Psychological Science in the Workplace and Life

Special Invited Editor: Jennifer L. Hughes, PhD, Agnes Scott College (GA)
DEDICATION
This issue is dedicated to Regan A. R. Gurung, PhD, Psi Chi President. He is trained as a social psychologist and his research encompasses social, health, and pedagogical psychology. Through his leadership at Psi Chi he has sought to advance the Psi Chi mission of "recognizing and promoting the excellence in the science and application of psychology." He believes that psychology can help people live healthier, happier lives.

ABOUT PSI CHI
Psi Chi is the International Honor Society in Psychology, founded in 1929. Its mission: "recognizing and promoting excellence in the science and application of psychology." Membership is open to undergraduates, graduate students, faculty, and alumni making the study of psychology one of their major interests and who meet Psi Chi's minimum qualifications. Psi Chi is a member of the Association of College Honor Societies (ACHS), and is an affiliate of the American Psychological Association (APA) and the Association for Psychological Science (APS). Psi Chi's sister honor society is Psi Beta, the national honor society in psychology for community and junior colleges.

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.

Psi Chi membership provides two major opportunities. The first of these is academic recognition to all inductees by the mere fact of membership. The second is the opportunity of each of the Society's local chapters to nourish and stimulate the professional growth of all members through fellowship and activities designed to augment and enhance the regular curriculum. In addition, the Organization provides programs to help achieve these goals including conventions, research awards and grants competitions, and publication opportunities.

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The twofold purpose of the Psi Chi Journal of Psychological Research is to foster and reward the scholarly efforts of Psi Chi members, whether students or faculty, as well as to provide them with a valuable learning experience. The articles published in the Journal represent the work of undergraduates, graduate students, and faculty; the Journal is dedicated to increasing its scope and relevance by accepting and involving diverse people of varied racial, ethnic, gender identity, sexual orientation, religious, and social class backgrounds, among many others. To further support authors and enhance Journal visibility, articles are now available in the PsycINFO®, EBSCO®, Crossref®, and Google Scholar databases. In 2016, the Journal also became open access (i.e., free online to all readers and authors) to broaden the dissemination of research across the psychological science community.

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President’s Welcome to the Special Issue
Regan A. R. Gurung
School of Psychological Sciences, Oregon State University

When I first approached Psi Chi Journal Editor Dr. Debi Brannan with the idea of a special issue highlighting the role of psychological science in the workplace and life, the first case of coronavirus in Wuhan, China, was still nearly a world away. Now, as I write this during the summer of 2020, we inhabit a brand new world. In many ways our daily lives are more akin to something from a science fiction book. Some aspects of today remind me of the post plague existence in Ursula K. Le Guin’s The Lathe of Heaven, set in a Portland, Oregon. Her lead character’s dreams can change reality. Wishing there was an easier way to change reality? Psychological science is one of those ways.

During my 2019–2020 year as Psi Chi President, I have worked to highlight the great work done by psychological science as it applies to life. One of the major aspects of life is the workplace. During the pandemic, for many of us, the workplace and the home merged into one. In many ways this forced us to examine what makes the workplace conducive to success as we modified how work is done. Meanwhile, for the millions of health care workers, food industry employees, and essential service workers, work as they knew it went on, albeit under new stressful situations.

Regardless of pandemics, work is essential, and factors that can make work effective, productive, and satisfying are important to study. Thankfully, psychological research has been on it. From early studies showing how lack of definition and role ambiguity, boredom, and unpredictability can cause work stress, to recent work examining group dynamics in the workplace and translating basic research into applied settings, psychological research has shown its worth. Although a factor not acknowledged readily by all, nearly every work setting informs some form of psychology, whether it concerns leadership and management, recruiting and human resources, group processes, or motivation and effectiveness. Indeed, psychology is everywhere (#PsychEverywhere).

I am pleased to be able to welcome you to this 2020 Special Issue on “Psychological Science in the Workplace and Life.” Upon learning about the upcoming issue, Dr. Jennifer L. Hughes (Agnes Scott College, GA) volunteered to become the special invited editor. After numerous calls went out on social media, email, and word of mouth, we received 20 abstracts in December 2019 for potential publication. Ten of these were invited to be submitted as full manuscripts, of which eight articles were ultimately accepted for publication. Topics chosen to represent the diverse applications of psychology in this special issue include the effects of supervisors’ gratitude toward employees, sorting fact from fiction in the media, effects of parenthood on academic and work-related factors, socioeconomic influences on worker involvement in labor union activities, the feasibility of training Spanish-speaking Latinx adults in Mental Health First Aid, Chapman’s five love languages theory on predicting love and relationship satisfaction, how goals affect the search for happiness, and effects of app-delivered cognitive behavioral therapy.

Leveraging the contributions of psychology to the workplace and life, and fostering the application of psychology will benefit us all. Kudos to the contributors featured in this issue who exemplify the strong work taking place in this domain. May their exemplary work catalyze more of such research in the future.

Author Note. Regan A. R. Gurung, https://orcid.org/0000-0002-3542-4378
https://orcid.org/0000-0002-3542-4378
Correspondence concerning this article should be addressed to Regan A. R. Gurung, Reed Lodge, 2950 SW Jefferson Way, Corvallis, OR 97331.
Email: regan.gurung@oregonstate.edu
Today, more than ever, many people have instant access to information from millions of sources available in their pockets through smartphones and other internet-connected devices. Unfortunately, people may be easily exposed to fraudulent information that is accidentally spread (misinformation) or deliberately distributed (disinformation). Colloquially, either type of false information may be referred to as “fake news.” However, a growing concern with the widespread use of this term is how to distinguish legitimate information from that which should correctly be rejected as fake (Lazer et al., 2018). In fact, warning signs are emerging that suggest this task may become increasingly more difficult as coordinated disinformation efforts through social media manipulation have now reached an unprecedented global scale. Bradshaw and Howard (2019) reported that the number of countries using organized social media manipulation campaigns more than doubled from 2017 to 2019.

The Nature of “Fake News”
Research has shown that individuals who trust a particular source are more likely to readily accept information provided by that source (Frost et al., 2015; Pena et al., 2017). However, source information related to eyewitness accounts, news reports, or social media posts can also be forgotten or misremembered (de Pereyra et al., 2014; Fragale &
Heath, 2004; Griffin et al., 2017; Kleider et al., 2008; Lindner et al., 2015). Recently, this has become of particular concern across social media platforms (Pennycook & Rand, 2019a), the most heavily targeted domain of current disinformation campaigns (Bradshaw & Howard, 2019). In response, media literacy courses are being introduced at the middle and high school level with the express purpose of helping students develop skills for evaluating the veracity of news information (Crate, 2017).

One freely available online game called Factitious (factitious.augamestudio.com) challenges participants with a quiz based on a series of brief news stories (American University Game Lab, 2017). For each story—some are true, some are fake—participants can choose whether to view source information or attempt to make a judgment about the story’s veracity based on the content alone. In this simulation of social media browsing in a heavily infiltrated disinformation age, participants who neglect to review source information may struggle to find clear criteria for accepting or rejecting a fabricated story that sounds plausible.

Furthermore, research has suggested that individuals may become even more susceptible to believing false information if the elements of a story appear not only plausible, but familiar (Foster et al., 2012; Weaver et al., 2007). Disinformation often involves a distortion of true events, rather than a complete fabrication. This distortion can play on one’s familiarity with certain individuals and events commonly featured in the news. Research on the binary bias—a tendency to make “black or white” decisions when dealing with “grey” information—suggests that incorporating false information along with some true information may make information consumers more likely to accept all of the information as true (Fisher & Keil, 2018).

Even if one suspects that information is false, reencountering that false information may still be problematic. For instance, Schwarz et al. (2016) have argued that previously encountered false information will appear more familiar when reencountered, and this familiarity promotes fluency. Fluent information processing promotes the understanding and acceptance of ideas, creating what has become commonly known as the illusory truth effect (Hasher et al., 1977). This effect has been demonstrated not only with brief statements similar to news headlines, but with longer narratives as well (Polage, 2012). The mere repetition of a simple-to-understand and plausible idea increases belief in the statement, even in the face of contradictory knowledge (Fazio et al., 2015).

### Information Processing Style

If source information cannot always be carefully tracked or accounted for, understanding how individual information processing styles contribute to one’s susceptibility to being influenced by disinformation campaigns may be important for further developing educational tools to help protect people from falling prey to these efforts.

### Need for Cognition

One individual differences factor that may play an important role in influencing how people scrutinize news information is one’s level of need for cognition. The characteristic of need for cognition indicates whether an individual enjoys effortful cognitive tasks, and therefore may be helpful in predicting the extent to which someone will choose to seek out mentally demanding situations or engage in challenging problem solving (Cacioppo et al., 1984). With regard to information processing, this factor differentiates between individuals who put a lot of thought into their decisions and individuals who prefer to make decisions with minimal mental effort.

Those who score higher on this scale tend to enjoy engaging in problem-solving activities and intellectual challenges (Meier et al., 2014; Woo et al., 2007), develop more creative problem-solving strategies (Watts et al., 2017), and find more effective solutions to complex problems (Nair & Ramnarayan, 2000). Individuals who score lower on this scale may make equally effective decisions in many contexts, but they seldom exercise more cognitive effort than necessary when solving problems or making decisions (Pillai et al., 2011). Other research with the Need for Cognition Scale has shown that individuals with a higher need for cognition more critically assess the quality of arguments made by others (Haugtvedt & Petty, 1992) and more carefully evaluate the validity of their own thoughts (Kuvaas & Kaufman, 2004).

Only a few preliminary studies have examined the association between need for cognition and news consumption behaviors, mainly focusing on impression formation. For example, Tsafiti and Cappella (2005) found an association between news exposure and mainstream media skepticism among participants lower in need for cognition. Lee and Jang (2010) found that participants with a higher need for cognition were less influenced by individual reader comments that followed news stories. Similarly, Lee (2014) found that participants higher in need for cognition were less influenced by political opinions posted on social media sites.
such as Facebook. It is unclear how need for cognition may relate to judgments of the truthfulness of individual news stories; however, recent work has shown that individuals who engage in less cognitive reflection perceive fake news headlines as more accurate, regardless of political ideology (Pennycook & Rand, 2019b). Further research examining whether need for cognition predicts the effective sorting of fact from fiction in a news era rife with disinformation may play an important role in designing effective media literacy courses.

Choice Maximization
In some situations, making decisions can be more difficult than one might expect. With thousands of choices to make daily, abstaining from choice-demanding tasks may in fact provide some people with a more desirable sense of freedom (Schwartz, 2004). For instance, in a field study in California, researchers presented participants with two scenarios: a tasting booth that displayed either a limited selection of 6 samples, or an extensive selection of 24 samples (Iyengar & Lepper, 2000). The research revealed that, even though the display of an extensive selection attracted more customers, the essence of having too many choices impeded the customers’ motivation to buy a product more so than the limited sample size. In this sense, information overload may diminish one’s motivation to carefully evaluate the many options presented.

Using similar examples, Schwartz (2000) has challenged the traditional notion that freedom of choice uniformly benefits our well-being, instead arguing that encountering many choice points in our day-to-day lives may feel more burdensome than liberating. Concern over this so-called “tyranny of choice” has become particularly pronounced for information consumers trying to make effective decisions when browsing the internet (Fasolo et al., 2007). How do people develop effective strategies for managing the information overload they may encounter in a contemporary digital age? Schwartz et al. (2002) proposed that people learn to navigate the potentially overwhelming number of choice scenarios they may face on a daily basis by developing their own characteristic information processing style. Individual differences in choice maximization may guide some people toward a tendency to optimize the outcome of their decisions, whereas others may be motivated to reduce the burden of the choice tasks they encounter and merely look for satisfactory results. Schwartz et al. (2002) introduced a scale to assess individual differences across this dimension, indicating one’s tendency toward maximizing versus satisficing, depending on one’s general choice optimization preferences.

Individuals who tend toward maximizing are more likely to pursue the “best outcome” in choice scenarios. Maximizers prefer considering alternatives, hold themselves to high standards, and find it more difficult to arrive at a decision (Schwartz et al., 2002). These individuals are more likely to exhaust all their alternatives in pursuit of optimal results and may only make their decisions when the best outcome has been identified. Alternatively, individuals who tend toward satisficing are more likely to search for a “good enough” option when faced with a choice scenario. Satisficers strive to find a solution that matches their preference, but they do not have a strong urge to exhaust their thought processes to find this match. They often settle upon adequate outcomes without worrying whether there are better alternatives available (Schwartz & Ward, 2004).

Psychological research on choice maximization has shown that maximizers experience more regret related to their choices and show perfectionistic tendencies (Nenkov et al., 2008). However, applied research using the Maximization Scale has largely been focused within the fields of marketing and consumer behavior. Some of this work has examined behavior among maximizers versus satisficers in digital shopping environments, demonstrating that maximizers seek out more product information before making a purchase, feel more time pressure when shopping, and are more likely to change their mind after making a purchase (Chowdhury et al., 2009). Because maximizers tend to more carefully evaluate information prior to making decisions, their information processing style may lead them to be less susceptible to the influence of disinformation in digital environments. However, to our knowledge, this dimension has not yet been utilized in studies examining how information consumers (rather than product consumers) evaluate news stories. This may be a particularly important individual differences characteristic to examine in an age of digital disinformation.

Current Study
Previous research has indicated that need for cognition and choice maximization style might influence how someone approaches a variety of tasks that involve making difficult judgments (Appelt et al., 2011). However, to our knowledge, these individual differences variables have not been investigated...
in the context of making judgments about the veracity of news information. The current study was designed to examine whether participants’ ability to evaluate a series of news stories would be related to individual differences in their level of need for cognition and choice maximization style, compared to their general interest in following current news events. We hypothesized that participants who scored higher on measures of need for cognition and choice maximization would more accurately sort fact from fiction among a series of news stories. To test these hypotheses, we presented a news quiz to our participants that included 10 true stories and 10 fake stories. We challenged participants to identify the true versus fake stories without the aid of source information (e.g., the news outlet or website where the story appeared). We predicted that need for cognition and choice maximization would correlate positively with participants’ ability to distinguish fake news from real news, even without source information.

Method

Sample
Participants included 122 undergraduate students (Mage = 20.24, SD = 2.69) recruited from lower level psychology classes at a small, private liberal arts college in the Northeastern United States in early 2019. Participants were invited to complete an online study in exchange for extra credit. Participants represented all levels of undergraduate study, such that the sample included 27% seniors, 19% juniors, 18% sophomores, and 36% first-year students. Women comprised 78% of the sample. Eighty percent of participants reported their race as White or European American, 7% as Black or African American, 4% as Asian, 3% as Hispanic or Latino/a, 2% as Native American or Native Alaskan, and 5% of participants selected another option or declined to respond.

Materials

Need for Cognition Scale
To assess preferences regarding effortful cognitive tasks, participants completed an 18-item version of the Need for Cognition Scale (Cacioppo et al., 1984). Validation work with this measure has shown that individuals who demonstrate a higher need for cognition tend to prefer engaging in challenging cognitive tasks that demand more thinking (Cacioppo & Petty, 1982). Using a 5-point Likert scale with responses ranging from 1 (strongly disagree) to 5 (strongly agree), participants were asked to rate their agreement with 18 statements (9 were reverse scored) inquiring about their interest in problem solving (Item 2: “I like to have the responsibility of handling a situation that requires a lot of thinking”) and their preferred thinking style (Item 14: “The notion of thinking abstractly is appealing to me”). The Need for Cognition Scale produces a score from 18 to 90 with higher scores indicating a stronger preference for completing tasks that demand mental effort. The measure demonstrated good internal consistency within the present sample (α = .85) and scores were normally distributed (M = 58.26, SD = 9.93, Skewness = −0.33).

Maximization Scale
To assess choice optimization, participants completed a shortened, 9-item version of the Maximization Scale (Nenkov et al., 2008). Nenkov et al. (2008) provided evidence supporting the construct validity of this abbreviated version of the Maximization Scale by showing that scores aggregated across multiple independent samples correlated positively with measures of regret and depression, and negatively with measures of optimism and happiness, as proposed by Schwartz et al. (2002).

Using a 5-point Likert scale with responses ranging from 1 (strongly disagree) to 5 (strongly agree), participants were asked to rate their level of agreement with nine statements that comprise three dimensions of choice behavior that may influence one’s tendency to maximize: alternative search (Item 1: “When I am watching TV, I often scan through other available options even while attempting to watch one program”); decision difficulties (Item 4: “I often find it difficult to shop for a gift for a friend”); and high standards (Item 7: “No matter what I do, I have the highest standards”). The 9-item Maximization Scale produces a score from 9 to 45 with higher scores indicating a greater tendency to maximize. Scores for the present sample were normally distributed (M = 30.12, SD = 5.33, Skewness = −0.08); however, the measure demonstrated questionable internal consistency (α = .61).

Item analysis revealed relatively weak inter-item correlations, but did not identify a single item or subscale that was problematic. Although internal consistency varied somewhat across the three subscales—alternative search (α = .49), decision difficulties (α = .59), and high standards (α = .60)—interitem correlations were in acceptable ranges (.20–.41) within each subscale (cf. Clark & Watson, 1995). By comparison, Nenkov
et al. (2008) reported alphas ranging from .55 to .73 across 12 separate participant samples ($M_r = .63$), with mean subscale alphas at similar levels (.58–.61). Although Cronbach’s alpha exceeding .70 has become a conventionally accepted criterion for establishing acceptable internal consistency, alpha is affected both by the number of items and the dimensionality of a scale (Cortina, 1993). Some authors have argued that a higher alpha is not necessarily desirable for multidimensional instruments (Schmitt, 1996; Taber, 2018), and appropriate interitem correlations among each subscale may indicate adequate performance of a measure (Clark & Watson, 1995).

**News Consumption and Access Questions**

Participants used a 5-point scale to answer three questions about their typical news consumption behaviors. These questions assessed frequency of checking the news (Item 1: “How frequently do you check the news?”), following of stories (Item 2: “How closely do you follow current news events?”), and time spent consuming news information (Item 3: “How much of your free time do you spend following the news?”). These three items showed strong internal consistency ($\alpha = .91$) and so they were combined into a single news consumption score ranging from 3 to 15 with higher scores indicating that a participant tends to follow the news more closely. However, the distribution of responses revealed a pattern of moderate skewness ($M = 6.50$, $SD = 3.13$, $Skewness = 0.65$, $Mdn = 6.00$) such that 27% of the sample provided the lowest possible score ($Mode = 3.00$) with the remainder of scores ranging from 4 to 15.

Participants were also asked two questions about how they typically access news information. The first question inquired about their preferred medium (Question A: “What is your most commonly used method for accessing the news?”) with five response options: smartphone, computer, TV, radio, and print. The second question inquired about preferred internet sources (Question B: “What is your primary source for accessing news content on the internet?”) with two options: “News Websites/Apps” or “Social Media Posts (Facebook, Twitter, etc.)”

**News Quiz**

Participants completed a quiz in which they had to view 20 news headlines, each accompanied by a 150- to 200-word summary of the news event described in the headline. The stories used for the quiz were selected from the *Factitious 2017* and *Factitious 2018* quizzes featured on the website factitious.augamestudio.com (American University Game Lab, 2017). The quiz is freely available to the public and designed for educational use in secondary and higher education settings with the goal of helping students learn to identify common elements in “fake” news stories. All of the stories selected for the quiz appeared somewhere on the internet from 2017–2018.

We selected 20 stories from the 2017 and 2018 versions of the *Factitious* quiz exactly as they appeared in the quiz (i.e., headlines and accompanying text), but we removed source information (i.e., the primary news website where the story appeared). For each story, participants had to select *True* or *Fake*, and then provide a confidence rating for their response using a 5-point scale ranging from 1 (*very unsure*) to 5 (*very confident*). Half of the stories described true events; half described events that did not actually occur. Among these true versus fake stories, half were political and half were unrelated to politics (see Table 1).

Participants were not provided with feedback throughout the quiz, but they were provided with the correct answers upon completion of the quiz. To avoid reinforcing any possible belief in false information through re-exposure (Schwarz et al., 2016), participants were only provided with a list of the 10 headlines previously encountered that were in fact based on true events. The headlines on this “true” list were accompanied by source information in order to further reinforce participants’ belief that these stories were in fact based on real events and had appeared online through legitimate news sources.

**Procedure**

The study protocol was approved by the Elmira College Human Research Review Board during the 2018–2019 academic year prior to beginning data collection. The study involved completion

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**TABLE 1**

<table>
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<tr>
<th>Sample Headlines From the News Quiz</th>
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<td><strong>True Story</strong></td>
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<tr>
<td><strong>Fake Story</strong></td>
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<tr>
<td><strong>Political Content</strong></td>
</tr>
<tr>
<td>Trump says he made up trade claim in meeting with Justin Trudeau</td>
</tr>
<tr>
<td><strong>General Content</strong></td>
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<tr>
<td>More people have died from selfies than shark attacks this year</td>
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*Note: Participants read 20 headlines, each accompanied by a brief news story. For each story, participants had to guess true or fake, and then provide a confidence rating for their answer.*
of an online survey and quiz programmed using Google Forms. Prospective participants were recruited by advertising the study in lower level psychology classes where the professor had agreed to offer extra credit in exchange for participation. Prospective participants were provided with a link to the survey through email. The survey included a written informed consent statement that required acknowledgment before beginning the survey. Participants were asked for their name and institutional email address for the purpose of assigning extra credit in a designated psychology course. All other responses were separated from the participant’s name and email address prior to data analysis in order to protect confidentiality. Participants proceeded through the study materials in the following order: (a) Maximization Scale, (b) Need for Cognition Scale, (c) news consumption and access questions, (d) news quiz, (e) demographic questions, and (f) review of true news stories. The entire study was designed to be completed in approximately 30 minutes.

Results

Patterns of News Access

Seventy-four percent of participants reported that their most commonly used method for accessing the news is a smartphone. Twelve percent of participants reported using a computer most often. Together, these internet-based methods of accessing news account for 86% of the present college student sample. The remaining 14% of the sample reported accessing the news most commonly via television (7%), radio (5%), or print (2%) sources, respectively. Participants were also asked about their primary internet-based source of news. Seventy-five percent of participants identified “social media posts (Facebook, Twitter, etc.)” as their primary source for internet-based news, compared to 25% of participants who indicated that their primary internet source was “news websites or news apps” as their primary internet source for news. 

