have signed by their legal guardian. The students were told that the study would be about racial discrimination and psychological well-being and would consist of an anonymous online survey. Those who received permission were sent a secure and anonymous survey link to complete the study using Qualtrics. The survey took approximately 30 minutes to complete and participants received $10 gift certificates to Dunkin Donuts for their participation. Data on high school students were collected during the 2017–18 academic year.

**Results**

**Preliminary Analyses**

Preliminary analyses, consisting of chi-squared and $t$ tests were conducted to determine whether there was any difference between the high school and college sample on any of the demographic characteristics and key study variables. Results of these analyses and the demographic makeup of the two samples and are presented in Table 1. The high school sample had significantly more male participants compared to the...
TABLE 1

Demographic Information by Age

<table>
<thead>
<tr>
<th>Variable</th>
<th>College (n=194)</th>
<th>High School (n=168)</th>
<th>( \chi^2 )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>29 (15%)</td>
<td>51 (30%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>158 (81%)</td>
<td>115 (69%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other/did not report</td>
<td>7 (4%)</td>
<td>2 (1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black/African American</td>
<td>73 (38%)</td>
<td>80 (48%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native English speaker</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't know/missing</td>
<td>5 (4%)</td>
<td>41 (24%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother's highest level of education</td>
<td>32.70 &lt;.001**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College or above</td>
<td>37 (19%)</td>
<td>29 (17%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>45 (23%)</td>
<td>29 (17%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school or equivalent</td>
<td>52 (27%)</td>
<td>35 (21%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>53 (27%)</td>
<td>34 (20%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't know/missing</td>
<td>5 (4%)</td>
<td>41 (24%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father's highest level of education</td>
<td>46.85 &lt;.001**</td>
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<tr>
<td>College or above</td>
<td>28 (14%)</td>
<td>13 (8%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>40 (21%)</td>
<td>25 (15%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school or equivalent</td>
<td>43 (22%)</td>
<td>32 (19%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>53 (27%)</td>
<td>22 (13%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't know/missing</td>
<td>30 (15%)</td>
<td>76 (45%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native English speaker</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Not collected</td>
<td>114 (67%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>18+ (exact age information not collected)</td>
<td>M = 17.32 (1.45)</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

Note: \( * p < .01. ** p < .05. \)

TABLE 2

Mixed Method ANOVA for Microaggressions (Within-Subjects) by Age and Race (Between-Subjects)

<table>
<thead>
<tr>
<th>Source</th>
<th>( F )</th>
<th>( p )</th>
<th>( \eta^2 )</th>
<th>Observed power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between-subjects effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>(1,350)</td>
<td>2.21</td>
<td>.137</td>
<td>.004 .318</td>
</tr>
<tr>
<td>Race</td>
<td>(1,350)</td>
<td>4.10</td>
<td>.016</td>
<td>.016 .726</td>
</tr>
<tr>
<td>Within-subjects effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microaggression type</td>
<td>(2,350)</td>
<td>28.17</td>
<td>&lt;.001**</td>
<td>.076 1.00</td>
</tr>
<tr>
<td>Microaggression x Age</td>
<td>(2,350)</td>
<td>3.97</td>
<td>.047</td>
<td>.013 .913</td>
</tr>
<tr>
<td>Microaggression x Race</td>
<td>(2,350)</td>
<td>6.52</td>
<td>.002**</td>
<td>.017 .754</td>
</tr>
<tr>
<td>Microaggression x Age x Race</td>
<td>(2,350)</td>
<td>0.82</td>
<td>.442</td>
<td>.004 .316</td>
</tr>
</tbody>
</table>

Note: \( * p < .01. ** p < .05. \)

college sample. Additionally, the college sample were more likely to have parents/caregivers without a high school degree, whereas the high school sample was more likely to report not knowing their caregivers’ highest level of education. As such, all primary analyses controlled for these demographic variables. There was no difference in the racial makeup of the two samples.

In terms of key study variables, an independent samples t test revealed significant sex differences in depressive symptoms, \( t(340) = 2.07, p = .039, d = 0.38 \), across the two samples. Women and female adolescents reported significantly higher levels of depressive symptoms (\( M = 1.78, SD = 0.61 \)) than males (\( M = 1.63, SD = 0.63 \)). There were also significant racial differences in depressive symptoms across the two samples, \( t(348) = 2.70, p = .007, d = 0.31 \), with Black/African Americans reporting significantly lower levels of depressive symptoms (\( M = 1.66, SD = 0.54 \)) than Latinx participants (\( M = 1.83, SD = 0.63 \)). There was also a significant difference in depressive symptoms based on age, \( t(348) = 7.07, p < .001, d = 0.62 \), with college students reporting significantly higher levels of depressive symptoms (\( M = 1.96, SD = 0.59 \)) than high school students (\( M = 1.53, SD = 0.61 \)).

Next, a 3 x 2 x 2 mixed-method analysis of variance (ANOVA) was conducted to determine whether certain microaggressions were more common than others (within-subjects factor) and whether this varied by race/age (between-subjects factor). The ANOVA is presented in Table 2 along with effect sizes and observed power. There was a significant main effect of the within-subjects factor, \( F(2, 350) = 28.17, p < .001, \eta^2_p = 0.076 \). Reports of microinvalidations (\( M = 0.85, SD = 0.92 \)) and inferiority (\( M = 0.82, SD = 1.10 \)) were significantly more common than reports of assumptions of criminality/second class citizenship (\( M = 0.53, SD = 0.83 \)), across the board. There was a significant interaction between the within-subjects factor and age, \( F(2, 350) = 3.97, p = .047, \eta^2_p = 0.013 \). This interaction is presented in Figure 1. High school students reported significantly more microinvalidations than college students. There was also a significant interaction between the within-subjects factor and race, \( F(2, 350) = 6.52, p = .002, \eta^2_p = 0.013 \), presented in Figure 2. Black/African American respondents reported significantly more assumptions of criminality/second class citizenship and microinvalidations than Latinx participants. The three way interaction was not significant, \( F(2, 350) = 0.82, p = .442, \eta^2_p = 0.003 \).
$\eta_p^2 = 0.004$. Means and standard errors by group are presented in Table 3.

Bivariate correlations between the key study variables revealed that assumptions of inferiority ($r = .22, p < .001$), assumptions of criminality/second class citizenship ($r = .16, p < .001$) and invalidations ($r = .21, p < .001$) were all positively correlated with depressive symptoms. In addition, there was a positive association between invalidations and both assumptions of criminality/second class citizenship ($r = .58, p < .001$) and assumptions of inferiority ($r = .63, p < .001$).

**Primary Analyses**

Primary analyses were conducted to address Hypotheses 1 and 2. We regressed depressive symptoms on the three types of microaggressions and their interaction with age, separately for each racial group (1 equation for Black/African American and 1 for Latinx participants). The regressions included the following three blocks: Block 1 included participants' sex and their parents' educational status; Block 2 included the three types of microaggressions: criminality, inferiority and invalidation, and age (dichotomized as either college (0) or high school (1); Block 3 included three interaction terms: each type of microaggression and its interaction with age (college versus high school). To assess Hypothesis 1, we examined the results from the second block of the regression, which tested the main effects of each type of microaggressions on depressive symptoms. To assess Hypothesis 2, we assessed the third block of the regression, and probed any significant interactions. The third block tested whether the association between the three types of microaggressions and depressive symptoms varies by age. The results for the regression are presented in Table 4.

**Hypothesis 1**

The first hypothesis predicted that for both racial groups, higher levels of microaggressions would be associated with higher levels of depressive symptoms. To assess this prediction, we examined the second block of the regressions. Among Black/African American participants, higher levels of perceived inferiority were associated with higher levels of depressive symptoms. There were no significant main effects of assumptions of criminality/second class citizenship or invalidations on depressive symptoms. Among Latinx participants, there was no significant main effect of any of the microaggressions on depressive symptoms.

**Hypothesis 2**

The second hypothesis predicted that the association between microaggressions and depressive symptoms would be stronger for high school students than for college students. To assess this hypothesis, we examined the third block of the regression equations. Among Black/African Americans, there was a significant interaction between inferiority and age. A probe of this interaction indicates that, among
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Black/African American college students, higher levels of perceived inferiority were associated with more depressive symptoms ($b = .34$, $SE = 0.07$, $p < .001$), but the same was not true for Black/African American high school students ($b = .06$, $SE = 0.08$, $p = .43$). This effect is plotted in Figure 3. Among Latinx participants, there were no significant interactions between any of the microaggressions and age.

**Discussion**

The current study examined the relationship between racial microaggressions and depressive symptoms, and whether this association varied by age group (adolescents vs. college students) and race (Black and Latinx). The results indicate that Black/African American students experienced higher levels of assumptions of criminality/second class citizenship and microinvalidations than their Latinx counterparts, among both high school and college students. Furthermore, those identifying as Black/African Americans experienced a positive association between experiences of inferiority and depressive symptoms, but this association was only significant among the college sample. Interestingly, experiences with assumptions of criminality/second class citizenship were not associated with depressive symptoms. Finally, the study also found that high school students reported higher levels of microinvalidations than college students, across all races.

The finding that Black/African American students reported significantly higher assumptions of criminality/second class citizenship is consistent with pervious literature (Nadal et al., 2014; Sue et al., 2007). African Americans are no strangers to being cast as intellectually inferior and violent. Blacks in the United States have endured centuries of subjugation and false accusations of misconduct, race-based lynching, and the denial of basic human rights. Although much of the codification of racism into the lawbooks has been formally removed, research confirms that these underlying beliefs about the nature of African Americans have not changed. There is mounting evidence, including the current study, that people of color, especially Black Americans, continue to experience these stereotypes through microaggressions and other subtle forms of racism (Williams & Williams-Morris, 2000). As a stark example of these underlying beliefs, Williams and Williams-Morris (2000) found that, among White respondents, 29% viewed Blacks as unintelligent, 44% believed Blacks were lazy, and 51% believed Blacks were prone to violence. These assumptions have real world implications, such as the disproportionate cases of police brutality against African Americans compared to Whites (Alang, et al., 2017). Interestingly, an analysis of news reports from the southern United States found that Latinos, and in particular Mexican-Americans, are also overwhelmingly conveyed in a negative and criminal light by the media (Brown et al., 2018). However, it is possible that regional differences exist throughout the United States, especially given the politicization of the southern U.S. border in the recent years (Andrade et al., 2020).
Interestingly, the current study also found that Latinx participants reported feeling assumptions of inferiority as much as Black/African American respondents. Although the history of Latinx discrimination in the United States is more recent, Latinos are no strangers to discrimination and negative sentiments in mainstream American discourse. In fact, anti-Latinx hostility, largely spoken of through the lens of immigration, has become a major political wedge issue in recent years (Andrade et al., 2020). Other studies have confirmed that Latinx college students report higher levels of microaggressions (Torres & Taknint, 2015; Torres, et al., 2010), and research has suggested that as many as 80% of Latinx-Americans have experienced racial discrimination (Arellano-Morales et al., 2015). Despite the growing evidence of discrimination, Latinx-Americans remain a relatively understudied group in the racism literature. This study along with previous investigations highlight the continually evolving structure of the racial hierarchy, and the need to pay attention to how sociopolitical forces shape the beliefs and behaviors of individuals.

In terms of age differences, the current results indicate that high school students, regardless of race, perceived more microinvalidations than adult college students. This means high school students were more likely to hear from others that race and racism does not matter. One possible explanation for this finding is simple immaturity or relative lack of knowledge of race relations among younger respondents. College students and adults more generally have a more developed sense of ethnic identity than adolescents (Syed & Azmitia, 2010), and presumably hold more formal knowledge of politics and history. Research has suggested that attending college is a consciousness raising experience (Eccles et al., 2003). One could also argue that because adolescents are in the midst of their identity development stage (Erikson, 1968), they are too consumed by their search for a sense of self in other domains (such as sexuality and career) to pay attention to race. It is also possible that invalidations are a form of denial coping that is used by younger individuals who are not yet equipped or emotionally ready to face racial injustice head on. Whatever the reason, this finding has important implications for high school students who are experiencing discrimination because it suggests it might be more difficult for individuals in this age group to get much needed social support.

Finally, the current study revealed another age-related finding, that Black/African American college students who reported higher levels of inferiority also reported higher levels of depressive symptoms, but the same was not true for their younger or Latinx counterparts. Previous research has shown that African Americans and Latinx participants who experience more discrimination are also likely to report higher levels of depression (Cokley et al., 2017; Torres & Taknint, 2015; Torres, et al., 2010). Furthermore, extant literature does indicate that assumptions of intellectual inferiority should represent a negative experience for both groups (Sanchez et al., 2018). Interestingly, in our sample, both groups perceived an equal level of assumptions of inferiority, thus, one cannot argue that African Americans were more affected because they experienced more discrimination in this domain. In addition, we did not find that assumptions of inferiority were associated with depressive symptoms among African American high school students, which was inconsistent with our hypothesis. It is possible that both these findings are explained by the unique position in which African American college students find themselves. Although racial disparities do exist in high school graduation rates, they are even more pronounced at the college level (Sablich, 2016). Thus, African American students who make it to the college level, may simply be more sensitive than their younger counterparts. In terms of why we did not find a similar effect for the Latinx college students, this may be a product of the unique campus environment in which the data were collected. The college sample was collected at a federally designated Hispanic Serving Institution, where African Americans students are the numerical minority. Therefore, it is possible that the African American students felt particularly ostracized by these experiences, compared to their Latinx counterparts. For example, one study found that among Asian American students, those attending a predominantly non-Asian school experienced higher levels of internalized racism and depression compared to their counterparts attending a predominant Asian school (Atkin et al., 2018).

Limitations

There are some limitations to the current study. First, the cross-sectional design does not allow for drawing conclusions about the directionality of the association between the variables. Based on the current data, it is impossible to determine whether depressive symptoms cause individuals to perceive higher levels of microaggressions, or whether microaggressions contribute to depressive symptoms. Further research...
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should utilize experimental strategies to determine if microaggressions, specifically assumptions of inferiority and assumptions of criminality/second class citizenship causes depression.

Another limitation is related to the makeup of the current sample(s). Due to the relatively small sample size, we were unable to conduct more nuanced analyses of the various Latinx groups in our sample. For example, the experience of individuals with a Dominican background may be very different from that of individuals from a Puerto Rican background. Related to this, the New York City Department of Education did not allow us to ask questions about immigration status of the high school students due to privacy concerns. Again, immigration status may also play an important role in racialized experiences. We were also unable to analyze the data separately by gender, which is a limitation because prior research has indicated that the experience of African American men is particularly unique when it comes to experiencing assumptions of criminality/second class citizenship. Also noteworthy is the fact that we did not collect age information on the college sample, so we cannot be absolutely confident the college sample was much older than the high school one. However, we do address these concerns indirectly, by providing data on the college from which the sample was drawn, which tends to skew older and more nontraditional in its student body.

Finally, there were relevant, pre-existing demographic differences between the high school and college samples that could have impacted the results. For example, we found that the college sample came from significantly less educated households, which could explain why the college students who experienced inferiority were more negatively affected than the high school students. Similarly, the college sample consisted of significantly more Latinx participants, whereas the high school sample was much more likely to be classified as “other.” This is important, because it could indicate that the high school setting was more racially diverse, which could impact the expression and prevalence of racism. In addition, the college sample had significantly more women compared to the high school one, which is problematic, given that depressive symptoms are higher among women than they are among men.

Conclusion

Despite its limitations, the current study has important implications. The findings reinforce the growing consensus that subtle and unconscious racism and discrimination continue to shape the lives of people of color in the United States. More specifically, the findings here confirm that African Americans unfairly and disproportionately continue to be treated as dangerous and criminal. The ramifications of these beliefs are clearly reflected in racially disparate criminal justice outcomes. Not only that, but we continue to see that the underlying association between Black faces and violence can lead to negative and dangerous police interactions for African Americans. Unfortunately, the subtle nature of microaggressions makes it difficult for victims to fight back when injustice occurs and for perpetrators to acknowledge that their actions are wrong or are driven by bias. This is related to the other important finding of the current research, which links experiences of microaggressions with depressive symptoms among African American college students. Although microaggressions may be difficult to spot as they occur, they take a toll on their victims. Overall, the current study found that African Americans are more prone to assumptions of criminality/second class citizenship than any other racial/ethnic group. It was also found that there is a positive relationship between inferiority and depressive symptoms among African American college students. This research is helpful for clinicians to understand that clients who are African Americans and Latinx who have depression symptoms can be contributed to discrimination. Then, clinicians are able to provide the ideal coping mechanism and therapy for clients who experience discrimination.

In terms of future directions, more research should be conducted to explore more in depth the impact of microinvalidations, for several reasons. The United States is at a critical crossroads in its reckoning with historical and contemporary race relations. On the one hand, Black Lives Matter and other movements, which are highlighting and actively fighting against racially inequality, have gained in popularity, especially among young people (Parker et al., 2020). On the other hand, former President Trump signed an executive order banning federal agencies from conducting racial sensitivity trainings, as the Trump administration contended that any teachings emphasizing racial inequality are divisive and harmful in nature (Cineas, 2020). Importantly, the current data along with other recent social science research indicate that adolescents of color do perceive this color-blind ideology at even higher levels than they do.
microaggressions, such as assumptions of criminality and inferiority (Pérez, 2017). Although there is a dearth of research on the mental correlates of this form of racism, a small body of studies have suggested that, despite its name, adopting a racially blind ideology, leads to more interracial distrust, not less (Platt et al., 2018). As such, the current study raises future questions that should be explored in subsequent studies, for example examining the sources of invalidation messages on youth of color. To date, the literature on invalidations has focused on messages perpetuated by White Americans (see Platt et al., 2018; Pérez, 2017). The current data suggests that it is American African high school students who were most likely to hear dismissing messages about race and racism, and it would be useful to understand whether it is peers, family, or outsiders who are sending these messages to youth who are simultaneously experiencing the highest levels of assumptions of both criminality and inferiority. In other words, it is useful to know whether messages of color blindness are internalized by people of color, and whether these messages have negative consequences in terms of coping with more traditional forms of prejudice.

**References**


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In this age of technology, social media has become more than just a habit people participate in every once in a while or just a way of connecting with others. Social media has become a means of self-expression, a lifestyle, and even an occupation. This is seen especially in the past decade, as social media has rapidly increased in usage with the development of photo and video sharing platforms such as Instagram (Hruska & Maresova, 2020). Millions of individuals use platforms such as Instagram to upload photos and videos, as well as like, comment, share, follow, and engage with other people’s content (Li & Xie, 2020). Nowadays, many people focus on, and are successful at, engaging with audiences that extend far beyond their personal friends and family members. With this plethora of information about others widely accessible, social scientists have taken interest in this phenomenon, and use social media platforms to make connections to various aspects of psychology, assess personality (Cooper et al., 2020), and answer questions about who uses social media (Ruths & Pfeffer, 2014; Sigala & Chalkiti, 2015). Among some questions that remain are, who are the people that become successful at engaging audiences through social media? Can psychology constructs, specifically positive psychology traits, predict who achieves social media engagement?

Social Media Engagement

On social media, engagement is defined as participation from followers through liking, sharing, and commenting on content (Khan, 2017). According to Khan (2017), this differs from social media use alone because social media use can be passive and consumptive, meaning that the user simply observes content, but does not like, comment on, or share any posts. Social media engagement, on the other hand, is participatory. This distinction is important, considering the many methods in which people occupy social media.

ABSTRACT. The purpose of the present study was to determine whether a relationship exists between individuals’ character strengths and the amount of success they have engaging people on social media. We used the Values in Action Character Strengths Assessment (Peterson & Seligman, 2004) to measure positive psychology traits of young adults and gathered objective data to assess their levels of social media engagement on Instagram. We hypothesized that the key positive psychology traits of appreciation of beauty and excellence, creativity, and social intelligence would predict success in social media engagement. Regression analyses indicated that only social intelligence was a predictor of higher levels of social media engagement ($\beta = .38, p < .001$). This means that individuals who possessed more social intelligence received more likes, comments, and follows on their social media accounts. We also conducted additional exploratory analyses on the remaining 21 positive psychology traits to supplement our hypothesis-guided analyses. As an exploratory study, replication of this study is necessary and it would be useful to expand this research to additional populations.

Keywords: positive psychology traits, social media engagement, social intelligence, VIA character strengths assessment, creativity, appreciation of beauty
Much of the existing literature on social media engagement was researched in regard to companies and brands (Carlson et al., 2019; Hallock et al., 2019) and how they obtain customer engagement. Additionally, there is a plethora of research that suggests negative outcomes associated with excessive social media engagement and use, however, there is also research that suggests positive outcomes of social media engagement and well being. For example, Wright et al., (2020) found that although higher levels of social media use amongst college-aged students were associated with outcomes such as loneliness and depression, some young SNS users identified positive outcomes of social media such as “social integration and perceived peer support” (Wright et al., 2020, p. 19). The personalities of the individuals able to retrieve engagement on social media in such a way are a fascinating area of interest, but there is limited research specifically connecting personality traits to social media engagement. However, there is literature focused on personality traits and social media use.