News Quiz Performance

Performance on the 20-item news quiz was normally distributed (Skewness = -0.06) with scores ranging from 5 to 16 (M = 10.21, SD = 2.39). Average performance on the quiz as a proportion of the total number of items (M = 0.51, SD = 0.12) did not differ significantly from 50%, t(120) = 0.98, p = .33, indicating that the sample as a whole failed to perform better than chance on the news quiz. Participants who reported using “news websites or news apps” as their primary internet source for news (M = 0.51, SD = 0.09) did not perform significantly better on the news quiz, t(120) = 0.06, p = .95, than participants who identified “social media posts (Facebook, Twitter, etc.)” as their primary source for internet-based news (M = 0.51, SD = 0.12).

Overall, participants were moderately confident in their responses (M = 2.92, SD = 0.77), and in fact, the only variable that significantly predicted news quiz scores was a participant’s mean confidence estimate generated from the confidence ratings provided for each of the 20 news items, r(121) = .18, p = .04. We also hypothesized that maximization, need for cognition, news consumption, and completion time would be positively correlated with performance on the news quiz; however, these hypotheses were not supported (see Table 2). A simultaneous multiple regression analysis including these predictors as independent variables failed to account for a significant portion of variance in news quiz scores, F(5, 116) = 1.36, p = .25, R² = .06.

News Followers vs. News Avoiders

Because the hypothesized variables reflecting differences in decision-making style failed to predict performance on the news quiz, we separated the sample into subgroups to examine whether participants who follow the news more closely might have approached the task differently than participants who show substantially less interest in the news. Participants with news consumption scores greater than one standard deviation above the mean (M = 6.50, SD = 3.13) were classified as news followers. This subgroup included 20% of the original sample (n = 24) with news consumption scores ranging from 10–15. Participants with news consumption scores greater than one standard deviation below the mean were classified as news avoiders. Twenty-seven percent of the sample (n = 33) met this criterion by obtaining a 3, which is the lowest score possible across the three news consumption items.

Despite reporting that they follow the news much more closely, news followers (M = 10.83, SD = 1.66) did not score significantly higher on the news quiz than news avoiders (M = 10.18, SD = 3.39), t(55) = 1.15, p = .26. News followers were also similar to news avoiders with regard to the amount of time spent on the quiz, t(55) = -0.27, p = .79, and their preference for maximizing, t(55) = 0.95, p = .35. However, news followers reported a significantly greater need for cognition, t(55) = 2.73, p = .01, and reported greater confidence in their responses throughout the news quiz.
quiz, $t(55) = 2.33, p = .02$ (see Table 3). To more carefully assess this apparent overconfidence effect among news followers, we conducted an analysis of covariance, comparing mean confidence scores between news followers and news avoiders while controlling for actual news quiz performance. The effect of news consumption status was significant, $F(1, 54) = 4.54, p = .04$, such that news followers reported greater confidence in their responses ($M_{adj} = 3.16, SE = 0.17$) compared to news avoiders ($M_{adj} = 2.69, SE = 0.14$) even after controlling for news quiz scores (see Figure 2).

**Discussion**

Participants completed a quiz designed to assess their ability to distinguish between true versus fake news stories that appeared on the internet throughout 2017–2018. Without the aid of source information that would normally accompany each story (e.g., the news agency or website responsible for publishing the story), participants failed to perform better than chance when asked to judge whether each story referred to real or fabricated events. This finding suggests that assessing the veracity of news stories may become difficult in the present age of disinformation, possibly amounting to a 50–50 guess if one loses track of a story’s source.

We also hypothesized that several variables identifying individual differences in one’s information processing style, including need for cognition and choice maximization, would predict performance on the news quiz, possibly by motivating more careful scrutiny of the information provided. However, we failed to find support for these hypotheses. Need for cognition and choice maximization were not associated with performance on the news quiz. Participants’ mean confidence ratings were weakly correlated with their performance on the news quiz ($r = .18, p = .04$), but no other variables were, including the amount of time participants spent on the quiz or their regular news-following habits.

Interestingly, participants varied widely with regard to their self-reported level of news consumption. More than a quarter of the sample (27%) provided the lowest possible score on a brief survey assessing the extent to which they follow current events in the news. These participants were labeled *news avoiders*. We hypothesized that this subgroup might have struggled even more with the difficulty of the news quiz compared to participants who reported high levels of news consumption, a subgroup we labeled *news followers*. Still, the news quiz proved incredibly difficult for both subgroups of participants, such that like the news avoiders, even the news followers failed to perform better than chance. However, news followers reported significantly higher confidence in their performance compared to news avoiders, despite performing similarly to news avoiders on the actual quiz. In fact,
this discrepancy in confidence levels between news followers and news avoiders was still present even after controlling for individual performance on the news quiz. This suggests that, as a group, news followers perceived themselves as more accurately discerning fact from fiction, despite failing to perform better than chance on the quiz.

This finding may provide a cautionary tale for those who take greater interest in current events and follow the news more closely. The news followers among the present college-student sample might have developed a degree of false confidence in their ability to sort fact from fiction when browsing news headlines. This could be due, in part, to participants perceiving themselves as being well-informed of current events based on their news consumption habits. Although the source of this confidence bias in the present study is not exactly clear, one clue may come from the fact that news followers scored significantly higher than news avoiders on the Need for Cognition Scale (Cacioppo et al., 1984). This scale assesses an individual’s preference for engaging in challenging cognitive tasks that demand more thought and mental effort. Given the greater need for cognition among news followers, they might have perceived themselves as being more capable problem solvers than was actually possible when faced with making judgments about news stories that lacked important source information.

In particular, the present findings may have implications for the general public, but especially those who rely on getting news from internet sources. All of the “fake” stories included in the news quiz appeared on the internet at some point during 2017 or 2018, and all appear to have been deliberately crafted in the hope of being mistaken as veridical reports of real news events. To minimize the risk of falling prey to fabricated news stories, the present study demonstrates the potential importance of carefully scrutinizing source information, and possibly rejecting information outright if a verifiable source is absent. However, among the present college-student sample, the patterns of news access suggest that sources of news information may easily be overlooked or, if noticed, quickly forgotten. Eighty-six percent of participants reported that their most common method for accessing the news is the internet, by either using a smartphone (74%) or computer (12%). When accessing news via the web, 75% of participants reported getting that information through social media posts; only the remaining quarter of the sample indicated that they usually obtain news information directly through news websites or apps. Within the young-adult, college-student sample represented in this study, this suggests a pattern of news access that may make this otherwise well-educated and technologically sophisticated generational cohort particularly susceptible to encountering disinformation campaigns, designed to deliberately spread false information by triggering its dissemination throughout social media networks (Bradshaw & Howard, 2019).

Strengths, Limitations, and Future Directions
This study represents a unique examination of young adults’ ability to sort fact from fiction when given a plausible news story without its supporting source information. This novel investigation showed that participants failed to perform better than chance on a news quiz when source information was omitted. Although the study context did not perfectly mimic the ways in which individuals normally browse headlines from internet-based news sources, the ecological validity of the content and formatting of the material included in the study serves as a particular strength for generalizing these results to real-world behaviors. All of the stories included in the news quiz—true or fake—appeared on the internet during 2017–2018, and participants were provided with a broad variety of political and nonpolitical content.

Another strength of this study involves the inclusion of measures of individual differences in information processing style—need for cognition and choice maximization—which, to our knowledge, have not yet been examined in the context of evaluating the veracity of news information. Given the widespread increase in disinformation campaigns throughout social media platforms, understanding individual differences in how people
access and process news information may be important for improving educational initiatives to train adolescents and young adults to be more cautious and savvy consumers of digital information.

Although novel in its approach, the present study was still characterized by several methodological limitations, as well as sampling constraints that should motivate future research. First, the study was limited to a college-student sample. To generalize findings to the broader American public, future research should seek out more diverse participant samples to better understand how people may access and evaluate news information. A majority of participants in the present sample reported relying on social media posts for news information, and they reported accessing news by using a smartphone more than any other device. Individuals with other media habits may present a different information processing profile when it comes to evaluating the veracity of news information. In particular, the literature would benefit from a future study comparing participants with different media preferences, such as those who exclusively access information directly from reputable news sources versus those whose primary contact with news information is through a social media feed.

Second, we deliberately removed source information from the stories presented to participants to examine how participants would handle the information in isolation. Of course, teaching adolescents and young adults how to carefully evaluate news information—as is the educational goal of the Factitious program from which we selected news stories (American University Game Lab, 2017)—involves educating students about the importance of reviewing and scrutinizing sources in order to reduce one’s susceptibility to believing fake news. Future research incorporating sources into the information presented to participants may tell a more complete story about how individuals go about questioning information they encounter on the internet, and certainly should be incorporated into interventions designed to develop more cautious consumers of information.

Of particular importance may be future studies that examine individuals’ preexisting preferences and biases with regard to news sources. Although we controlled for the potential influence of these biases in the present study by eliminating source information, partisan political views may have a dramatic influence on the trustworthiness that an individual assigns to a particular news source (e.g., CNN vs. Fox News). Additional research is needed to identify individual differences that may influence one’s judgments about whether a particular news source in considered trustworthy. Future research may also benefit from exploring differences in how individuals evaluate news stories related to political versus nonpolitical content.

Lastly, the present study provided a preliminary exploration of only several of many individual differences variables that might influence how people go about evaluating news information. Results should be cautiously interpreted with regard to choice maximization due to the fact that the 9-item Maximization Scale demonstrated questionable internal consistency with the present sample (α = .61). However, an interesting finding emerged with regard to need for cognition, such that news followers scored higher on this measure, even though they failed to perform better on a news quiz than those classified as news avoiders. Therefore, future research may benefit from more closely examining the role of need for cognition in influencing one’s information processing style. It is possible that, given the ability to access and scrutinize source information, those with a higher level of need for cognition might show a tendency to evaluate this source information more carefully. Future research could explore whether source evaluation serves as a mediating variable between one’s need for cognition and one’s ability to correctly sort fact from fiction.

Conclusion

In a globally connected age of digital information exchange, many daily decisions now involve evaluating information, shared through various media and provided by a myriad of sources. Judging the legitimacy of news information has become a task of critical importance, but one that must compete for one’s time and mental effort in the context of all the other attention-demanding tasks we encounter on a daily basis. Today, there is growing concern that individuals are not just at risk of accidentally encountering misinformation, but disinformation, deliberately and carefully crafted to deceive, often through well-organized campaigns (Bradshaw & Howard, 2019). Without carefully reviewing source information, well-intentioned individuals may fall prey to misjudgments about the veracity of news information, especially that encountered through internet sources and social media feeds. Future research is needed to determine more effective methods for educating the public about how to scrutinize questionable news information. However, for those presently in the role of trying to correct known misinformation, Schwarz et al.
(2019) provided apt advice: “Overall, behavioral research shows that often the best strategy in the fight against misinformation is to paint a vivid and easily understood summation of the truthful message one wishes to impart instead of drawing further attention to false information” (p. 86).

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Lead investigators Andreas Endresen, Amanda Campbell, and Bridget Torresson contributed to the development, completion, and reporting of this study during the 2018–2019 and 2019–2020 academic years while completing their undergraduate work in psychology under the supervision of Christopher Terry.

Correspondence concerning this article should be addressed to Christopher P. Terry, Department of Psychology, Elmira College, One Park Place, Elmira, NY 14901, United States. Email: cterry@elmira.edu
The Effects of App-Delivered Cognitive Behavioral Therapy for Insomnia (CBT-I) on Sleep Quality, Dysfunctional Beliefs, and Sleep Hygiene

Julia A. Leonard1 and Angela B. Duncan2*
1Department of Counseling Psychology, University of Kansas
2Department of Psychology, Washburn University

ABSTRACT. Sleep quality is correlated with physical and mental health and is an important target for overall well-being. CBT-I is an evidence-based strategy to improve sleep quality; however, shortage of qualified providers; logistical issues such as cost, travel, and time; privacy concerns; and a desire to resolve symptoms on one’s own limit access to CBT-I. Compared to traditional face-to-face or web-based delivery of CBT-I, app-delivered CBT-I may be an efficacious alternative capitalizing on the portability, privacy, and accessibility of mobile phones. The present study examined the effectiveness of the CBT-I Coach for educating participants about the importance of healthy sleep practices and dysfunctional beliefs about sleep and targeted sleep. The use of the CBT-I Coach resulted in significant improvements in sleep quality, dysfunctional beliefs about sleep, sleep hygiene behaviors, and sleep efficiency. This study supports the use of CBT-I Coach as an effective intervention for improving sleep quality.

Keywords: sleep, technology, mobile applications, cognitive behavioral therapy for insomnia
However, several factors limit access to traditional CBT-I including shortage of qualified providers; logistical issues such as cost, travel, and time; privacy concerns; and a desire to self-help (Manber et al., 2015; Miner et al., 2016). These limitations have led to finding ways to increase access to treatment while still retaining effectiveness (Manber et al., 2015). Researchers have emphasized the need to disseminate CBT-I in ways other than traditional face-to-face individual therapy sessions (Blom et al., 2015). Compared to face-to-face delivery of psychological care, technology enables expanded access to mental health services, psychoeducational information, and self-management tools with little to no professional involvement (Miner et al., 2016). Similarly, technology-based interventions for insomnia decreased sleep difficulties and reduced insomnia severity when compared to traditional care and control groups (Blom et al., 2015; Kaldo et al., 2015; Miner et al., 2016).

Although internet-delivered treatments are beneficial, mobile phone apps may have an even broader reach. Interventions involving smart phones, including mobile apps, are readily accessible as smartphone usage has steadily increased with over three-quarters (81%) of American adults currently owning smartphones (Pew Research Center, 2019). Of the age cohorts surveyed, young adults between the ages of 18–29 accounted for the largest share of smartphone ownership, reporting that 96% own a smartphone (Pew Research Center, 2019). App-delivered treatment could potentially exceed the advantages of internet-delivered treatment because mobile phones are portable, private, and usually with the person at all times (Horsch et al., 2017). Furthermore, app-delivered interventions have the potential to be less structured, less time intensive, and have reduced to no professional contact while still maintaining effectiveness. Researchers have demonstrated that app-delivered interventions are both feasible and efficacious (Babson et al., 2015; Horsch, et al., 2017).

Limitations identified in previous research studies on technology-delivered interventions call for new approaches to examine the efficacy of app-delivered CBT-I. For example, Horsch et al. (2017) observed no change in dysfunctional beliefs about sleep, a major theoretical component in the maintenance of sleep disturbance (Kaplan & Harvey, 2014), due to the Sleepcare app having no clear cognitive component or stimulus control exercise (Horsch et al., 2017). Although researchers have demonstrated the effectiveness of internet-based interventions on reducing insomnia symptoms (Blom et al., 2015; Kaldo et al., 2015) and that smartphone apps can improve insomnia, PTSD, depression, and anxiety symptoms (Donker et al., 2013; Horsch et al., 2017; Miner et al., 2016), there is a need for further investigation into the effect of mobile app-delivered CBT-I in a nonclinical population.

Current Study
The CBT-I Coach is an app-based CBT-I approach developed by the U.S. Department of Veterans Affairs (VA) to be used as a companion to face-to-face CBT-I treatment. The CBT-I Coach app has not been evaluated outside of this context with a nonclinical population. The intervention being tested includes one face-to-face meeting with a brief psychoeducational component at the start of the intervention period paired with participants’ use of the CBT-I Coach. The aim of the current study was to test the effectiveness of the CBT-I Coach in facilitating growth in participants’ understanding of the importance of healthy sleep practices, dysfunctional beliefs about sleep, and sleep quality. It was hypothesized that, at the completion of the study, individuals would endorse fewer dysfunctional beliefs about sleep, engage in more sleep hygiene practices, and report better sleep quality when compared to pretest scores.

1. The intervention would result in sleep quality improvement from pretreatment to posttreatment as reported on the Pittsburgh Sleep Quality Index.
2. The intervention would result in decreased dysfunctional beliefs about sleep as measured on the Dysfunctional Beliefs about Sleep Scale from pretreatment to posttreatment.
3. The intervention would result in increased healthy sleep behaviors as measured on the Sleep Hygiene Practice Scale from pretreatment to posttreatment.
4. The intervention would result in increased sleep efficiency from pretreatment to posttreatment as measured through the daily sleep diary entries.

Method
Participants
Participants were recruited from a mid-sized Midwestern university during the academic year. Eligible participants were smartphone owners, over the age of 18, and not currently in treatment for sleep difficulties. Participating psychology faculty
members made announcements about the opportunity to participate in the study to students enrolled in undergraduate psychology courses. Participants were awarded course credit points set at the professors’ discretion. All participants who completed the study were entered into a gift card drawing. A total of 41 participants enrolled in the study. Participants’ ages ranged from 18–62 years with a mean age of 22 ($SD = 9.42$) years and included 13.6% first-year students, 45.5% sophomores, 27.3% juniors, and 13.6% seniors. Most participants were women (77%), and 23% were men. During the study period, 19 participants withdrew due to not consenting to text messaging, missing more than 2 out of 7 sleep diaries per week, absence at the in-person meeting, and/or incomplete or missing posttreatment surveys. Therefore, 22 out of 41 participants completed the study and were included in the final sample.

**Materials**

**Demographic Questionnaire**  
Participants completed a demographic questionnaire assessing age, gender, and class standing.

**Sleep Diary**  
All participants completed a daily sleep diary throughout the four-week study. The use of sleep diaries, especially in electronic form, were intended to capture experiences close to the time of occurrence, thereby limiting memory lapses and bias, producing more accurate and reliable information than self-report sleep questionnaires alone. Participants completed sleep diaries daily for the duration of the study. The sleep diaries addressed bedtime, sleep onset latency, number of awakenings, wake time, and quality of sleep. During the pretreatment week, participants were sent a link to an online sleep diary each morning to submit the daily sleep diary data from the previous night. Participants utilized the in-app sleep diary for the final three weeks of the study by reporting the previous night’s sleep data within the app each day. Although participants were asked to capture daily data, the data were not collected by the researchers each day. Instead, the data were collected at the end of each week through a link where participants would transfer their week’s data from the app to the survey.

**Pittsburgh Sleep Quality Index (PSQI)**  
The PSQI is a 19-item self-rated questionnaire that assesses sleep quality and disturbances over a 1-month time interval (Buysse et al., 1989). The items on the PSQI generate 7 component scores in the areas of (a) subjective sleep quality, (b) sleep latency, (c) sleep duration, (d) habitual sleep efficiency, (e) sleep disturbances, (f) use of sleeping medication, and (g) daytime dysfunction. There are four open-ended items and 15 items that are rated using Likert-type scales assessing frequency, satisfaction, and severity, respectively. Each question is assigned a score from 0 (no difficulty) to 3 (severe difficulty; see Buysse et al., 1989, for individual item scoring instructions). The component scores are calculated and then summed to yield one global score that has a range of 0–21 with higher scores indicating worse sleep quality (Buysse et al., 1989). A score of 5 or above is indicative of sleep disturbance. In comparable studies, reported pretreatment scores on the PSQI were between 6.29 and 6.98 for nonclinical populations (Kloss et al., 2016; Peach et al., 2016) and between 10.6 and 11.0 for a clinical population (Horsch et al., 2017). The PSQI demonstrated strong convergent validity when compared to related constructs such as sleep problems and sleep restlessness ($r = .69$) and significant divergent validity when compared to nausea, vomiting, and taste changes ($r = .37$; Carpenter & Andrykowski, 1998). Furthermore, samples differentiated by PSQI scores were also differentiated by polysomnographic measures of sleep (Buysse et al., 1989). The PSQI is found to be a reliable measure with evidence of strong correlations of the seven components to the global construct ($\alpha = .83$) and performance consistency with a reliability coefficient of .85 (Buysse et al., 1989). In the current sample, Cronbach’s alpha for the PSQI global score was .64.

**Dysfunctional Beliefs and Attitudes About Sleep Scale (DBAS-16)**  
The DBAS-16 is a 16-item self-report measure designed to evaluate sleep-related cognitions in the following four domains: perceived consequences of insomnia, worry/helplessness about insomnia, sleep expectations, and medication (Morin et al., 2007). Participants rate their beliefs about the item on a 10-point Likert-type scale from 0 (strongly disagree) to 10 (strongly agree). The items on the DBAS-16 are summed and averaged for a total score. With a range from 0–10, a higher score indicates a stronger endorsement of dysfunctional beliefs. Comparable studies focused on cognitive components of sleep disturbance within clinical samples reported pretreatment scores between 4.21 and 5.3 (Eidelman et al., 2016; Horsch et al., 2017).
The DBAS-16 demonstrated significant convergent validity \((r = .18 - .45)\) when compared to other self-report measures of insomnia severity and acceptable discriminant validity \((r = -.12 - -.20)\) when compared to demographic characteristics of age, gender, and education level (Morin et al., 2007). The DBAS-16 was found to be a reliable measure as evidenced by acceptable internal consistency \((\alpha = .79\), research sample; \(\alpha = .77\), clinical sample\) and test-retest reliability \((r = .83;\) Morin et al., 2007). In the current sample, Cronbach’s \(\alpha\) for the total scale was .83 and subscale coefficients ranged from .60 (sleep expectations) to .83 (worry/helplessness).

**Sleep Hygiene Practice Scale (SHPS)**

The SHPS is a 30-item self-report scale designed to assess sleep hygiene behaviors that may have a negative impact on the circadian system (Yang et al., 2010). These sleep habits are classified into four domains including arousal-related behavior, sleep scheduling and timing, eating/drinking behaviors, and sleep environment. Participants rate how often they engaged in the behavior using a 6-point Likert-type scale from 1 (never) to 6 (always). The items on the SHPS are summed for a total score with a range from 30–180. A higher score indicates a stronger endorsement of poor sleep hygiene practices. In comparable studies, pretreatment scores on the SHPS were between 70.18 and 91.78 (Peach et al., 2016; Yang et al., 2010). The SHPS was found to be a valid measure as it correlated significantly with measures of insomnia and sleep quality (Yang et al., 2010). The SHPS demonstrated sound internal consistency among items in each of the following domains: arousal-related behavior \((\alpha = .70\), good sleepers; \(\alpha = .58\), with insomnia), sleep scheduling and timing \((\alpha = .82\), good sleepers; \(\alpha = .74\), with insomnia), eating/drinking behaviors \((\alpha = .72\), good sleepers; \(\alpha = .70\), with insomnia), and sleep environment \((\alpha = .67\), good sleepers; \(\alpha = .65\), with insomnia; Yang et al., 2010). In the present study, the internal consistency estimate for the total scale was .81 and subscale coefficients ranged from .63 (eating/drinking behaviors) to .72 (sleep environment).

**CBT-I Coach Application**

CBT-I was administered using the CBT-I Coach mobile application. The content of the CBT-I Coach is adapted from critical components from *Cognitive Behavioral Therapy for Insomnia in Veterans* (Manber et al., 2014). The app was developed by the U.S. Department of Veterans Affairs in collaboration with the Stanford University Medical Center and the Department of Defense’s National Center for Telehealth & Technology (U.S. Department of VA, 2013).

The CBT-I Coach includes four main categories including My Sleep, Tools, Learn, and Reminders. My Sleep displays data collected through the sleep diary function of the app including graphs that depict a personalized sleep summary, containing time in bed and hours asleep by date, sleep efficiency, sleep onset latency, number and duration of awakenings, and wake times. The Tools section demonstrates how to incorporate new sleep habits into a nighttime routine, schedule worry time, and change irrational perspectives about sleep. The Learn component of the application includes psychoeducation on CBT-I, the importance of healthy sleep, the stages of sleep, what regulates sleep, and additional information about sleep disorders as well as a glossary of terms such as stimulus control. Finally, the Reminders component aids the individual in setting reminders for critical components of CBT-I discussed above. The CBT-I Coach can be downloaded for free from Google and iTunes stores.

Participants completed daily sleep diaries for three weeks using the CBT-I Coach. Participants utilized the reminders function of the application most notably to complete the daily sleep diary but also for wind down, worry, bed and wake times, and time to restrict caffeine intake. The app does not have a structured program for use, so the participants determined how they wished to use the app outside of the daily sleep diaries and reminders.

**Mobile Application Rating Scale (MARS)**

The MARS is a 23-item tool used to assess the quality of mobile health apps (Stoyanov et al., 2015). There are four objective quality scales including engagement, functionality, aesthetics, and information quality. There is one subjective quality scale, which includes four items: recommendation for others, future use, worth the price, and overall rating of the app. All of the items are rated on a 5-point Likert-type scale from 1 (inadequate) to 5 (excellent). The MARS is scored by calculating the mean of the four objective quality subscales and an overall mean app quality score. When compared to iTunes star ratings, the total MARS score showed a moderate correlation \((r = .55)\). Testing on the MARS total score indicated a high level of internal consistency \((\alpha = .90;\) Stoyanov et al., 2015\). The MARS subscales were also found to be internally consistent \((\alpha = .80 - .89)\) and demonstrated an
Effects of App-Delivered CBT-I on Sleep | Leonard and Duncan

excellent level of interrater reliability (ICC = .79; Stoyanov et al., 2015). In the current sample, Cronbach’s alpha was .90 for the objective quality scales total score. Objective quality subscale coefficients ranged from .77 (aesthetics) to .88 (functionality).

Procedure
Prior to data collection, the study received approval from the Washburn University Institutional Review Board. Individuals who consented to participate and who met the inclusion criteria completed baseline measures that included: (a) a demographic questionnaire, (b) PSQI, (c) DBAS, and (d) SHPS. All measures were made available through SurveyMonkey. The following day after the completion of the baseline measures, participants were sent a link to complete a sleep diary for the previous night. This was done every day for seven days to collect the pretreatment sleep diaries. On those days, texts were sent at 10:00 a.m. through Texting Base and included a link to SurveyMonkey. During the pretreatment week of the study, participants were also texted dates and times of a 90-minute in-person meeting. Participants waited between 1 day and 10 days, depending on their availability with the times and dates offered, between the pretreatment week and their attendance of a scheduled in-person meeting where no intervention was implemented, or sleep diary information was collected. Participants were only eligible to attend the meeting to begin the intervention weeks on the day of their last pretreatment sleep diary entry or later.

The intervention included a face-to-face meeting where participants were oriented to the CBT-I Coach app and were provided with psychoeducation on the 2-phase sleep model, the National Sleep Foundation’s recommendations for good sleep quality, cognitive distortions in sleep related thoughts, and sleep hygiene practices. With the exception of the National Sleep Foundation’s recommendations, the other psychoeducational components were derived directly from the CBT-I Coach app. Participants were provided with handouts reviewing the psychoeducational components and were given a calendar detailing the daily tasks to be completed for the remainder of the study (daily sleep diary, weekly sleep diary entries, posttreatment measures).

Following the in-person meeting, participants utilized the app and submitted their sleep diary data for the previous week through SurveyMonkey. At the end of Week 4, participants were texted a link to the posttreatment measures that included: (a) PSQI, (b) DBAS, (c) SHPS, and (d) MARS. Following the posttreatment measures, participants were given a debriefing form outlining the purpose of the study and contact information for follow-up or additional questions and resources.

Results
Preliminary Analyses
Data were cleaned by two investigators to achieve interrater agreement among final scores. This process involved downloading data sheets from SurveyMonkey and hand-scoring the PSQI, DBAS, and SHPS for each participant who provided both pre and posttest data. Sleep diary information was organized for each day the participant provided data by converting time into a decimal consistent with a 24-hour system (e.g., 11:30 p.m. was converted to 23.5). Length of time as reported in sleep onset latency and length of awakenings were converted into a decimal by dividing the minutes reported by 60 (e.g., 25 minutes was converted to 0.42). When participants reported ranges, such as 10–15 minutes, the midpoint was used. Tests for outliers and normality of distributions showed all variables were in the acceptable range. Participants who had missing data and still met completion criteria (e.g., 5 out of 7 sleep diaries completed per week), were still included in final analyses but their data for that day were omitted.

Variables of interest were overall PSQI pre- and posttreatment scores, overall DBAS pre- and posttreatment scores, SHPS pre and posttreatment scores, and average sleep efficiency scores from pretreatment Week 1 and posttreatment Week 4. Due to multiple comparisons, the significance level for the four overall scores were adjusted using the Bonferroni correction. Subscale components for each measure are also reported for exploratory purposes and as such, their significance levels were not adjusted.

Descriptive Data
At baseline, participants demonstrated poor overall sleep quality, reported low frequency of sleep hygiene practices, and held unrealistic expectations of sleep and thoughts about the ability to cope with sleep difficulties.

Participants spent an average of 33 minutes in the app (SD = 9 minutes) during posttreatment Week 1, 38 minutes in the app (SD = 18 minutes) during posttreatment Week 2, and 39 minutes in the app (SD = 9 minutes) during posttreatment...
Week 3. All participants reported use of the My Sleep component where sleep diaries were filled out within the app. Of the Learn subsection of CBT-I Coach, 41% engaged with Habits & Sleep, 36% explored Sleep 101, and 9% utilized the CBT-I glossary. The Tools section included both cognitive and behavioral interventions and troubleshooting techniques and 55% of participants utilized Quiet Your Mind tools and 41% used the Create New Sleep Habits tools.

Changes in Subjective Sleep Quality
The first hypothesis stated that the intervention would result in sleep quality improvement from pretreatment to posttreatment as measured by the PSQI. Mean changes from pretreatment to posttreatment were compared using paired-samples t tests. When pre- and posttest measures of sleep quality using the PSQI (prettest: $M = 7.82$, $SD = 3.25$; posttest: $M = 5.55$, $SD = 2.4$) were compared, a significant improvement was found, PSQI $t(21) = 4.58$, $p < .001$, $d = 0.93$. Of the seven component scores, significant mean changes were most apparent on subjective sleep quality, sleep latency, and daytime dysfunction. Changes in sleep quality overall and by subscale from pre to posttest can be seen in Table 1.

Changes in Endorsement of Sleep Myths
The second hypothesis focused on changes from baseline to 4-weeks on endorsement of maladaptive beliefs about sleep that was targeted through the app intervention. Mean changes from pretreatment to posttreatment were compared using paired-samples t tests. When pre- and posttest measures of beliefs about sleep (prettest: $M = 4.82$, $SD = 1.68$; posttest: $M = 3.99$, $SD = 1.29$) were compared, a significant improvement was found, DBAS $t(21) = 3.12$, $p = .001$, $d = 0.66$. Changes in endorsement of sleep myths overall and by subscale can be seen in Table 2.

Changes in Sleep Hygiene Practices
The third hypothesis focused on changes in the practice of sleep hygiene behaviors as rated using the SHPS at baseline and at 4-weeks. Mean changes from pretreatment to posttreatment were compared using paired-samples t tests. When pre and posttest measures of sleep hygiene behaviors (prettest: $M = 85.27$, $SD = 18.88$; posttest: $M = 73.46$, $SD = 16.41$) were compared, a significant improvement was found, SHPS $t(21) = 3.26$, $p = .001$, $d = 0.70$. Changes in sleep hygiene practices overall and by subscale can be seen in Table 3.

Changes in Sleep Efficiency
The fourth hypothesis stated that sleep efficiency would improve over the course of the study. Sleep efficiency was calculated using the daily sleep diary.

### Table 1
Comparison of Pre and Posttreatment Scores of Sleep Quality

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pretreatment $M$</th>
<th>Pretreatment $SD$</th>
<th>Posttreatment $M$</th>
<th>Posttreatment $SD$</th>
<th>t(21)</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective sleep quality</td>
<td>1.36</td>
<td>0.58</td>
<td>1.05</td>
<td>0.49</td>
<td>2.31</td>
<td>.031</td>
<td>0.49</td>
</tr>
<tr>
<td>Sleep latency</td>
<td>1.68</td>
<td>0.99</td>
<td>0.86</td>
<td>0.95</td>
<td>4.23</td>
<td>&lt;.001</td>
<td>0.90</td>
</tr>
<tr>
<td>Sleep duration</td>
<td>0.77</td>
<td>0.81</td>
<td>0.55</td>
<td>0.96</td>
<td>1.23</td>
<td>.234</td>
<td>0.26</td>
</tr>
<tr>
<td>Habitual sleep efficiency</td>
<td>0.86</td>
<td>1.13</td>
<td>0.64</td>
<td>0.73</td>
<td>1.00</td>
<td>.329</td>
<td>0.21</td>
</tr>
<tr>
<td>Sleep disturbances</td>
<td>1.23</td>
<td>0.61</td>
<td>1.14</td>
<td>0.64</td>
<td>0.81</td>
<td>.427</td>
<td>0.17</td>
</tr>
<tr>
<td>Use of sleeping medication</td>
<td>0.50</td>
<td>1.01</td>
<td>0.55</td>
<td>1.01</td>
<td>−0.58</td>
<td>.576</td>
<td>0.12</td>
</tr>
<tr>
<td>Daytime dysfunction</td>
<td>1.41</td>
<td>1.01</td>
<td>0.77</td>
<td>0.81</td>
<td>3.31</td>
<td>.003</td>
<td>0.71</td>
</tr>
<tr>
<td>Total</td>
<td>7.82</td>
<td>3.25</td>
<td>5.45</td>
<td>2.40</td>
<td>4.82</td>
<td>&lt;.001</td>
<td>0.93</td>
</tr>
</tbody>
</table>

Note. Subscale scores range from 0 (no difficulty) to 3 (severe difficulty). Total score has a range of 0 (no difficulty) to 21 (severe difficulties in all areas). Higher scores indicate worse sleep quality. The total score $p$ value was adjusted for multiple comparisons using a Bonferroni correction.

### Table 2
Comparison of Pre and Posttreatment Scores for Dysfunctional Beliefs About Sleep

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pretreatment $M$</th>
<th>Pretreatment $SD$</th>
<th>Posttreatment $M$</th>
<th>Posttreatment $SD$</th>
<th>t(21)</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived consequences</td>
<td>5.65</td>
<td>2.08</td>
<td>4.36</td>
<td>1.77</td>
<td>3.72</td>
<td>.001</td>
<td>0.79</td>
</tr>
<tr>
<td>Worry/helplessness</td>
<td>4.34</td>
<td>2.13</td>
<td>3.73</td>
<td>1.84</td>
<td>1.52</td>
<td>.143</td>
<td>0.32</td>
</tr>
<tr>
<td>Sleep expectations</td>
<td>6.14</td>
<td>2.38</td>
<td>5.14</td>
<td>2.36</td>
<td>2.06</td>
<td>.052</td>
<td>0.44</td>
</tr>
<tr>
<td>Medication</td>
<td>3.58</td>
<td>1.82</td>
<td>3.14</td>
<td>1.63</td>
<td>1.36</td>
<td>.188</td>
<td>0.29</td>
</tr>
<tr>
<td>Total</td>
<td>4.83</td>
<td>1.68</td>
<td>3.89</td>
<td>1.30</td>
<td>3.12</td>
<td>.001</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Note. Scores range from 0–10, a higher score indicates a stronger endorsement of dysfunctional beliefs. The total score $p$ value was adjusted for multiple comparisons using a Bonferroni correction.

### Table 3
Comparison of Pre and Posttreatment Scores for Sleep Hygiene Practice

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pretreatment $M$</th>
<th>Pretreatment $SD$</th>
<th>Posttreatment $M$</th>
<th>Posttreatment $SD$</th>
<th>t(21)</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arousal-related behavior</td>
<td>29.64</td>
<td>7.53</td>
<td>22.50</td>
<td>6.71</td>
<td>4.49</td>
<td>&lt;.001</td>
<td>0.96</td>
</tr>
<tr>
<td>Sleep scheduling and timing</td>
<td>24.23</td>
<td>6.87</td>
<td>21.55</td>
<td>6.29</td>
<td>1.93</td>
<td>.067</td>
<td>0.41</td>
</tr>
<tr>
<td>Eating/drinking behaviors</td>
<td>12.86</td>
<td>4.89</td>
<td>13.55</td>
<td>4.82</td>
<td>−0.65</td>
<td>.522</td>
<td>0.14</td>
</tr>
<tr>
<td>Sleep environment</td>
<td>18.55</td>
<td>6.64</td>
<td>15.96</td>
<td>5.96</td>
<td>1.88</td>
<td>.074</td>
<td>0.40</td>
</tr>
<tr>
<td>Total</td>
<td>85.27</td>
<td>18.88</td>
<td>61.41</td>
<td>16.41</td>
<td>3.26</td>
<td>.001</td>
<td>0.70</td>
</tr>
</tbody>
</table>

Note. Scores range from 30–180. A higher score indicates a stronger endorsement of poor sleep hygiene practices. The total score $p$ value was adjusted for multiple comparisons using a Bonferroni correction.
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Data. Changes in sleep efficiency were evaluated using the daily sleep efficiency calculations for the pretreatment week to the final posttreatment week using a paired-samples t-test. As hypothesized, when pre- and posttreatment weeks of sleep efficiency data (pretreatment: $M = 83.14, SD = 9.05$; posttreatment: $M = 90.56, SD = 5.83$) were compared, a significant improvement was found, $t(21) = -4.93, p < .001, d = 1.05$. Improvements were observed in sleep onset latency and number of awakenings. No change was found in total sleep time. Changes in overall sleep efficiency and by component can be seen in Table 4.

**Attitudes Toward CBT-I Coach**

The MARS survey indicated participants’ overall positive attitudes toward the CBT-I Coach app. Participants rated the app as moderate to high. The overall score was consistent with the subscale scores for engagement, functionality, aesthetics, and information quality with a range of means from 3.27 to 4.12. The highest rated objective components were functionality ($M = 4.06, SD = 0.80$) and information quality ($M = 4.12, SD = 0.66$). Means and standard deviations for each quality scale can be found in Table 5.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pretreatment</th>
<th>Posttreatment</th>
<th>$t(22)$</th>
<th>$p$</th>
<th>$d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep onset latency</td>
<td>0.60</td>
<td>0.34</td>
<td>3.16</td>
<td>.005</td>
<td>0.67</td>
</tr>
<tr>
<td>Number of awakenings</td>
<td>1.28</td>
<td>0.04</td>
<td>4.89</td>
<td>&lt; .001</td>
<td>1.04</td>
</tr>
<tr>
<td>Total sleep time</td>
<td>8.22</td>
<td>7.88</td>
<td>1.45</td>
<td>1.63</td>
<td>0.31</td>
</tr>
<tr>
<td>Sleep efficiency</td>
<td>83.14</td>
<td>90.56</td>
<td>-4.93</td>
<td>&lt; .001</td>
<td>1.05</td>
</tr>
</tbody>
</table>

Note. The sleep efficiency value was adjusted for multiple comparisons using a Bonferroni correction.

**TABLE 5**

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement</td>
<td>3.27</td>
<td>0.84</td>
</tr>
<tr>
<td>Functionality</td>
<td>4.06</td>
<td>0.80</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>3.71</td>
<td>0.75</td>
</tr>
<tr>
<td>Information</td>
<td>4.02</td>
<td>0.74</td>
</tr>
<tr>
<td>Total Objective Quality</td>
<td>3.81</td>
<td>0.66</td>
</tr>
<tr>
<td>Total Subjective Quality</td>
<td>2.79</td>
<td>0.95</td>
</tr>
</tbody>
</table>

Note. Scores range from 1 (inadequate) to 5 (excellent).

When participants were asked whether they would recommend the CBT-I Coach app to others, the 45% reported they would recommend to several, 27% would recommend the app to everyone, and 17% reported they would not recommend the app at all. About 46% anticipated using the app 10 or more times after the study concluded.

**Discussion**

In one of the first studies investigating the effect of a brief psychological intervention and app-delivered CBT-I on sleep quality in a nonclinical population, we found that overall intervention significantly improved sleep quality, decreased dysfunctional beliefs about sleep, decreased problematic sleep behaviors, and improved sleep efficiency over 3 weeks. The primary aim of the study was to investigate the effectiveness of the CBT-I Coach for improving sleep quality. The CBT-I Coach app offered participants continued access to efficacious treatment strategies and educational components about the importance of healthy sleep practices and dysfunctional beliefs about sleep. Overall, the improvement in outcome measures due to the brief face-to-face orientation and psychoeducation and use of the CBT-I Coach app is comparable to other internet-delivered CBT-I and traditional face-to-face CBT-I treatments (Blom et al., 2015; Eidelman et al., 2016; Geiger-Brown et al., 2015; Kaldo et al., 2015).

Dysfunctional beliefs about sleep have a significant impact on perceived sleep quality (Ohayon et al., 2017), and results from this study indicate that beliefs can be significantly modified through a CBT-I intervention. Participants in this study endorsed fewer dysfunctional beliefs about sleep over the course of the intervention. Even after a brief, 3-week intervention period, these results were consistent with reductions in dysfunctional beliefs about sleep in participants who completed 8 weeks of cognitive therapy, behavioral therapy, or CBT-I (Eidelman et al., 2016; Harvey et al., 2007). However, face-to-face interventions demonstrated larger effect sizes (Harvey et al., 2007). Furthermore, when compared to a study with a college population that used two psychoeducational workshops on sleep, the current study found similar reductions in dysfunctional beliefs but with larger effect sizes (Kloss et al., 2016).

A similar study utilizing app-delivered CBT-I with pretreatment DBAS scores matching those of the current study found no reduction in mean scores after 6 weeks of intervention for...
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dysfunctional beliefs about sleep (Horsch et al., 2017). Horsch and colleagues (2017) posited that this was due to their app having no component that directly targeted cognitions. The similarity of these interventions and the clear difference in outcomes provide preliminary support for the efficacy of the cognitive interventions within the CBT-I Coach.

Sleep hygiene behaviors were addressed as part of the psychoeducation components and the tools component of the CBT-I Coach. Sleep scheduling was specifically targeted through the scheduling and push notification reminders of a wind-down time prior to sleeping, which has been established in past research to promote relaxation before bed and regularity in sleep and wake times (Kaplan & Harvey, 2014). The practice of sleep hygiene behaviors significantly improved over the course of the study. These benefits were also found in Kloss and colleagues’ (2016) study with a college population. This significant improvement is preliminary evidence supporting the use of the app to promote, troubleshoot, and remind participants of healthy sleep hygiene behaviors.

Self-reports of sleep quality were significantly improved over the course of the study, which offers consilience with significant decreases in endorsement of dysfunctional sleep beliefs and increases in sleep hygiene behaviors. Significant improvements from pretreatment to posttreatment on the current study’s PSQI scores were similar to score differences in studies involving longer treatment intervention and regular meetings with a licensed professional (Geiger-Brown et al., 2015). Sleep quality differences were greater, statistically significant, and garnered a larger effect size than that of a similar study with the college population utilizing psychoeducation as an intervention alone (Kloss et al., 2016). Additionally, when compared to another app-delivered intervention study, PSQI changes and effect sizes were consistent (Horsch et al., 2017).

Pretreatment and posttreatment self-report measures corroborated results found through daily sleep diary entries. When baseline and posttreatment sleep efficiency percentages were compared, there was a 7% increase. This improvement in sleep efficiency is substantiated by Geiger-Brown et al.’s (2015) meta-analysis that reported an average 9% increase in sleep efficiency. However, the studies included in the meta-analysis were face-to-face individual or group delivered CBT-I over a 4- to 8-week time frame. Participants in the current study experienced similar sleep efficiency improvements during a shorter time period without the help of continuous professional contact. Participants’ average sleep efficiency percentage at pretreatment was only slightly below the recommended 85% or above for good quality sleep as outlined by the National Sleep Foundation (Ohayon et al., 2017) but post-treatment scores exceeded the recommended efficiency score. Improvements were also observed in sleep onset latency and awakenings after sleep onset consistent with the recommended ranges indicative of good quality sleep. Previous research has also demonstrated a significant reduction in sleep onset latency with the use of CBT-I ranging from a reduction of 15 to 21 minutes (Harvey et al., 2007; Geiger-Brown et al., 2015).

Although there are several mobile apps that target and track sleep, there is little information available about their perceived quality and usability (Miner et al., 2016). Participants’ attitudes about CBT-I Coach quality were assessed using the MARS. Overall, participants indicated positive attitudes toward the CBT-I Coach app. Participants rated information quality and functionality highest among the quality subscales, which is a reflection of participant satisfaction and might have also enhanced the impact of the intervention. Although still indicating positive impressions, participants reported lower ratings for aesthetics and engagement. This may also be reflected in participants’ reported average time spent in the app, which was only 33–39 minutes per week.