### Personality Traits and Social Media Use

Research of social media led to many predictions about psychology, specifically assessment of personality (Cooper et al., 2020). Much of this literature uses the metrics of the psychological test, the Big Five which measures the personality traits of extraversion, neuroticism, conscientiousness, agreeableness, and openness to experience (John & Pervin, 1990). Significant findings of literature using the Big Five model and social media have concluded that extroverts tend to be more avid social media users than introverts (Brooks, 2015; Gil de Zuñiga et al., 2017; Hughes et al., 2012), that those with high levels of neuroticism are more likely to socially interact via the internet (Amichai-Hamburger et al., 2004; Correa et al., 2010), that differential use of internet services were related to interaction between extraversion and neuroticism (Amichai-Hamburger & Ben-Artzi, 2004), and that conscientiousness and openness to experience are positively correlated to social media use (Özgüven & Mucan, 2013). Although a growing body of literature exists regarding personality traits and social media, few have incorporated measures of personality traits unrelated to the Big Five. To expand upon the growing body of literature, we decided to incorporate positive psychology traits through the Values in Action (VIA) Character Strengths Assessment (Peterson & Seligman, 2004).

### Positive Psychology Traits

Positive psychology traits originate from positive psychology, a subdiscipline of psychology that highlights an individual’s strengths and values that support life satisfaction and flourishing (Seligman & Csikszentmihalyi, 2002). Positive psychology traits are a group of 24 character strengths that make up six classes of virtues. The 24 positive psychology traits are appreciation of beauty and excellence, creativity, social intelligence, bravery, love, prudence, teamwork, creativity, curiosity, fairness, forgiveness, gratitude, hope, humor, perseverance, judgement, kindness, leadership, love of learning, humility, perspective, self-regulation, spirituality, and zest.

Positive psychology traits have proven to be valuable measures of character due to their multidimensional method of measuring strengths, virtues, and life satisfaction (Bachik et al., 2020). Additionally, there is a positive correlation between life satisfaction and social media; those who are satisfied with their lives are more likely to use social media (Özgüven & Mucan, 2013). Because positive psychology traits are centered around life satisfaction, exploring positive psychology traits in relation to social media gives more insight as to which personality traits are possessed by those who use social media most, but additionally, garner the most social media engagement. Of the 24 positive psychology traits listed above, we predicted that creativity, appreciation of beauty and excellence, and social intelligence would be associated with higher levels of social media engagement specifically on Instagram, as its visual focus produces high social media engagement (Li & Xie, 2020).

### Creativity

Seligman & Peterson (2004) defined the positive psychology trait of creativity as “originality and adaptiveness” and mentioned that a creative individual generates ideas or behaviors that are novel, adaptive, and generate long-lasting effects. In terms of social media, creativity is incredibly transferable on social media platforms (Peppler & Solomou, 2011), and the top brands who used the most creativity in their marketing strategies had higher levels of engagement on social media (Ashley & Tuten, 2014). With that said, we believed that individuals with high levels of creativity as a positive psychology trait would also garner the most social media engagement.

### Appreciation of Beauty and Excellence

Appreciation of beauty and excellence is defined as the awareness and the ability to “take pleasure in...
the existence of goodness in the physical and social worlds” (Peterson & Seligman, 2004). Appreciation of beauty and excellence alone is one of the least studied character strengths because it is often studied in conjunction with its other character strengths classified under the virtue transcendence. In relation to social media, a study found that inspirational posts contained “appreciation of beauty and excellence elicitors” and that transcendent individuals were most likely to engage with such posts (Dale et al., 2019). Instagram’s highly visual and engaging nature (Li & Xie, 2020) serves as a platform where appreciation of beauty and excellence elicitors are exhibited. Therefore, those with high levels of appreciation of beauty and excellence may also possess high levels of social media engagement.

Social Intelligence
Lastly, social intelligence consists of social awareness (i.e., what people sense about others; Peterson & Seligman, 2004). Socially intelligent individuals think abstractly, recognize similarities and differences, and notice relationships and patterns in social interactions. They know how the social world works and are able to strategically shape the outcome of social interactions (Beheshtifar & Roasaei, 2012). With respect to social media, Stone and Woodcock (2014) found that social intelligence leads to better understanding of their customers’ likes, interests, and customer engagement and that social intelligence strategies can be used effectively for social media engagement. Considering that socially intelligent individuals are generally successful at engaging others (Stone & Woodcock, 2014), we believed that the positive psychology trait social intelligence would yield high levels of social media engagement.

Our Study
Prior research regarding social media engagement has focused on companies and brands. Likewise, existing research on personality and social media has focused on social media use. The goal of our study was to expand on the topic of personality and social media by studying the relationship between positive psychology traits and social media engagement. We hypothesized that there would be a relationship between positive psychology traits and social media engagement, predicting that creativity, appreciation of beauty and excellence, and social intelligence would yield the highest levels of social media engagement. In addition to our hypothesis-guided analyses, we conducted exploratory analyses of the remaining 21 positive psychology traits. In this study, we made use of objective social media data through screenshots of follows, likes, and comments on Instagram. The study findings may help to explain who garners the most social media engagement, and may have important implications for those who hope to gain a larger social media following or social scientists who seek to assess personality through social media.

Method
Participants
The sample consisted of 138 undergraduate students aged 18 to 33. The sample primarily consisted of first-year students (54.3%). Also included were sophomores (21%), juniors (13%), and seniors (11.6%). The sample was 65.2% women and 34.8% men. Students in the sample identified as White or European American (57.2%), Asian (22.5%), Black or African American (6.5%), Multiracial (5.7%), Latinx (2.2%), Hispanic (1.4%), Filipino (0.7%), Asian/Native Hawaiian/Pacific Islander (0.7%), and Sub Continental (0.7%).

Measures
We created an original Social Media Engagement Survey on Qualtrics to measure levels of social media engagement on Instagram. The first item of the survey asked how many followers participants had on their social media accounts, and asked for a screenshot depicting the number of followers. Subsequent items asked participants how many likes and comments they received on their first, second, and third most recent photos and videos uploaded more than 24 hours ago and subsequently asked for screenshot evidence of their answers. The final item asked participants to provide an estimate of the amount of time spent weekly on the social media platforms Instagram, Facebook, Twitter, Snapchat, and YouTube. The Social Media Engagement Survey consists of 8 items and yielded a Chronbach’s alpha reliability estimate of .78. To compute this reliability estimate, the number of followers, likes, and comments on all photos and videos were entered into SPSS.

We used the online version of the VIA Adult Instruments Character Strength Assessments (Peterson & Seligman, 2004) to measure positive psychology traits. We made use of the following subscales for this research: Appreciation of Beauty and Excellence (5 items, $\alpha = .85$), Creativity (5 items, $\alpha = .88$), and Social Intelligence (5 items, $\alpha = .76$; Peterson & Seligman, 2004). Finally, we included four demographic questions to assess gender, age, year in college, and race.
Procedure
We followed APA ethical guidelines in our study and obtained IRB approval. An a priori power analysis indicated that 84 participants were needed to have 80% power to detect a medium-sized effect with a 0.5 criterion of significance. Participants with Instagram accounts were recruited using a university research participation portal. Participants signed an informed consent form prior to participating and completed the measures online. Participants referred to their Instagram accounts while taking the Social Media Engagement Survey, including uploading pictures of requested information from their Instagram accounts as objective data. Upon completion of the Social Media Engagement Survey, participants were given a link to complete the VIA Adult Instruments Character Strength Assessment. We received their results from the VIA website.

Results
Descriptive Statistics
Descriptive statistics, reliability and correlations between positive psychology traits and social media engagement are shown in Table 1. The positive psychology trait appreciation of beauty and excellence had a mean of 3.90 and a standard deviation of 0.68. Creativity had a mean of 3.63 and a standard deviation of 0.72. Social intelligence had a mean of 3.91 and a standard deviation of 0.63. Lastly, the engagement scale had a mean of 825.2 and a standard deviation of 489.82. Scores of the Social Media Engagement Survey were computed by entering all of the follows, likes, and comments from their videos and pictures into SPSS.

Hypothesis-Guided Analysis
Our hypothesis-guided analyses can be found in Table 2. First, we evaluated the need to include control variables. An initial correlation was conducted between our demographic variables such as age, gender, amount of followers, amount of time spent on social media and our social media engagement score. Age and gender are included in our analyses as control variables because there were strong correlations between these two variables and the social media engagement score. Both age ($\beta = -0.240, p = .004$) and gender ($\beta = -0.210, p = .011$) were significantly related to levels of social media engagement. With that being said, the results show that younger individuals and women showed higher levels of social media engagement ($\beta = 0.2324.7, p = .000$). Other demographic characteristics and amount of time spent on social media were unrelated to social media engagement.

We made use of a hierarchical regression to determine whether the positive psychology traits of appreciation of beauty and excellence, creativity, and social intelligence were predictive of higher levels of social media engagement (see Table 1). In Step 1, we entered age and gender. In Step 2, we entered appreciation of beauty and excellence, creativity, and social intelligence. The model was statistically significant, $F(5,137) = 8.52$, $p < .001$, $R^2 = .13$. These three positive psychology traits accounted for 13% of the variance in social media engagement. The change of $0.24 R^2$ in values was also statistically significant, $F(3,132) = 7.41$, $p < .001$, indicating that including the positive psychology traits improved the prediction of social media engagement over and above the prediction based on age and gender alone. In the final model,
social intelligence was the only positive psychology trait to significantly predict levels of social media engagement ($\beta = .38, p < .001$).

**Exploratory Analyses**

We also conducted exploratory Pearson ($r$) correlations between all of the positive psychology traits of the VIA and Social Media Engagement scale as shown in Table 3. Due to this study being unique in exploring positive psychology traits in relation to social media, we would like to supplement our hypothesis-guided analysis with correlates for other positive psychology traits. Seven positive psychology traits were statistically significant at the .01 level (2-tailed): love ($r = .22, p < .01$), curiosity ($r = .23, p < .01$), forgiveness ($r = .26, p < .01$), humor ($r = .30, p < .01$), kindness ($r = .24, p < .01$), social intelligence ($r = .38, p < .01$), and zest ($r = .26, p < .01$). Two positive psychology traits were also significant at the .05 level: gratitude ($r = .21, p < .05$) and leadership ($r = .20, p < .05$). The remaining 15 traits, including appreciation of beauty ($r = .12, p = .17$) and creativity ($r = .10, p = .23$) were not statistically significant. Of all correlations, social intelligence had the highest correlation with social media engagement ($r = .38, p < .01$).

**Discussion**

Our study sought to determine whether a relationship exists between particular positive psychology traits and social media engagement. We hypothesized that appreciation of beauty and excellence, creativity, and social intelligence would predict higher levels of social media engagement. Our hypotheses were partially supported.

Our hypothesis-guided analyses indicated that age and gender were correlated with social media engagement, demonstrating that younger individuals and that women experienced higher levels of social media engagement than men. However, it is important to note that most individuals in this study identified as women (65.7%) and were first-year students (54.3%). Positive psychology traits accounted for a small, additional 13% of the variance in social media engagement, after accounting for age and gender. Only one of our predicted positive psychology traits was significantly correlated with social media engagement. Neither creativity nor appreciation of beauty yielded statistical significance, but social intelligence yielded the highest statistical significance among all 24 positive psychology traits. This indicates that individuals who scored higher on social intelligence were more likely to have more likes, comments, and followers on their Instagram account, and implies that those who are socially aware can garner social media engagement. This may also imply that social intelligence may be one of the best predictors of social media engagement on Instagram.

Due to the fact that most personality related analyses on social media have included the Big Five model, our study brings about a new perspective by examining the relationship between positive psychology traits and social media engagement. However, to supplement the hypothesis-driven analyses, we presented the correlates for other strengths, which might generate future hypothesis-driven analyses for others. To our surprise, the

<table>
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<tr>
<th>Positive Psychology Traits Correlation with social media engagement (Pearson $r$)</th>
<th>Sig. (2-tailed)</th>
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<tbody>
<tr>
<td>Appreciation of beauty and excellence</td>
<td>.12</td>
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<tr>
<td>Creativity</td>
<td>.10</td>
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<tr>
<td>Social intelligence</td>
<td>.38**</td>
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<tr>
<td>Bravery</td>
<td>.08</td>
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<tr>
<td>Love</td>
<td>.22**</td>
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<tr>
<td>Prudence</td>
<td>−.06</td>
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<tr>
<td>Teamwork</td>
<td>.14</td>
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<tr>
<td>Creativity</td>
<td>.10</td>
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<tr>
<td>Curiosity</td>
<td>.23**</td>
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<td>Fairness</td>
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<td>Forgiveness</td>
<td>.26**</td>
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<td>Gratitude</td>
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<td>Hope</td>
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<td>Humor</td>
<td>.26**</td>
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<tr>
<td>Perseverance</td>
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<td>Judgement</td>
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<td>Kindness</td>
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<td>Leadership</td>
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<tr>
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<tr>
<td>Humility</td>
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<td>Perspective</td>
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<td>Self-regulation</td>
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<td>Spirituality</td>
<td>.10</td>
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<tr>
<td>Zest</td>
<td>.26**</td>
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Note: * $p < .05$. ** $p < .01$. 
Positive psychology traits and social media

scientists who are concerned with personality in relation to social media, and those who are interested in the VIA Character Strengths Assessment and its applicability to social media. Overall, due to the opportunities for future research, positive psychology traits and social media engagement are fascinating notions of study.

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Online interactions are becoming ubiquitous as the technological era progresses, especially for young people who have grown up in the digital age. As of 2018, 45% of teenagers claimed to be online “almost constantly” (Anderson & Jiang, 2018). Researchers are beginning to investigate how using online platforms for social interactions may be shaping people’s personal and social lives. The present study focused particularly on the social lives of emerging adults and explored whether and how individual’s time spent on social media impacts social behaviors and tendencies as well as whether these altered social behaviors lead to social media addiction.

Mobile Phone Use and Online Communication
Research on social media use is a subset of studies on internet use and mobile phone use. The emergence and pervasiveness of cell phones has exploded in the last decade. As of June 2019, 96% of American adults own a cell phone of some kind, and 81% of American adults specifically own a smartphone (Pew Research Center, 2019). Beyond adult use, 95% of adolescents reported either owning a smartphone or having access to one as of 2018 (Anderson & Jiang, 2018). Mobile phones have moved beyond being just fun, convenient gadgets to essential and even preferred means of establishing and maintaining social relationships.

Researchers have raised concern that mobile phones and internet use may be replacing in-person interaction. Indeed, young people’s use of online communication is primarily driven by social motives (i.e., using a phone to build relationships with other people) more than extrinsic and task-oriented motives (i.e., seeking out information; Chan, 2015). Researchers have discovered that because primary motivations for using social media tend to be of a social nature, online communication is a tool many use to maintain relational connections (Krishnan...
& Atkin, 2014). Further, adolescents have reported that text messaging and online communication are easier forms of communication, especially in the case of budding romantic relationships or when initial encounters are awkward and difficult (LaBode, 2011). However, initial evidence suggests that the increased use of online communication may be detrimental to interpersonal relationships, leading to more peer aggression and relationship apprehension (Cyr et al., 2015) and a lack of psychological well-being and close personal ties that are associated with nondigital communication (Chan, 2015). Although online communication use is motivated by social factors, it may also be the very thing limiting the quality of social interactions.

Social Media Use and Addiction
In particular, social media may be contributing to an illusion of connectedness in replacement of close, genuine relationships among young people. Alongside mobile phone use, social media use has become a pervasive part of teen life, with 85% of adolescents reporting use of some form of social media (Anderson & Jiang, 2018). Interestingly, less than a third of adolescents in one study reported that social media has a mostly positive effect and yet 60% claimed that they would spend more time with friends online than in person (Anderson & Jiang, 2018).

Within the literature, one of the biggest negative impacts and rising concerns for social media use has centered on the addictive nature of social media. Researchers have established that social media use and subsequent addiction is correlated particularly with single, younger, and student age groups (Andreassen et al., 2017). Social media addiction comprises a range of addictive tendencies including fixation on social media, compulsive use, mood modification, and tolerance and withdrawal (Lin et al., 2017). There is particular concern for young people who seem to be most vulnerable to social media addiction (Andreassen et al., 2016). In a study conducted on social media addiction, researchers demonstrated correlations between several mental health disorders (including ADHD, OCD, anxiety, and depression) and social media addiction. In particular, researchers theorized that people with anxiety may be more likely to turn to social media in order to avoid face-to-face interactions (Andreassen et al., 2016). Previous research has also established that social anxiety predicts higher internet use (Weidman et al., 2012). As such, researchers have theorized that hiding behind a screen allows for more distance, control, and anonymity when communicating with others, thus reducing feelings of anxiety that social interactions might normally produce (LaBode, 2011; Weidman et al., 2012). Even traits like introversion and communication apprehension play a role in predicting social media addiction due to the desire to avoid the discomfort from social anxiety (Punyanunt-Carter et al., 2018). Research on social media addiction points to how social anxieties motivate the use of social media and mediate the development of an addiction.

Motivation to secure social relationships encourages the use of social media sites, informing why individuals may turn to social media even when acknowledging the negative effects from social media use (Anderson & Jiang, 2018; Krishnan & Atkin, 2014). Unfortunately, other researchers confirmed that using mobile phones for information-seeking activities and time-passing activities (such as social networking sites) are both related to increased negative affect and decreased positive affect respectively (Chan, 2015). Due to the social motivation driving the use of social media sites, it is possible that the use of social media may be impacting the way that users interact socially in other ways even with negative consequences. Research has yet to fully explore how social media use may be impacting interpersonal relationships, and how this contributes to other social behaviors.

Social Behaviors
Several aspects of social behavior contribute to a person’s social experience. For the purpose of the present study, the author explored three areas of behaviors theorized to be impacted by social media use: how people communicate (i.e., online versus face-to-face), how people feel about communication (i.e., communication apprehension), and how successful people are at actually communicating (i.e., the presence or absence of social deficits).

Face-to-Face Communication
In the pretechnology era, face-to-face communication was the standard way to communicate and relate to others. With the rise of communication technology, it is important to interrogate the relevance of face-to-face communication as a way that people relate today. In particular, concern may be raised for younger groups who have been raised with communication technology and use it constantly. As of 2018, only 50% of teens reported getting together with friends almost every day or several times a week, while 60% reported getting
Social Media Use and Social Behavior

Researchers have considered face-to-face communication as the “gold standard” of communication, in part because of the unspoken forms of communication that occur with facial expressions, tone, and body language (Flaherty et al., 1998). In a study conducted by Westerman et al. (2016), researchers investigated college students’ and internet participants’ attitudes about social media and face-to-face interactions. Researchers found that students had a generally positive attitude toward social media and an even stronger positive attitude toward face-to-face communication. Importantly, face-to-face communication predicted higher levels of quality of life, whereas online communication and internet use did not (Lee et al., 2011). Face-to-face communication is therefore an important form of communication and human connection, even in the technological age. However, with the rise of online communication and social media sites, the frequency of face-to-face interaction is changing.

Communication Apprehension

Another facet of social behavior has to do with how a person feels entering into a social situation. In particular, individuals who are anxious or nervous about interactions with others may experience communication apprehension. Punyanunt-Carter et al. (2018) defined communication apprehension as “the state or trait-like anxiety an individual experiences when faced with or when anticipating communication” (p. 511). Four reactions are typical for people experiencing communication apprehension including avoidance, withdrawal, disruption, and overcommunication. Investigators have evaluated social media use in the context of communication apprehension. In their study, Punyanunt-Carter et al. (2018) surveyed college students on their social media use and found a statistically significant correlation between social media addiction and social media communication apprehension. In another study by Punyanunt-Carter et al. (2017), researchers looked specifically at Snapchat use as a form of gratification and how it may correlate with communication apprehension. Their survey of university students showed that higher scores in apprehension predicted higher Snapchat use, though most users reported that Snapchat was a source of positive social interaction. Additionally, researchers have connected social media use with social anxiety. It is possible that people with anxiety may be tempted to turn to social media in order to avoid face-to-face interactions that are anxiety producing. In a meta-analysis conducted on 13 studies analyzing mental health and social media use in adolescence, Keles et al. (2020) found general correlations between social media use, anxiety, and distress. The hesitancy to communicate due to communication apprehension may contribute to people turning to social media as an alternative form of communication that is more removed and easier to control than an in-person interaction.

Social Deficit Hypothesis

A final aspect of social behavior is how successful an individual may be at communicating effectively. Researchers have theorized that certain groups may lack certain social skills or confidence in their ability to communicate, otherwise known as social deficits. The social deficit hypothesis refers to the idea that lonely people who lack social skills will be less likely to interact and form meaningful relationships with others, thus increasing their loneliness (Jones et al., 1982). In a study on adolescent phone use and social deficit theory, Jin and Park (2012) found that poor social skills were related to higher feelings of loneliness and less face-to-face communication. In turn, increased mobile phone use was positively correlated with loneliness, whereas face-to-face communication was negatively correlated with loneliness. Given the social motivation behind social media use, individuals who have more social deficits may be especially drawn to social media if they are struggling to meet their social needs in other ways.

The Present Study

The purpose of the present study was to examine the relationships among social media use and social behaviors (specifically face-to-face interactions, communication apprehension, and social skill deficits) in a sample of university students. The age of onset for social media use was also examined because age of onset may contribute to an early reliance on social networking sites as a means of communication and maintaining social bonds with peers. Based on previous findings, the author developed a model...
for predicted relationships (see Figure 1). First, the model predicted that participants who have an earlier onset of social media use would report higher levels of social media use. Second, the model predicted that social media use would predict addiction to social media. Third, the relationship between social media use and social media addiction would be mediated by reduced face-to-face communication, higher communication apprehension, and poorer social skills (see Figure 1).