Despite seemingly low engagement, sleep outcomes were significantly improved. The in-app components are brief, in-the-moment interventions, which may explain the discrepancy between time and significant outcomes. The outcome measures in contrast with the participants’ reported use of the app may provide preliminary evidence that time in the app does not directly reflect sleep improvement or more broadly, the effectiveness of the intervention. Most comparison studies were structured and involved continuous therapeutic contact and included 4 to 8 hours of planned intervention over a 4- to 8-week period. The current study found improvements consistent with previous research but with only 1 structured contact and much less participant time investment.

Potential Limitations and Future Research Directions
Certain limitations should be noted. First, due to our use of a convenience sample of undergraduate college students taken from a mid-sized Midwestern
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university, generalizability may be limited, even among nonclinical populations. Second, over the course of the study, we experienced a 46% attrition rate leaving us with a relatively small sample. The sample size might have increased the chance of Type II error. Additionally, the high rate of attrition is potentially indicative of attrition bias where the participants who completed the study might have held greater expectations of the intervention’s effectiveness. Third, there was no control group and thus no definitive way to rule out that improvement was due to passage of time or increased awareness of sleep-related behaviors and cognitions from participants. We controlled for this by having participants complete a sleep diary every day before the introduction of any intervention so that the sample group also served as their own control. Additionally, some of the alpha coefficients of measures for the current study fell below the .70 range, which is considered to be acceptable. Fourth, this study relied solely on participants’ self-report for data collection in the pretreatment measures, daily sleep diaries, app use, and posttreatment measures. Daily sleep diaries do demonstrate some convergent validity when compared to physiological measures of sleep (Tonetti et al., 2016), and future research can be improved by utilizing objective methods of data collection to compare against this sample’s self-report measures. Fifth, there were no outcome measures taken immediately following the face-to-face meeting. Although we have compelling evidence that participants’ use of the app improved their overall sleep quality, without a more extensive assessment procedure, it is not possible to separate the impact of the face-to-face meeting alone and participants’ use of the app. Finally, it is unknown if frequency of use, total time in app, and/or engagement in particular components of the app were specific variables affecting change.

The results of this study suggest the need for future research to evaluate app-delivered CBT-I and its effects on sleep quality, sleep hygiene practices, and endorsement of dysfunctional beliefs about sleep. Future research may address some of the current study’s limitations by evaluating app-delivered treatments using well-constructed longitudinal experimental research designs. The use of a control group, objective measurement tools, and a more robust assessment procedure would allow for richer information to be derived about the variables of change and more detail about the effects of those changes. Specific to app-delivered treatment, future research would include an objective measure of interaction and engagement with the app to collect specific and detailed data about content that produced the most interest and where participants spent most of their time when using the app. Collecting information about the durability of the treatment effect is also of interest. Future studies should focus on follow-up assessments at 3 months, 6 months, and 12 months to investigate long-term effects of a brief, technology-based intervention.

Conclusions
To our knowledge, this is the first known study to evaluate a mobile app for treatment of sleep difficulties with a brief, structured psychoeducational session among a nonclinical population. The results of this study are consistent with the improvements seen with face-to-face CBT-I, internet-delivered CBT-I, and group CBT-I. This study achieved significant results with large effect sizes within a condensed timeframe with only one face-to-face structured contact, suggesting that even a brief intervention with little to no structured, clinical involvement can lead to changes in sleep quality indicators. The findings are encouraging and support the use of psychoeducation and app-delivered CBT-I to reduce maladaptive beliefs about sleep, increase sleep hygiene knowledge and practice, and improve overall sleep quality. Furthermore, this is a cost-effective and easily disseminated way to improve sleep (even when clinical criteria for a sleep disorder may not be met) and perhaps serve as a protective measure against the development of a sleep disorder. The results of this study support the use of technology for improving sleep quality, reducing sleep onset latency and number of awakenings, aiding in creating consistent healthy sleep behaviors, and can serve as a preventative strategy for nonclinical populations and clinical populations alike.

References


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Author Note. Julia Leonard

https://orcid.org/0000-0003-0673-4892

Julia Leonard is now at the Department of Educational Psychology at the University of Kansas, Lawrence, KS. The authors declare no conflicts of interest. Correspondence concerning this article should be addressed to Julia Leonard, Department of Counseling Psychology, University of Kansas, Lawrence, KS 66045. Email: julia.leonard@ku.edu.
Using Chapman’s Five Love Languages Theory to Predict Love and Relationship Satisfaction

Jennifer L. Hughes* and Abigail A. Camden
Department of Psychology, Agnes Scott College

ABSTRACT. Chapman (2015) proposed a popular love language theory about couples’ communication of love. For the present study, we predicted that partners who perceived that their partner used their preferred love language well would report greater feelings of love and relationship satisfaction. We expected this would be the same for both women and men, as well as those in heterosexual and gay relationships. We recruited 981 individuals in couples to complete online surveys. Using multiple regression, we found support for our hypothesis that a partner’s perception that their partner was using their preferred love language well would increase love (i.e., words of affirmation $R^2 = .26$, quality time $R^2 = .23$, gifts $R^2 = .17$, acts of service $R^2 = .25$, and physical touch $R^2 = .24$) and relationship satisfaction (i.e., words of affirmation $R^2 = .32$, quality time $R^2 = .24$, gifts $R^2 = .11$, acts of service $R^2 = .20$, and physical touch $R^2 = .24$). Unexpectedly, we found that women who thought their partners were using their preferred love language (i.e., gifts, acts of service, and physical touch) well reported greater feelings of love as compared to men. This research provided some support for teaching people in romantic relationships how to learn and use their partner’s preferred love languages well. In addition, partners should be taught to recognize when their partners are attempting to use their preferred love language because this could lead to increased feelings of love and relationship satisfaction.

Keywords: love languages, couples, love, relationship satisfaction, Chapman, gay couples

Chapman (2015) proposed that a main reason for relationship problems is that couples speak different love languages. For couples to effectively communicate, each partner must learn to speak the love language that their partner prefers. His love languages theory includes words of affirmation, quality time, gifts, acts of service, and physical touch.

Polk and Egbert (2013) suggested that future research on the love languages should gather data on behaviors that partners perceive they are receiving. For the current study, we followed their suggestion and assessed whether the perception that a partner was using a love language well predicted love and relationship satisfaction for the other partner. We also evaluated sexual orientation and gender identity as predictors.

For this study we used the Love Languages Profile written by Chapman (2015) to assess the love languages. Most research has not used his scale. Instead, the authors developed their own scales based on the theory. Bland and McQueen (2018) argued that not using Chapman’s inventory has led to measurement issues that could have affected the results of these studies and created mixed results. They also contended that the scale that Chapman developed is conceptually closer to his model as compared to the scales developed by the other authors. Some of those scales also have had poor reliability coefficients (e.g., Bunt & Hazelwood, 2017).

In this article, we define the love languages and give information about how to determine an individual’s preferred love language or languages.
Then, we review the connection between the love languages and both love and relationship satisfaction. Finally, we review some of the research that has been conducted on the love languages.

**Love Languages**

Chapman (2015) noted that all five of the love languages are equally important, but that people differ on the ones they prefer. The first love language is *words of affirmation*. He stated that people want to be appreciated, and the way partners verbally communicate this appreciation is important. A soft tone is needed, and it is also important to use kind words and make humble requests. Another way to affirm a partner is by complimenting the partner in the presence of friends, family, or coworkers. He argued that complimenting the partner will make the partner feel loved because their partner is expressing admiration in front of others.

The second love language is *quality time*. Chapman (2015) defined this love language as giving a partner undivided attention, which means that partners are doing something together with focused attention on each other. This attention creates a sense of togetherness. A second way to experience quality time is by having quality conversation. This conversation should involve sympathetic dialogue with partners sharing their experiences, thoughts, feelings, and desires without interruption. He stated that this type of sympathetic dialogue is crucial for feeling loved. He also added that quality conversation is different from words of affirmation in that the focus is on what the person is hearing from their partner rather than on what the person is saying to the partner.

The third love language is *receiving gifts*. Chapman (2015) found that gift giving is a fundamental expression of love across cultures. By exchanging gifts, the person is investing in their relationship. However, Chapman noted that gifts do not have to cost money; instead, what is important is that, for some people, gifts feel like a tangible symbol of love.

The fourth love language is *acts of service*. Chapman (2015) stated that this involves doing things that a partner knows their partner would like for them to do. These acts often involve household chores. He added that if they are done with positive thought, energy, and planning they can be perceived as expressions of love because they convey that one partner was thinking about the other.

The fifth love language is *physical touch*. Chapman (2015) argued that it is a powerful way to communicate love. It can include touching, hugging, holding hands, kissing, or sexual acts. The key is learning the type of touch that is wanted.

**Determining the Preferred Love Language or Languages**

Chapman (2015) gave several methods in his book for discovering a person’s preferred love language. First, he developed the Five Love Languages Profile, which is an online scale that can be used to find people’s preferred love languages. This scale was used in the current research. Another way to find a person’s preferred love language is to ask the following questions: “First, what does your partner do or not do that hurts deeply?,” “Second, what have you requested that you partner do most often?,” and “Third, how do you regularly express love to your partner?” These questions allow people to see what is important to them and therefore indicates a preferred love language. A third way he suggested to find a preferred love language involves asking the question, “What would an ideal partner be like?” The desired qualities for the ideal partner can be used to pinpoint expectations about desired ways to receive love.

**Love Languages, Love, and Relationship Satisfaction**

Chapman (2015) proposed that when partners speak each other’s preferred love language they will feel love and greater relationship satisfaction. He suggested that partners have *emotional love tanks*. An empty love tank can cause romantic withdrawal or falling out of love, harsh interactions, or inappropriate behaviors. Conversely, couples with a full love tank are able to deal with conflict and cope with their differences. Understanding the love languages, and learning to use the preferred one for a partner, can lead to filling the love tank. Chapman suggested that receiving the preferred love language is more important for keeping the tank full than receiving a combination of all five love languages. He postulated that learning to express a partner’s love language often requires effort and discipline, and when done intentionally, it is most likely to lead to feelings of love and greater relationship satisfaction. Problems arise when partners do not know their partners love language(s) or when they do not know how to use them. This can lead to the partner instead giving the love language they prefer to receive, which might not be seen as caring and could contribute to decreased feelings of love or relationship satisfaction for their partner.
Chapman added that partners must recognize when their partner is using their love language and that miscommunicating in this way can lead to empty love tanks and dissatisfaction for the couple.

Prior Research Using the Love Language Theory
Not much research has been conducted on Chapman’s (1992) love language theory (Bland & McQueen, 2018). Six articles have been published in professional journals (i.e., Bland & McQueen, 2018; Bunt & Hazelwood, 2017; Egbert & Polk, 2006; Goff et al., 2007; Nichols et al., 2018; Polk & Egbert, 2013), one article in an undergraduate journal (i.e., Cook et al., 2013), and one article was presented at a conference (i.e., Leaver & Green, 2005). In addition, four dissertations have been written about the love languages (i.e., Moitinho, 2000; Salas, 2009; Thatcher, 2004; Veale, 2006).

Bland and McQueen (2018) grouped the research that has been conducted into three categories. The first category of research included studies that evaluated the factor structure of the love language theory (Chapman, 1992). Three groups of authors used factor analysis to evaluate the factor structure of scales they developed to assess the love language theory with mixed results. For example, both Goff et al. (2007) and Cook et al. (2013) evaluated questionnaires they developed to determine people’s love languages instead of using Chapman’s (2015) Love Language Profile. Undergraduate students completed their surveys, which also limited the generalizability of their findings. Goff et al. (2007) found six factors including the ones Chapman used, but divided acts of service into two groups: domestic service and manual service. However, after completing confirmatory factor analyses, Cook et al. (2013) did not find factors that represented Chapman’s (1992) five love languages. They noted that future research should instead use the Love Language Profile developed by Chapman (2015). They believed it might provide the best evidence for legitimacy of the love languages.

The second category of research given by Bland and McQueen (2018) included research that established evidence for the construct validity of the Love Language model (Chapman, 1992). Egbert and Polk (2006) found that the five factors were correlated with Stafford et al. (2000) relational maintenance typology (i.e., assurances, social networks, openness, positivity, and shared tasks). Those who scored high on the relational maintenance categories also scored high on the love language factors.

The third category of research given by Bland and McQueen (2018) included studies that tested partners’ preferred love languages and the quality of their relationships. The current study falls into this category. As for prior research, Thatcher (2004) and Veale (2006) used the love language theory (Chapman, 1992) and assessed couples’ marital satisfaction and love. Neither study supported Chapman’s theory, but Bunt and Hazelwood (2017) noted that these studies had narrow participant pools and methodological flaws. Thatcher’s research only examined love language category membership but did not look at expressions of that love language, which Chapman (2015) proposed to be more important for relationship satisfaction.

Polk and Egbert (2013) tested whether partners who express love in ways that align with their partner’s primary love language would have more fulfilling relationships. They had couples report their preferred love language using Egbert and Polk’s (2006) 20-item Love Language Scale and did not use Chapman’s (1992) inventory. The authors wanted to evaluate situations where both partners receive their desired love languages, only one partner received the desired love language, or neither partner receives the desired love language. To do this, they categorized each couple based on their love language preference and formed matches, partial matches, and mismatches. The most frequently occurring couple type represented a mismatch. The authors tested Chapman’s prediction that couples who give and receive one another’s preferred love language experience greater relationship quality. The Quality of Relationships Inventory by Pierce (1994) was used to assess relationship quality. This inventory assesses social support and has subscales for depth, support, and conflict. They found that matched and mismatched couples reported greater relationship quality as compared to partially matched couples. They stated that their findings provided little support for Chapman’s love language theory. However, their findings could be a result of not using the Love Language Profile developed by Chapman (2015). They also used depth, support, and conflict to assess relationship quality, instead of love and relationship satisfaction, which Chapman mentioned in his book.

For the present study, we predicted that partners who perceive that their partner uses their preferred love language well would report greater feelings of love and relationship satisfaction. We expected this would be the same for those in heterosexual and gay relationships, as well as for
women and men. However, we did not expect to find couple type or gender identity to be a predictor because relationship quality and satisfaction has been found to be comparable for both women and men in gay relationships and heterosexual couples (Herek, 2006; Kurdek, 2005; Mackey et al., 2004). In addition, Chapman (1992) proposed that the love languages were gender neutral and applied equally to women and men.

**Method**

**Participants**

The 981 participants in this study consisted of 520 cisgender women and 461 cisgender men involved in heterosexual (346 women, 295 men), lesbian (174 women), and gay male (168 men) relationships who lived in the United States. Nine additional participants who marked “other” and wrote transgender without specifying the gender they identified with or agender were not kept in the data. Because we were specifically looking at participants in heterosexual relationships and gay relationships, we also did not include in the analyses another 23 participants who marked other and wrote bisexual, pansexual, demisexual, asexual, questioning, queer, fluid, or prefer not to answer. Participants were 18–24 (23.1%), 25–34 (37.9%), 35–44 (17.7%), 45–54 (11.7%), 55–64 (7.5%), and over 65 (2.1%).

Sixteen participants did not list their age. Participants listed their racial background as being 72.4% White, 7.5% Hispanic, 7.3% Black, 7.0% Asian, 2.9% multiracial, 1.9% Native American, or 1.1% other. Four participants did not list their race. Most participants had attended some college (30.8%), had a bachelor’s degree (37.1%), or had a graduate degree (26.4%). All participants lived with their partners, and 45.6% were married. Five participants did not answer the question about being married. Seventeen percent of participants had children, and 66.5% of those currently lived with their parents. The couples reported living with their partners for 1–6 months (7.3%), 6–12 months (8.3%), 1–2 years (14.0%), 2–3 years (10.7%), 3–5 years (12.7%), 5–7 years (8.7%), 7–10 years (8.7%), and greater than 10 years (29.6%).

**Measures**

**Love**

The components of love (i.e., intimacy, passion, and commitment) were measured using Sternberg’s Triangular Love Scale (Sternberg, 1988). Sternberg (1997) defined intimacy as feelings of closeness, connectedness, and bonding; passion as the drives that lead to romance, physical attraction, and sexual activity; and commitment as the decision to maintain the relationship. The scale has 45 questions. An example item for intimacy is “I have a warm relationship with my partner,” an example item for passion is “I find myself thinking about my partner frequently during the day,” and an example item for commitment is “I am committed to maintaining my relationship with my partner.” Participants used a 9-point Likert-type scale from 1 (not at all) to 9 (extremely). Higher scores indicated greater love.

Hendrick and Hendrick (1989) found that all three subscales demonstrated strong, positive correlations with the Passionate Love Scale by Hatfield and Sprecher (1986) and with Davis’s viability, intimacy, passion, care, and satisfaction subscales and negative correlations with the conflict subscale from the Davis Relationship Rating Form (Davis & Todd, 1982). Hendrick and Hendrick (1989) reported an alpha of .97 when using Sternberg’s scale, and for the present study, we found an alpha reliability coefficient of .98.

**Love Languages**

The Love Language Profile written by Chapman (2015) was used to assess the ways individuals in relationships communicate including: words of affirmation, quality time, receiving gifts, acts of service, and physical touch. Participants were given 30 items and asked to pick from two options for each. Participants received a point for each question and those points were then paired with each of the five love languages. The subscale with the most points was the preferred love language. Some participants had two preferred love languages because their scores tied. Permission to use the scale was received by the author of the scale.

**Partner’s Perceived Use of Love Language**

Participants were given Chapman’s (1992) definitions of the five love languages. They were then asked, “When you think about your relationship with your partner, how well does your partner do using the following categories: words of affirmation, quality time, receiving gifts, acts of service, and physical touch?” Participants used a 5-point scale, poorly to extremely well, for each love language, and the higher the score corresponded to participants feeling that their partner was using their perceived love language better.

**Relationship Satisfaction**

The Relationship Assessment Scale is a 7-item measure developed by Hendrick (1988). An example
item is “In general, how satisfied are you with your relationship?” and participants answered each item using a 5-point Likert-type scale from 1 (low satisfaction) to 5 (high satisfaction). Higher scores indicated greater relationship satisfaction. This scale has a .80 correlation with the longer and more widely used Spanier (1976) Dyadic Adjustment Scale. Hendrick (1988) found an alpha reliability coefficient of .86 for the scale. For the present study, a .86 alpha reliability coefficient was also found.

**Procedure**

After IRB approval, 32 research assistants recruited 517 individuals who were in relationships (i.e., 234 heterosexual women, 122 heterosexual men, 101 lesbian women, and 60 gay men) using flyers sent through email and posted on social media (i.e., Facebook). Paper flyers were posted on campus bulletin boards. Another 464 participants (i.e., 171 heterosexual men, 112 heterosexual women, 108 gay men, and 73 lesbian women) were recruited using Amazon Mechanical Turk (MTurk). They were paid $0.50 to participate. We added the use of MTurk a few weeks after beginning data collection because we worried that we would not get enough gay men and lesbians as participants, and we looked at the data and saw that not many participants’ preferred love language was gifts. By using MTurk, we widened our participant pool and made it more likely that our numbers for each love language would increase. All participants were asked to take the same online survey using SurveyMonkey. To be considered for the study, individuals had to be in a relationship, living together, live in the United States, and had to be able to take the survey online.

Participants were asked to complete surveys about the love languages, relationship satisfaction, and love. The surveys also asked about demographic information. Participation was voluntary, but both the convenience sampling participants and the MTurk participants who agreed to participate were entered in a drawing to possibly win one of four $50 Amazon gift cards.

Before running our analyses, we compared the participants from the convenience sampling and MTurk for the demographics and variables in the study. The convenience sample had more women (66.11% as compared to 40.73%) and less racial diversity (i.e., 3.9% as compared to 10.9% Black participants, 5.85% as compared to 8.17% Asian participants, 77.33% as compared to 66.66% White participants, .39% as compared to 2.58% Native American participants), and had more participants with graduate degrees (31.37% as compared to 20.26%). We did not find differences between the samples for participants being married. Just fewer than half of the participants from the convenience sample and MTurk were married.

Using Mann-Whitney U tests, we compared age and length of time together for the couples. We found the convenience sampling group (Mdn rank = 519.22) had been together as a couple longer as compared to the MTurk group (Mdn rank = 459.81), U = 1057461.00, p = .001. However, the samples did not differ when it came to age, U = 109795.00, p = .139.

Using independent-samples t tests, we found that love was significantly higher for the convenience sampling group (M = 356.36, SD = 46.60) as compared to the MTurk group (M = 333.25, SD = 63.98), t(923) = 6.28, p = .001, d = 0.41, and we found that relationship satisfaction was also significantly higher for the convenience sampling group (M = 30.37, SD = 4.17) as compared to the MTurk group (M = 29.21, SD = 4.87), t(947) = 3.97, p = .001, d = 0.26.

**Results**

The top preferred love languages were quality time (40.8%) and physical touch (40.0%). The other love languages had lower percentages (i.e., words of affirmation, 22.7%; acts of service, 13.6%; and gifts, 4.0%). Some participants tied for their preferred love languages and those were represented in the percentages listed above. Therefore, the percentages exceed 100%.

Table 1 contains information about the number of participants in each love language and how well participants felt that their partners were using their preferred love language or languages well or extremely well for each love language.

Prior to conducting our hierarchical multiple regressions, we tested the relevant assumptions of this statistical analysis as put forth by Tabachnick and Fidell (2012). First, our sample size seemed adequate given the independent variables included in the analyses. The assumption of singularity was met as our independent variables were not a combination of other independent variables. An examination of correlations (see Table 2) revealed that none of our independent variables were highly correlated. Our collinearity statistics, including
Tolerance and VIF were within acceptable limits. Our Mahalanobis distance scores did not indicate that we had multivariate outliers. Finally, our residual and scatter plots indicated that the assumptions of normality, linearity, and homoscedasticity were met.

Because we found differences in our convenience and MTurk samples for love and relationship satisfaction, we ran our analyses separately for each group. However, the sample size for gifts was only three participants and therefore was too low to run the analyses for that love language. Because of this, we decided to run our analyses using the combined groups.

For the analyses, participants were grouped by their preferred love language and then hierarchical regressions were run for each love language. We found the following results.

For those who had the preferred love language of words of affirmation, the perception that their partners did well with using words of affirmation predicted greater love (the model accounted for 26% of the variance, $F[1, 210] = 77.50, p < .001, 95\% \text{ CI } [23.07, 36.38]$) and greater relationship satisfaction (the model accounted for 32% of the variance, $F[1, 215] = 104.31, p < .001, 95\% \text{ CI } [2.04, 3.01]$). Sexual orientation and gender identity were not found to be predictors for love or relationship satisfaction. See Table 3.

For those who had the preferred love language of quality time, the perception that their partners did well with spending quality time with them predicted greater love (the model accounted for 23% of the variance, $F[1, 376] = 112.94, p < .001, 95\% \text{ CI } [20.73, 30.14]$) and predicted greater relationship satisfaction (the model accounted for 24% of the variance, $F[1, 384] = 122.59, p < .001, 95\% \text{ CI } [1.76, 2.51]$). Sexual orientation and gender identity were not found to be predictors of love or relationship satisfaction. See Table 4.

For those who had the preferred love language of acts of service, both the perception that their partners did well with performing acts of service and gender identity predicted greater love (the model accounted for 25% of the variance, $F[1, 120] = 29.31, p < .001, 95\% \text{ CI } [15.95, 34.33]$). Sexual orientation was not a predictor of love. Also, for those who had the preferred love language of acts of service, the perception that their partners did well with performing acts of service predicted greater relationship satisfaction (the model accounted for 20% of the variance, $F[1, 121] = 28.79, p < .001, 95\% \text{ CI } [1.17, 2.53]$). Sexual orientation and gender identity were not found to be predictors of relationship satisfaction. See Table 6.

For those who had the preferred love language of physical touch, both the perception that their partners did well with physical touch and gender identity predicted greater love (the model accounted for 24% of the variance, $F[1, 129] = 29.31, p < .001, 95\% \text{ CI } [15.95, 34.33]$). Sexual orientation was not a predictor of love. Also, for those who had the preferred love language of physical touch, the perception that their partners did well with giving them gifts predicted greater relationship satisfaction (the model accounted for 25% of the variance, $F[1, 131] = 23.90, p < .001, 95\% \text{ CI } [1.76, 2.51]$). Sexual orientation and gender identity were not found to be predictors of relationship satisfaction. See Table 6.

For those who had the preferred love language of gifts, both the perception that their partners did well with giving them gifts and gender identity were predictors of greater love (the model accounted for 32% of the variance, $F[1, 220] = 35.42, p < .001, 95\% \text{ CI } [23.07, 36.38]$) and greater relationship satisfaction (the model accounted for 24% of the variance, $F[1, 226] = 30.78, p < .001, 95\% \text{ CI } [1.76, 2.51]$). Sexual orientation and gender identity were not found to be predictors of love or relationship satisfaction. See Table 5.

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percent of Participants Who Felt Their Partners Were Using Their Preferred Love Language or Languages Poorly to Extremely Well</strong></td>
</tr>
<tr>
<td>Love Languages</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Words of affirmation ($n = 220$)</td>
</tr>
<tr>
<td>Quality time ($n = 395$)</td>
</tr>
<tr>
<td>Gifts ($n = 39$)</td>
</tr>
<tr>
<td>Acts of service ($n = 129$)</td>
</tr>
<tr>
<td>Physical touch ($n = 385$)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Correlations for the Independent Variables (i.e., Sexual Orientation, Gender Identity, and the Perception That Partners Are Using the Love Languages Well) and the Dependent Variables (i.e., Love and Relationship Satisfaction)</strong></td>
</tr>
<tr>
<td>Variable</td>
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<tr>
<td>---</td>
</tr>
<tr>
<td>1. Sexual orientation</td>
</tr>
<tr>
<td>2. Gender identity</td>
</tr>
<tr>
<td>3. Using words of affirmation well</td>
</tr>
<tr>
<td>4. Using quality time well</td>
</tr>
<tr>
<td>5. Using gifts well</td>
</tr>
<tr>
<td>6. Using acts of service well</td>
</tr>
<tr>
<td>7. Using physical touch well</td>
</tr>
<tr>
<td>8. Love</td>
</tr>
<tr>
<td>9. Relationship satisfaction</td>
</tr>
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</table>

Note. Higher score indicates greater magnitude. All analyses were two-tailed. * $p < .05$. ** $p < .01$. *** $p < .001$. 

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### TABLE 3

Summary of Hierarchical Regression Analysis for Sexual Orientation, Gender Identity, and the Perception of the Love Language Words of Affirmation Being Used Well Predicting Love and Relationship Satisfaction

<table>
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<th>Variable</th>
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<th>Model 2</th>
<th></th>
<th>Model 3</th>
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<td>β</td>
<td>B</td>
<td>SE</td>
<td>β</td>
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<td></td>
</tr>
<tr>
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<td>−.01</td>
<td>−.23</td>
<td>4.53</td>
<td>−.04</td>
</tr>
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<td>Gender identity</td>
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<td>11.60</td>
<td>8.04</td>
<td>.09</td>
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<tr>
<td>Sexual orientation</td>
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<td>.31</td>
<td>.04</td>
<td>.23</td>
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<td>.05</td>
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Note. Ns = 210 and 215.  
***p < .001.

### TABLE 4

Summary of Hierarchical Regression Analysis for Sexual Orientation, Gender Identity, and the Perception of the Love Language Quality Time Being Used Well Predicting Love and Relationship Satisfaction

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<tr>
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<td>2.27</td>
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<td>.78</td>
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<td>Gender identity</td>
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Note. Ns = 376 and 384.  
***p < .001.
### TABLE 5

Summary of Hierarchical Regression Analysis for Sexual Orientation, Gender Identity, and the Perception of the Love Language Gifts Being Used Well Predicting Love and Relationship Satisfaction

<table>
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<th>Variable</th>
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Note. Ns = 34 and 34. *p < .05.

### TABLE 6

Summary of Hierarchical Regression Analysis for Sexual Orientation, Gender Identity, and the Perception of the Love Language Acts of Service Being Used Well Predicting Love and Relationship Satisfaction

<table>
<thead>
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Note. Ns = 120 and 121. *p < .01, **p < .01, ***p < .001.
Sexual orientation was not a predictor of love. For those who had the preferred love language of physical touch, the perception that their partners did well with physical touch predicted greater relationship satisfaction (the model accounted for 24% of the variance, $F_{[1, 375]} = 116.10$, $p < .001$, 95% CI [1.71, 2.47]). Sexual orientation and gender identity were not found to be predictors of relationship satisfaction. See Table 7.

To evaluate our significant findings for gender identity, we used post-hoc $t$ tests. We found that women ($M = 305.25$, $SD = 79.29$) reported greater love than men ($M = 249.61$, $SD = 72.93$) when their preferred love language was gifts and they felt like their partner was doing well with giving gifts, $t(37) = 2.26$, $p = .03$, $d = 0.73$. We also found that women ($M = 338.65$, $SD = 52.03$) reported greater love than men ($M = 300.42$, $SD = 79.69$) when their preferred love language was acts of service and they felt like their partner was providing acts of services well, $t(122) = 3.22$, $p = .002$, $d = 0.57$. In addition, we found that women ($M = 360.80$, $SD = 45.07$) reported greater love than men ($M = 348.24$, $SD = 56.03$) when their preferred love language was physical touch and they felt like their partner was using physical touch well, $t(367) = 2.36$, $p = .019$, $d = 0.25$.

### Discussion

Although Chapman’s (1992) love language theory is often used by those in the helping professions (Bland & McQueen, 2018; Bunt & Hazelwood, 2017) and quoted by those who have read Chapman’s books (Egbert & Polk, 2006), very little research has been conducted on the theory. For this research study, we predicted that partners who perceived that their partner used their preferred love language well would report greater feelings of love and relationship satisfaction. Our results run counter to the research conducted by Thatcher (2004) and Veale (2006), which used Chapman’s love language theory to assess couples’ marital satisfaction and love but did not...

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**TABLE 7**

<table>
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Note. Ns = 364 and 375.

*p < .05, **p < .01, ***p < .001.
Hughes and Camden | The Five Love Languages

find significant results. However, as noted in the literature review, Bunt and Hazelwood (2017) stated that the studies had methodological flaws.

Unexpectedly, we found that women who felt their partners were using their preferred love language of gifts, acts of service, or physical touch well reported greater feelings of love. This could tie into the research by Schoenfeld et al. (2012). They found that women and men are equally likely to show affection but express love differently. In their sample, the married women expressed love by having fewer negative interactions, and the married men showed love by initiating sex, sharing leisure activities, and doing household work with their partners. It could be that the women in heterosexual relationships in our sample were responding to the men showing love by initiating sex (i.e., physical touch) and doing household work with their partners (i.e., acts of service) and therefore felt more love. More research needs to be conducted to look into this.

As predicted, we did not find sexual orientation to be a significant part of the model. This findings supports applying the theory to both heterosexual and gay couples. Chapman (1992, 2015) focuses on heterosexual couples in his books, but we suggest that his theory would also be useful for gay couples to learn and use.

Instead of just teaching couples about the theory, couples should learn about how to effectively use their partner’s preferred love language so that their partner can notice the effort that is being made. Psychologists and counselors could be trained to teach clients about using their partner’s preferred love language. They would want to discuss the importance of determining when a partner is attempting to communicate using a love language, so that couples do not get frustrated at failed attempts to communicate in this way. They would also want to discuss the use of love languages as a process and that it can take time to learn how to communicate in this new way.

Strengths and Limitations
This research contributed to the limited research on the love languages. This study was one of only a few research studies to use the Love Language Profile written by Chapman (2015) and the first to run analyses after selecting participants based on their preferred love language or love languages. This study also included participants who were living together, with many of them being married, instead of primarily college students who were only dating (e.g., Cook et al., 2013; Egbert & Polk, 2006; Goff et al., 2007; Polk & Egbert, 2013). Using a noncollege sample helps to make the results more generalizable. Another strength of this research is that a large sample size was obtained, which was important because the sample was divided into the five love languages. Gifts and acts of service were not as commonly reported in the sample, but we still had enough participants in each group to run our analyses.

A limitation of this study is that a convenience sampling technique and MTurk were used and therefore, the sample was not random. Another limitation is that partners’ feelings were only evaluated at one time and how they responded to the questionnaires could have been impacted by something that had happened recently. Therefore, their responses might not have reflected their typical feelings or how their feelings change over time. Another limitation was that, because participants were split into groups based on their preferred love languages, the sample size for gifts was especially small. Additional research should be conducted using a larger dataset with more participants with gifts as their preferred love language to see if these findings can be replicated.

Future Directions
Researchers investigating the love languages might want to consider the following issues in future research. Chapman’s (2015) scale is a forced-option scale with 30 possible points divided among the five love languages. His intent is to have participants score higher on one of the subscales than the others. His procedure makes sense in that he wants to quickly determine what is important to the person. However, in the present study, some participants scored the maximum score for a love language, which is a 12, whereas others had lower scores for their preferred love language. It would be interesting to know if participants’ higher scores mean that love language is even more important to them. For some participants, their scores on one love language might be a 12 and an 11 on another love language. It could mean that both are important to the person, but by using Chapman’s (1992) scoring method it appears that the highest score is the more important love language. Some people might expect to receive love using multiple preferred love languages, and the effect could be additive further increasing love and relationship satisfaction felt in relationships. This also would be interesting to investigate in future research.
For the present research, participants were asked if they felt their partner was using their partner’s love languages well. This highlights that perception is important. It could be that partners are attempting to use the love languages, but they are not being perceived as doing so. Future research might include behavioral observations to see when actual love language acts occur and then ask partners about their perceptions.

Chapman’s (1992) theory has generated a large group of supporters. Therefore, it is important to continue to study his theory in order to find data to support or refute his theory. Longitudinal work would be interesting to conduct. Couples could be taught how to use each other’s love language and then be evaluated over time to see how their relationships change. It would be interesting to look at major life events and whether or not using partners’ love languages consistently is effective even when couples are facing stressors. It could be that couples feel like their love tanks are full during certain periods of their lives and that events such as having children, which is known to strain relationships (Doss et al., 2009), could make their love tanks feel less full.

References

Author Note. Jennifer L. Hughes
https://orcid.org/0000-0002-7978-5650
Abigail Camden
https://orcid.org/0000-0001-8231-836X
Abigail A. Camden is now a master’s degree candidate at the Department of Psychology, Auburn University.

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Correspondence concerning this article should be addressed to Jennifer Hughes, Department of Psychology, 141 E. College Ave., Agnes Scott College, Decatur, GA 30030. Email: jlhughes@agnesscott.edu
Pursuit of Goals in the Search for Happiness: 
A Mixed-Method Multidimensional Study of Well-Being

Christy Teranishi Martinez, Nena N. McGath, and Kali C. Williams
Department of Psychology, California State University Channel Islands

ABSTRACT. Although accomplishing life’s goals is important for flourishing, well-being may vary depending on the type of goals and developmental stage. Participants were asked to choose a goal aimed at enhancing their happiness. The present study examined the extent to which goal type (altruistic, individualistic) and age group (emerging adult, adult) had an impact on 5 elements of well-being (PERMA: positive emotions, engagement, relationships, meaning-making, and accomplishments; Seligman, 2011) between Time 1 and Time 2 of a 6-week happiness project. Forty-one participants between the ages of 19 and 65 (27 women, 14 men, \(M_{age} = 28.71, SD = 10.78\)) completed pre- and post-assessment online surveys. A 2 x 2 x 2 mixed-model analysis of variance was conducted for each domain of well-being. Contrary to hypotheses, engagement, \(F(1, 37) = 8.21, p = .007, \) generalized \(\eta^2 = .09, \) and meaning-making, \(F(1, 37) = 35.85, p = .001, \) generalized \(\eta^2 = .33, \) decreased from Time 1 to Time 2, whereas positive emotions, relationships, and accomplishments did not change. Overall, adults reported having greater relational support than emerging adults, \(F(1, 37) = 4.39, p = .043, \) generalized \(\eta^2 = .05, \) whereas emerging adults with altruistic goals were happier and had more relational support than those with individualistic goals, \(F(1, 37) = 7.80, p = .047, \) \(\eta^2 = .15 \) and \(F(1, 37) = 10.99, p = .002, \) \(\eta^2 = .23, \) respectively. Journal reflections provided deeper insight into how goals contributed to relationships and spirituality. Qualitative analyses revealed that goals improved relationships by promoting mindfulness, having a positive impact on others, and enhancing communication, and it fostered meaning-making by enhancing self-actualization with feelings of increased awareness, recognition of self-action, and the discovery of purpose through goals. Findings underscore the importance of examining a multidimensional model of well-being that varies over time in relation to goals and aspirations that develop throughout the lifespan.

Keywords: goals, relationships, spirituality, happiness, well-being

Pursuit of goals has been linked to increased well-being (Brunstein, 1993; Kiaei & Reio, 2014; Klug & Maier, 2015). Personal goals provide structure, motivation, and meaning, allowing an individual to be aware of continuous opportunities for change. Self-actualization, or the process of “becoming,” fulfills a person’s need for personal growth and discovery throughout the lifespan (Maslow, 1943). By setting goals and intentionally engaging in positive activities, people can attain greater happiness and well-being (Lyubomirsky et al., 2005; Lyubomirsky, 2008; Lyubomirsky et al., 2011). When asked what contributes to a happy, fulfilling, and meaningful life, Emmons (2003) found that people often spontaneously say it is their life goals and hopes for the future. Although accomplishing life’s goals is important for flourishing, well-being may vary depending on the type of goals pursued.

*Faculty mentor
Multidimensional Well-Being

Goal Types
Over the years, a considerable amount of research has been conducted on intrinsic and extrinsic goals and motivation, advancing knowledge on how motivation affects performance and psychological well-being. Extrinsic goals require an external person to ascertain the worthiness and achievement of the goal to define how success is measured (e.g., financial success, social recognition, popularity). Those who pursue external rewards and materialistic goals tend to report lower physical and emotional well-being (Emmons, 1991; Kasser & Ryan, 1993). Self-determination theory suggests that, if extrinsic motivation is engaged, but not transformed or integrated, it will diminish feelings of autonomy (Deci & Ryan, 1985). Extrinsic goals that are not congruent with one’s own enduring interests and values may easily be abandoned when challenges arise. On the other hand, extrinsic goals that have been more fully integrated and promote autonomy have predicted greater psychological well-being in the United States and Japan (Ryan & Deci, 2000).

Intrinsic goals are inherently valuable to the individual, fostering personal growth, physical health, satisfying relationships, and community support (Kasser & Ryan, 1996). Intrinsic goals that are motivated by self-interests and personal beliefs tend to be more meaningful and contribute to greater well-being (Emmons, 1991; Ryan & Deci, 2000; Sheldon et al., 2004). Researchers found that college students and working adults who were altruistically motivated and prosocial tended to report greater happiness and life satisfaction (Kasser, 2016; Moynihan et al., 2015; Waterman et al., 2008). Similarly, Schueller and Seligman (2010) found that those who focused on seeking engagement with others or with meaningful tasks reported greater life satisfaction than those who oriented themselves toward pleasurable activities.

Another way to define goal types is to examine whether they are individualistic (e.g., fulfilling materialistic desires or a competitive drive) or altruistic (e.g., contributing to fostering relationships, family, or community). Headey (2008) utilized similar categorizations to examine subjective well-being in relation to zero sum and nonzero sum goals. Zero sum goals were defined as economic, competitive, and materialistic goals usually involving one person’s gain at the expense of another, whereas nonzero sum goals were relational goals that tended to help others. They found that those who developed nonzero sum, family, and altruistic goals reported greater life satisfaction than those who had zero sum, individualistic, and competitive goals.

Emerging Adulthood and Goals
Emerging adulthood, a developmental stage between the ages of 18 and 25, is characterized by greater independence, instability, self-focus, feeling “in between” adolescence and adulthood, and exploration of potential future possibilities (Arnett, 2015). Emerging adults are usually in the stage of identity moratorium, exploring the meanings of their ethnicity, gender, and sexuality, while seeking long-term commitments in their relational, educational, and career goals. A more in-depth understanding of this population is needed in order to understand how goals have an impact on emerging adults’ well-being. Furthermore, it is important to explore how goals have an impact on well-being for emerging adults in comparison to adults.

Goals may vary over the course of the lifespan. As adults age, goals become less about desires to travel, educational attainment, and friendships, and more about work, family, and health (Salmela-Aro et al., 2007). During emerging adulthood, individuals become less dependent than during adolescence but do not yet have the enduring responsibilities of adulthood, so they can explore a wide range of possible opportunities for love, work, and worldview in preparation for adulthood (Arnett, 2000). Kaiei and Reio (2014) found that emerging adults reported having more extrinsic goal aspirations and lower well-being than adults; however, for both emerging adults and adults, intrinsic goal aspirations were related to greater well-being. Further research is needed examining the extent to which different goal types influence various domains of well-being at different stages of adulthood.

Well-Being as a Multidimensional Construct
Well-being is a multifaceted construct with implications for parenting (Kyriazos & Stalikas, 2018), education (Coffey et al., 2016; Kern et al., 2014), work and organizations (Allan et al., 2019; Wright, 2010), and even measuring the prosperity of entire countries (Forgeard et al., 2011). Well-being can be broadly defined as a dynamic process that involves the interaction of environmental circumstances, activities and individual differences in psychological resources that have an impact on life satisfaction, and fulfillment (Forgeard et al., 2011). More specifically, the two primary ways well-being has been examined are the hedonic approach, focusing on increasing pleasure and avoiding pain (Kahneman et al., 1999), and the eudaimonic approach focused on meaning-making and self-realization (Waterman, 1993).
Although there is a wealth of research on well-being, it has often been examined using a unidimensional measure. The widespread utilization of this broad construct often makes it difficult to identify exactly how well-being is defined. Sometimes researchers fail to distinguish between happiness and well-being. In the recent work of Fritz and Lyubomirsky (2018), they use the terms happiness and well-being interchangeably, defined as the experience of more positive emotions over negative emotions combined with high life satisfaction.

In contrast to unidimensional measures, Seligman’s (2011) PERMA model is based on the assumption that well-being is a multidimensional construct comprised of five distinct but related elements, including positive emotion, engagement, relationships, meaning-making, and accomplishment. Greater levels of well-being predicted flourishing for both emerging adults and adults (Coffey et al., 2016). Because individuals may wish to focus on each domain for reasons other than increasing well-being, flourishing does not necessarily mean that an individual will be high on all five of these domains. For example, a person suffering from trauma might have difficulty increasing their positive emotions or happiness, but they could still flourish by increasing their level of engagement (e.g., finding an activity where their skill meets their challenge), or by building on their relationships (e.g., asking for help or guidance from a loved one). In a recent study, Sheldon and Lyubomirsky (2019) examined three different models, demonstrating ways people can boost and sustain their levels of happiness through intentional activities, despite the fact that it is partially determined by genetic predisposition and circumstances.

The five elements of the PERMA model contribute to overall well-being. However, each of the five elements can be pursued for its own sake, and can be measured independently of each other. The present study examined how different types of goals impact each of the five elements of well-being separately. The following section provides a review of the literature examining goal types in relation to each domain of well-being.

**Positive Emotion**
Positive emotions, or feelings of happiness, joy, and contentment, play a central role in well-being (Ehrlich & Bipp, 2016; Seaton & Beaumont, 2015). They are also an important piece of the goal process, influencing behavior in the service of goal completion at the beginning (e.g., anticipatory emotions eliciting hope of success and fear of failure) and at the end (e.g., positive feelings associated with success or negative feelings associated with failure) of the goal process (Bagozzi et al., 1998). Seaton and Beaumont (2015) found that those who had a positive emotional profile tended to set more personal goals for themselves.

The type of goals that a person develops can have an impact on emotions. Emmons (1991) found that striving for affiliative goals was related to increased positive emotions, whereas power-related goals were related to heightened negative emotions. Meta-analytic findings indicated that materialistic goals are related to lower positive affect and higher negative affect (Kasser, 2016). Furthermore, Seaton and Beaumont (2015) found a reciprocal relationship between emotions and goals in that positive emotions can contribute to choosing goals focused on self-improvement, which in turn reinforces feelings of happiness.