The study was a correlational research design. Before beginning the study, the author sought and received approval from the International Review Board of Santa Clara University. The author collected data from participants and then examined the correlations between variables according to the proposed model in order to conduct a mediation analysis based on the proposed theory.

Method

Participants
One hundred nine participants were recruited from a mid-sized private university in California. Participants were recruited through online surveys distributed to introductory psychology classes. Students who took the survey received course credit for participation. Demographic information was not collected due to an error in survey design. The limitations for this will be addressed in the discussion section.

Measures

Social Media Use and Face-to-Face Communication
Social media use was assessed using a questionnaire constructed by the author for this study. Questions included the age of first social media use and hours per day scrolling through social media. Hours were self-reported based on the participant’s personal estimation and did not require documentation or a system tracking use. Amount of time on social media was collected via a 5-point Likert-type scale with possible responses ranging from 30 minutes to more than 4 hours. Participants were also asked about which social media platforms they currently use, including Instagram, Snapchat, Facebook, TikTok, Twitter, Reddit, Tumblr, and Pinterest. Face-to-face communication was assessed with a 5-point Likert-type scale. The first question addressed how many hours participants spent communicating with friends face-to-face each day with possible responses ranging from less than 30 minutes to more than 4 hours. The other question addressed how many friends participants regularly talked to in-person per day with possible responses ranging from 0 to 1 friend to more than 6 friends. The scores from each of these measures were combined to create a composite score for face-to-face interactions that could possibly range between 2 and 10. Questions for face-to-face interactions were adopted from Jin and Park’s study (2012).

Communication Apprehension Scale
Communication apprehension was measured using the Communication Apprehension Scale, which is an 18-item, 5-point Likert scale (McCroskey, 1982). Six items related to giving speeches were removed from the scale to keep questions relevant to communication apprehension regarding interpersonal relationships. Questions were also adapted to be relevant to an undergraduate population rather than adults in the workforce (e.g., the question “I am afraid to express myself at meetings” was changed to “I am afraid to express myself in class or in meetings”). Some questions were reverse scored to maintain the integrity of participant responding. Scores for each response were combined into an overall communication apprehension score, possibly ranging from 18 to 90. For the Communication Apprehension Scale in the present study, Cronbach’s alpha was large, α = .950, and therefore the scale was deemed reliable.

Social Skills Deficits Scale
To measure social skill deficits, participants completed the Interaction Anxiousness Scale, which was defined as a measure of “the affective component of social discomfort” (Leary & Kowalski, 2010, p. 137). The Interaction Anxiousness Scale, is a 15-point Likert scale on which participants indicated their degree of agreement with a series of statements. Sample items from the scale include “I often feel nervous even in casual get-togethers” and “I usually feel comfortable when I am in a group of people I don’t know.” Some items required reverse coding.
Social Media Use and Social Behavior | Larson

to control for participants inaccurately responding to the scale measures. Scores could possibly range between 15 and 75. Researchers have used the Interaction Anxiousness Scale in previous studies to measure social deficits (Jin & Park, 2012). Alpha for the social skills deficits scale was high in the present study, \( \alpha = .879 \), and therefore the scale was deemed reliable.

**Social Media Addiction**
The Social Media Addiction Scale was used to measure social media addiction. Participants responded using a 6-item Likert scale. Example items include “You spend a lot of time thinking about social media or planning how to use it,” “You use social media in order to forget about personal problems,” and “You become restless or troubled if you are prohibited from using social media” (Andreasen et al., 2012). Previous researchers adapted the Social Media Addiction Scale from the Facebook Addiction Scale and demonstrated that it is a reliable and valid measure (Andreasen et al., 2012). The range of potential total scores for social media addiction was 6 through 30, with higher scores indicating stronger addiction. For the social media addiction scale, Cronbach’s alpha was high, \( \alpha = .820 \), and therefore the scale was determined to be reliable.

**Procedure**
Before data collection, approval was obtained from the institutional review board. Surveys were conducted anonymously and online. Participants completed a consent form before proceeding with the survey. Participants were informed that they had the right to withdraw from the survey at any time and were asked to acknowledge this right before beginning the survey. Surveys were conducted through Qualtrics containing four sections. Each section contained one of the four questionnaires described previously (social media use, face-to-face interactions, communication apprehension, and social skill deficits). Sections appeared in random order for each participant to counteract any order effects.

**Results**

**Frequency of Social Media Use**
The mode hours of time spent on social media habits was 2 to 3 hours per day with 30 participants reporting. The most frequently reported social media platforms included Instagram and Snapchat, with 92% of participants using Instagram and 94.4% using Snapchat. Only one participant reported no current social media use.

I ran descriptive analyses to calculate the means, standard deviations, and confidence intervals for the age at which participants got their first social media account. For the age of getting a social media account (\( M = 12.39, SD = 1.82 \)), 95% CI [12.05, 12.74], \( p < .001 \).

**Associations Among Variables**
Pearson correlations were calculated for each relationship proposed by the model (see Table 1). As expected, significant correlations existed between hours of social media use and social skills deficits, \( r(108) = .204, p = .017 \). Contrary to expectations, no significant correlations were found between hours of social media use and the other social behaviors (face-to-face interactions and communication apprehension). There were also no significant correlations between social media addiction and any of the social behaviors (face-to-face interactions, communication apprehension, and social skill deficits). A significant positive correlation was found between social media use and social media addiction, \( r(108) = .495, p < .001 \). Lastly, significant correlations existed between the measures of social behavior. A significant negative correlation between face-to-face interactions and communication apprehension was found, \( r(108) = -.336, p < .001 \), as well as between face-to-face interactions and social skill deficits, \( r(108) = -.390, p < .001 \). Communication apprehension and social skill deficits were also strongly and significantly correlated, \( r(108) = .776, p < .001 \).

Correlations were conducted again controlling for the age at which individuals first got a social media account. For relationships between social media addiction and other variables (including face-to-face interaction, communication apprehension, and social skill deficits) no changes were seen in the correlations when controlling for age of first social media account. Additionally, the change in the correlation between social media use and social media addiction was negligible, \( r(106) = .497, p < .001 \).

**Mediation Analyses**
To assess whether face-to-face interactions mediated the relationship between social media use and social media addiction, regression analyses were conducted with and without the face-to-face interaction variable and results were subsequently compared. Before adding in face-to-face interaction, data established a significant correlation between hours of social media use and social media addiction, \( r(108) = .495, p < .001 \).
addiction, $F(1, 107) = 34.70, p < .001, r^2_{\text{Adjusted}} = .24$ (see Table 2). When face-to-face interaction was added to the model, there was no significant change, indicating that face-to-face interactions did not mediate the relationship between hours of social media use and social media addiction, $F(2, 106) = 17.64, p < .001, r^2_{\text{Adjusted}} = .24$. A second set of analyses was conducted to assess whether communication apprehension mediated the relationship between social media use and social media addiction. After adding communication apprehension to the model, no significant change was observed, indicating that communication apprehension did not mediate the relationship between social media use and social media addiction, $F(2, 106) = 17.93, p < .001, r^2_{\text{Adjusted}} = .24$ (see Table 2). From these findings, researchers concluded that communication apprehension was not a mediator in the relationship between hours of social media use and social media addiction. Lastly, a third set of regression analyses were conducted to assess whether the social skill deficits mediated the relationship between hours of social media use and social media addiction. After accounting for the social skill deficit variable, no significant change was seen in the relationship between social media use and social media addiction, $F(2, 106) = 17.42, p < .001, r^2_{\text{Adjusted}} = .25$ (see Table 2). As such, the author concluded that social skills deficit was also not a mediator between the two variables of interest.

**Discussion**

**Summary of Findings**

Results did not support a relationship between social behaviors (including face-to-face communication, communication apprehension, and social skill deficits) and social media use or addiction. Correlations were found between each of the social behaviors (face-to-face interactions, communication apprehension, and social skill deficits), though none of these variables correlated significantly with social media use or addiction. Although social media use predicted social media addiction, participants’ face-to-face communication, communication apprehension, and social skills deficits did not mediate the relationship. Additionally, no relationship was found between the age at which participants started using social media and their social media use or their levels of social media addiction. Specific variable findings are discussed below.

**Social Media Use and Addiction**

Data showed that hours of social media use predicted levels of social media addiction. This supports previous research findings that users who are addicted to social media and therefore more dependent will use social media more than those who are not dependent on social media (Andreassen et al., 2017). A key aspect of social media addiction is that individuals do not only use social media frequently, but may experience distress without it (Lin et al., 2017). As such, participants who score high on the Social Media Addiction Scale are likely to demonstrate higher use of social media. However, because the data measures both addiction and use at the same time point, one cannot definitively say which precedes the other. It could be that people who are addicted use social media more or that people who use social media more become addicted. Additionally, previous research has indicated that younger populations are especially prone to social media use and addiction which may account for the high rates of addiction and use found in this sample.

<table>
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<tr>
<th>TABLE 1</th>
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<tr>
<td><strong>R Values From Pearson Correlations</strong></td>
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<tr>
<td>1. Age of first social media</td>
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<td>2. Social media use</td>
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<td>3. Face-to-face interactions</td>
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<td>4. Communications apprehension</td>
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<td>5. Social skill deficits</td>
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<td>6. Social media addiction</td>
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*Note: *p* < .05. **p* < .01.

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<td><strong>Mediation Analyses of the Role of Face-to-Face Interactions, Communication Apprehension, and Social Skills Deficits on Social Media Addiction</strong></td>
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*Note: *p* < .001.
of emerging adults (Andreassen et al., 2017). For the findings presented here, it is important to note that although high social media use was significantly predictive of social media addiction, this relationship does not appear to be mediated by face-to-face interactions, communication apprehension, or social skills deficits.

Contrary to predictions, there was no relationship between the age at which participants began using social media and their overall use of social media at the end of adolescence. Previous research had yet to investigate how the age at which one begins using social media impacts use of social media later in life as well as the potential for one to develop an addiction to social media. According to the present findings, age of social media use onset does not predict social media use in emerging adults. This finding was further substantiated by the fact that the relationship between social media addiction and other variables including social skills deficits, communication apprehension, and face-to-face interactions did not change when controlling for age of first using social media. In other words, the age at which an individual began using social media did not inform the relationships between social media use and other social behaviors. Given the lack of relationship between when individuals begin using social media and their later use of social media, concerns about early use with regard to developing unhealthy use of social media may be unfounded.

It is worth noting the possibility of a generational impact given that this study was conducted with a sample of emerging adults who have been raised in the technological era and have likely integrated technology into their social lives. Previous research has shown that individuals between the ages of 18 and 30 report social media use as a part of their systems of social support and psychological wellbeing (Chan, 2018). Therefore, social media use may not come at the expense of social interactions, but actually as a way to augment their social interactions and experiences.

Face-to-Face Interactions
No relationship was found between social media use and face-to-face interactions. The author had originally hypothesized that reduced face-to-face interactions would mediate the relationship between social media use and addiction because individuals would turn to social media to fulfill their social needs. Previous research has shown evidence for a social motivation behind social media use, indicating that social media’s role involves creating connections with others (Krishnan & Atkin, 2014). The present findings indicated no relationship between face-to-face interactions and either social media use or social media addiction. Therefore, individuals may not be using social media at the expense of in-person interactions to fill a social need. Additionally, it is possible that other forms of online communication such as texting or calling may be used by individuals to increase their social interactions while still maintaining fewer face-to-face interactions. In this case, individuals would not need to turn to social media as much to fulfill their lack of in-person interaction.

Other researchers have demonstrated that individuals who are introverted or experience social anxiety are more likely to use social media (Punyanunt-Carter et al., 2018). One might also assume that those with higher levels of introversion and social anxiety would have fewer face-to-face interactions due to these higher levels of social media use. Although face-to-face interactions predicted communication apprehension and social skill deficits in the present study, they did not predict social media use, which seems to contradict previous findings by Punyanunt-Carter et al. (2018) and Weidman et al. (2012). Although individuals who are introverted and more socially anxious might have fewer face-to-face interactions, they are not necessarily replacing their face-to-face interactions with social media use. More research is needed to substantiate this claim.

Communication Apprehension
In the proposed model, communication apprehension was hypothesized to mediate the relationship between social media use and social media addiction based upon the assumption that those with more anxiety around communication would be more likely to rely on social media to fulfill their social needs. According to the findings from this study, communication apprehension was not significantly correlated with social media use, thereby not substantiating the author’s hypothesis. Interestingly, this finding is inconsistent with past findings showing evidence that people who score higher in communication apprehension report relatively high levels of social media use in order to fulfill their need for social interactions without the anxiety that in-person interactions can bring about (Punyanunt-Carter et al., 2018). However, the present study found no correlation between communication apprehension and social media use.
use nor addiction. Although previous research has indicated that individuals experiencing higher levels of apprehension and anxiety use social media more, the current findings did not provide evidence for this claim (Keles et al., 2020; Punyanunt-Carter et al., 2017). One possible explanation for this deviation from previous findings is that the measure by which individuals reported their social media use was too broad to adequately identify groups of high users. Because participants reported an average range of use, these ranges might not have been specific enough to separate out participants with high levels of use. This explanation is further discussed in the limitations section.

**Social Skill Deficits**
The last mediator proposed by the model was social skill deficits. According to mediation analyses, a significant small positive correlation was found between use of social media and social skills deficits. This finding was in line with the predictions made about how social media use would predict altered social behaviors. It also confirms findings from previous research demonstrating a relationship between poorer social skills and higher social media use (Jin & Park, 2012). Because the research here is correlational, one cannot determine the directionality between social media use and social skill deficits, more research would be needed to establish if there is any causal relationship between these two variables.

Interestingly, social skill deficits did not predict social media addiction as previously hypothesized by the model. Although poorer social skills have been shown to predict high social media use both in this study and previous research, data from the present investigation did not show that poorer social skills predict social media addiction. Although people who lack the social skills required for effective communication may resort to social media use, their social skill deficit did not seem to inform their potential for social media addiction. It is possible that the addictive nature of social media does not relate to its fulfillment of a social need, but rather to some other aspect of social media.

**Proposed Alternative Model**
The intercorrelations among face-to-face interactions, communication apprehension, and social skill deficits and the finding that only social skills deficits were associated with media use suggested an alternate model that may better account for the data (see Figure 2). This alternate model supposed that face-to-face communication and communication apprehension predict social skills deficits, which in turn predict social media use and ultimately social media addiction. That is, it may be that people with impoverished face-to-face communication and who are anxious about communicating with others develop social skills deficits, which lead them to use social media more and may ultimately lead to addiction to social media. The relatively strong correlation between communication apprehension and social skills deficits found in the current study suggested that communication apprehension may account for a larger amount of the variance in social skills deficits compared to a dearth of face-to-face interactions. Given that social skill deficits and communication apprehension relate strongly to each other, it may be that a lack of social skills more readily predicts feelings of anxiety with communication than actual social interaction. In other words, those who may lack social skills might feel more apprehension in social situations but still maintain some level of face-to-face interactions.

**Implications**
According to the data found in this study, the age at which a person begins using social media does not predict their social media use or addiction at the end of adolescence. This means that the age of onset may be less critical to consider by parents, educators, and other stakeholders when it comes to understanding social media use throughout adolescence and into early adulthood. With regard to addiction, the present research has yet to find evidence that earlier use of social media is connected with higher likelihood of developing a social media addiction at the end of adolescence.

The relationship between social media use, social media addiction, and the social behaviors of individuals may be much more complex than realized. Based on the present findings, little evidence...
exists that face-to-face interactions, communication apprehension, and social skill deficits mediate a relationship between social media use and social media addiction. One possible implication of this finding is that these social behaviors do not influence the propensity of an individual to develop an addiction to social media. Instead, other aspects of social life or social media may be more influential drivers in determining social media addiction.

**Limitations**

The present study has several limitations. Because demographic information was not collected, it is difficult to assess what ages, ethnicities, genders, and socioeconomic statuses are exactly represented by the sample. Due to this limitation, researchers cannot definitively say to which population the data exactly speaks to other than a population of emerging adults. Possibly, different groups of people may express different patterns of communication, indicating that the data can only support the communication habits of a specific group. For example, previous research has shown that women tend to use social media more than men to connect with friends (Thompson & Lougheed, 2012). More generally, women also tend to report having more intimate friendships than men do (Zarbatany et al., 2013). Gender therefore could impact how men and women prioritize interpersonal communication both in person and online, impacting how they would respond to the survey. Because demographic information was not collected, researchers cannot say how the data may generalize, limiting the study’s external validity.

Additionally, all data was collected through self-report and recall measures. Previous research has shown that self-report measures tend to differ from diaries tracking actual use, and so self-report measures may fail to completely capture actual social media use (Greenberg et al., 2005). Researchers counteracted the impact of the accuracy of self-report estimates by having participants estimate their use within a range of values rather than estimate a specific value. Participants might have also been influenced by demand characteristics, attempting to respond in a socially favorable way rather than an accurate way.

Another limitation involves the measures themselves. With regards to face-to-face communication, the measure did not distinguish the type of activity or quality of face-to-face interactions, but only asked about the duration of said interactions. Given that social interaction may change depending on the activity accompanying the face-to-face interaction (e.g., eating lunch versus playing a sport), the quality of face-to-face interactions may vary between participants. Another limitation from the face-to-face interaction measure was that results were negatively skewed, likely indicating a ceiling effect and restricting the variance of this measure. The measure for social media use might also have been unable to adequately distinguish a specific group of high scorers by requiring participants to estimate a range of hours for use rather than provide a specific number themselves.

Additionally, the high correlation between the measures of communication apprehension and social skill deficits (.78) calls into question the construct validity of the measures (i.e., they may be measuring the same construct). However, the correlation, although strong, was not perfect between the two measures and only social deficit scores were correlated with social media use, so it is likely that the measures were sufficiently distinct.

**Future Directions**

Additional studies are needed to test the proposed new model of the relationships among social behaviors and social media use and addiction. Studies that are grounded in theory and longitudinal in design are especially important to assess competing causal models. Longitudinal studies would also illuminate how each of these variables change throughout the development of social media use and possibly establish directionality of the relationships between social media use and aspects of social behavior. Of particular interest would be to observe how face-to-face interactions change from when a person begins using social media. Additionally, research should continue to bolster understanding of how social media addiction may or may not be influenced by social behaviors, especially the interaction of these behaviors.

Psychometric analyses and measure development of the variables used in this study, especially communication apprehension and social skills, will help to ensure that distinct constructs are being measured. Future research may want to address the problem by adding in more questions to the measure and having the measure account for high quantities of face-to-face interactions in order to distinguish between high scoring groups.

Lastly, other social factors not measured by the present study may be accounting for why some people report higher and more problematic addiction to social media. For example, research
has investigated how other social factors like the fear of missing out predict social media addiction (Blackwell et al., 2017). It is possible that social behaviors are mediating the relationship between social media use and addiction, just not the social factors accounted for in this study. Future research may examine which aspects of social life may be more likely to influence social media use and addiction.

Conclusion

As technology becomes more pervasive and incorporated into social life, research should identify how technology may be influencing people’s relationships with others. The present study sought to add to the understanding on how social media may be influencing the ways that emerging adults relate to each other, and the possible role of social media in managing their relationships. Moving forward, it may behoove researchers to examine these relationships more closely and examine how individuals’ online and face-to-face interactions impact the way they relate to others.

References


Author Note. Lauren Larson | Social Media Use and Social Behavior | 2021 | SUMMER 2021

Larson is a graduate of Santa Clara University as of June 2020 with Bachelors of Science in Psychology and Child Studies. There are no known conflicts of interest to disclose. This study was conducted at Santa Clara University as an Honors thesis and as part of the Child Studies major capstone. Special thanks to Psi Chi Journal reviewers for their consideration. Correspondence concerning this article should be addressed to Lauren Larson. Email: laurenlarson3@gmail.com.
Anti-Immigration Media Portrayals and Latinx Well-Being

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ABSTRACT. The current study examined the immediate impact of exposure to anti-immigration sentiments on the psychological well-being of Latinx young adults. A quasiexperimental, mixed-factorial design was used to analyze differences in mood, stress, ethnic identification, and motivation to take action after exposure to a video stressor across four groups: immigrants from Latin America, first-generation Latinx Americans, second-generation and up Latinx Americans, and non-Latinx, nonimmigrant, White Americans. Three hundred forty participants, ages 18–30, were randomly assigned to either an experimental condition involving an anti-immigration video or a control condition involving a multivitamin video. As hypothesized, those who viewed the anti-immigration video exhibited significantly higher levels of negative affect (p < .001; ηp² = .06), stress (p < .001; ηp² = .04), and motivation to take action (p < .001; ηp² = .07) than those who viewed the multivitamin video. Additionally, Ethnicity/Generation American was associated with higher negative affect (p < .001, ηp² = .06), stress (p = .01, ηp² = .04), and motivation to take action (p < .001, ηp² = .10) after video viewings, such that immigrants from Latin American countries and first-generation Latinx Americans tended to have greater levels than the other groups (pairwise comparison ps < .05). Contrary to our hypothesis, results indicated that first-generation Latinx Americans (p = .01) and non-Latinx, nonimmigrant participants (p < .001) experienced a significant decrease in ethnic identification after viewing the anti-immigration video. Our results indicate that, across the differing Ethnicities/Generations American, participants are impacted by anti-immigration sentiments in the media.

Keywords: immigration, ethnic identification, minority status stress, mental health, discrimination

ABSTRACTO. El estudio examinó el impacto inmediato de la exposición a sentimientos anti-inmigrantes en el bienestar psicológico de los adultos jóvenes latinx. Se utilizó un diseño cuasiexperimental de factores mixtos para analizar las diferencias en el estado de ánimo, el estrés, la identificación étnica y la motivación para actuar después de ser expuesto a un video estresante a través de cuatro grupos: inmigrantes de América Latina, latinoamericanos de primera generación, latinoamericanos de segunda generación para arriba, y los estadounidenses blancos que no son latinx o inmigrante. Trescientos cuarenta participantes, de entre 18 y 30 años, fueron asignados aleatoriamente a la condición experimental que involucrará un video anti-inmigratorio o a la condición de control que involucra un video multivitamínico. Como hipotetizado, aquellos que vieron el video
The United States is currently experiencing a state of civil unrest as historically marginalized groups attempt to dismantle the foundations of racism and discrimination that have long plagued the nation. However, expressions of intolerance and prejudice continue to rise, fostering division among the people (Flores et al., 2010). An ethnic group that is continuously targeted is the Latinx community. According to a recent Pew survey, 38% of Latinxs indicated they had experienced a form of discrimination in the past year (Gonzalez-Barrera & Lopez, 2020). For many, it was in the form of being called an offensive name (28%), being criticized for speaking Spanish in public (20%), or being told to return to their home country (19%).

A major contributing factor for these intolerant behaviors is the growing anti-immigration climate found in the United States. According to the Pew Research Center, the largest immigrant group in the United States is from Latin America, specifically Mexico, and constitutes 25% of today's immigrants (Gonzalez-Barrera & Lopez, 2020). As a result, the topic of Latinx immigration has become a divisive political concern, leading to Latinx immigrants being stigmatized and demonized in the media (Flores et al., 2010). For instance, former President Trump used incendiary, anti-Latinx immigration rhetoric throughout his 2016 election campaign and presidency, using words such as “criminals,” “animals,” and “invaders” when discussing the topic of immigration (Fritze, 2019). Such rhetoric has promoted the current negative racial climate toward Latinx Americans, leading them to be targets of ethnic discrimination, xenophobic sentiments, and violent crimes, regardless of immigration status (Flores et al., 2010).

Although an ethnic group, Latinxs are now treated as a racial group and are undergoing racialization, where native and foreign-born Latinxs are grouped together and assumed undocumented (Anderson & Finch, 2017). As a result, Latinxs as a whole are being targeted by anti-immigration efforts. Latinxs are often identified by their physical appearance or language use, leaving them vulnerable to microaggressions (e.g., questioned over their citizenship status) and racial profiling (Mann-Jackson et al., 2018). Furthermore, as of 2016, there were 530,250 apprehensions conducted by the U.S. Customs and Border Protection and U.S. Immigration and Customs Enforcement (Migration Policy Institute, 2018). In the wake of the new administration in 2016, apprehensions were expected to increase as anti-immigration sentiments expanded and deportation initiatives were being implemented (Miroff, 2018).
instill fear into immigrants and family members alike. According to the Pew Research Center (2017), approximately 50% of Latinxs were worried about someone they know facing deportation.

Ultimately, these frequent experiences and threat of discriminatory practices has led to a growing concern over how Latinxs are being psychologically impacted by the current anti-immigration climate. For instance, a substantial amount of research has indicated that experiences of discrimination and prejudice are negatively associated with mental health and well-being (Anderson, 2013; Anderson & Finch, 2017; Himmelstein et al., 2015; Joseph et al., 2020; Schmitt et al., 2014). Schmitt et al. (2014) conducted an extensive meta-analysis on the association between perceived discrimination and psychological well-being and found perceived discrimination correlated strongly to greater psychological distress (including depression, anxiety, and negative mood) and to less well-being (including high self-esteem, life satisfaction, and positive mood). Therefore, the current study focused on Latinxs residing in America and examined how anti-immigration sentiments in the media impact Latinx young adults’ psychological well-being in terms of perceived stress, mood, and motivation to take action.

Social Identity Theory and Ethnic Identity
Substantial research has demonstrated the negative impact of discrimination on health; however, the extent to which this extends to viewing negative portrayals of one’s social group is not known. An important aspect of minority groups is their social identities. According to social identity theory, the self-concept consists of a personal identity (beliefs about oneself) and a social identity (beliefs about oneself as part of a group; Armenta & Hunt, 2009). Naturally, individuals aim to preserve positive appraisals of both of these identities (Armenta & Hunt, 2009). A key cultural component of an individual’s social identity is their ethnic identity, which is comprised of two significant factors (Torres & Santiago, 2017). The first factor is an individual’s commitment to their ethnicity, meaning the extent to which they proudly recognize their ethnicity and feel positively about it. The second factor is an individual’s dedication to cultural exploration, or the time and attention they allot toward learning about and engaging with their culture. The current study aimed to determine whether viewing anti-immigration sentiments aimed at one’s ethnic group impacts an individual’s ethnic identification.

Acculturation is an important factor to consider in relation to ethnic identification among Latinx Americans. Acculturation refers to one’s attachment or commitment to society’s dominant cultural norms and consists of two primary features: cultural awareness and ethnic loyalty (Padilla, 2008; Pérez, 2015). Several factors influence an individual’s sense of acculturation, including the extent to which that individual values their culture and how long they have been immersed into society’s dominant culture (i.e., generation status; Kohler, 2016). For instance, in the process of testing the Stephenson Multigroup Acculturation Scale, Stephenson (2000) found a link between generational status and ethnic society immersion. Findings demonstrated that earlier generations (i.e., first- and second-generation Americans) experienced greater immersion into their ethnic culture in comparison to later generations (i.e., third- and fourth-generation Americans), who were more assimilated into society’s dominant culture. Similarly, in a study analyzing the impact of immigration on acculturation, cultural identity, and interpersonal functioning among Puerto Ricans, Kohler (2016) found that immigrants from Puerto Rico demonstrated significantly higher levels of ethnic society immersion and significantly lower levels of dominant society immersion in comparison to children of immigrants. These studies have demonstrated that successive generations are less tied to their ethnic culture because of increased immersion to society’s dominant culture. This raises the question, if successive generations experience a decrease in connection to their ethnic culture, is there a significant difference among the various generations in emotional reaction to an anti-immigration stimulus? In a study analyzing the effects of discrimination on Latinxs across four generations, all participants experienced increased ethnic loyalty (i.e., the behavioral component of ethnic identification) after experiencing ethnic discrimination (Padilla, 2008). Further, Americanization was not associated with lower ethnic identification, despite findings demonstrating a significant decrease in Latinx cultural awareness between first-generation and second-generation Latinxs. Although their study demonstrated that generation status does not influence emotional reactions to ethnicity-based mistreatment, it did not address reactions to anti-immigration efforts. Therefore, in the current study, we wanted to examine whether generation status influences emotional reactions to anti-immigration efforts.
Rejection-Identification Model

Informed by social identity theory, which posits that people aim to maintain positive evaluations of their personal and collective identity, the rejection-identification model was devised to explain how perceived discrimination leads to increased in-group identification (Armenta & Hunt, 2009; Padilla, 2008). However, there is a need to substantiate the rejection-identification model due to contradictory findings in the literature. Some studies have provided support for perceived discrimination increasing in-group identification (Armenta & Hunt, 2009; Schmader et al., 2015), whereas others have indicated that perceived discrimination decreases in-group identification (Torres & Santiago, 2017).

Among studies supporting the rejection-identification model, Schmader et al. (2015) conducted an experiment exploring the affective and attitudinal reactions of Mexican and European Americans to stereotypic Latinx film clips. They found that Mexican Americans experience negative emotional responses to stereotypic film portrayals of their in-group, and that higher pride in one’s ethnicity buffers the negative responses to stereotypic portrayals of one’s ethnic in-group. Similarly, Armenta and Hunt (2009) conducted a study assessing how perceived personal and group discrimination impacts ethnic identification and personal self-evaluations. They found that, among Latinx adolescents, perceived ethnic discrimination had a positive relationship with personal self-esteem due to increased ethnic group identification. These findings support the rejection-identification model; however, due to these studies’ nonexperimental design, no causal claims can be inferred.

Among studies contradicting the rejection-identification model, Torres and Santiago (2017) found that higher ethnic identification among Latinx adolescents did not mitigate the negative effects of discrimination-based stress. Higher ethnic identity commitment, as measured by individuals’ sense of pride and positive feelings toward their ethnic identity, was associated with worse daily negative mood, especially during specific socio-political climates. An explanation for these results can be that people’s responses to microaggressions and other discriminatory practices largely depends on the sociopolitical climate of the time. During times when a specific minority group is constantly targeted by negative media, as a group, they may experience an increase in sensitivity, leading to a greater impact of the negative media on psychological well-being.

Because the literature has offered mixed findings regarding the rejection-identification model, the current study examined whether having a direct or indirect connection to immigration increases or decreases Latinxs’ in-group identification when they perceive discrimination towards Latinx immigrants. Specifically, the current study compared immigrants, first-generation Latinx Americans, second-generation and up Latinx Americans, and nonimmigrant, non-Latinx White Americans.

Motivation to Take Action

Another understudied topic is the impact of hostile anti-immigration climates on Latinx Americans’ motivation to take action with regard to addressing anti-immigrant sentiments. Existing literature has primarily focused on the impact anti-immigration contexts have on immigrant groups’ political views and motivation to mobilize (e.g., Philbin & Ayón, 2016; Suárez-Orozco et al., 2015), but has failed to address whether the extent to which anti-immigration sentiments influence motivation to take action varies by generational status. For instance, one study has found that, when confronted with an anti-immigration context, immigrant groups’ ethnic identities increase in salience, prompting them to take actions geared toward increasing their political awareness and support for progroup politics (Pantoja et al., 2001; Pérez, 2015). Similarly, anti-immigrant sentiments and political actions (e.g., unfair immigration policies, mass deportations, and threats to DACA) are often met with the mobilization of Latinx youth (e.g., participation in marches and petitions; Suárez-Orozco et al., 2015). These actions appear to be driven by a sense of social responsibility and justice (Suárez-Orozco et al., 2015).

Research has also found that immigrant parents are highly motivated to take action against intolerant anti-immigration policies with the hope of providing a better future for their children (Philbin & Ayón, 2016). Interested in the various protective measures immigrant parents engage in to mitigate the negative effects of anti-immigration policies and sentiments on their children, Philbin and Ayón (2016) conducted a study consisting of 54 in-depth interviews. Common themes found included parents engaging in activities to enhance their own capacity to assimilate into American culture (e.g., pursue an education), lobbying for positive policy changes, and participating in community movements (e.g., marches). As demonstrated by the literature, there is a link between anti-immigration climates and Latinxs’ motivation to take action;
therefore, the current study examined whether the extent of motivation to take action when confronted with discriminatory sentiments differs among the various Generations American.

Minority Status Stress Model

Interested in explaining the higher prevalence of mental disorders among minority groups, specifically lesbian, gay, and bisexual (LGB) individuals compared to heterosexual individuals, Meyer (2003) devised a minority stress model. Minority stress is a term used to explain the excess stress felt by members of minority groups due to their heightened experiences of stigma, prejudice, and discrimination. The term is built on three assumptions: minority stress is unique to members of stigmatized groups, it is chronic in that it results from social structures, and it stems from an individual’s social characteristics.

The minority stress model highlights the stress experienced by minority groups, resulting in negative and positive mental health outcomes (Meyer, 2003). The model begins by emphasizing a close relationship between an individual’s minority status and the circumstances of their environment. The circumstances people encounter result in general stressors; however, being assigned to a minority group leads to additional, unique distal stressors ranging from loss of dignity to violent crimes. For instance, some common stressors Meyer (2003) found include getting fired from one’s job, verbal harassment, physical/sexual assault, robbery, and property crimes. With this experience of additional stressors, people begin to identify with others who share their minority status, resulting in additional proximal stressors (e.g., expectations of rejection and concealment). In addition, the model considers characteristics of an individual’s minority identification, such as its prominence in the person’s life. This can either intensify or weaken the negative impact stress has on the individual. Further, the model considers how an individual’s minority status can serve as a strength when social identity threat literature, and the work of Padilla (2008), we hypothesized (H1) that groups more personally salient would exhibit different levels of distress in response to the anti-immigration video, with those who are themselves Latinx immigrants experiencing the highest stress, negative mood, and motivation to take action after watching the anti-immigration video, followed by first-generation Latinx Americans, second-generation and up Latinx Americans, and lastly, although Meyer’s work focused on the LGB community, researchers have adjusted his model to analyze the social stress experienced by other members of stigmatized groups, including those targeted on the basis of low socioeconomic status (SES), racism, and ethnicity. For example, Flores et al. (2008) tested this model among Mexican-origin adults. Their findings support Meyer’s model, demonstrating that chronic stress caused by frequent experiences of discrimination (i.e., unfair treatment, disrespect, rejection, or stereotyped), resulted in physical and psychological harm. However, this study was nonexperiential, meaning causal inferences cannot be drawn.

Moreover, interested in understanding the relationship between racial discrimination and psychological well-being, Lanier et al. (2017) studied the impact racial discrimination stress and frequency had on the development of depression. They found that racial discrimination stress on its own, regardless of frequency, has a significant relationship with depression, and that the relationship between racial discrimination frequency and depression is partially mediated by racial discrimination stress. However, this study was also nonexperiential. Given that the research conducted to date has been nonexperiential, the current study aimed to provide experimental data to better understand the psychological impact of racial and ethnic discrimination.

The Current Study

The current study examined the acute psychological well-being of Latinxs after exposure to anti-immigrant sentiments in order to bring awareness to how anti-immigration sentiments can impact mental health among Latinxs. A quasiexperimental, mixed-factorial design was used to supplement previous nonexperiential research and fill the gaps in the knowledge on the psychological impacts of anti-immigration efforts on the Latinx community. Based on the minority status stress literature, social identity threat literature, and the work of Padilla (2008), we hypothesized (H1) that groups that differ by the extent to which immigration is more personally salient would exhibit different levels of distress in response to the anti-immigration video, with those who are themselves Latinx immigrants experiencing the highest stress, negative mood, and motivation to take action after watching the anti-immigration video, followed by first-generation Latinx Americans, second-generation and up Latinx Americans, and lastly,
nonimmigrant, non-Latinx White Americans. Based on the rejection-identification model (Armenta & Hunt, 2009; Schmader et al., 2015), we hypothesized (H2) that Latinx young adults who are themselves immigrants would have the highest increase in ethnic identification after watching the anti-immigration video, followed by first-generation Latinx Americans, and finally, second-generation and up Latinx Americans.

Method

Participants and Design

A total of 438 participants were recruited; however, after deleting listwise 59 who did not complete the study, 37 with missing data, and 2 who failed the manipulation check, we had a final convenience sample of 340 participants. This final sample consisted of 187 U.S. Latinx and 153 non-Latinx, nonimmigrant, White Americans ($M_{age} = 23.1, SD = 4.9$). The sample was also 55.3% women ($n = 188$) and 44.7% men ($n = 152$). Regarding Ethnicity/Generation American, 9.1% were immigrants from a Latin American country ($n = 31$), 27.4% were first-generation Latin American ($n = 93$), 18.8% were second-generation and up Latinx American ($n = 64$), and 44.7% were nonimmigrant and non-Latinx White Americans ($n = 152$). Although all participants were fluent in English, 94.4% of participants identified English as their language of choice ($n = 321$), whereas 3.8% of participants identified it to be Spanish ($n = 13$), and 1.8% of participants identified another language ($n = 6$). Lastly, 34.1% of the sample reported a low SES ($n = 116$), 55.3% reported a middle SES ($n = 188$), and 10.6% reported a high SES ($n = 36$).

Participants were recruited through Amazon Mechanical Turk (MTurk), a university’s research participation system, social media outreach to Latinx organizations and student associations throughout the United States, and snowball sampling by granting participants the opportunity to share the study’s link with others. At the end of the survey, a debrief message asked participants to share the study’s link with people who they think would be interested. Participants recruited from the affiliated university received research credit for a psychology course after participating. Participants recruited through MTurk received payment (75¢), and those recruited through social media had the option of providing their email address to be entered in a raffle for a $25 Amazon gift card.

Our study was approved by Pepperdine University’s institutional review board. We utilized a 2 x 4 quasiexperimental, mixed factorial design. The first independent variable was experimental exposure to anti-immigration sentiments, and its two levels were exposure to an anti-immigration video (experimental group) and exposure to a multivitamin video including no anti-immigration elements (control group). The second independent variable was quasieperimental and captured ethnicity and Generation American, with four levels: nonimmigrant, non-Latinx White American, immigrant from a Latin American country, first-generation Latinx American, and second-generation and up Latinx American. Our dependent variables included acute stress, mood, ethnic identification, and motivation to take action.

Procedure

The current study was conducted online, via the survey platform Qualtrics. After providing informed consent, participants completed a demographic survey and ethnic identity scale. Qualtrics then randomly assigned participants to the anti-immigration video or the multivitamin video. After watching their assigned video, participants answered a manipulation check item before completing an Acute Stress Scale, the Positive and Negative Affect Schedule (PANAS), a Motivation to Take Action Scale, and the Ethnic Identity Scale. Upon completion of these questionnaires, participants received a debriefing message.

Materials

Anti-Immigration Stimulus

The anti-immigration video was a 1:37 minute compilation of three veridical clips that demonstrate anti-Latinx immigration sentiments and efforts. The first clip is of Jim Steinle’s testimony at the 2015 Senate’s hearing on illegal immigration. He recounts the day his daughter, Kate Steinle, was shot and killed by an illegal immigrant and asks for justice through stricter laws that will stop illegal immigrants from coming into the United States and committing crimes. As his testimony is played, footage from a commercial sponsored by former President Donald Trump explaining the need for a wall along the southern border shared with Mexico was displayed. Then, the video transitioned to a commercial sponsored by Florida’s house speaker, Richard Corcoran, who denounces Florida becoming a sanctuary state.

Neutral Stimulus

The neutral stimulus consisted of a 1:46 minute...
informational video on appropriate multivitamin use. The video warns viewers about the vitamin industry’s use of false advertising, explaining how vitamin supplements should only be taken when a deficiency is present. It also explains how surpassing the upper intake level could place individuals at risk for negative health effects.

**Manipulation Check Item**
Participants were presented with an open-ended item querying them about the topic presented in their assigned video. Responses were evaluated for accuracy, meaning they needed to adequately describe the central issue discussed in their video. All participants in the experimental group needed to mention that their video dealt with “Hispanic/Latinx immigration” or “illegal immigration,” and those in the control group needed to mention that their video dealt with the use of “vitamins.” All but two participants met this criterion.

**Ethnic Identity Scale**
Two subscales of the Ethnic Identity Scale (Umaña-Taylor et al., 2004) were used to determine strength of ethnic identification. The first subscale consisted of four-items assessing resolution, or the reconciliation of individuals’ conceptions of themselves and their communities’ recognition of them, and the second subscale consisted of six-items assessing affirmation, or individuals’ degree of positive feelings toward their ethnic group. A sample resolution item is “I am clear about what my ethnicity means to me,” and a sample affirmation item is “My feelings about my ethnicity are mostly negative” (reverse coded). Participants were asked to rate each statement on a 4-point scale from 1 (does not describe me at all) to 4 (describes me very well). Scores ranged from 10 to 40, and 6 of the items were reverse coded. Both subscales of the Ethnic Identity Scale have demonstrated high internal consistency; .86 for affirmation and .92 for resolution (Umaña-Taylor et al., 2004). Correlations conducted to assess construct validity indicated that the resolution subscale was positively associated with the exploration subscale of the Ethnic Identity Scale, self-esteem, and familial ethnic socialization (Umaña-Taylor et al., 2004). The affirmation subscale was also significantly related to the exploration and resolution subscales among ethnic minorities (Umaña-Taylor et al., 2004). The current study found an internal consistency of .89 for resolution and .92 for affirmation during the pretest, and an internal consistency of .76 for resolution and .89 for affirmation during the posttest.

**Acute Stress Scale**
Informed by Lazarus and Folkman’s (1984) theory of stress and cognitive appraisals, the Acute Stress Scale was created for the current study. It consists of 15 items assessing acute stress in response to a stimulus video. Items assess the three elements of Lazarus’ model of stress: harm, threat, and challenge. Examples of items include “The mention of this issue caused me anxiety” and “I find dealing with the issue presented in this video overwhelming.” Items were rated on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). Four items indicating a lack of stress, e.g., “The mention of this issue does not affect me,” were reverse scored. Scores can range from 15 to 75, with higher scores indicating higher levels of stress. In a pilot study, internal consistency was .70. In the current study internal consistency was .75.