**Engagement**
Engagement, or flow, occurs when a person is completely immersed and focused in an enjoyable activity (Csíkszentmihályi, 1990). Previous findings have suggested that flow contributes to happiness and well-being (Nakamura & Csíkszentmihályi, 2014; Rathunde & Csíkszentmihályi, 1993; Schueller & Seligman, 2010); however, the relationship between goal types, flow, and well-being are unclear. Using structural equation modeling, Olčar and colleagues (2019) found that extrinsic life goals were related to feelings of lower autonomy in the workplace and decreased flow experiences. On the other hand, intrinsic life goals were related to increased flow and competence, which in turn contributed to greater life satisfaction in a sample of Croatian teachers. Flow leads to well-being when there is lack of internal conflict between competing goals, involving being fully engaged in an activity that maximizes immediate intrinsic rewards (Csíkszentmihályi, 1975). Waterman and colleagues (2008) found that, in comparison to hedonic activities, those who engaged in intrinsically motivated, eudaimonic activities experienced significantly greater flow experiences, a balance between challenge and skills, and self-actualization.

**Relationships**
Positive relationships are developed when individuals feel cared for and supported by others. Humans are social creatures with an innate drive to create and maintain social connections (Aronson, 2004;
Meaning-Making
Meaning-making is important because it contributes to people feeling and believing that their life is valuable, and that they are connected to something greater than themselves (Seligman, 2011). Human beings have an innate desire to explore and understand the world around them (Heine et al., 2006; Higgins, 2000). This desire can culminate in a belief of an organizing force in the universe, connectedness with nature and others, faith in one’s worldview, compassion, and the ability to make meaning of life and death (Purdy & Dupey, 2005). Often referred to as spirituality, Steger et al. (2008) posited that the exploration into the meaning of life has an impact on psychological well-being. Myers (2008) found that individuals who identified as actively religious reported higher levels of subjective well-being when compared to their nonreligious counterparts. This may be because meaning-making allows for spiritual connections that transcend the material aspects of life, fostering increased awareness, and a sense of purpose in one’s life (Liu & Robertson, 2011; Myers, 2000).

Meaning-making provides individuals with goals that can bolster overall well-being (Baumeister & Vohs, 2002; Seligman, 2011). Schmiter and Emmons (2013) emphasized the importance of developing goals that are connected to spirituality. Recent studies have suggested a positive relationship between spirituality and intrinsic motivation (Milliman et al., 2018; Moon et al., 2018). Moon and colleagues (2018) found that intrinsic motivation is a mediator between spirituality and job performance. Teranishi Martinez and Scott (2014) argued that engaging in a meaningful activity may be more important to finding happiness than the type of activity or level of engagement. These studies highlight the importance of examining the interconnection between goals, spirituality, and well-being.

Accomplishment
Accomplishments help individuals monitor their progress toward their goals, develop their self-confidence and self-efficacy, and feel a sense of achievement. Self-determination theory posits that well-being is closely related to mastery (Ryan & Deci, 2000), and a sense of efficacy within their internal and external environments (Ryan et al., 2008). Seligman (2011) suggested that accomplishment should be explored through a person’s drive or desire to attain their pursuits. Previous research has been inconsistent in how accomplishment has been operationalized or measured. However, extant studies have examined accomplishment as specific achievements, such as awards, earnings, and prestige (Kern et al., 2014).

The Present Study
In this 6-week, mixed-method study, participants were asked to carry out a goal aimed at enhancing their happiness and well-being. Conceptualizing well-being as a multidimensional construct using Seligman’s (2011) PERMA model, it was hypothesized that, at the end of the 6-week happiness project, participants would demonstrate an increase in well-being across each of the five domains of the PERMA model. Building on previous research, it was predicted that those who carry out altruistic goals would report significantly greater positive emotions, engagement, relationships, meaning-making, and accomplishments than those who pursue individualistic goals. Altruistic goals were defined as intrinsic (e.g., self-acceptance, affiliation) and self-transcendent goals (e.g., spirituality), and individualistic goals were defined as physical (e.g., appearance, hedonism) and extrinsic goals (e.g., educational, career, financial success). Because goals develop and change over the lifespan, it is important to examine whether there are differences in the way goals impact well-being for emerging adults (18 to 25 years old; Arnett, 2000) compared to adults (26 years and older). Therefore, the present study also examined the interaction between age group (emerging adult, adult) and goal type (altruistic, individualistic) to see whether there were significant changes in each of the five domains of well-being from Time 1 to Time 2 of the 6-week happiness project.
Method

Participants
Fifty-five participants were recruited from a small, four-year public university and throughout the broader West Coast community. At the end of the 6-week study, 41 participants (27 women, 14 men) completed the 6-week happiness project, with ages ranging from 19 to 65 (M = 28.71, SD = 10.78). Twenty-three participants were emerging adults (18–25 years old; Arnett, 2000), and 18 were adults, of which 27% were between 26–35 years, and 17% were between 36–65 years old. Fourteen participants (8 women, 2 men) between the ages of 20 and 54 (M = 29.86, SD = 10.78) did not complete the postassessment survey, so they were excluded from further analyses.

Additional demographic information, including ethnicity, highest level of education, and relationship status, were obtained. Forty-two percent identified as White/European American, 39% as Latinx/Chicano, 12% as multiethnic/multicultural, and 7% as Asian American/Pacific Islander. Thirty-four percent were currently enrolled in college; 22% had their associate’s degree; 27% had a bachelor’s degree; 10% had their master’s degree; and the remainder attended some high school or had a high school diploma. Forty-one percent were single; 22% were married; 20% were cohabiting; and 17% were currently in a relationship.

Measures
Goals
Participants were instructed to set a specific goal to enhance their physical, mental, relational, spiritual, and personal happiness over a 6-week period. Goals were classified into several categories, including improving physical health (41.5%), staying on track with educational or career goals (22%), developing a new or improving an existing relationship (17%), tapping into one’s spirituality (14.6%), and learning a new skill or hobby (4.9%). Goals were coded as individualistic or altruistic. Individualistic goals (n = 17) were activities such as pursing their education, career, individual achievements, fitness, health/lifestyle changes, prioritizing/time management skills, learning a new skill or hobby, and practicing an old skill. Altruistic goals (n = 24) included activities such as mending a relationship or maintaining intimacy, forming new relationships, enhancing one’s spirituality, and volunteering within the community.

Well-Being
Well-being was operationalized as a multidimensional construct according to Seligman’s (2011) PERMA model, which consists of five elements, including positive emotion, engagement, relationships, meaning-making, and accomplishment.

Positive Emotion. The first component of well-being, positive emotion, was operationalized using Lyubomirsky and Lepper’s (1999) 4-item Subjective Happiness Scale. Items included, “Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterize you?” Participants rated this item on a 7-point Likert-type scale ranging from 1 (not at all) to 7 (a great deal). Another item, “In general, I consider myself...” was rated on a 7-point Likert-type scale ranging from 1 (not a very happy person) to 7 (a very happy person). A composite score was calculated by reversing negatively scored items, summing the responses, and obtaining the mean to assess positive emotion at Time 1 and Time 2.

Lyubomirsky and Lepper’s (1999) examined psychometric properties of the Subjective Happiness Scale across age groups (i.e., sample of high school age, college, and community adults) and noted good to excellent alpha levels (a = .79 to .94) and test-retest reliability ranging from .55 to .90. Cronbach’s alpha reliability was acceptable for the Well-Being subscale in the current study (apre = .99, apost = .84).

Engagement. Participants were asked to recall a time when they were completely immersed in an enjoyable activity, and state how many times they experienced flow while doing this activity in the past week. Jackson and Marsh’s (1996) 36-item Flow State Scale was used to rate statements pertaining to this flow experience on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The composite score was computed by summing the items, and obtaining the mean to assess engagement at Time 1 and Time 2.

Jackson and Marsh (1996) reported adequate internal consistency (α = .80 to .86) for the current measure across varied ages. Cronbach’s alpha reliability for the present study was acceptable for the flow subscale for this study (aflow = .93, afollow = .97).

Relationships. Cutrona and Russell’s (1987) 24-item Social Provisions Scale was used to measure the extent to which participants’ relationships provide social support. Items were rated on a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree). Items include, “There are people I...”
can depend on to help me if I really need it” and “I have relationships where my competence and skills are recognized.” Relational support was computed by summing the items, and obtaining the mean to assess relational support at the beginning and the end of their 6-week happiness project. In a sample of college students, Perera (2016) reported good reliability ($\alpha = .93$) for the full Social Provision Scale with acceptable internal consistency for all subscales ($\alpha = .64$ to .83). Cronbach’s alpha reliability for the current study was acceptable for the relational support subscale ($\alpha_{pre} = .85$, $\alpha_{post} = .88$).

**Meaning-Making.** Meaning-making was assessed using the Spirituality Involvement and Beliefs Scale-R (Hatch et al., 2006) applicable for diverse religious affiliations and beliefs. This measure consists of 26-items including, “I can find meaning in times of hardship,” “My spiritual life fulfills me in ways that material possessions do not,” and “Spiritual activities help me draw closer to a power greater than myself.” Participants were asked to rate the statements on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A composite score was computed by summing the responses and obtaining the mean to assess meaning-making at Time 1 and Time 2. Dong and colleagues (2018) examined the psychometric properties of the Spirituality Involvement and Beliefs Scale and reported good reliability ($\alpha = .49$ to .95) and validity ($r = .89$) across subscales within a college student sample. Cronbach’s alpha reliability for the spirituality subscale was acceptable ($\alpha_{pre} = .91$, $\alpha_{post} = .91$).

**Accomplishment.** The present study tested the use of a new and unpublished measure to assess participants’ subjective ratings of their accomplishments in terms of how important these achievements are to who they are (Teranishi Martinez, 2015). Participants were asked to state the five things they were most proud of accomplishing in their lifetime. After listing their accomplishments, they were asked to rate the importance of each of these accomplishments on a 5-point Likert-type scale from 1 (not very important) to 5 (very important). The average rating of importance of their accomplishments was assessed by summing the responses and obtaining the mean score at Time 1 and Time 2. This measure assesses participants’ subjective valuation of the accomplishments they achieved at each point in time.

**Qualitative Measures**

**Open-Ended Questions.** At the end of the 6-week project, participants were asked: “How did your project affect the way you interacted with others (e.g., your romantic partner, your parents, your children, friends, coworkers)?” “Was your project life changing?” and “Did it affect how you connect to nature, spirituality, the world, etc.?”

**Weekly Journals.** At Time 1, participants were given instructions to keep track of their goals and outcomes by drawing and writing in a journal at least once a week for 6 weeks. At Time 2, journals were collected and transcribed into a Word document. Drawings were not used for analyses, but as a creative outlet to inspire them as they were writing their journal reflections.

**Design**

**Quantitative Analyses**

Data were analyzed using RStudio (Version 1.2.1335). The ezANOVA package was utilized to conduct 2 x 2 x 2 mixed-model analyses of variance (ANOVAs) in which goal type (altruistic and individualistic) and age group (emerging adult and adult) were between-subjects factors, and time (Time 1 and Time 2) was the repeated-measures factor. The dependent measures were each of the five domains of well-being in the PERMA model: positive emotion, engagement, relationships, meaning-making, and accomplishment.

Assumptions for homogeneity of variance and normality were met for all preassessment data. Posttest variables of relational support, engagement, and accomplishments had larger differences between variances, and were negatively skewed and leptokurtic. Because neither square root, logarithmic, or inverse transformations of these data improved normality or homogeneity of variance, untransformed data was used for analyses. Mauchly’s test indicated no violation of sphericity assumptions; however, analyses did contain unequal sample sizes.

**Qualitative Analyses**

A phenomenological approach was used to examine themes that emerged, and grounded theory was used to construct a representative theoretical model of participants’ experiences (Strauss & Corbin, 1998). Research assistants were trained to do multiple in-depth readings of open-ended question responses and the weekly journals. Major themes were coded and organized in an Excel spreadsheet to examine common reoccurring themes. The researchers remained open to continual recategorization after each subsequent reading until saturation was attained to the point in which no new themes emerged.
Procedure
This study was approved by the California State University Channel Islands Research and Sponsored Programs Office Institutional Review Board (IRB) in accordance with ethical standards and protection of human subjects. The principal investigator and research assistants recruited participants from undergraduate psychology courses at a small West Coast, public 4-year university, and via convenience sampling using online social media platforms targeting individuals within the broader community. For student participants, instructions were provided as a group within a classroom setting, whereas community members received instructions individually. Volunteers were invited to participate in a study investigating factors that contribute to happiness and well-being, setting a new goal to enhance their physical, mental, relational, spiritual, and/or personal happiness. At Time 1, participants were given a packet containing their participant ID number, consent form, written instructions for carrying out their happiness project and maintaining their weekly journal, and a Qualtrics link to complete an online preassessment survey. At Time 2, the end of the 6-week project, journals were collected, and participants were given a Qualtrics link to complete a postassessment survey comprised of the same measures administered at Time 1. Undergraduate college students were offered extra credit for their participation upon instructors’ approval, whereas community members were not offered any incentives for their participation.

Results
Altruistic and Individualistic Goals
Fifty-eight percent of participants carried out an altruistic goal over the 6-week study. Of those, more than 60% were emerging adults between 18 and 25 years old. Although more emerging adults chose altruistic goals, chi-square analysis revealed no significant differences between the age groups (emerging adults, adults) and goal types (altruistic, individualistic; $\chi^2 = 0.44, p = .508$, $\phi = 0.15$). Furthermore, chi-square analyses indicated no significant differences between goal types for gender or ethnicity.

Mixed-Model ANOVA Analyses
Table 1 provides means and standard deviations for each factor at Time 1 and Time 2 as well as for the goal type and age group factors for each dimension of the PERMA model.

Positive Emotion
Table 2 provides mean squares, $F$ statistics, and eta-squared values for both significant and nonsignificant omnibus tests. Analyses revealed a significant interaction between goal type and age group on happiness. Simple effects tests indicated that emerging adults with altruistic goals reported being significantly happier than those with individualistic goals. Adult participants indicated the opposite pattern: Those with altruistic goals reported being significantly less happy than those with individualistic goals, $F(1, 37) = 7.80, p = .047$, and $F(1, 37) = 6.29, p = .017$, partial $\eta^2 = .15$, respectively. Results also indicated a significant 3-way interaction between goal type, age group, and testing time (see Figure 1). Post-hoc analyses indicated that, for adults with individualistic goals, happiness increased from Time 1 to Time 2. Conversely, adults with altruistic goals reported that their happiness decreased from Time 1 to Time 2. However, it should be noted that results were only marginally significant, $F(1, 16) = 3.50, p = .080$, generalized $\eta^2 = .09$. The interaction was not significant for emerging adults, $F(1, 21) = 1.58, p = .223$, generalized $\eta^2 = .02$.

Engagement
A main effect for engagement was found; however, findings were contrary to expectations, indicating a significant decrease in flow from Time 1 to Time 2. Results are qualified by a 3-way interaction between goal type, age group, and testing time (see Figure 2). Post-hoc tests were marginally significant: Adults with individualistic goals reported increased engagement, while adults with altruistic goals reported decreased engagement from Time 1 to Time 2, $F(1, 16) = 3.82, p = .068$, generalized $\eta^2 = .14$. The interaction was not significant for emerging adults, $F(1, 21) = 2.24, p = .149$, generalized $\eta^2 = .05$.

Relationships
Although there was no significant change in relational support from Time 1 to Time 2, there was a main effect for both age group and goal type, as well as a significant interaction between the factors. Figure 3 illustrates the interaction effect of relational support. Simple effects tests examining Time 2 data indicated that emerging adults who carried out altruistic goals reported greater relational support than those who pursued individualistic goals, $F(1, 37) = 10.99, p = .002$, $\eta^2 = .23$. For adults, however, there was no difference in relational support between those who chose altruistic or individualistic goals, $F(1, 37) = 0.05, p = .825$, $\eta^2 = .01$. 
Meaning-Making
Contrary to expectations, there was a significant decrease in spirituality from Time 1 to Time 2 (see Table 2). There were no significant interaction effects.

Accomplishment
There were no significant main effects or interaction effects for accomplishments.

Qualitative Findings
Table 3 provides the frequencies and percentages of each theme that emerged from the qualitative analyses.

Relationships
Sixty-six percent of participants indicated that their project enhanced their relationships ($n = 27$). Twelve percent reported it had no impact on their relationships ($n = 5$); 10% reported it had both a positive and negative impact ($n = 4$); and 10% said it had a negative impact ($n = 4$; 1 no response). When asked to reflect upon how their project affected their relationships, they described being more mindful, having a positive impact on others, improved communication, and negative impact on relationships.

Being in the Present Moment. In the open-ended section of the survey, 78% of participants reported that their project enhanced their relationships because they were more focused and in the present moment. This included feeling overall positive well-being ($n = 20$), feeling more relaxed and patient ($n = 8$), and being mindful and self-reflective ($n = 3$). Participants said,

My goal helped me feel a little more confident and stronger, mentally and physically. In turn this helped me be more available to those around me because they were able to be around someone who was feeling happy and energized. I feel like in some way I was able to motivate others because I felt motivated.

Another participant said,

The way it affected my interaction with others was in a positive way. I felt more relaxed, excited, optimistic, and just really good about myself. I was way more friendly than I would have been to friends and family members had I not gone to the gym.

Positive Impact on Relationships. Thirty-five percent of participants reported that their project enhanced their relationships giving them increased energy and positive mood. It allowed them to
have more time for themselves and others \((n = 10)\) and more shared activities/interests \((n = 4)\). Participants said, “I noticed that once I was able to take time for myself, that I was able to have a more relaxed, positive attitude towards everyone,” “With coworkers, I was more active and carried out more duties,” “I have much more energy to do things with friends and family I didn’t have before,” and “I went to bed earlier, which made my spouse happy. I realized I slept better so in turn had more energy.”

**Better Communication.** Eighteen percent of participants reported that their project enhanced their relationships by increasing their communication skills, openness, and honesty \((n = 7)\). A participant said,

“I became more honest, open, transparent, and vulnerable. For the first time in my life, I was open with my boss and shared how I really felt, and shared my future goals. I have never shared that type of information with anyone. This openness and honesty I found translated to my other relationships, and I became a more open person.”

Other participants said, “I am calm and focused on their conversation” and “I feel that working on levels of communication with my boyfriend truly helped us in times of conflict. It brought attention to flaws in my own levels of communication, which was humbling.”

**Negative Impact on Relationships.** Ten percent of participants reported that their project increased their negative mood or had a negative impact on others \((n = 4)\). One participant said, “I noticed that I tended to be more short-tempered with my boyfriend, and that I became more distant to my coworkers because I was feeling overwhelmed with accomplishing my goal.” Another said,

“Since I dedicated more time toward my studies, various relationships were not maintained as they were beforehand. It resulted in spending less time with friends, romantic partner, and family. Although they all understood some relationships were affected more than others.”

**Spirituality**

Sixty-three percent indicated that their project was life changing. When asked to reflect upon how their project affected them spiritually, participants’ described enhanced self-actualization (e.g., finding purpose through goals), self and identity (e.g., sense of self and increased confidence), and health and well-being (e.g., awareness of stressors and increased coping skills).

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<td>Omnibus Mixed Model Analysis of Variance for Each PERMA Factor</td>
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Note. MS = Mean squares; \(\eta^2\) = Generalized eta-squared; PERMA = positive emotions, engagement, relationships, meaning-making, and accomplishments; Df (1, 37) for all analyses. Significant results are in **bold**.
Self-Actualization. In the open-ended section of the survey, 95% of participants reported that their project enhanced their self-actualization, including feelings of increased self-awareness \((n = 14)\), recognition of self-action \((n = 16)\), and finding purpose through goals \((n = 9)\). Participants said, “I continue to work on my goal, and though there have been times I stray, working out has helped me see a different side of myself that is more capable” and “It was life changing in a way where I feel more aware of my surroundings, and I do feel a sense of clarity and better focus.”

Self and Identity. Eighty-eight percent of participants described how their project affected their self and identity by enhancing their sense of self-concept \((n = 25)\), and their self-esteem and confidence \((n = 12)\). For example, two participants stated, “It reaffirmed for me when I’m engaged in positive activities, I feel better about myself and engage better with others” and “It was life changing in that I realized I have more self-control than I ever thought. I am proud of myself that I value myself enough to do this for myself.”

Health and Well-Being. Fifty-nine percent of participants said that their project enhanced their health and well-being by helping them realize the importance of taking care of themselves \((n = 13)\), and acknowledging the stressors and developing coping strategies \((n = 11)\). Participants stated, “I can find peace within myself and whenever I feel stressed or mentally trapped, I can just sweat it out,” “I think it was life changing. I will try to set time aside as my days get busier and more hectic, I will need more ‘me’ time so I am not stressing, or taking my stress out on others,” and “I felt that it was life changing because now I have another technique that I can use to relax during stressful periods of my life.”

Discussion

The present study helped shed light on understanding the extent to which pursuing altruistic and individualistic goals contributed to well-being at different stages of adulthood. Findings provide evidence that well-being is a multidimensional construct comprised of five distinct but related domains that vary over time depending on goal type and developmental stage. Using a mixed-method approach, qualitative analyses facilitated the interpretation of the quantitative findings that were contrary to hypotheses, in addition to providing insight into various meanings of well-being.

Changes in Well-Being After Project Completion

Contrary to our first hypothesis, the engagement and meaning-making elements of PERMA decreased from Time 1 to Time 2, whereas positive emotions, relationships, and accomplishments did
not change significantly. Although participants were asked to choose a short-term goal, goals might have been too lofty to complete in a short 6-week time frame. Furthermore, providing participants with instructions to select a goal aimed at increasing their happiness might have increased the value placed upon the goal by the participant. Steca et al. (2016) found that those who placed a higher value on their goals at Time 1 experienced decreased subjective well-being 4 weeks later. There was a detrimental effect on well-being when highly valued goals were not attainable until later in the distant future. Interestingly, a meta-analytic study revealed that the association between goal pursuit and well-being was strongest when participants were focused more on the process of completing a goal, rather than attainment of the goal (Klug & Maier, 2015). Participants in the present study were asked to keep a journal to track their goal progress over time; however, it was never explicitly stated that they were expected to complete the goal, nor were they asked whether they ultimately accomplished their goal. Further research is needed examining how the process of goal setting and goal attainment contribute to Seligman’s (2011) five domains of well-being.