**Positive and Negative Affect Schedule (PANAS)**
The current study utilized the ten negative affect items of the PANAS (Watson et al., 1988): distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid. Participants were asked to indicate the extent to which they felt each affect at the present moment using a 5-point scale from 1 (very slightly or not at all) to 5 (extremely). Scores range from 10 to 50, with higher scores indicating high levels of negative affect. Previously tested, the negative affect items were found to have internal consistencies ranging from .84 to .87 (Watson et al., 1988). Supporting construct validity, the negative affect items of the PANAS are significantly and positively associated with scores on depression and anxiety scales like the Hospital Anxiety and Depression Scale (Crawford & Henry, 2004). Further, correlations between the negative affect and positive affect scales are invariably low, with a range from −.12 to −.23 (Watson et al., 1988). In the current study, the internal consistency was .82.

**Motivation to Take Action Scale**
The Motivation to Take Action Scale was developed for the current study. It consists of 10 items assessing intention to engage in actions involving raising awareness and bettering an issue. Although worded differently, the majority of the items were adapted from the Civic Behavioral Intentions Measure, a 7-item measure with high internal consistency (α = .97) and unidimensionality used to assess people’s willingness to engage in civic actions against cyberbullying/bullying (Alhabash et al., 2015). For instance, an item used from the Civic Behavioral Intentions Measure...
is, “This video makes me want to sign a petition to push for stricter laws to penalize cyberbullies and bullies.” For the purpose of our study, we worded the following item to read, “This video makes me want to sign a petition to push for more laws to protect individuals from this issue,” and created a reverse coded item that read, “This video makes me want to sign a petition to push for more laws in support of this issue.” Participants rated statements on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Scores ranged from 10 to 50, with higher scores indicating a lack of motivation to take action. In a pilot study, internal consistency was .84. In the current study, internal consistency was .83.

**Results**

**Hypothesis 1**

To investigate the effect of condition (experimental vs. control condition) and Ethnicity/Generation American (immigrant from a Latin American country; first-generation American; second-generation and up; nonimmigrant, non-Latinx White American) on three of our dependent variables (acute stress, negative affect, and motivation to take action), we conducted a two-way multivariate analysis of covariance. SES was controlled, in light of SES being associated with immigration status in previous literature (Anderson & Finch, 2017; Arbona & Jimenez, 2014; Armenta & Hunt, 2009; Park et al., 2017; Pérez, 2015). The omnibus multivariate test resulted in significant findings for condition, $F(3, 327) = 13.59, p < .001, \eta_p^2 = .11$, Ethnicity/Generation American, $F(9, 987) = 5.30, p < .001, \eta_p^2 = .05$, and the interaction between condition and Ethnicity/Generation American, $F(9, 987) = 2.11, p = .03, \eta_p^2 = .02$. The respective results for each dependent variable are specified in subsequent subsections.

**Acute Stress**

Condition had a significant main effect on acute stress, $F(1, 329) = 20.36, p < .001, \eta_p^2 = .06$. Those who viewed the anti-immigration video experienced higher stress ($M = 39.1, SD = 7.1$) compared to those who watched the multivitamin control video ($M = 34.0, SD = 8.8$). Additionally, Ethnicity/Generation American had a significant main effect on acute stress, $F(3, 329) = 4.21, p = .01, \eta_p^2 = .04$. Bonferroni-adjusted pairwise comparison indicated that both immigrants from a Latin American country ($M = 39.9, SD = 5.7$) and first-generation Latinx Americans ($M = 40.9, SD = 8.3$) displayed significantly higher stress than nonimmigrant, non-Latinx White Americans ($M = 37.5, SD = 4.2$), $p = .03$ and .04, respectively. There was no significant interaction between the experimental manipulation and Ethnicity/Generation American for acute stress, $F(3, 329) = .88, p = .45, \eta_p^2 = .01$.

**Negative Affect**

Condition had a significant main effect on negative affect, $F(1, 329) = 15.02, p < .001, \eta_p^2 = .04$. Those who viewed the anti-immigration stimulus ($M = 19.0, SD = 6.0$) experienced higher levels of negative affect compared to those in the control group ($M = 17.0, SD = 5.9$). Additionally, Ethnicity/Generation American had a significant main effect on negative affect, $F(3, 329) = 6.50, p < .001, \eta_p^2 = .06$. Bonferroni-adjusted pairwise comparison indicated that immigrants from a Latin American country ($M = 21.8, SD = 7.1$) displayed significantly higher negative affect than second-generation and up Americans ($M = 18.4, SD = 5.3$) and nonimmigrant, non-Latinx White Americans ($M = 17.0, SD = 4.7$), $p = .04$ and < .001, respectively. A significant interaction was found between the effects of condition and Ethnicity/Generation American on negative affect experienced after viewing the video stimulus, $F(3, 329) = 3.18, p = .02, \eta_p^2 = .03$ (see Figure 1). Specifically, follow-up analyses to the interaction showed there was an impact of Ethnicity/Generation American on negative affect in the experimental condition ($p < .001$) but not in the control condition ($p = .75$). Bonferroni-adjusted pairwise comparisons indicated that, in the experimental condition, first-generation Latinx Americans displayed significantly higher negative emotion than second-generation and up Americans and nonimmigrant, non-Latinx White Americans, $p = .02$ and < .001, respectively.

![FIGURE 1](image-url)
Motivation to Take Action
Condition had a significant main effect on motivation to take action, $F(1, 329) = 25.67, p < .001, \eta_p^2 = .07$. Those in the experimental group experienced higher levels of motivation to take action ($M = 31.3, SD = 7.0$) compared to those in the control group ($M = 27.3, SD = 6.3$). Additionally, participants’ Ethnicity/Generation American had a significant main effect on motivation to take action, $F(3, 329) = 12.26, p < .001, \eta_p^2 = .10$. Bonferroni-adjusted pairwise comparison indicated that immigrants from a Latin American country ($M = 33.9, SD = 6.9$) and first-generation Americans ($M = 34.7, SD = 6.7$) displayed significantly higher motivation to take action than second-generation and up Americans ($M = 31.1, SD = 7.4$) and nonimmigrant, non-Latinx White Americans ($M = 28.8, SD = 6.1$; $p < .01$). There was no significant interaction between the effects of condition and Ethnicity/Generation American on motivation to take action experienced after viewing the video stimulus, $F(3, 329) = 1.95, p = .12, \eta_p^2 = .02$.

Hypothesis 2
To investigate the effect of condition and Ethnicity/Generation American on change in ethnic identification from before to after watching the video stimulus, a repeated-measures analysis of covariance was conducted. Again, SES was controlled in the analyses.

There was a significant two-way interaction between condition and Ethnicity/Generation American on change in ethnic identification from before to after the experimental manipulation, $F(3, 328) = 6.62, p = .00, \eta_p^2 = .06$ (see Figure 2). Follow-up analyses were conducted to examine how the Ethnicity/Generation American groups differed from one another in the impact of the experimental manipulation on ethnic identification. The findings indicated that the non-Latinx, nonimmigrant, White participants experienced a significant difference in ethnic identification change between the experimental and control video conditions, $F(3, 148) = 104.10, p = .00, \eta_p^2 = .41$. Among these non-Latinx, nonimmigrant, White participants, controlling for SES, the experimental video resulted in a significant reduction of ethnic identification (from $M = 33.5, SD = 4.4$ before the anti-immigration video to $M = 22.3, SD = 2.9$ after the anti-immigration video; $p < .001$), whereas the vitamin control video did not result in a change in ethnic identification ($M = 32.9, SD = 5.0$ before the vitamin control video to $M = 31.6, SD = 5.9$ after the vitamin control video; $p = .58$).

With regard to the Latinx populations, only first-generation Latinx participants experienced a significant difference in ethnic identification change between the experimental and control video conditions, $F(3, 88) = 6.44, p = .01, \eta_p^2 = .07$. Ethnic identification decreased for first-generation Latinx participants from $M = 33.3, SD = 6.1$ before the anti-immigration video to $M = 24.4, SD = 7.0$ after the anti-immigration video, when ethnic identification only decreased from $M = 33.7, SD = 6.1$ before the vitamin control video to $M = 29.6, SD = 7.8$ after the vitamin control video. Immigrants from Latin America ($p = .90$) and second-generation and up Latinx Americans ($p = .40$) did not experience a significant difference in ethnic identification change between the experimental and control video conditions. Among our immigrants from Latin America population, ethnic identification decreased from $M = 32.9, SD = 4.5$ before the anti-immigration video to $M = 23.0, SD = 6.2$ after the anti-immigration video, and from $M = 35.7, SD = 3.1$ before the vitamin control video to $M = 26.1, SD = 8.1$ after the vitamin control video. Among our second-generation and up Latinx American population, ethnic identification decreased from $M = 34.1, SD = 5.2$ before the anti-immigration video to $M = 25.3, SD = 6.4$ after the anti-immigration video, and from $M = 34.6, SD = 5.8$ before the vitamin control video to $M = 27.9, SD = 8.0$ after the vitamin control video.

Follow-up analyses among the first-generation Latinx participants indicated that neither the experimental video ($M = 33.3, SD = 6.1$ before the anti-immigration video and $M = 24.4, SD = 7.0$ after the anti-immigration video; $p = .08$) nor the control video ($M = 33.7, SD = 6.1$ before the vitamin video and $M = 29.6, SD = 7.8$ after the vitamin video; $p = .70$) resulted in a significant change in ethnic identification.

### FIGURE 2
Pre and Postethnic Identification Scores Across Ethnicities/Generations American for the Experimental Group

![Graph showing Pre and Postethnic Identification Scores Across Ethnicities/Generations American for the Experimental Group](image-url)

Note. Error bars: +/− 1.5 SE.
Exploratory Analyses

Exploratory correlations were run, finding that, in the immigration condition, both Latinx and non-Latinx who experienced the most negative effect after watching the anti-immigration video also experienced the highest levels of motivation to act, Latinxs: $r(97) = .39, p < .001$; non-Latinx: $r(76) = .28, p = .01$. Additionally, in the immigration condition, both Latinx and non-Latinx who experienced the most stress after the video also experienced a greater increase in ethnic identification after watching the video, Latinxs: $r(97) = .42, p < .001$; non-Latinx: $r(76) = .31, p = .01$.

Discussion

The current study was designed to gain a better understanding of the psychological impact negative portrayals of immigrants in the media have on Latinx young adults. Informed by social identity theory, the minority status stress model, and the rejection-identification model, we developed two hypotheses. Our first hypothesis (H1) postulated that groups that differ by the extent to which immigration is more personally salient would exhibit different levels of distress in response to the anti-immigration video, with those who are themselves Latinx immigrants experiencing the highest stress, negative mood, and motivation to take action after watching the anti-immigration video, followed by first-generation Latinx Americans, second-generation and up Latinx Americans, and lastly, non-immigrant, non-Latinx White Americans. Our second hypothesis (H2) postulated that immigrants from Latin American countries would experience the highest increase in ethnic identification after being exposed to anti-immigration sentiments, followed by first generation Latinx Americans, and second-generation Latinx Americans.

The results partially supported our first hypothesis (H1). When exposed to an anti-immigration video, those with specific generation statuses exhibited higher negative affect than others; specifically, first-generation Americans experienced higher levels of negative affect than second-generation and up Latinx Americans and non-immigrant, non-Latinx White Americans. These results align with those of Schmader et al. (2015), who found that, after witnessing negative film portrayals of their ethnic in-group, Mexican Americans demonstrated elevated negative emotional responses, specifically feelings of anger and shame. This may be because anti-Latinx immigration portrayals elicit social identity threat among Latinxs. Immigrants from Latin American countries are specifically being pinpointed as undesirables, emphasizing their status as a culturally devalued member of American society. Consequently, this triggers a negative emotional reaction among Latinxs. First-generation Americans specifically exhibited higher negative affect, which could have been because they perceived such a video as targeting their immediate family (i.e., parents), causing heightened emotions. However, the results did not find that those with specific generation statuses exhibited significantly higher stress or motivation to take action than others.

Additionally, the condition a participant was placed in exhibited small to medium (Cohen, 1988) main effects on motivation to take action, stress, and negative affect, with those in the experimental condition of watching the anti-immigration video having the highest levels of each construct, regardless of Ethnicity/Generation American. This demonstrates that negative portrayals of Latinx immigrants have a negative impact regardless of audience. As explained previously, anti-Latinx immigration portrayals elicit social identity threat among Latinxs, resulting in a negative psychological response. Furthermore, because those in the film speaking intolerantly of Latinx immigrants were all non-Latinx, White Americans, this might have also elicited social identity threat among non-Latinx White American participants. White Americans are frequently targeted for being bigoted, so when they witnessed members of their ingroup confirming this stereotype, they too experienced a negative psychological response (Schmader et al., 2015).

Contrary to our second hypothesis (H2) and the findings of Schmader et al. (2015) and Armenta and Hunt (2009), our results demonstrated that, when exposed to an anti-immigration video, only first-generation American Latinxs and non-Latinx, non-immigrant, White Americans experienced a significant change in ethnic identification. Interestingly, both groups experienced a significant decrease in ethnic identification. Although these results contradict the rejection identification model, they align with recent findings by Torres and Santiago (2017), who observed that perceived discrimination resulted in decreased ethnic identification. These results could have been influenced by both of these groups experiencing higher negative affect from watching the anti-immigration video. Most clips used in the anti-immigration video consisted of politicians utilizing examples of undocumented Latinx immigrants who had committed serious crimes (i.e., murder) in attempt to
confirm the stereotype that Latinx immigrants pose a danger to society. Latinx participants watching individuals in their ingroup confirm negative stereotypes might have elicited shame through social identity threat, impacting their ethnic identification scores. Similarly, non-Latinx White Americans watching members of their ingroup confirming the stereotype that White Americans are bigoted might have elicited shame and guilt, impacting their ethnic identification scores. It would be useful for future researchers to examine whether different types of negative emotions (e.g., shame/guilt versus anger) relate differently to changes in ethnic identification.

The fact that those who experienced the most stress watching the anti-immigration video, regardless of ethnicity, increased most in ethnic identification suggests that the rejection-identification process may be activated when a person experiences a high degree of stress as a result of negative portrayals, but not when they are relatively less stressed by the portrayal. These results highlight a need for additional research on how negative representations have an impact on those who share the same identity as the stigmatized group and those who share the same identity as those who do the stigmatizing.

Lastly, we found that, after watching the anti-immigration video, those who experienced the most negative affect were also the most motivated to take action. These results suggest that strong emotional responses prompt action, similarly to the findings of Suárez-Orozco et al. (2015). They found that Latinx young adults’ motivation to mobilize stems from a sense of social responsibility, awareness of unfair treatment, and wanting to create social change for future generations. Because the following study exposed Latinx young adults to anti-immigration sentiments, it can be assumed that first-generation Latinx American’s strong emotional responses inspired them to want to create change.

Implications

With the increasingly negative political climate toward Latinx immigrants, the current study was timely for gaining a better understanding of how Latinx young adults are being psychologically impacted. Our finding that negative representations of immigrants have a negative impact on both Latinx and European Whites suggests that there may be subtle, yet malignant, processes by which adverse representations result in emotional costs for those who identify with the targeted group, and those who identify with the perpetrators of the adverse representations (Schmader et al., 2015). However, our finding that those who were impacted the greatest with respect to negative affect were those who resonate most with the stigmatized group suggests meaningful implications for professionals serving this population’s mental health and well-being needs. It is particularly imperative that professionals comprehend the links between discrimination and mental health (Schmader et al., 2015). A momentary negative mood may not be seen as a significant concern, but according to Torres and Santiago (2017), if frequent, discrimination-based negative moods are not addressed promptly, it can result in the development of depression and anxiety, diminishing quality of life. This is concerning considering that we found a significant increase in negative affect after watching a brief anti-immigration video. Thus, there is a need for increased availability and access to mental health services that help individuals cope with adverse political climates.

In addition, preventative measures should be taken into consideration. For instance, the three videos that were compiled to form our experimental video were all derived from political commercials that were aired. Given the detrimental impact such sentiments were found to have on individuals, the media and those disseminating these portrayals need to become aware of the harm their negative portrayals are causing and be held accountable for their effects (Schmader et al., 2015).

What was particularly intriguing was the decrease in ethnic identification for all groups after witnessing the anti-immigration video. Because all Latinx participants demonstrated a decrease in identification with their in-group, our findings exhibit that watching negative portrayals harms self-concept. This aligns with the research highlighted by the American Psychological Association that states that many stigmatized groups experience guilt and shame regarding their “second-class” status (American Psychological Association, 2012, p. 65). As a result, instead of increasing their identification with their in-group, as we hypothesized, they experienced a decrease in identification. Future research is needed to distinguish whether the type of negative emotion experienced resulting from discrimination determines whether an individual will identify more or less with their ethnic identity. For instance, does shame and guilt lead to rejection of one’s ethnic identity, and anger and irritation lead to increased identification with one’s ethnic
identity as stress did in the current study?

Additionally, our findings that negative portrayals of stigmatized groups harm members’ self-concept can be used to advocate for the removal of negative portrayals and stereotypical images of stigmatized groups in the media, and to push for their replacement with more positive images (Sirin et al., 2015). Positive representation can help foster resiliency, so professionals should be encouraged to empower Latinx young adults to overcome discrimination-related events, and take the initiative in creating tolerant environments that allow individuals to positively explore their identities (Sirin et al., 2015). There is a substantial literature basis suggesting that ethnic identification is positively correlated with well-being (Smith and Silva, 2011). In a meta-analysis examining the findings of 184 studies that utilized various members of stigmatized groups (i.e., African American, Asian American, Hispanic/Latinx American, Native American, and Pacific Islander American), Smith and Silvia (2011) found that ethnic identity was positively correlated to various positive aspects of well-being, including mental health, self-esteem, happiness, and coping. Their findings specifically highlight that a higher ethnic identification is particularly beneficial for adolescents and young adults. Emerging adulthood is a critical period in terms of identity development; therefore, young adults should be encouraged in the classroom and community settings to explore and participate in activities that could potentially boost their ethnic pride and help them realize that there are communities of people who appreciate diversity and are tolerant within society (Torres & Santiago, 2017).

However, it is important to remember that some of these implications are tempered in light of the fact that, although many of the effect sizes for our significant findings, as assessed by partial eta squared, were moderate, two of the effect sizes were relatively small. Specifically, the impacts of Ethnicity/Generation American on acute stress and experimental condition on negative effect were relatively small, which potentially limits the degree to which these findings have practical significance.

**Limitations**

Generalizability is a primary limitation of this study. Most participants were aged 18–23 years, potentially limiting generalizability to the full range of young adults. Furthermore, our smallest population represented in our sample size was that of immigrants from a Latin American country, with only 31 participants. Due to potential violations of the homogeneity of variance assumption, the small sample size might have impacted power to detect effects, demonstrating an observed power of .6 when running the two-way analysis of covariance. Of note, the negative affect variable, despite the group size differences, did not violate the assumption of homogeneity of variance according to the Levene’s test ($p = .18$). However, given that other dependent variables did, this is a limitation, and results should be interpreted with caution. Additionally, future research is needed to examine whether our findings apply to immigrants and minorities of different racial/ethnic groups.

Other limitations relate to methodology. Online studies require participants to have access to technology and the internet. Because Latinx immigrants, as one of our desired populations, are recognized as a disadvantaged population—with many having low SESs—they may be less likely to have internet access or less likely to spend their time completing online studies. In addition, participants might have experienced order effects that impacted the results. For instance, having participants complete a demographic survey that queries participants over their ethnic identity and immigration status prior to completing the other measures. Having participants think about their minority status at the start of the study might have influenced their scores on the first ethnic identification scale, depending on the prominence of their ethnic identity in their life and whether they have a social support group (Meyer, 2003). Furthermore, ethnic identification was the only dependent variable measured before and after the introduction to the independent variable. This raises questions over the participants’ scores on the rest of the dependent variables’ measures and whether they were a result of their assigned stimulus.

**Future Research**

Future studies should strive to replicate the current study with a larger immigrant sample. Latinx immigrants make up the largest immigrant group in America, so further research on this disadvantaged and vulnerable group is needed. Future studies should also expand this work to a greater diversity of ages and ethnic/racial groups.

Furthermore, our study only examined the psychological impact derived from media videos. Stigmatized populations experience various forms of discrimination through various outlets. Therefore, future research should adopt a daily-life
approach to capture the various forms of discrimination experienced and how they impact psychological well-being. This will help professionals gain a better understanding of the populations they are working with and how they are burdened daily by their minority status.

Lastly, considering that the current study found evidence contradictory to the rejection-identification model, further research is needed to explore a new model to explain the relationship between perceived discrimination and ethnic identification. As demonstrated by the literature, social identity is significant to one’s self-concept, and ethnic identity is an essential component of one’s social identity.

Conclusion
Ultimately, the current study sought to bring awareness of the psychological impact anti-immigration sentiments have on the Latinx community. Anti-immigration sentiments and other negative portrayals of the Latinx community are frequently utilized by politicians for their own political gain. The clips compiled for the anti-immigration video were all real commercials that were once aired for millions to see. Our hope is that research continues to be conducted on the topics of minority status stress, ethnic identity, and rejection identification theory to help spark a conversation on the harm intolerant behaviors create.

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Stress mindset, the extent to which one believes the effects of stress are enhancing or debilitating, is a distinct construct that has significant effects on psychological and behavioral functioning (Crum et al., 2013). Individuals who generally believe that stress can lead to growth and can enhance performance have a stress-is-enhancing mindset, whereas individuals who believe stress mostly has negative effects have a stress-is-debilitating mindset (Crum et al., 2013). Having a stress-is-enhancing mindset has been associated with a variety of positive outcomes, including fewer anxiety and depressive symptoms (Crum et al., 2013), better performance at work (Casper et al., 2017; Crum et al., 2013), and physiological thriving in the midst of a stressful situation (Crum et al., 2017).

Stress mindset has also been shown to moderate the impact of stressful experiences. For example, Park et al. (2018) followed a diverse sample of adolescents over the course of a school year and found that, within individuals who experienced a high level of adversity, those with a stress-is-debilitating mindset had significantly higher levels of perceived stress compared to those with a stress-is-enhancing mindset. Perceived stress levels did not differ by stress mindset at low levels of adversity. Furthermore, Huebschmann and Sheets (2020) examined stress mindset in emerging adults and found that stress mindset significantly moderated the relationship between perceived stress and depressive symptoms, such that having a stress-is-enhancing mindset reduced the impact of high perceived stress on depressive symptoms. In other words, individuals with a stress-is-enhancing mindset were less susceptible to depressive symptoms at higher levels of perceived stress.

These prior studies suggest that having a stress-is-enhancing mindset has positive effects on emotional health and can act as a moderator to mitigate the negative effects of stressful experiences. However, this prior work has examined stress mindset as it relates to stress in a general sense, such as stress experienced at work or across everyday life.
To the best of our knowledge, no prior studies have examined relationship stress beliefs as moderators of the association between relationship quality and emotional health. Therefore, it is unknown whether one’s relationship stress beliefs will exert similar effects on relationship functioning and mental health as stress does a more general stress mindset; this is especially true for nonromantic relationships.

Previous research has largely focused on the effects of conflict strategies, as opposed to beliefs about conflict, on relationship satisfaction (e.g., Canary et al., 1995). Constructive conflict resolution strategies have been associated with greater relationship satisfaction during times of conflict (Canary et al., 1995; Sanderson & Karetsky, 2002). For example, Sanderson and Karetsky (2002) examined romantic relationships in college students, assessing intimacy goals, relationship conflict, strategies for coping with conflict, and relationship satisfaction. Those with a stronger focus on intimacy engaged in more constructive conflict resolution strategies (e.g., engaging in open discussion and showing concern for their partner’s feelings), which in turn led to stronger and more satisfying relationships. Those results suggest that the ability to handle conflict constructively promotes greater relationship quality, which is associated better well-being and mental health (Teo et al., 2013). The present study examined the moderating effects of relationship stress beliefs rather than conflict strategies, or cognitions rather than behaviors.

Emerging adulthood is an opportune developmental phase in which to examine relationship stress beliefs (Arnett, 2014). By late adolescence, individuals have developed general knowledge about relationship functioning across several domains: familial, friend, and romantic (Sanders, 2013). At the same time, we would expect that differences in direct experience in romantic relationships, and other close relationships, by emerging adulthood contribute to variability in beliefs about the effects of relationship stress and conflict. Furthermore, it is well-established that high levels of perceived stress and stressful events are associated with poorer mental health, especially in emerging adults (e.g., Liu et al., 2019). In particular, experiencing stress and conflict within relationships can lead to a variety of negative outcomes. For example, Teo et al. (2013) examined whether the quality of social relationships and social isolation were associated with the development of depression. After accounting for baseline major depression, poor relationship quality in core relationships—whether they were with a spouse/partner, family member, or friend—was associated with a significantly higher risk of depression. Additionally, for all three types of social relationships, strain and lack of support were also associated with an elevated risk of depression. Likewise, prior research has shown that, among emerging adults, social conflict is positively correlated with depression and anxiety and negatively correlated with quality of life (Abbey et al., 1985).

The construct of loneliness is also important to consider in the context of interpersonal relationships because loneliness does not merely entail being alone. Individuals involved in relationships may feel lonely if they perceive their needs are not being met by the quality of those relationships (Hawkley & Cacioppo, 2010). Furthermore, loneliness is connected to the constructs of perceived relationship quality and other mental health symptoms such as depression. For example, in a sample of dating couples primarily in their early 20s, symptoms of depression were significantly associated with lower relationship quality, which in turn was associated with greater feelings of loneliness for both women and men (Segrin et al., 2003). Thus, the present study examined relationship stress beliefs and their association with emotional health—specifically loneliness, stress, depression and anxiety—in emerging adults.

Overall, having a stress-is-enhancing mindset mitigates negative effects associated with higher stress (e.g., Crum et al., 2013, 2017), but it remains unclear whether relationship stress beliefs similarly mitigate the effects of poor relationship quality on psychological health. Furthermore, on a more basic level, it is unclear whether relationship stress beliefs are associated with, or independent of, relationship quality. The purpose of this preliminary study was to examine these questions across relationships with close friends, family members, and romantic partners. It was predicted that relationship-stress-is-enhancing beliefs (i.e., the beliefs that stress and conflict within relationships can promote growth) would be associated with greater relationship quality. Our hypothesis was partly extrapolated from evidence that constructive conflict management promotes positive and satisfying relationships (Canary et al., 1995). Therefore, if a positive approach to conflict in relationships has beneficial effects on the quality of relationships, we expected that having relationship-stress-is-enhancing beliefs would similarly be associated with greater relationship quality. Furthermore, based on evidence that general stress mindset moderates the relationship...
between stress and mental health (Huebschmann & Sheets, 2020; Park et al., 2018), it was predicted that having relationship-stress-is-enhancing beliefs would mitigate the negative effects of strained relationships on emotional health.

**Method**

**Participants**

Participants were 120 students (52.5% men, 45% women, 2.5% nonbinary/gender-fluid/genderqueer) at Colby College, a small liberal arts college in the northeastern United States. Participants reported the following racial identities: White (69.17%), Asian (14.17%), Multiracial (9.17%), Black (4.17%), and Latinx/Hispanic (3.33%). Participants (M_age = 19.97 ± 1.37 years) were recruited via online announcements and were compensated with one psychology research credit or $10. The sample size was determined by participant interest over the two months available for data collection.

**Measures**

**Perceived Relationship Quality Component Inventory.** The Perceived Relationship Quality Component Inventory (PRQC; Fletcher et al., 2000) is an 18-item measure consisting of six subscales, of which we used four (i.e., Relationship Satisfaction, Commitment, Intimacy, Trust). The Passion and Love subscales were excluded because items were less applicable to the emerging adult sample. Participants responded to questions about their romantic relationship (e.g., How much can you count on your partner?) on a 7-point scale ranging from 1 (not at all) to 7 (extremely). Consistent with previous recommendations, a total score of perceived relationship quality was calculated by averaging the participants’ ratings of the first item in each subscale (Fletcher et al., 2000). In the present sample, the total measure (Cronbach’s α = .76) and the Satisfaction (Cronbach’s α = .95), Commitment (Cronbach’s α = .98), Intimacy (Cronbach’s α = .87), and Trust (Cronbach’s α = .90) subscales all demonstrated adequate to excellent reliability. Previous research has demonstrated evidence for the construct validity of the subscales for assessing global perceived relationship quality (Fletcher et al., 2000).

**Relationship Stress Beliefs Measures**

**Relationship Stress Mindset Measure.** The original Stress Mindset Measure (SMM; Crum et al., 2013) was modified to assess the extent to which individuals believe that stress and conflict within close relationships is enhancing or debilitating. Participants rated the extent to which they agreed with a statement about relationship stress (e.g., “Stress in a relationship is negative and should be avoided.”) on a scale from 0 (strongly disagree) to 4 (strongly agree). The modified 6-item Relationship Stress Mindset Measure (SMM) had adequate reliability in the present sample (Cronbach’s α = .73). Crum et al. (2013) demonstrated evidence for the discriminant and criterion validity of the original measure.

**Beliefs About Conflict Inventory.** The Beliefs About Conflict Inventory (BACI; Simon &
Kobielski, 2006) is an 18-item measure consisting of three subscales (Constructive Value, Destructive Value, Normalcy of Conflict) that was used to assess participants’ beliefs about conflict or disagreements within their relationships. The RSMM was a broader measure of beliefs about relationship stress, whereas the BACI assessed more targeted beliefs about conflict. Participants rated the extent to which they agreed with statements about relationship conflict (e.g., “Conflicts or disagreements can be a healthy way to work out differences.”) on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The Constructive Value (Cronbach’s α = .79), Destructive Value (Cronbach’s α = .75), and Normalcy of Conflict (Cronbach’s α = .78) subscales all demonstrated adequate reliability in the present sample. Previous work has provided evidence of the BACI’s structural validity and its association with conflict frequency and strategies (Simon & Kobielski, 2006).

**Emotional Health Measures**

**UCLA Loneliness Scale.** The UCLA Loneliness Scale, Version 3 (Russell, 1996) is a 20-item measure used to assess participants’ sense of loneliness. Participants rated how often they felt an aspect of loneliness (e.g., “How often do you feel that there is no one you can turn to?”) on a 4-point scale ranging from 1 (never) to 4 (always). Reliability of this measure was excellent in the present sample (Cronbach’s α = .92). Previous research demonstrated evidence for its discriminant and construct validity (Russell, 1996).

**Perceived Stress Scale.** The Perceived Stress Scale (PSS; Cohen et al., 1983) is a 14-item measure that was administered to assess stress over the previous month. Participants responded to how often they had felt or thought a certain way during the last month (e.g., “In the last month, how often have you felt nervous or ‘stressed?’ ”) on a scale from 0 (never) to 4 (very often). The measure demonstrated internal consistency in the present sample (Cronbach’s α = .68). Previous research has provided evidence for the concurrent and predictive validity for the measure (Cohen et al., 1983; Mitchell et al., 2008).

**Beck Depression Inventory II.** The Beck Depression Inventory II (BDI-II; Beck et al., 1996) is a 21-item measure that was administered to assess depressive symptoms over the previous two weeks. Items (e.g., sadness) are rated by selecting one of four statements of increasing severity, and items are scored from 0 to 3. The measure had excellent reliability in this sample (Cronbach’s α = .93). Across a variety of studies, the BDI-II has been shown to have evidence for the discriminant, concurrent, content, and structural validity (Wang & Gorenstein, 2013).

**State-Trait Anxiety Inventory-State.** The State subscale of the State-Trait Anxiety Inventory (STAI-State; Spielberger, 1983) is a 20-item measure administered to assess current levels of anxiety. Participants rated the extent to which they felt a certain way (e.g., “I feel nervous.”) on a 4-point scale ranging from 1 (not at all) to 4 (very much so). The measure had excellent reliability in the present study (Cronbach’s α = .94). The STAI has evidence for the construct and concurrent validity of the scale (Spielberger, 1989).

**Procedure**

All procedures were approved by the Colby College Institutional Review Board (IRB #2018-182) prior to data collection. After providing informed consent, participants were brought to a private room and completed a set of questionnaires through the Qualtrics website. All participants began by completing the Family and Friends subscales of the MSPSS and the TENSE. Participants were then asked if they were currently involved in a romantic relationship, defined as “a long-term relationship (> 2 months) in which you and your partner are both committed to each other and to staying together.” If they responded no, they proceeded directly to measures assessing relationship stress beliefs. If they responded yes, they completed the Significant Other subscale of the MSPSS and the PRQC scales. Fifty participants (41.67%) reported being in a romantic relationship and provided responses to these measures of romantic relationship quality. All participants then completed the RSMM, the BACI, the UCLA Loneliness Scale, the PSS, BDI-II, and STAI-State. After completing these questionnaires, participants provided demographic information, were debriefed about the study’s aims, and were compensated for participation. Average questionnaire completion time was 16.87 minutes.

**Statistical Analyses**

Means, standard deviations, and minimum and maximum scores are presented in Table 1. Due to outliers, a 95% winsorization was performed on the following variables: MSPSS Family and Friends total, TENSE, PRQC total and Commitment, Intimacy, and Trust subscales, BACI Constructive Value subscale, PSS, BDI, and STAI-State. Pearson’s
correlations were calculated to examine the relationship between relationship stress mindset and beliefs about conflict, referred to collectively as relationship stress beliefs, and relationship quality across close relationships. Moderated linear regression analyses then were performed to examine relationship stress beliefs as moderators of the associations between relationship quality and emotional health. For each regression model, predictors were a mean-centered measure of relationship quality (e.g., MSPSS Family and Friends total), a mean-centered measure of relationship stress beliefs (e.g., BACI Destructive Value subscale), and an interaction term of the two variables. An individual aspect of psychological health (e.g., depressive symptoms) was the dependent variable. Significant moderation was further interpreted using the interaction utilities by Preacher et al. (2006; see http://quantpsy.org/interact/index.htm): simple slopes were tested at 1 SD below the moderator mean and 1 SD above the mean. All statistical analyses were performed using IBM SPSS Statistics Version 24 (IBM Corp., 2016).

**Results**

To assess whether relationship stress beliefs were associated with relationship quality, Pearson’s correlations were calculated between measures of relationship stress beliefs and measures of relationship quality (see Table 2). Beliefs about the destructive nature of conflict (i.e., the extent to which participants thought that conflict and disagreements within relationships are destructive) were most consistently associated with relationship quality. Scores on the destructive value subscale of the BACI were significantly correlated in the expected direction with all measures of relationship quality: The less destructive participants believed conflict and disagreements to be, the more perceived support they reported from family and friends and romantic partners; the more total quality, satisfaction, commitment, and emotional health. For each regression model, predictors were a mean-centered measure of relationship quality (e.g., MSPSS Family and Friends total), a mean-centered measure of relationship stress beliefs (e.g., BACI Destructive Value subscale), and an interaction term of the two variables. An individual aspect of psychological health (e.g., depressive symptoms) was the dependent variable. Significant moderation was further interpreted using the interaction utilities by Preacher et al. (2006; see http://quantpsy.org/interact/index.htm): simple slopes were tested at 1 SD below the moderator mean and 1 SD above the mean. All statistical analyses were performed using IBM SPSS Statistics Version 24 (IBM Corp., 2016).

**Friend and Familial Relationship Quality**

To assess whether relationship stress beliefs moderate the association between quality of relationships with friends and family and emotional health, moderated linear regressions were conducted. Relationship stress mindset, as assessed by the RSMM, and beliefs about the destructive nature and normalcy of conflict were not systematically associated with measures of relationship quality (see Table 2).

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Descriptive Statistics for All Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>n</td>
</tr>
<tr>
<td>MSPSS Family and Friends</td>
<td>120</td>
</tr>
<tr>
<td>MSPSS Significant Other</td>
<td>50</td>
</tr>
<tr>
<td>Test of Negative Social Exchange</td>
<td>120</td>
</tr>
<tr>
<td>PRQC</td>
<td>50</td>
</tr>
<tr>
<td>PRQC Relationship Satisfaction</td>
<td>50</td>
</tr>
<tr>
<td>PRQC Commitment</td>
<td>50</td>
</tr>
<tr>
<td>PRQC Intimacy</td>
<td>50</td>
</tr>
<tr>
<td>PRQC Trust</td>
<td>50</td>
</tr>
<tr>
<td>Relationship Stress Mindset</td>
<td>120</td>
</tr>
<tr>
<td>BACA Constructive Value</td>
<td>120</td>
</tr>
<tr>
<td>BACA Destructive Value</td>
<td>120</td>
</tr>
<tr>
<td>BACA Normalcy of Conflict</td>
<td>120</td>
</tr>
<tr>
<td>UCLA Loneliness Scale</td>
<td>120</td>
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<tr>
<td>Perceived Stress Scale</td>
<td>120</td>
</tr>
<tr>
<td>Beck Depression Inventory II</td>
<td>120</td>
</tr>
<tr>
<td>State-Trait Anxiety Inventory-State subscale</td>
<td>120</td>
</tr>
</tbody>
</table>

Note. MSPSS = Multidimensional Scale of Perceived Social Support; PRQC = Perceived Relationship Quality Component Inventory; BACI = Beliefs About Conflict Inventory.

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Pearson Correlation Coefficients Between Measures of Relationship Stress Beliefs and Relationship Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures of Relationship Quality</td>
<td>Relationship Stress Mindset Measure</td>
</tr>
<tr>
<td>MSPSS Family and Friends</td>
<td>0.10</td>
</tr>
<tr>
<td>MSPSS Significant Other</td>
<td>0.27</td>
</tr>
<tr>
<td>PRQC Total Quality</td>
<td>0.28</td>
</tr>
<tr>
<td>PRQC Satisfaction</td>
<td>0.30**</td>
</tr>
<tr>
<td>PRQC Commitment</td>
<td>0.12</td>
</tr>
<tr>
<td>PRQC Intimacy</td>
<td>0.24</td>
</tr>
<tr>
<td>PRQC Trust</td>
<td>0.25</td>
</tr>
<tr>
<td>Test of Negative Social Exchange</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Note. BACI = Beliefs About Conflict Inventory; MSPSS = Multidimensional Scale of Perceived Social Support; PRQC = Perceived Relationship Quality Component Inventory. p < .05. **p < .01. ***p < .001.
values ≥ .069). Beliefs about the destructive nature of conflict similarly moderated the relationship between perceived support from friends and family and depressive symptoms (β = −0.21, p = .014; all other p values ≥ .124). Neither beliefs about the constructive nature nor the normalcy of conflict significantly moderated the relationships between perceived support from family and friends and any of the four aspects of emotional health (all p values ≥ .053).

Simple slopes were tested at 1 SD below the RSMM mean, indicating a more relationship-stress-is-debilitating mindset, and 1 SD above the mean, indicating a more relationship-stress-is-enhancing mindset. Poorer perceived support from friends and family predicted greater depressive symptoms, but more so for those with a stress-is-debilitating mindset (β = −0.61, p < .001) than a stress-is-enhancing mindset (β = −0.30, p = .009, see Figure 1). With beliefs about the destructive nature of conflict as the moderator, low perceived support from friends and family increased depressive symptoms, but only for those who believed that conflict is destructive (β = −0.54, p < .001; low belief that conflict is destructive: β = −0.21, p = .082; see Figure 2).

**Romantic Relationship Quality**

Similar moderated linear regressions were conducted to examine whether the four relationship stress belief scales moderated the association between quality of romantic relationships, as assessed by the MSPSS Significant Other subscale and the PRQC total, and emotional health. Relationship stress mindset did not significantly moderate the relationship between perceived support from a significant other and any of the measured aspects of emotional health (all p values ≥ .071). Similarly, relationship stress mindset did not significantly moderate the relationship between total perceived relationship quality and any of the aspects of emotional health (all p values ≥ .084).

Beliefs about the normalcy of conflict significantly moderated the association between perceived support from a significant other and depressive symptoms (β = 0.28, p = .047) and between total perceived relationship quality and depressive symptoms (β = 0.38, p = .006), but no other measures of psychological health (all other p values ≥ .054). Beliefs about the constructive nature of conflict and about the destructive nature of conflict both significantly moderated the relationships between perceived support from a significant other and all four measured aspects of psychological health (all p values ≤ .040). Additionally, beliefs about the destructive nature of conflict and about the constructive nature of conflict both significantly moderated the relationships between total perceived relationship quality and all four measured aspects of psychological health (all p values ≤ .026).

Of the many significant moderation models for romantic relationship quality, the results regarding perceived support from a significant other and beliefs that conflict is destructive were most consistent with the findings for support from friends and family. Those with low levels of perceived support from their significant other reported more depressive symptoms than those with high levels of...
support if they had a strong belief that conflict is destructive ($\beta = -0.43, p = .009$). Surprisingly, the opposite pattern emerged among those with low belief that conflict is destructive ($\beta = 0.45, p = .024$). Similarly, with total perceived relationship quality as the predictor (rather than perceived support), low perceived relationship quality increased depressive symptoms, but only for those who believed that conflict is destructive ($\beta = -0.52, p = .003$; low belief conflict is destructive: $\beta = 0.35, p = .094$).

**Negative Interactions in Relationships**

The TENSE was administered as a more objective measure of recent, negative interactions within close relationships. Unlike with the above measures of perceived relationship quality, relationship stress mindset and beliefs about conflict did not moderate the association of negative interaction frequency with any aspects of emotional health, all $p$ values $\geq .052$.

**Discussion**

Having a general stress-is-enhancing mindset mitigates some of stress's negative effects, but it was unknown whether relationship stress beliefs similarly mitigate the effects of strained relationships on psychological well-being. The present study examined whether relationship stress beliefs are associated with relationship quality, and whether they moderate the association between relationship quality and four measures of emotional health. Across friend, familial, and romantic relationships, the less destructive participants believed conflict to be, the more perceived support, better romantic relationship quality, and the less negative interactions they reported. The negative correlations between destructive beliefs about conflict and relationship quality are consistent with prior work. For example, Simon et al. (2008) also used the BACI to examine romantic relationships in college students. Similarly, destructive conflict beliefs were significantly, positively correlated with relationship conflict, whereas a separate dimension of constructive conflict beliefs was not significantly correlated with conflict. Furthermore, regression analyses revealed that destructive conflict beliefs significantly predicted greater conflict within romantic relationships, however constructive conflict beliefs did not predict amount of conflict. The present study similarly supports the notion that more destructive beliefs about conflict—but, distinctly, not constructive beliefs—are associated with poor relationship quality. Additionally, the present study suggests that Simon et al.’s (2008) findings may extend to relationships with friends and family.