Positive Emotions
Emerging adults who carried out altruistic goals indicated having more positive emotions than those with individualistic goals. Results support previous research indicating that altruistic goals contributed to increased positive emotions, whereas individualistic goals led to heightened negative emotions (Emmons, 1991; Kasser, 2016). However, contrary to expectations, adults who carried out altruistic goals were less happy at the end of the 6-week project. Lyubomirsky and Layous (2013) developed a model to understand various conditions in which positive activities contribute to well-being, which helps provide possible explanations for understanding why altruistic goals may lead to decreased happiness in adults. One possible explanation is that participants carried out their altruistic goal too frequently, so it became monotonous, tedious, or burdensome, leading to decreased positive emotions. Another possible explanation is that some adults might have been too highly motivated to become happier, not realizing that preoccupation with happiness could end up thwarting positive emotions. Finally, it may be that, if an altruistic person starts to feel those they are helping expect too much from them or become too demanding, they may feel exploited or taken advantage of, subsequently diminishing their happiness. Future research is needed to better understand how altruistic goals and positive emotions are mediated by age-related differences and experiences.

Engagement
Also contrary to expectations, adults with altruistic goals reported decreased engagement or flow, whereas adults with individualistic goals experienced higher levels of flow after the 6-week happiness project. Flow occurs when there is low conflict between competing goals, and when a person is fully engaged in an activity that maximizes immediate intrinsic rewards (Csíkszentmihályi, 1975, 1990). Perhaps adults who pursued altruistic goals expended a lot of energy and experienced conflicting or competing goals. As mentioned earlier, if goals are highly valued and do not contribute to immediate intrinsic rewards, it might inhibit them from being fully engaged. Adults who pursued individualistic goals might have discovered more opportunities to find balance between challenge and skills, so they could experience greater flow and well-being.

Relationships
In partial support of our hypotheses, those who carried out altruistic goals reported greater relational support at both Time 1 and Time 2. Results are consistent with previous findings indicating that altruistic goals compared to individualistic goals fostered greater well-being (Kasser, 2016; Krause & Hayward, 2014; Myers, 2008). Qualitative data further support these findings: Two-thirds of
participants described that their project enhanced their relationships, helping them be more focused in the present moment with family and friends, and having a positive impact on others. One person said that their goal helped them feel stronger mentally and physically, so they were able to be more available to those around them. Findings illuminate the reciprocal influence of altruistic goals and relationships: Relational support can lead to increased desire to help others.

Researchers have found that, as adults grow older, goals become increasingly altruistically motivated with more of an emphasis on family relations (Salmela-Aro et al., 2007), and that adults with more relational support tended to have greater well-being (Kiaei & Reio, 2014). Congruent with these findings, results from the present study revealed that adults reported having greater relational support than emerging adults. Our study also seems to suggest that choosing an altruistic goal in the emerging adult life stage is advantageous for well-being. Findings indicated that emerging adults who chose altruistic goals reported more positive emotions and greater relational support than those who chose individualistic goals. Starting out early in adulthood developing altruistic goals and participating in community engagement can contribute to a positive relational support network and sense of community, which in turn enhances overall well-being across the lifespan.

Meaning-Making

Although participants’ self-report responses at the end of the 6-week happiness project revealed an overall decrease in meaning-making, qualitative journal reflections provided deeper insight into how goals contribute to spirituality. Most participants described enhanced self-actualization, including feeling increased awareness, recognition of self-action, and finding purpose through goals. Some researchers have argued the importance of developing goals that are connected to spirituality because meaning-making can bolster overall well-being (Baumeister & Vohs, 2002; Schnitker & Emmons, 2013; Seligman, 2011). For future research, participants could be instructed to carry out a “meaningful” project rather than a goal that contributes to happiness. In addition, the length of time given to carry out the goals could be extended to provide participants more time to reflect and find meaning from their project.

Qualitative and quantitative findings both suggest that goal type may not be especially meaningful for this domain. For example, one person with an individualistic goal said, “It was life changing in a way where I feel more aware of my surroundings, and I do feel a sense of clarity and better focus,” whereas another with an altruistic goal stated, “I can find peace within myself and whenever I feel stressed or mentally trapped, I can just sweat it out.” These statements suggest that participants were able to find meaning regardless of goal type. Indeed, researchers have suggested that any type of goal pursuit can increase well-being to some degree; if that activity is meaningful to the individual, it may be more important than the activity itself (Seaton & Beaumont, 2015; Teranishi Martinez & Scott, 2014). Further research is needed, explicitly asking participants to describe their motivation and purpose, which would help better understand the meaning behind the goal they chose.

A factor outside the scope of the current study concerns religion. Previous research has suggested that active engagement in religious practices contributes to greater spiritual well-being (Myers, 2008). Two-thirds of the current sample identified with a particular religion (e.g., various forms of Christianity, Catholicism, and Judaism). Future studies should consider whether differences in meaning-making between Time 1 and Time 2 may depend on religious and/or spiritual affiliation.

Accomplishments

Goal type and age group did not have an impact on accomplishments, and there was no significant change in accomplishments. This could be due to the fact that participants carried out their goals for a short period of time, so they might not have felt that an increase in accomplishment. Some participants found it challenging to follow through with their goals each week, particularly those who were college students trying to concentrate on finals at the end of the semester. Others who did not accomplish their goals indicated that they experienced negative emotions, discouragement, and a negative impact on their relationships.

In the present study, the accomplishments measure assessed goals accomplished over an individuals’ lifetime (e.g., getting their driver’s license, graduating from college, getting married), and how important these goals were to them. This measure enabled us to understand participants’ sense of overall achievement throughout their life in relation to how much they valued the goals they achieved. Being able to reach goals can give people a sense of pride and accomplishment, while
feeling proud of accomplishments is important to push people to continue to thrive. However, the measure used in the current study might not have accurately captured the intent of the accomplishments component of the PERMA model.

According to Seligman (2011), accomplishment should examine an individual’s desire to achieve something and not necessarily be connected to specific goals they have accomplished or their importance. Previous longitudinal research suggested that students who were committed and believed they could accomplish their goals reported increased well-being (Brunstein, 1993). On the other hand, Forgaard and colleagues (2011) associated achievement with competence, a component of self-determination theory, which posits that achievement should measure whether an individual feels they are capable of mastering their environment. It is important to examine self-efficacy and the process of goal attainment because goals are always changing, and throughout this 6-week time frame, other commitments and activities are likely to have interfered with individuals’ goals. Developing goals is a dynamic process because they are not only pursued and attained, but they may be put on hold, amended, or abandoned (Elliot & Church, 1997; Emmons, 1986; Klug & Maier, 2015). Thus, in turn accomplishments are also in flux, and may take some time to achieve. Future research may very well need to examine multiple current measures of achievement in relation to the PERMA model to determine how best to operationalize this concept.

Limitations

Findings from the present study contribute to the existing literature on goal pursuits and a multidimensional model of well-being; however, several limitations must be addressed. Results of pre- and posttest must be interpreted with caution because limited resources did not allow for use of a control group. Furthermore, this study relied heavily on convenience sampling to recruit participants, and because participation was voluntary, self-selection might have been a factor in those who chose to participate in this 6-week happiness project. Nevertheless, Lyubomirsky et al. (2011) found that, when participants were aware of what the positive psychology intervention was and were committed to carrying it out, it was more likely than a placebo to bolster their well-being.

Sheldon and Lyubomirsky (2019) described a number of methods and models that demonstrate ways people can maintain the boost and blissful feeling after achieving a positive life change. However, in the present study, 6-weeks might not have allowed sufficient time for participants to experience a significant long-lasting change in well-being. It is suggested that an intervention should be carried out for a minimum of 8-weeks in order to observe a significant impact on well-being (Sheldon & Lyubomirsky, 2006). Longitudinal studies are challenging due to the extensive time and resources needed, and attrition is an inherent problem, particularly for college students juggling the demands of school, work, and family, among other competing expectations. Nonetheless, this type of research design is valuable to better understand developmental changes over the lifespan. Further longitudinal studies are needed with a larger, more representative sample size.

Another difficulty is the challenge in determining whether goals are inherently altruistic or individualistic. For example, although several students developed the goal of staying on track with their educational aspirations or academic success, motivations for this goal may vary from person to person. For example, some students may aspire to do well in school to receive honors, whereas others may do it to get a better job in order to support their family. Individuals may have multiple intentions for their goals, or goals might change from being individualistic to altruistic over time. Further qualitative research is needed to better understand goal motives, having participants describe in more detail the reasons they developed their goals. Although some individuals may demonstrate changes in brain function after 2 weeks of changing a behavior, research has suggested that goals may take 60 to 90 days to become a habit or routine (Loehr & Schwartz, 2005). Future studies are needed examining within-group variability in the ability to achieve goals in relation to the fit with an individual’s personality, values, behaviors, and cultural expectations.

Conclusions

Goal pursuit is a continuous process. Rather than primarily focusing on the outcomes of the goals that are being pursued, it may be beneficial to encourage individuals to develop mindfulness and present-moment awareness, while focusing on the process of attaining their goals. People have different needs for personal growth and well-being at different points throughout their lifespan. The pursuit of goals helps fulfill the need for self-actualization.
as people strive to reach their potential to become the best possible version of themselves (Maslow, 1943). Findings from the present study suggest that emerging adults might benefit from focusing on altruistic goals to enhance positive emotions and relationships as they pursue future goals, such as education, career, marriage, and family. In contrast, adults in early to middle adulthood might benefit from focusing more on individualistic goals to increase happiness, focus, and flow while juggling multiple demands and expectations, such as career, children, and aging parents. However, by also being altruistic, adults can receive the reciprocal benefits of increasing relational support in their lives. The search for happiness is a lifelong pursuit, and by conceptualizing well-being as multidimensional, people can discover extraordinary ways they can continue to flourish throughout their lifespan.

From a positive psychology perspective, goals can help people build on and utilize their strengths and abilities to fulfill a purpose and create meaning in their lives. By setting goals that help people grow individually, they can become physically, cognitively, emotionally, and spiritually healthier. At the same time, they can find a deeper meaning by reflecting on how these goals serve a greater purpose by improving their relationships, preserving their environment, and strengthening the communities in which they live.

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**Author Note.** Nena N. McGath and Kali C. Williams graduated with their master of arts in psychology at Humboldt State University.

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Correspondence concerning this article should be addressed to Christy Taranish Martinez, California State University Channel Islands, Psychology Program, 1 University Drive, Camarillo, CA 93012.

Email: christy.taranihsimartinez@csuci.edu.
ABSTRACT. The dispersion of the Latinx population across the United States has resulted in mental health service gaps in communities that are experiencing rapid growth. We formed a community-academic partnership to assess the feasibility of training Latinx residents in an evidence-based mental health intervention and to pilot outcome measures. Spanish-speaking Latinx adults were trained in Mental Health First Aid (MHFA), a program that provides participants with skills and knowledge about mental health issues. The MHFA training was well-received as evidenced by participants’ reported satisfaction with the training and their engagement in the 2 days of training. Twenty-three participants attended the first day of training, and 20 participants attended the second day of training (including two participants who did not attend on Day 1). Results of a paired $t$ test indicated significant mean differences in mental health knowledge and help-seeking self-efficacy after training ($d = 0.51$ and $0.75$, respectively). Focus group ($n = 13$) results provide further support that the training increased participants’ mental health literacy and help-seeking behaviors. Focus group participants also discussed cultural stressors faced by their community that negatively affect mental health and agreed that offering more trainings such as MHFA could help promote mental health in the Latinx community. Training Latinx residents in mental health interventions is feasible and may help address mental health access barriers.

Keywords: mental health literacy, help-seeking behaviors, community partnership, Latinx
Latinx “emerging community” (i.e., communities where the Latinx population was initially small but is growing rapidly; Wainer, 2004) in some Virginia areas.

Latinx individuals in emerging communities experience discrimination and other cultural stressors (e.g., acculturative stress, social isolation; Corona et al., 2009; Gonzalez et al., 2013; Perreira et al., 2010), which can negatively affect mental health (Cobb et al., 2017; Corona et al., 2017). Although experiencing these stressors is not unique to living in an emerging Latinx community, individuals in emerging communities often have less access to bilingual mental health services and other bilingual resources that can help individuals cope with these stressors (Bridges et al., 2010; Cameron & Hansen, 2005). A potential solution is to train Latinx residents as community health workers (promotores) so that they can better recognize mental health symptoms, combat mental health stigma, and connect community members to mental health services (Barnett, Lau, et al., 2018; Hoeft et al., 2018).

Empowering the Community to Help Itself

Despite experiencing high rates of mental health problems such as depression and anxiety (Alegria et al., 2007), Latinxs, particularly those who are more connected to their ethnic group and/or speak Spanish, are less likely than those who are less connected to their ethnic group and/or speak English to utilize formal mental health care services (Alegria et al., 2008; Keyes et al., 2012). Structural barriers such as lack of culturally and linguistically appropriate services, transportation, insurance, and high treatment costs are associated with decreased or delayed service utilization (Bridges et al., 2010; Parra-Cardona & DeAndrea, 2016). Cultural (e.g., religiosity, gender role expectations) and individual (e.g., mental health stigma, low help-seeking efficacy) factors are also associated with the under-utilization of mental health services (Barrera & Longoria, 2018; Moreno & Cardemil, 2013).

These types of barriers may be exacerbated in emerging communities that have experienced rapid growth in the Latinx population. For instance, community members in emerging communities may experience social isolation and have fewer family and friends who can provide social support, guidance, and other resources during times of stress (Documet et al., 2015). Moreover, in some Latinx emerging communities, community members are often unaware of the few bilingual mental health services available (Corona et al., 2009). Accordingly, interventions that teach community members how to identify mental health symptoms in others, combat mental health stigma, and connect community members to mental health services may address mental health barriers in emerging Latinx communities.

The roles of community health workers in mental health lay interventions vary greatly from serving as a patient navigator who helps someone access services to implementation of mental health interventions (Barnett, Gonzalez, et al., 2018; Weaver & Lapidos, 2018). Lay health interventions implemented by community health workers can help reduce mental health disparities by reducing access barriers and increasing mental health intervention implementation in areas with limited bilingual mental health providers (Barnett, Lau, et al., 2018; Hoeft et al., 2018). These interventions may also be faster to implement than waiting for organizations to hire enough bilingual mental health providers to address mental health problems in areas experiencing rapid growth.

In the United States, early lay health interventions were focused on addressing physical health issues such as diabetes and obesity, and the behaviors that contribute to these negative health outcomes, such as low rates of physical activity (Ayala et al., 2010; Costa et al., 2015; Spencer et al., 2011). Research has demonstrated that implementing lay health interventions to address physical health disparities is feasible and can positively affect community members’ physical health (Ayala et al., 2010; Costa et al., 2015; Spencer et al., 2011). Given this success, attention turned to implementing lay health interventions to address mental health disparities. Recent systematic reviews found that mental health lay interventions are also feasible and show promise in symptom reduction (Barnett, Gonzalez, et al., 2018; Weaver & Lapidos, 2018) and connecting community members to services (Ayala et al., 2010). In sum, prior literature supports the use of mental health lay health interventions in low-resourced areas.

Mental Health First Aid

Mental Health First Aid (MHFA; Kitchener & Jorm, 2002) is an intervention-training program that provides adults with skills and knowledge about mental health. Participants learn how to combat stigmatizing attitudes toward mental health, recognize acute mental health crises in others, and connect peers with helpful resources. MHFA is implemented by
a trained, certified instructor during an 8-hour interactive course delivered in one 8-hour session or two 4-hour sessions. After the training, participants take an examination; those who successfully pass are certified for three years as a Mental Health First Aider. Training Latinx community members in MHFA has the potential to increase MHFA trainees’ mental health literacy (i.e., mental health knowledge, help-seeking self-efficacy, mental health attitudes); thereby, empowering them to promote mental health in their community (Jorm, 2012; Kutcher et al., 2016).

Mental Health First Aid has been implemented globally and in the United States with prior studies demonstrating the effectiveness of MHFA training (Bahn et al., 2019; Mendenhall et al., 2013; Morrissey et al., 2017). Three systematic reviews, which included studies using a pre-post design, found that training in MHFA improves mental health knowledge, recognition of mental health problems, and decreases mental health stigma (Hadlaczky et al., 2014; Maslowski et al., 2019; Morgan et al., 2018). MHFA has also been shown to improve trainee’s mental health help-seeking behaviors and self-efficacy (Bahn et al., 2019; Mendenhall et al., 2013).

Although most of the studies included in the three meta-analyses were conducted in Australia, two reviews (Maslowski et al., 2019; Morgan et al., 2018) included two studies conducted in the United States with adults, which further support the program’s effectiveness (Lipson et al., 2004; Mohatt et al., 2017). Other studies in the U.S. further demonstrate the trainings’ effectiveness. For instance, using secondary data on MHFA feedback forms obtained from the National Council for Behavioral Health’s Database, Crisanti et al. (2016) reported increases in confidence and skills related to mental health literacy in adults trainings’ in MHFA. They also found that American Indian/Alaskan Native participants reported lower mental health literacy confidence scores than Latinxs, African American, and European American participants. Using a mixed-method design (i.e., pre-post and qualitative methods), Lee and Tokmic (2019) implemented MHFA in a U.S. community that had seen a significant increase in the Latinx and Asian immigrant population. The authors trained primarily White (45%) and African American (38%), English-speaking community-based workers, who were focused on promoting health in an immigrant community. As in other studies, Lee and Tokmic (2019) reported increases in mental health knowledge, and decreases in negative attitudes toward individuals with mental health problems. Other MHFA studies conducted in the United States have focused on members of the Army National Guard and community first responders (Mohatt et al., 2017), university students (Lipson et al., 2014), secondary data analysis of national trainings of MHFA (Bahn et al., 2019), and a primarily European American sample of adults from a rural community (Mendenhall et al., 2013). Although there is a Spanish version of MHFA, this is the first study, to our knowledge, conducted with Spanish-speaking adults living in the United States.

The Present Study
We formed a community-academic partnership, which included mental health professionals from three units at a local university (psychology, social work, medicine), a student advisory team (undergraduates and doctoral students), and two community partner organizations (a nonprofit organization that provides services such as adult education, English literacy classes, citizenship classes, and a nonprofit health clinic). The idea for the present study developed from a roundtable organized by one of the community partners who then invited the first author to facilitate the roundtable. During the roundtable, it became evident that barriers to mental health care for Latinxs in the local community continued to exist despite having identified these barriers nearly a decade prior (Corona et al., 2009). Community members identified MHFA as a potential solution for addressing some of these barriers. After the roundtable, the community-engaged team was formed. Together, the team collaboratively wrote and was successful in obtaining funding to implement the MHFA training (e.g., to pay for the MHFA facilitators) and to support the research (e.g., staff time, participant incentives, community partner honorarium). Accordingly, the team implemented an evidence-based intervention that was not already offered in the community and conducted a mixed-method study to assess the feasibility of this intervention and to pilot the outcomes in a pre-post design.

We conducted a mixed-method study to assess the feasibility of training Latinx adults in an evidence-based mental health intervention and to pilot outcome measures in a pre-post trial. This approach was taken to prepare for a larger randomized controlled trial (Blatch-Jones et al., 2018; Eldridge et al., 2016). Latinx residents were trained in MHFA and completed a short survey pre- and posttraining. To assess feasibility, we collected information on
participant attendance, their satisfaction with the training, and their self-report on their help-seeking self-efficacy and MHFA mental health knowledge. This study also provided us with the opportunity to pilot the outcome measures that were translated into Spanish. We hypothesized that participants’ help-seeking self-efficacy and MHFA knowledge (using measures used in prior MHFA evaluations) would increase from pre- to postintervention. Six months postintervention, we conducted focus groups with a subsample of participants. The focus groups provided us with an opportunity to obtain participant perspectives at a longer-term follow-up and in areas measured by the surveys. Specifically, we obtained participants’ perspectives of what they learned in the training, and whether they shared this knowledge with others in the community.

**Method**

**Participants**

Twenty-five Latinx adults participated in at least one day of the MHFA training. Participants’ ages ranged from 18 to 63 ($M = 46.72$, $SD = 12.30$) and slightly over three-fourths identified as women (76%) and less than one-fourth (24%) identified as men. Most (92%) had immigrated to the United States from Latin American countries (e.g., Mexico, El Salvador, Dominican Republic). Participants’ educational backgrounds were diverse: 4.2% reported less than a high school degree; 16.7% were high school graduates; 20.8% had attended some college; 29.2% had a college degree; and 29.2% had attended some graduate program and/or had a graduate degree. Participant characteristics are provided in Table 1.

**Procedures**

Participants were recruited from community partner organizations and were eligible to participate if they (a) self-identified as Latinx, (b) were 18 years and older, and (c) would be able to participate in the MHFA training conducted in Spanish. Flyers were provided to community partners and also posted in their organizations. Flyers provided potential participants with information about the study and also a phone number to call to learn more. Community partners also made announcements about the study and MHFA training to groups in their organization (e.g., a *promotores* group trained for physical health; ESL classes). The Institutional Review Board at Virginia Commonwealth University approved the protocol.

Participants attended two half-day MHFA trainings conducted in Spanish. The first training was held November 5, 2016, and the second training was held November 12, 2016. MHFA trainings took place at a community partner site and were led by certified MHFA trainers who spoke Spanish and English and who were not part of the study team.

### TABLE 1

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<thead>
<tr>
<th>Characteristics</th>
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of the research team. Participants were given a MHFA workbook, breakfast and lunch, and small raffle prizes for attending the MHFA sessions. Twenty-three participants attended the first day of training, and 20 participants attended the second day of training (including two participants who did not attend on Day 1). Prior to and immediately after the trainings, participants completed a short questionnaire that assessed MHFA knowledge and help-seeking self-efficacy. Six months postintervention, 13 trainees participated in a focus group that lasted approximately two hours and was held at a community partner site. Focus group participants were provided with lunch and $40 for their time and effort.

Measures
All study materials were available in Spanish and English. Whenever possible, we used existing Spanish translations of measures (i.e., MHFA satisfaction measure, MHFA workbook). All other questionnaires and study material (i.e., consent forms, focus group questions) were translated from English into Spanish using a combination of the translation by committee and back-translation approaches (Knight et al. 2009; Marin & Marin, 1991; Sireci et al., 2006). Study material was first translated into Spanish by a bilingual project coordinator. Next, two different bilingual project coordinators back-translated the study material into English and discrepancies were discussed with a fourth translator and a final determination was made. Our community partner reviewed and provided feedback regarding Spanish translations to ensure all measures were culturally and linguistically relevant to the local community.

Sample Characteristics
Participants were asked to report their birthdate; sex; race and ethnic background; where they were born; the highest grade in school they had completed; and their language use when speaking at home, with friends, and that they usually think in.