Relationship stress beliefs did significantly moderate associations between relationship quality and multiple measures of psychological health. Across friend, familial, and romantic relationships, the most consistent moderator of these associations was beliefs about the destructive nature of conflict. Specifically, among those with a strong belief that conflict is destructive, those with lower subjective quality or support in their relationships reported greater depressive symptoms than those with higher subjective quality or support. Within romantic relationships specifically, beliefs about both the destructive and the constructive nature of conflict were distinct, consistent moderators of associations between relationship quality and emotional health. Both of these beliefs were significant moderators of the associations between perceived support from a significant other and all measured aspects of psychological health (i.e., depressive symptoms, current anxiety, loneliness, and perceived stress). Moreover, both beliefs moderated the relationships between perceived romantic relationship quality and all measured aspects of psychological health.

These findings are consistent with prior work demonstrating that general mindset about stress moderates the impact of stressful experiences (Huebschmann & Sheets, 2020; Park et al., 2018). Huebschmann and Sheets (2020) reported that, at higher levels of perceived stress, individuals with a stress-is-debilitating mindset reported greater depressive symptoms than those with a stress-is-enhancing mindset. The present study extended these findings into the domain of close relationships. In a similar fashion, at lower levels of perceived support or quality in their relationships—alogous to higher levels of perceived stress—those with more destructive beliefs about relationship stress reported greater depressive symptoms than those with less destructive beliefs. Therefore, it appears that beliefs about stress and conflict specifically experienced within relationships (i.e., relationship stress beliefs) can also mitigate the impact of this more specific interpersonal stress on psychological health.

Previous work focused on the effects of conflict strategies, as opposed to beliefs about conflict, on relationship satisfaction during times of conflict (e.g., Canary et al., 1995). Of note, Simon et al. (2008) demonstrated that, within romantic relationships, relationship stress beliefs significantly
predict conflict resolution strategies. For example, constructive beliefs about conflict predicted more frequent use of negotiation, and destructive beliefs about conflict predicted less use of negotiation and more frequent use of aggression and compliance. Given the effect of conflict resolution strategies on relationship satisfaction during times of conflict (Sanderson & Karetsky, 2002), it is not surprising that, in the present study, beliefs about the destructive and constructive nature of conflict were consistent moderators of associations between romantic relationship quality and mental health. Specifically, negative beliefs about conflict appear to amplify the adverse effects of poor support and relationship quality on well-being. Future studies should connect this line of research by examining whether particular conflict resolution strategies mediate the effects of negative relationship stress beliefs on well-being.

Limitations to the present study should be noted. First, the sample size of this pilot study may limit power to detect interaction effects. Additionally, the study sampled emerging adults. Compared to younger adults, older adults tend to be more satisfied with their social relationships, report less interpersonal conflict, and are more likely to engage in behaviors that help them avoid conflict (Birditt et al., 2005; Luong et al., 2011). Additionally, older adults’ emotional reactions to interpersonal tension may be less negative than those of younger adults. In a daily diary study, older adults reported that interpersonal tensions were less stressful than younger and middle-aged adults, and this difference was not accounted for by differences in the number of tensions (Birditt et al., 2005). Given these age-related differences in the perception of and behaviors within interpersonal relationships, it is unknown whether the present findings would extend to older populations. Future research should examine whether relationship stress beliefs vary with age and continue to moderate the associations of relationship quality and well-being in older populations.

Another limitation of the present study is its correlational nature. It is unlikely that the association between relationship quality and psychological health is solely unidirectional. Although relationship quality affects emotional health, in a more cyclical manner, emotional health also affects perception of relationship quality and affects interpersonal behaviors. For example, in a longitudinal study of long-term romantic relationships, depression predicted less relationship satisfaction and greater amounts of conflict years later (Roberson et al., 2018). In the present study, we cannot rule out the possibility that currently receiving less social support or experiencing poorer relationship quality drives negative beliefs about relationship stress. However, scores on the Test of Negative Social Exchange, a measure of frequency of negative relationship interactions, were only weakly correlated with beliefs about the destructive nature of conflict ($r = 0.21$) and were not significantly correlated with any other measure of relationship stress belief. This suggests that individuals who have more negative relationship stress beliefs are not necessarily experiencing more negative interactions within their close relationships.

It is worth noting that relationship stress mindset, as assessed by the RSMM, was only significantly correlated with the Romantic Relationship Satisfaction subscale and was a less consistent moderator of the associations between relationship quality and psychological health. The original measure was modified to assess participants’ broader views about stress and conflict experienced within relationships. However, our findings suggest that stress mindset and the SMM may be more applicable to general stress as opposed to interpersonal stress more specifically. More focused beliefs about interpersonal conflict, as assessed by the subscales on the BACI, were consistently correlated with relationship quality and consistently moderated the associations between relationship quality and psychological health.

Given the negative outcomes associated with destructive beliefs about conflict, future research should focus on interventions to prevent or counteract the development of these beliefs. Short video interventions have been effective for inducing general stress-is-enhancing and stress-is-debilitating mindsets (Crum et al., 2013, 2017; Jamieson et al., 2018; Keech et al., 2019). These interventions could potentially be modified to negate destructive, negative beliefs about stress and conflict within close relationships, encouraging a balanced mindset in which conflict may foster growth and intimacy. The present findings suggest that reducing destructive beliefs about conflict could lead to better relationship quality and mitigate the negative effects of poor relationship quality on mental health. It should be noted that there are situations, such as when relationship patterns are abusive, in which countering negative beliefs about conflict would not be appropriate or beneficial.

Despite its limitations, the present study...
demonstrated that relationship stress beliefs (i.e., beliefs about conflict and stress within close relationships) are associated with perceived relationship quality. Furthermore, these beliefs can moderate the impact of poor perceived relationship quality and support psychological health. Taken together, the findings from this preliminary study suggest that people should accept rather than fear relationship conflict. Negative attitudes toward, and apprehension about, conflict can do unnecessary harm to relationships, and will amplify the effects of interpersonal stress on well-being.

References


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Police Perceptions of Children at Drug-Related Crime Scenes
Tammy "TJ" Lesher, Melissa J. Loria*, and Mixalis Poulakis*
School of Psychological Sciences, University of Indianapolis

ABSTRACT. Drug use is on the rise in the United States, and many individuals who use drugs are also parents of children under 18. Although research has been conducted to explore police officer perceptions of drug use, no research to date has examined officers’ perceptions when children are present at drug-related calls. This is an important area to investigate because police perceptions have the ability to influence the way they behave. In the current study, 12 officers employed in Indiana completed a demographic questionnaire and a semistructured interview, which was analyzed using the consensual qualitative research (CQR) method. Results revealed that police perceptions of children present at drug-related crime scenes could be impacted by the age of the children and whether they believe the children had received negative messages about police. Additionally, findings revealed that officers tend to feel anger toward caregivers, believe that the children are being told that police are bad, indicated that their jobs are impacted by needing to find placement for the children, and want to have positive interactions with the children. On a personal level, officers reported coping with stress by not showing emotions, not bringing work home, and participating in hobbies. Officers also reported seeing addiction as a cycle. Limitations include lack of diversity of gender, race, and location of police officers; further, all but one officer interviewed had children. Findings highlight a need for further research to help shape policy surrounding training of and expectations for officers when children are present at drug-related crime scenes.

Keywords: consensual qualitative research method, CQR, police, police officers, people struggling with addiction, children, drug-related crime scenes

Drug abuse is a significant problem across the United States, and its repercussions are wide-reaching and impact far more than just the drug user. Approximately 1 in 10 individuals over the age of 12 abuses substances on a regular basis (NSDUH, 2016). Further, in 2018, an estimated 128 people died each day in the United States due to opioid overdose (NIH, 2018). Due to high rates of drug use, police are frequently sent to crime scenes in which illegal drugs are present. As a result of inconsistent reporting from government agencies, it is not possible to obtain an exact estimate of how many calls and arrests in the United States are drug related. However, the Vera Institute of Justice developed an interactive tool that combines information from a variety of platforms to get as comprehensive a view as possible. This platform indicated that, in 2016, around 15% of arrests in the United States were drug related, highlighting the importance of better understanding the happenings at drug-related crime scenes (Vera Institute of Justice, n.d.).

There is a lack of clarity concerning how many drug-related crime scenes have children present and what the outcomes of these calls are, as these events do not seem to be well reported; however, there is evidence that this is a topic in need of further investigation. In 2008, the Bureau of Justice...
Statistics released a special report that indicated that the number of children of incarcerated parents had increased by 80% in state and federal prisons (to 1,706,600 children) between 1991 and 2007. In 2007, nearly half of the inmates in state and federal prisons were parents of children under 18. Of state prison inmates who met the criteria for substance dependence or abuse in 2004, an estimated 68.9% (177,900) male and 74.3% (20,900) female inmates reported living with their children in the month before arrest or just prior to incarceration (Glaze & Maruschak, 2008). By 2016, an estimated 8.7 million children in the United States were living with a parent who was abusing substances (NSDUH, 2016).

In 2002, the California Research Bureau reported that nearly two-thirds of local law enforcement agencies in the state had no clear policy on how officers should handle children, whether they are merely present or perceived by police as involved in the case that their caregivers were arrested (Nieto, 2002). This was supported by a 2014 analysis conducted by the ACLU highlighting the increased militarization of police. They recognized that many incident report forms used by SWAT teams in the United States did not have a mechanism to identify the presence of children. However, ACLU used inferences based on what was written in the reports to make estimates and, based on the 818 SWAT deployments they investigated, at least 14% definitively had children present (American Civil Liberties Union, 2014). Further, in a 2014 report, the International Association of Chiefs of Police and the Bureau of Justice Assistance acknowledged bookkeeping issues related to children witnessing the arrest of caregivers, as well as a lack of clear direction for ensuring the well-being of affected children (International Association of Chiefs of Police, 2014).

Advocates for drug endangered children at the National Alliance for Drug Endangered Children recently released a second edition guide for law enforcement who recognize children present at drug-related crime scenes (National Alliance for Drug Endangered Children, 2020). Further, tracking systems for drug endangered children have recently been established in some states, and guidelines for implementing statewide tracking systems have been published to encourage other states to keep an eye on these children (Mulligan et al., 2016). Given the high number of incarcerated parents who are struggling with addiction and the attention being brought to lack of proper reporting when children are present at crime scenes, it is apparent that the presence of children at drug-related crime scenes is an area worthy of investigation.

Although a variety of publications have examined and documented significant mental health challenges that emerge as the result of children being exposed to the arrest of a family member (Dallaire & Wilson, 2010; Phillips & Zhao, 2010; Roberts et al., 2014), researchers have not yet investigated the ways in which police perceive and respond to children being present at drug-related crime scenes. Police may be impacted by children present at drug-related crime scenes in a number of ways, all of which could potentially influence outcomes for the children. These scenarios may contribute to increased stress levels in police officers.

Police work has been shown to be both physically and emotionally stressful (Anderson et al., 2002; Bakker & Heuven, 2008; Shane, 2010; Violanti et al., 2017). Job-related stressors have been linked to a variety of emotional health challenges in police officers, including depressive symptoms (Allison et al., 2019; National Institute of Justice, 2012), emotional dissonance and burnout (Bakker & Heuven, 2008), suicidal ideation (Chae & Boyle, 2012), and domestic violence (Anderson & Lo, 2011).

In addition to the potential for increased stress, police behavior at these crime scenes could be influenced by their own assumptions about drugs, people who use drugs, and their children. Although the study of police perceptions of drug-related crime is surprisingly limited, officers have been shown to support the implementation and enforcement of stringent laws aimed at controlling the use, manufacture, and sale of all drugs (Jorgensen, 2018; Petrocelli et al., 2014). Research has shown that children tend to have more critical views of police than adults do (Brunson & Weitzer, 2009; Jesilow et al., 1995). Further, it has been shown that children tend to base their views of police off of their parents’ views (Sindall et al., 2017). It is possible that police behavior toward both adults and children at a crime scene could be influenced by the belief that the children hold a negative view of law enforcement officers.

Given the increased emergence of evidence that supports the disease model of addiction (Volkow et al., 2016) and increased violence by police toward persons who inject drugs (Kutsa et al., 2016), it is important to consider literature that highlights evidence of police assigning blame to and stigmatizing victims of crime (Feldman-Summers & Palmer, 1980; Greeson et al., 2016). It has been found that police anticipate that victims of...
certain crimes will behave in particular ways, which can increase disbelief of victims and victim blaming (Ask, 2010). Further, it appears that stigmatization of victims by police can hurt the individuals who need help and support. For example, a 2015 study revealed that domestic violence survivors report feeling stigmatized by a variety of different professional helpers including police (Crowe & Murray, 2015). Similarly, complainants who were intoxicated during alleged sexual assaults were deemed to be less credible and were viewed more negatively by police (Schuller & Stewart, 2000). It is plausible that police might even hold negative views towards the children who are at drug-related crime scenes.

Until recently, there was a major gap in research conducted to better understand stigma among law enforcement officers who interact with individuals who are addicted to drugs. However, a recent publication revealed that officers who work on the front lines of the opioid crisis have high levels of stigma toward individuals with opioid addiction, specifically in the areas of assigning blame, perceived dangerousness, and preferred social distance (Kruis et al., 2020). These findings, coupled with the understanding that peoples’ behavior in social situations can be shaped by implicit beliefs (for a review, see Ferguson & Bargh, 2004) highlight the importance of investigating the ways in which professional helpers interact with individuals at drug-related crime scenes. Police officers are especially important to investigate, as they fill powerful roles that can influence the lives of adults and children in need of support.

The current study utilized a demographic questionnaire (see Appendix A) and semistructured interview (see Appendix B) to investigate beliefs, attitudes, experiences, and perceptions of police officers concerning children present at drug-related crime scenes. Rather than forming hypotheses, the consensual qualitative research (CQR) method utilizes an inductive approach that involves forming conclusions based on the collection and analysis of data (Hill, 2012). This allows for results to emerge out of data rather than imposing theoretical constructs on the data, thus aiding in the discovery of hypotheses (Hill, 2012).

The following research questions were proposed in place of formal hypotheses: (a) How do these police officers’ perceptions differ when arriving at a drug-related crime scene versus arriving at a drug-related crime scene with children present? (b) How are police officers impacted by the potential belief that children may hold negative views of officers?

(c) Does having children of their own impact police officers’ views regarding the presence of children at drug-related crime scenes? If so, in what way? (d) How does witnessing children at drug-related crime scenes impact the participants emotionally?

Method

Recruitment and Participants

This study was approved by the University of Indianapolis Human Research Protections Program institutional review board. No members of the research team were directly connected with law enforcement. Consistent with qualitative research, convenience and snowball sampling were utilized to recruit participants (Hill, 2012). Participants were recruited via flyers, in-person recruiting, and snowball sampling. For in-person recruiting, the primary researcher spoke to a state police administrator who set up a time for her to present the research topic to officers present in the office who were open to participation. Additionally, the primary researcher spoke to individuals who had connections with police, who then encouraged the officers they knew to participate and to hang flyers in their precincts. None of the participants were recruited by flyers, seven were recruited in person by the primary researcher, and five were brought in through word of mouth. Recruited participants were employed at police stations in Monticello, Lafayette, Seymour, and Brookston, Indiana.

Twelve police officers were recruited, which is compatible with the CQR method (Hill, 2012). All participants were White men employed as police officers in suburban, urban, and rural areas within the state of Indiana. The study excluded participants who were not fluent in English, as the demographic questionnaire and semistructured interview were conducted in English. Participants had been working as police officers for between 2 and 34 years (M = 16.88; SD = 10.36). Participants ranged in age from 30 to 61 (M = 44.58 years; SD = 11.09). Eleven officers attended at least some college, and one officer had a high school diploma/GED. All but one participant had children. All participants had previously witnessed children present at a drug-related crime scene; however, officers responded with different types of measurements (i.e., fewer than 20, more than 100, between 10 and 15). See Table 1 for specific details.

Procedures

All interviews took place in person in a private office or study room at a library or police station. Verbal
consent was obtained following explanation of the purpose of the study, procedures, possible benefits, possible risks and discomforts, confidentiality of records, audio recording details, potential costs, payment for participation ($15 gift card), and voluntary participation with right of refusal. To ensure confidentiality, names were de-identified with assigned number codes, and a key containing the number code and corresponding personal information was kept on a separate, encrypted document to be utilized in case a participant were to withdraw from the study. After completion, participants were given monetary incentive, debriefed, and given a list of referrals to local mental health service providers.

Measures

Demographic Questionnaire
The demographic questionnaire (see Appendix A) asked participants to identify their age, number of years employed as a police officer, current city/state of employment, race/ethnicity, education level, and if they have children. Additionally, participants were asked how many times they had witnessed children present at a drug-related crime scene.

Semistructured Interview
Given this is the first known study related to this topic, the semistructured interview questions (see Appendix B) were designed specifically to address the current research questions. The interview contained 20 questions broken up into four sections: (a) perceptions about drug-related crime scenes with vs. without children present, (b) impact of children’s negative perceptions of police, (c) impact of having children of their own, and (d) effect of children being present at a drug-related crime scene on participant. The semistructured interviews lasted between 10 and 55 minutes (M = 22.18; SD = 11.75).

Consensual Qualitative Research

Analysis Team
Data obtained from the interviews were analyzed using the CQR method (Hill, 2012). The primary research team consisted of 13 members who discussed, debated, and arrived at a consensus about the meaning and placement of data. The analysis team consisted of 12 women and one men, eight undergraduates and five graduate students. The team consisted of 10 European American members, one Asian member, and two biracial members. All members of the analysis team received didactic training on the CQR method in the form of a presentation and discussion prior to the start of data analysis (Hill, 2012, p. 52–53). Members of the team discussed any biases and/or preconceived notions that had the potential to influence their analysis of the data.

Auditors
Two auditors were included to act as a double-check for the team throughout the analysis. One auditor was a European American, male, undergraduate student and the other was a Hispanic, male, graduate student. Consistent with CQR, auditors were in a separate room and their role was to check the work of the primary analysis team and provide feedback and recommendations for each stage of data analysis (domains, core ideas, cross analysis). Having the auditors to provide feedback improves the validity of the primary analysis teams’ conclusions and helps counteract groupthink (Hill, 2012).

Identifying Domains
The first step in CQR data analysis is identifying domains, which are “broad categories or topics that

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Years employed as a police officer</th>
<th>Ethnicity</th>
<th>Highest level of education/degree</th>
<th>Children of their own</th>
<th>How many times they have witnessed children at drug-related crime scenes</th>
</tr>
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<td>10–15</td>
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<td>100+</td>
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<tr>
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<td>10</td>
</tr>
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<td>100+</td>
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<tr>
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<td>100+</td>
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<td>Yes</td>
<td>50</td>
</tr>
</tbody>
</table>
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are used to cluster data” (Hill, 2012). The initial domain list was created individually, then members of the team met as a group to come to a consensus on a clear, agreed upon domain list that applied to all transcripts. After the initial domain list was created, it was sent to the auditors to review and was subsequently returned with feedback and suggestions. The primary team could choose to either accept or reject the auditors’ feedback. All transcripts were reviewed, all raw data were assigned to domains, and then it was sent to the auditors for review.

Core Ideas and Cross Analysis

Core ideas are summaries of the data within domains. In this step, the interview data for each case within each domain were edited to yield concise and clear wording of the statement (or core ideas). This was then sent to the auditors for review. Cross analysis is the final and most critical step of CQR. It consists of identifying common themes across cases (Hill, 2012). During cross analysis, all of the core ideas were examined, and overarching categories were generated to describe the core ideas. Subcategories were also generated to describe the data more adequately. Each domain, category, and subcategory were then organized in order to assess for the frequency of categories across all participants (Hill, 2012).

Results

Domains

After completing the semistructured interviews, a total of nine domains were identified: (a) Emotional Responses Toward the Presence of Children, (b) Job Role Impact with the Presence of Children, (c) Ways Police Officers Desire to Help Children at Drug-Related Crime Scenes, (d) Impact of Child Characteristics, (e) Interactions with Children, (f) Messages Children get Regarding Police Officers, (g) Impact of Being a Parent, (h) Coping Mechanisms, and (i) Perceptions of Addiction. These domains were further divided into categories and subcategories during cross-analysis. Depending on the number of participants who addressed a category in their interview, categories were identified as either general (11–12 participants), typical (6–10 participants), or variant (2–5 participants). See Table 2 for a summary of results.

As indicated by CQR methodology, less pertinent results (variant categories and subcategories) will not be discussed in detail (Hill, 2012). To simplify presentation of the identified domains, they will be discussed within the research questions that they help to answer. To demonstrate how categories and subcategories applied to the participants, verbatim quotes from the interviews are used when needed for further clarification.

Research Question #1

The first research question asked how do these police officers’ perceptions differ when arriving at a drug-related crime scene versus arriving at a drug-related crime scene with children present.

Emotional Responses Toward the Presence of Children. This domain examines emotions police officers experience when they witness children at drug-related crime scenes. As a typical response, eight participants expressed feeling anger toward the parent/caregiver when they see children at drug-related crime scenes. Several variant categories emerged revealing additional emotions that police officers experience in these situations. These include disappointment, sadness, it “being hard,” “feeling sorry,” and some expressed experiencing emotion in general, without stating specific emotions.

Job Role Impact With the Presence of Children. This domain describes the ways in which a police officer’s job is impacted when children are present at drug-related crime scenes. As a typical response, eight police officers discussed aspects of their job in general, regardless of the presence of children.

Finding placement or determining who will care for the child as a result of the caregiver(s) being arrested emerged as another typical response. Specifically, 10 participants discussed their job being impacted because they need to find placement for the children. For example, one participant stated, “Just making sure that they get to the next step and they get placed in a home where they’re going to be safe.” Within the category of finding placement for children, a typical subcategory emerged. Nine participants discussed the involvement of The Department of Child Services/Child Protective Services (DCS/CPS) in the placement of children.

As another typical response, seven participants indicated that communication is impacted when children are present at drug-related crime scenes. Within this category, a typical subcategory of communication with the children emerged. Seven participants focused their communication efforts on the children rather than on the parents/caregivers. For example, one participant stated, “Try to talk to them, let them know that I’m there for their safety. You know just try to take care of them the best we can until DCS gets there and then they do what they do.”
Research Question #2
The second question asked how police officers are impacted by the potential belief that children may hold negative views of police officers. It is important to note that this section is focused on what messages the police officers believe children have received and not the actual perceptions of the children themselves.

Messages Children Get Regarding Police Officers. One general category emerged with 11 participants having the belief that children often receive the message that police officers are bad. One participant stated, “They have an image in their mind of the same as their parents that we’re bad. It’s really frustrating.” From this, two variant categories emerged: scared and good. Three participants believed children fear police officers due to messages they receive regarding police. Four participants also mentioned that some children may be given the message that police officers are good; however, they indicated that this is rare when dealing with children at drug-related crime scenes.

Interactions With Children. A typical category emerged in which eight participants reported believing that children might have received negative messages about police. For example, one police

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<table>
<thead>
<tr>
<th>Domain, Category, and Subcategory</th>
<th>Frequency</th>
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</thead>
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<td>Emotional Responses Toward the Presence of Children</td>
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<tr>
<td>Disappointment</td>
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<tr>
<td>General Emotions</td>
<td>Variant</td>
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<tr>
<td>Sadness</td>
<td>Variant</td>
</tr>
<tr>
<td>Hard</td>
<td>Variant</td>
</tr>
<tr>
<td>Sorry</td>
<td>Variant</td>
</tr>
<tr>
<td>Anger</td>
<td>Typical</td>
</tr>
<tr>
<td>Job Role Impact With the Presence of Children</td>
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<tr>
<td>Job</td>
<td>Typical</td>
</tr>
<tr>
<td>Focus on Child</td>
<td>Variant</td>
</tr>
<tr>
<td>Job to Do</td>
<td>Variant</td>
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<tr>
<td>Safety</td>
<td>Variant</td>
</tr>
<tr>
<td>Resources</td>
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</tr>
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</tr>
<tr>
<td>DCS</td>
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</tr>
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<td>Removed From Crime Scene</td>
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<td>With Children</td>
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<td>Desired Ways to Help Children at Drug-Related Crime Scenes</td>
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<td>Good</td>
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<tr>
<td>Coping Mechanisms Cont.</td>
<td></td>
</tr>
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<td>Sleep</td>
<td>Variant</td>
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<td>Religion</td>
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<td>Difficulty Controlling Emotions</td>
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<td>Doing All They Can Do</td>
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<td>Impact on Family</td>
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</table>
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An officer discussed wanting to change children’s perceptions. Another participant described not wanting to leave the children with a bad perception of police officers, stating “If you can get them away and interact with them and leave a good positive mental note on them that, ‘Hey, police officers really aren’t that bad.’ That’s what I try to do.”

**Research Question #3**

The third question asked if having children of their own impacts police officers’ views regarding the presence of children at drug-related crime scenes. If so, in what way?

*Impact of Being a Parent.* This domain examines the ways police officers believe being a parent impacts witnessing children at drug-related crime scenes. A typical category emerged with six participants discussing their own children. For example, one participant stated, “I thank God that I, my children are, didn’t take that route. I mean, they’re all good kids.” Another typical category expressed by six participants dealt with their emotions. For example, one participant discussed his worry regarding his own children. He stated:

> I really don’t think I have to worry about it with my kids, but there is that outside chance that they could get in the wrong crowd and get introduced to drugs, so I kind of worry about that.

**Research Question #4**

The fourth question asked how witnessing children at drug-related crime scenes impacts the participants.

*Coping Mechanisms.* This domain examines coping mechanisms police officers use to deal with stress and the difficult situations they regularly face. Participants discussed both struggles and successes of their coping mechanisms. As a typical response, eight police officers described one of their coping mechanisms to be not showing emotions. For example, one participant felt police officers cannot have emotions. He stated, “You can’t have emotions. It’s no different than if, you know, when we roll up on a fatal crash scene. You can’t have emotions.” A variant subcategory of blocking out emotions emerged, as four participants stated they would block out emotions to prevent showing emotion.

A second typical category to emerge was that seven participants believed they do not struggle with emotions. For example, one participant stated, “So it’s tough, but most of the time I can control it, I think, not that difficult, unless like I say, they’re cussing you or ordering you out of their house or something. That’s different.” A variant subcategory emerged with four participants stating they do not struggle with their emotions because they control their emotions.

A third typical category emerged in which six participants discussed avoiding bringing work home as a coping mechanism. For example, one participant stated, “Just call, just do the best you can to just call someone else if something’s bothering you. Call another officer, or call a friend that you trust and just don’t bring it home.” A typical subcategory emerged in which six participants mentioned not talking about work. For example, one participant stated:

> I don’t talk a lot about what’s going on at home or I don’t talk a lot at home about what’s going on at work, which could be bad, I don’t know. It’s kind of weird because I’ll get into a stressful situation at work but then when I get home I’m like, I just like turn a switch and uh you know.

A fourth typical category emerged for ways in which participants cope with stress. Participating in hobbies was mentioned by six police officers as a way to deal with the stress of the job. For example, when asked how he has attempted to separate work from home, one participant stated, “10,000 hobbies probably.” Two variant subcategories emerged under hobbies and include participants utilizing exercise and sleep as coping mechanisms.

Six participants mentioned struggling to separate work from home, revealing a fifth typical category. For example, one participant talked about not being able to separate work from home because he is always on call. He stated, “It’s real hard to separate it because, you know we’ve got, uh, I mean we’re on call all the time, so I carry my cell phone, everywhere I go.”

The last typical category endorsed by seven participants as a coping mechanism was talking. A typical subcategory emerged under talking, as seven police officers reported talking to their family to cope with emotional struggles. For example, one participant stated, “I’ll talk to my parents a lot about those things as well because they know me best too. I try to talk to people who are extremely close to me.” A variant subcategory emerged under talking, with three participants stating that they talk to their spouses as a coping mechanism.
Several variant categories were expressed as coping mechanisms utilized by officers. Police officers also discussed the struggles and successes of being able to cope. These include spending time with family, religion, difficulty controlling emotions, doing all they can do, detachment, impact on family, being successful in separating work from home, thoughts, emotions impacting job, and anger.

**Additional Domains Worth Noting**

Lastly, there are domains that provided valuable information that did not fit directly with any of the research questions. 

**Impact of Child Characteristics.** This domain describes the ways in which police officers believe characteristics of the children impact their opinions and feelings when they witness children present at drug-related crime scenes. As a general response, all participants discussed age in relation to their views about the child/children at drug-related crime scenes. A general subcategory of younger children emerged. Eleven participants discussed how these types of situations are harder when children are especially young. For example, one participant stated, “Well the younger they are, the worse it is… when I see a baby, to me, it’s 10 times as bad.” Additionally, a typical subcategory of older children emerged, in which seven participants mentioned older children impacting their views. For example, one participant stated:

> Not really sure on that. Even if they’re really young children, they’re more of a victim, but when they become teenagers, it makes you wonder are they involved and then at that point are the parents using them or because they’re living in this environment are they picking up on mom and dad don’t do anything, don’t go to work, they sell drugs, they make money.

All participants brought up the gender of the children as a feature that could potentially impact an officer’s response when witnessing children present at drug-related crime scenes, revealing another general category. For example, one participant stated, “I feel like most of those kids when they grow up—they will also inherit the same bad habits I guess or addictions because they’re kind of raised in that environment and they just keep repeating the cycle.”

**Discussion**

The findings of this study were extracted from detailed analyses of police officers’ beliefs, attitudes, experiences, and perceptions of the presence of children at drug-related crime scenes. The first goal was to investigate how police officers’ perceptions it transcends into boys too.” However, a general subcategory emerged with 11 participants stating that the gender of a child does not make a difference in how they themselves view or treat children at drug-related crime scenes.

**Interactions With Children.** This domain looks at the ways in which police officers interact with children at drug-related crime scenes. As a typical response, nine participants endorsed trying to communicate well with the children. For example, one participant stated, “We kind of have to reach out to them and kind of just talk to them.”

A second typical category, reported by nine participants, dealt with general interactions. One participant discussed that the actions police officers take may impact the children. Another participant mentioned his desire to have a good interaction with the children:

> Actions that we take speak volumes. So, how we treat people, how we interact with them, you know, our mindset, mentality when we walk in the door, and you know if somebody has a chip on their shoulder as soon as they walk in the door, the kids are very— they’ll pick up on that very quick, but you know how we interact with people is huge.

A typical subcategory of attempts emerged with six participants discussing things they attempt to do with or for the children. For example, one participant stated, “You try to comfort the kids as much as you possibly can.” Another participant discussed wanting to do more for the children who appear to think he is bad.

**Perceptions of People Struggling With Addiction.** This domain recounts the perceptions police officers have of individuals struggling with addiction. As a typical response, six police officers discussed addiction being a cycle. For example, one participant stated:

> I feel like most of those kids when they grow up—they will also inherit the same bad habits I guess or addictions because they’re kind of raised in that environment and they just keep repeating the cycle.
Police Perceptions of Children on Drug-Related Calls | Lesher, Loria, and Poulakis

have found that older children victims of sexual assault are perceived as less credible compared to children who are younger than 5 years old (Davies & Rogers, 2006); however, not all studies find this main effect of age (Stromwell et al., 2013). In the current study, all participants reported that the age of the child present at a drug-related crime scene impacts how they perceive the situation. Eleven participants discussed the presence of younger children being more challenging. Three participants mentioned that, when they are dealing with older children, they are concerned about their potential involvement with the drugs. Based on these findings, it is likely that, at an undefined age or developmental milestone, some police officers’ perceptions of children shift from seeing the child as a victim to seeing them as a potential suspect, which would have an impact on how they interact with the child. It has been found in child sexual abuse literature that individuals are more likely to victim blame older children (Back & Lips, 1998). It is possible that officers begin to assign blame to older children or teenagers, highlighting a need for research aimed at better understanding how to protect older children in these settings.

Previous research has demonstrated that the primary job of a police officer changes when children are present at crime scenes (Manning, 1999; Zezima, 2017). According to Manning (1999), the likelihood of children being left behind after caregivers are arrested for using or manufacturing methamphetamine is ever increasing, thus leaving officers to care for, comfort, and entertain the children. When children are involved, officers shift their focus to getting the children to a safe environment, which impacts their ability to focus on their primary missions (Manning, 1999). Consistent with previous findings, the current study found that police officers believe that their job duties are impacted and altered when children are present at drug-related crime scenes. Eight police officers endorsed that, regardless of children being present, they “have a job to do” and their focus needs to be on their job; however, when children are present, they describe shifting their focus to the safety and placement of the children. Understanding how police officers’ jobs are impacted by children present at drug-related crime scenes can increase understanding of how to better help both police and children in these situations.

The second goal of the study was to better understand how the perception of children’s negative views of police officers impact participants. Eleven participants felt that children are receiving messages that police officers are bad. Furthermore, eight participants believed that the child’s perception of them impacted their interaction with the child. Nine participants reported that they shift their focus and direct more attention to children at drug-related crime scenes because they assume these children think they are bad. Although this was a common theme among the police officers interviewed for this study, it is possible that this could also have the opposite effect on some officers, leading to increased apathy and decreased effort to comfort or help children. It may help to educate officers on research that has shown the flexibility of youths’ perceptions and the ability to improve their perceptions in collaborative settings (Fine et al., 2019). If the belief that many children view police officers as bad is carried into settings beyond drug-related crime scenes, this could change the way police officers regularly interact with children. This finding also highlights that perception, and awareness training could be helpful for police because it is quite possible that police are influenced by these assumptions whether or not a child actually holds those beliefs.

The third goal of the study was to explore whether having children of their own impacts police officer’s views. Six participants discussed how their job has impacted their views of their own children, with two stating they worry more about their children due to their job. One discussed how thankful he is that his children are not using drugs; whereas, two participants discussed knowing and understanding how easy it would be for their
children to become addicted to drugs. Six participants discussed how being a parent has impacted their emotions, with some discussing emotions in terms of seeing children on the job and others discussing emotions in terms of their own children.

The final goal of the study was to gain an understanding of how witnessing children at drug-related crime scenes impacts officers. Rather than discussing the impact, all participants discussed their coping mechanisms and how they deal with the impact. Specifically, six participants discussed utilization of hobbies and seven mentioned talking to people/family as ways of coping. Despite utilizing numerous coping mechanisms, six participants struggle to separate work from home. Although seven participants stated they do not struggle with emotions, all of them still discussed emotional struggles. Many participants felt they dealt with witnessing children at drug-related crime scenes by not showing emotions (eight participants), not allowing the work to mentally come home with them (six participants), and not talking about it once they get home (six participants). Understanding police officers’ emotional struggles and coping mechanisms can reveal ways to help them better identify their own emotional challenges in addition to providing them with mental health resources, as counseling has been shown to benefit officers in the past (Carlan & Nored, 2008). The current findings revealed that of officers discussed not having a proper outlet for their emotional struggles. Because this is a small sample size, it is difficult to say whether this observation would be seen consistently.

Given this was not an intended research topic, this study had an unexpected finding in that eight participants discussed their perceptions of addiction and individuals struggling with addiction. Consistent with research by Beletsky et al. (2005), six participants felt addiction is a cycle and described its cyclic nature. This was discussed when participants mentioned the struggle of finding placement for the children because many family members are also using drugs, which is consistent with a 2017 investigative journalism piece that described the difficulties of finding proper placement for the children (Zezima, 2017).

**Strengths, Limitations, and Future Research**

This is the first study to look at police officers’ views of children being present at drug-related crime scenes. It is the first study to ask police officers to be introspective about their roles and responsibilities to children at drug-related crime scenes. The officers discussed how they cope and compartmentalize in order to separate home from work. They discussed their own defense mechanisms and how they use those mechanisms, especially when they have children. It was revealing to hear the police officers become vulnerable and discuss how difficult it is to hear the negative messages that young children often receive about police officers. The officers also shared with the researcher that part of their unofficial job description is to find appropriate resources for these children.

The current study was designed as an exploratory analysis, and future research should explore some of the themes that emerged in addition to evaluating the validity and generalizability of these themes with a larger sample. Additionally, there are a number of limitations to the current study that should be considered in future research. One such limitation is a general lack of diversity in (a) gender of participants, (b) race of participants, (c) whether participants had children, and (d) location of participants. Future research should either include female police officers or replicate the study with only female officers. Future studies could also attempt to recruit police officers of color in addition to recruiting more police officers who do not have children to be able to better understand and generalize these findings. All participants were recruited within the state of Indiana. Future research should consider gathering data from police officers all over the United States to further validate the results to a broader spectrum of police officers. This study looked at general police officers rather than specialized narcotics police officers; determining differences between these two types of officers may shed additional light on the current findings.

We specifically asked police officers about children’s negative views of police, thus potentially introducing unintentional bias to what is likely a complex concept in need of further investigation. The perceptions children have of police officers may be influenced by socioeconomic status (SES), as previous literature has observed interactions between race, SES, and trust in police (Panditharatne et al., 2018). However, the current study did not take SES of children into account. None of the police officers discussed any type of training regarding children at crime scenes, and specific protocols were not examined. Future research should assess how prepared police officers feel in addition to collecting information about the training they have and the training they would like to have.
Future research should consider looking at differences related to the level of trauma a child may be experiencing at drug-related crime scenes, for example differences when the parent/caregiver is alive versus deceased. Another direction for future research may be the type of drug found at the crime scene. Officers may have distinct perceptions of children at drug scenes involving opiates (e.g., potentially due to the high risk of death related to fentanyl and related drugs), methamphetamine (e.g., potentially due to the high risk of toxic exposure), or alcohol (e.g., with officers’ perceptions of this legally acquired intoxicant that can be associated with crime or removal of children from a home). Based on the findings related to officers mentioning the age of the children present at crime scenes, it is possible that the police officers begin to assign blame to older children or teenagers rather than seeing them as victims. This is an area that should be examined, as interactions between police and children of any age present at drug-related crime scenes could be hugely impactful to the child’s development.

Conclusion
This study provides a first look into police officers’ beliefs, attitudes, experiences, and perceptions regarding the presence of children at drug-related crime scenes. Given the nature of CQR research and the small sample, big scale recommendations cannot be made (Hill, 2012). Yet, it is important to have information regarding police officers’ views, as they are the ones on the front lines seeing the consequences of drug abuse (Police Executive Research Forum, 2014). Previous research has demonstrated the impact police officers’ attitudes have on their actions (Barrett et al., 2009; Johnson, 2011; Marinos & Innocente, 2008; Oberweis & Musheno, 2001). Understanding police officers’ views about people struggling with addiction, the children involved, and the parents/caregivers involved can help reveal how this may impact their actions at drug-related crime scenes when children are present. Findings from this study suggest it is likely that, at some undefined age, some officers shift their perception of the children from victim to potential suspect, which would have an impact on their interactions with the child. It is possible that the officers begin to assign blame to older children or teenagers. Also, participants in this study believe children are receiving the message that police officers are bad, which likely impacts their interactions with the children. Being aware of police officers’ struggles with coping and managing emotions in addition to how their jobs are impacted by the presence of children at crime scenes can provide further insight on mental health resources needed for police. Police in this study specified that finding placement for children in these situations impacted their job, which suggests that resources are needed to help find placement for children at drug-related crime scenes. This study was meant to be an exploratory analysis of police officers’ beliefs, attitudes, experiences, and perceptions of the presence of children at drug-related crime scenes; therefore, more research is needed to accurately provide larger scale recommendations.

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Back, S., & Lips, H. M. (1998). Child sexual abuse: Victim age, victim gender, and observers’ assigning blame to older children or teenagers rather than seeing them as victims. This is an area that should be examined, as interactions between police and children of any age present at drug-related crime scenes could be hugely impactful to the child’s development.

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Appendix A

Demographic Questionnaire

1. Age: _______

2. Number of years employed as a police officer: __________________

3. Please name the city/state that you are employed in: ____________________________

4. Please specify your racial/ethnic background:
   ___ African American/Black
   ___ Asian/Pacific Islander
   ___ European American/White
   ___ Hispanic/Non-White
   ___ Mixed Race (please specify): _______________________________
   ___ Other (please specify): ____________________________________

1. Please specify your highest level of education completed:
   ___ High School Diploma/GED
   ___ Some College
   ___ Associate's Degree
   ___ Bachelor's Degree
   ___ Graduate Degree
   ___ Other (please specify): ____________________________________

1. Do you have children?
   ___ Yes
   ___ No

1. Please specify if you have ever witnessed children present at a drug-related crime scene:
   ___ Yes
   ___ No
   ___ Other (please specify)

1. If yes, approximately how many times? ________

Appendix B

Semistructured Interview Questions

Perceptions About Drug-Related Crime Scenes With Vs. Without Children Present
• What is your initial reaction when you see children at a drug-related crime scene?
• When you arrive at a drug-related crime scene and see children present, how does this change your feelings compared to arriving at a drug-related crime scene without children present?
• Do you have a strong desire to help the children in a particular way? In what way?
• In what ways have you responded to the well-being of children present at drug-related crime scenes?
• In what ways does the age of a child/children affect how you perceive drug-related crime scenes with children present?
• In what ways does the gender of a child/children affect how you perceive drug-related crime scenes with children present?

Impact of Children's Negative Perceptions of Police
• At times, these children might have been told that police officers are "bad." How do you know if they see you as a bad person? Good person?
• How does this affect your interaction with the child?
• How do you gain the child's trust or help them to understand that you are there to help them?

Impact of Having Children of Their Own
• Do you have any children?
• If so: How do you believe this has impacted your feelings when you see children at drug-related crime scenes?
• If not: How do you believe that if you had children it would change your feelings when you see children at drug-related crime scenes? In what ways?

Effect of Children Being Present at a Drug-Related Crime Scene on Participant
• How do you control your emotions when you arrive at a drug-related crime scene where children are present?
• How do you control your emotions when you see a child under the influence of a drug because of caregiver exposure?
• In what ways are you able to compartmentalize situations regarding drug use and children being present?
• How have you attempted to separate work from home?
• In what ways have you struggled with separating work and home?
• In what ways have you succeeded in separating work from home?
• Would you say you experience emotional struggles outside of the crime scene after witnessing children present at a drug-related crime scene? Can you explain?
• How do you cope with these emotional struggles?
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