Quantitative Data: Outcome Measures
MHFA Knowledge. Participants (see Table 1) answered 17 true or false questions based on the content of the MHFA training (Bond et al., 2015). Example items include, “It is best not to try to reason with a person having delusions” and “People with mental illnesses are much more likely to be smokers.” Items were summed and higher scores indicated greater MHFA knowledge. Scores can range from 0 to 17.

Help-Seeking Self-Efficacy. Participants answered four items used in prior MHFA evaluations to assess their help-seeking self-efficacy (Bond et al., 2015; O’Connor & Casey, 2015). Sample items include, “I feel knowledgeable about mental illness resources” and “I feel comfortable talking about mental health issues with my family.” Items were rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Items were summed so that higher scores represent greater help-seeking self-efficacy (α = .92 at pre- and .78 at postassessment). Scores can range from 0 to 20.

Mental Health Literacy (MHL) Confidence. After the second day of training, participants answered nine items assessing their perceived confidence in applying the skills and knowledge taught in the course. Ratings were made using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Sample items include, “As a result of this training, I feel more confident that I could ask someone if they are considering suicide.” Items were averaged with higher scores representing greater MHL confidence (range of scores = 0 to 45; α = .91).

Course Satisfaction. After the second day of training, participants answered four items assessing their satisfaction with the MHFA course content, and three items assessing the competency of each facilitator. Ratings were made using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Sample items include “Course content was practical and easy to understand” (satisfaction with course content) and “The instructor demonstrated knowledge of the material presented” (perceived facilitator competence). Items were averaged with higher scores representing greater satisfaction regarding course content (range of scores = 0 to 20), and perceived facilitator competence (range of scores = 0 to 15). Open-ended questions were also asked to assess the strengths and weaknesses of the program and how it could be improved.

Qualitative Data: Focus Groups
Semistructured Interview. Participants were asked to share (a) what they learned from the MHFA training; (b) how they shared what they learned about MHFA with others in their community; and (c) whether they think other Latinx residents would participate in a mental health intervention program that is led by community residents and what the barriers and supports would be to that participation.
Data Analysis Plan
Participants who completed both preintervention and postintervention surveys were included in the current analysis (N = 20). Two participants had one missing data point at pretest; two additional participants had one missing data point at posttest. These were determined to be missing at random, and values were imputed via simple mean substitution using the mean value of knowledge and help-seeking self-efficacy, respectively, at pre- and postintervention. Within-group differences in help-seeking self-efficacy and MHFA knowledge before and after the intervention were calculated using paired-sample t tests. Statistical analyses were performed using SPSS (IBM Corp., 2017); p values less than .05 were considered statistically significant.

Focus group data were coded using a thematic analysis approach (Braun & Clark, 2006). First, the coders became familiar with the data by reading and rereading the transcript and writing down notes and impressions. In the second step, the coders developed general initial codes from the data using open-coding, which allowed the coders to generate new codes as they reviewed the transcript and to modify existing codes. In Step 3, coders examined the initial codes, identified themes, and then searched for themes. Next (Step 4), coders reviewed the themes to ensure that they captured the data/initial codes and, in Step 5, the coders further defined themes and created a thematic map. Step 6 was to write up the findings. Two team members participated in this coding process (the first and eleventh author). Both team members have extensive experience conducting qualitative studies and coding qualitative data, are bilingual (English-Spanish), and Latinx. Trustworthiness in the qualitative process was achieved through team triangulation, documentation of thoughts and notes, use of a coding framework, and team consensus (Nowell et al., 2017).

Results
Quantitative Findings
Overall, participants in this sample were engaged in the MHFA training as evidenced by the fact that 80% attended both days of training. We found no significant demographic differences (i.e., age, sex, education, language preference, country of origin) between those who completed both sessions and those who only attended one session. Among those who completed both sessions, participants’ satisfaction with the course content (M = 4.65, SD = 0.50, range = 3 to 5), perceived competence of the instructor (M = 4.89, SD = 0.30, range = 4 to 5), and MHL confidence (M = 4.61, SD = 0.43, range = 3 to 5) were high. In responding to open-ended questions about the training, participants shared that it was “excellent,” that they “learned a lot,” and several participants noted that having a bilingual facilitator was very important. The one area participants highlighted as a potential area for improvement was the amount of time with numerous participants noting that the “training time was too short.”

Regarding help-seeking self-efficacy, results of a paired t test indicated significant mean differences in help-seeking self-efficacy preintervention (M = 13.78, SD = 4.72, range = 4 to 20) and postintervention (M = 16.94, SD = 2.54, range = 12 to 20), t(19) = −3.24, p = .005 (d = 0.75). However, 10% of the sample reported lower self-efficacy postintervention than at Time 1, and 10% had no change in self-efficacy following the intervention. Pretest surveys indicated that participants, on average, answered 9.19 out of 17 mental health knowledge questions (SD = 1.93, range 5 to 14) correctly. Following the intervention, the average number of correct items was 10.50 (SD = 1.7, range 6 to 15). Results of a paired t test indicated that this was a statistically significant increase in mean mental health knowledge from preintervention to postintervention, with participants increasing their mental health knowledge from preintervention to postintervention (M = 4.89, SD = 4.61, range = 3 to 5) were high. In responding to open-ended questions about the training, participants shared that it was “excellent,” that they “learned a lot,” and several participants noted that having a bilingual facilitator was very important. The one area participants highlighted as a potential area for improvement was the amount of time with numerous participants noting that the “training time was too short.”

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To examine factors that distinguished between those who improved and did not improve following the intervention, a series of exploratory chi-square and independent-samples t tests were conducted to examine associations between sociodemographic factors (i.e., sex, language, birthplace, age when came to the United States) and postintervention change. A dichotomous variable was created to distinguish between those who did not increase help-seeking self-efficacy following the intervention (no or negative change = 0), and those who did (change = 1). The categories for the language preference variable included only Spanish, more Spanish than English, both equally, and only English (although the variable originally had 5 categories, no participants in the subsample indicated that they spoke more English than Spanish). Results indicated that only language most frequently spoken at home was
significantly associated with group membership. In particular, participants who reported speaking Spanish or mostly Spanish at home were more likely than expected to be in the “improved” group (n = 10), X^2(3) = 7.8, p = .01. No significant associations were found for sociodemographic variables and improvement in mental health knowledge.

**Qualitative Findings**

Three themes emerged from the thematic analysis that further support the feasibility of training Latinx in MHFA. The themes include (a) cultural stressors, (b) improved mental health literacy (e.g., mental health knowlde, causal attributions), and (c) mental health help-seeking behaviors. Figure 1 depicts the three emergent themes, including how they are interrelated.

**Cultural Stressors**

Focus group participants pointed out that many individuals in their community were experiencing depression and stress, and they associated these mental health problems with cultural stressors. Specifically, participants talked about fear for themselves, their children, and community associated with being Latinx and/or an immigrant in the current political climate. For instance, one participant shared, “La comunidad Latina está viviendo miedo y estrés por inmigración, sin saber cómo manejar esa situación. Me he fijado que está constantemente viviendo en miedo y eso causa estrés y ese estrés causa otras enfermedades.” [The Latinx community is experiencing fear and stress from immigration, without knowing how to handle this situation. I have noticed that it is constantly living in fear and that causes stress and that stress causes other illnesses]. One participant said:

Y en la comunidad Latina yo creo que la situación de inmigración está afectando a muchas personas causando mucha nostalgia, y mucho estrés y está causando otras enfermedades de salud, ya sean mentales o si las expresamos en forma de enfermedad física. [And in the Latina community I think that the immigration situation is affecting a lot of people, causing a lot of nostalgia and stress, and it is causing other illnesses, whether they be mental health illnesses or whether we express them in the form of physical illnesses].

**Improving Mental Health Literacy**

Participants overwhelmingly shared that they appreciated the MHFA training and that they learned new information about stress, depression, and identifying mental health symptoms. A participant shared, “Aprendí a distinguir las diferencias en desordenes y enfermedades mentales. Y que, aunque muchos tengan síntomas parecidos, no significa que tengan la misma enfermedad.” [I learned to distinguish the differences between disorders and mental illness. And although many have similar symptoms, it does not mean they have the same disease]. Several participants further shared that what they learned was personally relevant to themselves or family members who may be struggling with mental health problems such as depression. For instance, a participant expressed

Pero lo que yo aprendí fue sobre la depresión. O sea, yo estaba deprimida, pero yo no sabía que era depresión. Pero cuando yo aprendí lo que era, yo dije “guau.” Y ahí reconocí que yo necesito aprender a hacer algunas cosas, para no tomar las cosas tan a la ligera porque por eso me deprimía. [But what I learned was about depression. I mean, I was depressed, but I didn’t know it was depression. But when I learned what it was, I said “wow.” I recognized that I need to learn to do some things, so as not to take things so lightly because that is why I was depressed].
Similarly, another participant expressed:

"Yo también tengo mi experiencia con la depresión, este … yo la he vivido, ha sido difícil salir [de la depresión]. Creo que lo principal de que aprendí en el grupo es a buscar ayuda. Muchos lo reconocemos y no lo queremos aceptar. No queremos buscar la ayuda. [I also have my experience with depression, um … I have lived with depression. It has been difficult to reduce it [the depression]. I think the main thing that I learned in the group is to seek help. Many of us recognize it and we do not want to accept it. We do not want to seek help]."

Finally, participants also talked about gaining a better understanding of the factors that may affect an individuals’ mental health (i.e., causal attributions about mental health disorders, mental health stigma). One participant shared, “Y por último que hay un estigma muy fuerte con el tema de la depresión. Uno dice que alguien está deprimido y la gente te mira como una cosa rara.” [And finally that there is a very strong stigma on the subject of depression. One says that someone is depressed and people look at it as a strange thing]. Other participants talked about how the cultural value of machismo may make it difficult for men to express feelings of depression. For instance, one participant said, “Entonces no podemos dejar afuera a los hombres porque también los hombres sufren mucho de depresión… Ellos tienen mucha depresión, pero les cuesta hablar.” [So we cannot leave men out because men also suffer a lot of depression… They have much depression, but it is difficult for them to speak.] Other participants agreed with this statement and mentioned it being related to the cultural value of machismo (e.g., “It is for machismo” was said in response to the prior participant’s statement).

**Mental Health Help-Seeking**

Focus group responses provide some insight into why mental health help-seeking may be low. Specifically, participants mentioned that people in the community are suffering from stress and depression, but that people do not know where to go for help or that they do not seek help because of stigma or fear related to the political climate. One participant shared:

"Hay mucha gente en la comunidad de nosotros que no está informada. Ellos no están guiados. Están por tirar la toalla y devolverse a sus países por la depresión que tienen tan grande. No saben qué hacer. Buscan información, pero no hay un lugar donde puedan recibir ayuda e información. Tienen miedo de salir. Tienen miedo de hacer cosas que antes no lo tenían. Eso trae mucha depresión. Hay demasiado miedo. [There’s a lot of people in our community who are not informed. They are not guided. They are about to throw the towel and return to their countries because of depression. They do not know what to do. They seek information, but there isn’t a place where they can receive help and information. They are afraid to leave. They are afraid of doing things that they didn’t have before. That brings a lot of depression. There is too much fear.]

However, participants noted that the training helped them increase their help-seeking self-efficacy and also that they used what they learned in the MHFA training to cope with depression by joining family/friends. A participant shared “Aprendí a controlar las emociones de depresión” [I learned to control the emotions of depression]. Participants mentioned that, since the training, they used what they learned to help others at home, church, and groups they belong to, such as a group for parents who have children with disabilities.

**Discussion**

The goals of the present study were to determine the feasibility of training Spanish-speaking Latinx adults in MHFA and to pilot outcome measures (that were translated into Spanish) in a pre-post design. Most existing literature has examined the implementation of MHFA training in English, including some studies that included English speaking Latinx individuals (Banh et al., 2019; Hadlaczky et al., 2014; Lee & Tokmic, 2019; Mendenhall et al., 2013; Morgan et al., 2018). To our knowledge, this is the first study that evaluated the implementation of MHFA in a Spanish-speaking sample living in the United States and that piloted Spanish versions of the outcome measures.

Results from the present study demonstrate the feasibility of training Spanish-speaking Latinx community residents in MHFA. Specifically, the MHFA training was well-received as evidenced by participants’ reported satisfaction with the
training and their engagement in the two days of training (80% attended both days of training). Consistent with previous research demonstrating the effectiveness of MHFA training (Banh et al., 2019; Mendenhall et al., 2013), the present study found that mean scores on help-seeking self-efficacy and MHFA knowledge increased between pre- and posttests, reflecting that Spanish-speaking participants reported being more comfortable with help-seeking behaviors, had a better understanding of available resources, and knowledge about MHFA after being trained. Indeed, research has demonstrated that interventions adapted to focus on specific cultural groups and those that are provided in an individual’s native language are more effective than nonadapted interventions (Soto et al., 2018). Although no other adaptations were made to the MHFA intervention in the present study, it is possible that additional cultural adaptations (e.g., incorporating metaphors) could further enhance the interventions’ effectiveness and trainee’s satisfaction. In a meta-analysis of culturally adapted mental health interventions, Soto et al. (2018) found larger treatment effects in studies that had more cultural adaptations.

To obtain a better picture of whose help-seeking self-efficacy and MHFA knowledge scores improved, exploratory analyses were conducted. Specifically, we found that participants who reported speaking mostly Spanish in their households were more likely to be in the group whose help-seeking efficacy scores improved after the training, compared to the group whose scores did not improve. First, it is possible that participants differed in their language fluency in Spanish. Perhaps individuals who did not primarily speak Spanish at home (21% of participants) would have felt more comfortable engaging in the training and learned more in a group with peers who were speaking English. It is also possible that participants who primarily speak Spanish at home adhere more to Latinx cultural values (e.g., personalismo, familismo) that can affect treatment engagement and outcomes (see Bernal & Domenech Rodríguez, 2012).

A second goal of the present study was to pilot the outcome measures that were translated into Spanish. Although we piloted outcome measures that have been used in prior MHFA evaluations, not all item sets demonstrated adequate internal consistency, and our sample size does not permit us to make any practical conclusions about the psychometric properties of these brief item sets. For example, we attempted to measure participant’s attitudes towards mental health, but those item sets had low reliability ($\alpha = .43$) and were therefore not included in analyses. Accordingly, more work is needed to determine the measure equivalence (Chávez & Canino, 2005) of existing MHFA measures when translated into different languages. This finding also highlights the benefit of conducting mixed-method research when culturally adapting interventions. The addition of qualitative data provides researchers with an additional data point when measures being piloted do not demonstrate cross-ethnic equivalence or when participants have mixed reactions to cultural adaptations (see Crooks et al., 2018, for results of a cultural adaptation of MHFA in First Nation contexts). Indeed, findings from the focus groups provide support that the training resulted in perceived increases in participants’ mental health literacy including their knowledge of mental health symptoms, which is consistent with findings from quantitative studies (Banh et al., 2019; Morgan et al., 2018).

Three themes emerged from the focus groups that are consistent with prior quantitative findings regarding improvements in participants’ mental health literacy after MHFA training. Specifically, focus group participants noted increases in their mental health literacy, and they also emphasized the role of cultural stressors in mental health. For instance, many participants mentioned that the Latinx community is experiencing cultural stressors such as deportations and the negative political climate surrounding Latinx individuals and immigrants, which in turn is negatively affecting their mental health. Additionally, participants reported that fears related to immigration were the main contributor to mental health symptoms in their community.

Given the timing of when this study was conducted, it is important to consider the impact of the 2016 election, as the anti-immigration and specifically anti-Latinx rhetoric has had an immense impact on the well-being of the Latinx community within the United States. Media reports have consistently documented a decline in mental health and emotional well-being of Latinx individuals after the 2016 election (Ritter & Tsabutashvili, 2017; Viser, 2017). Several studies have found that more severe exclusionary immigration policies are correlated with psychological distress and negative mental health outcomes, such as social isolation, fear of family separation, anxiety, and depression (Becerra et al., 2020; Bruzelius & Baum, 2019; Hatzenbuehler et al., 2016; Vargas et al., 2017).
In a qualitative study of a mental health support group for Latinx immigrants, Jalisi et al. (2018) found that, after the election, participants reported being reluctant to report crimes, avoiding public places, limiting family outings, and experiencing anxiety due to fears of deportation and family separation. Additionally, Krupenkin et al. (2019) found a statistically significant increase in online searches of mental health-related terms (such as “therapy,” “depression,” “suicide,” or “anxiety”) between May 2016 and December 2017 specifically among Spanish-speaking users; they did not find the same increase for English-speaking searchers. It is important to note that these negative outcomes are not only experienced by undocumented individuals; documented immigrants may experience fear by association and anxiety for friends and relatives that may be undocumented (Ayón & Becerra, 2013; Vargas et al., 2017). These studies not only provide a better understanding of the stressful climate for our research sample, but also highlight the need for a promising and feasible mental health intervention, such as MHFA, that can be implemented with this population.

Participants further shared how the knowledge they learned in the MHFA training helped them understand their own experiences. Using semi-structured interviews with undergraduate nursing students in Hong Kong, Hung et al. (2019) found that training in MHFA improved participants’ self-awareness of their own mental health status. Although MHFA is not designed as a mental health intervention that reduces trainee’s symptoms, Kitchener and Jorm (2004) reported that training in MHFA improved Australian trainee’s mental health. Together, these findings suggest the inclusion of mental health symptom measures in future MHFA evaluations to assess the impact of MHFA on trainee’s own mental health.

Limitations and Implications for Future Research
Despite these promising results, the present study is not without limitations. First, the sample included 25 Latinx adults and, of those 25, only 20 participants completed both days of training. It is important to note that the second day of training occurred the weekend immediately following the 2016 election. Given the political climate surrounding Latinx immigrants during that election (Lopez et al., 2018), we actually expected fewer community members to attend. We believe retention was aided by the trust that has been established between the research team, community partners, and members of the community. It is also possible that the community’s desire to learn and help one another in promoting mental health further contributed to their engagement in this project. In addition, the majority of participants in this sample had some college education so the findings may not generalize to Latinx individuals from more diverse educational backgrounds. Although we attempted to assess mental health knowledge using a measure that has been used in prior MHFA evaluations, this measure demonstrated poor reliability in this study. Additionally, the current study did not compare the effectiveness of the MHFA training program against a control or comparison group. Finally, although findings from the focus groups provide additional evidence of participants’ perceived benefits of the MHFA training, we did not conduct member checking of the qualitative findings.

Results from the present study also highlight potential areas for future research. First, future studies should enroll a larger, more diverse sample, randomize participants into intervention and control groups, and include reliable and valid measures (in English and Spanish) of mental health knowledge, help-seeking behaviors, stigma, and mental health literacy. Using a longitudinal design would allow for an examination of how participants implemented what they learned in the training in their communities and whether improvements in outcomes are sustained. In a meta-analytic review, Morgan et al. (2018) identified only two studies that assessed outcomes beyond 6 months. Future studies could also assess the sustainability by exploring whether community members who were trained would be interested in being recertified as MHFA trainers. Further, more research is needed that includes the help-seeking behaviors and mental health outcomes of individuals who are the recipient of MHFA behaviors by trainees (Chowdhary et al., 2019; Maslowski et al., 2019; Morgan et al., 2018). Finally, this type of community-based intervention may be especially relevant given the disproportionate impact that the COVID-19 pandemic has had on the Latinx community. Latinxs are at high risk of contracting COVID-19 (Webb Hooper, Nápoles, & Pérez-Stable, 2020) and/or knowing someone who has the virus (Johnson, Ferno, & Keeter, 2020). Thus, it is not surprising that the fear and concern about contracting COVID-19 is more prevalent among vulnerable populations, including Latinx individuals, and that this fear is associated with increased mental health problems (Fitzpatrick, Harris, & Drawve, 2020).
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Author Note. Rosalie Corona @ https://orcid.org/0000-0002-6652-9092

Michael A. Trujillo @ https://orcid.org/0000-0002-3540-8415

Efren Velazquez @ https://orcid.org/0000-0002-1984-4268

Inemea Ascencio @ https://orcid.org/0000-0001-8152-1657

Oswaldo Moreno @ https://orcid.org/0000-0002-6102-1644

Michael A. Trujillo is now a post-doctoral fellow at the University of California, San Francisco. Julia R. Cox is now a post-doctoral fellow at the University of California, Los Angeles. Efren Velazquez is now an assistant professor in the Department of Psychological Science at the University of North Georgia. Gabriela K. Benzel is now the family literacy specialist and family engagement coordinator at Excellence in Children’s Early Language and Literacy (ExCELL) in Richmond, VA. Keegan Edgar is now at the Johns Hopkins Bloomberg School of Public Health. Lindsey Hersher is now a clinical social worker in Richmond, VA. Cydni A. Gordon is now a Fulbright program officer in the Office of Academic Exchanges at the U.S. Department of State.

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Correspondence concerning this article should be addressed to Rosalie Corona, Department of Psychology, 806 W. Franklin Street, Richmond, VA 23284.

Email: racorona@vcu.edu

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Supervisors’ Gratitude and Employees’ Feelings About Their Supervisor and Organization

Joseph W. McKeon, Kayla M. Trumbull, and Jennifer L. Hughes*
Department of Psychology, Agnes Scott College

ABSTRACT. A 2012 survey by the John Templeton Foundation found that a majority of employees said they would feel better about themselves and that they would work harder for a supervisor who was more grateful (Kaplan, 2012). These findings prompted the present study in which we investigated whether employees’ perceptions of their supervisors’ expressed gratitude were predictors of employees’ perceived organizational support, perceived supervisor support, affective organizational commitment, and job satisfaction. We used MTurk to recruit participants and they took online surveys. Using data from 278 respondents, we ran a series of linear regressions. We found that the perception of gratitude expressed by a direct supervisor positively predicted perceived organizational support ($\beta = .64, p = .001$, adjusted $R^2 = .41$), perceived supervisor support ($\beta = .82, p = .001$, adjusted $R^2 = .67$), affective organizational commitment ($\beta = .62, p = .001$, adjusted $R^2 = .38$), and job satisfaction ($\beta = .50, p = .001$, adjusted $R^2 = .25$).

Our results imply that supervisors who express gratitude could increase employees’ positive feelings about their workplace and supervisors.

Keywords: gratitude, perceived organizational support, perceived supervisor support, affective organizational commitment, job satisfaction

Gratitude is a familiar aspect of positive psychology and has been defined over the years as an emotion, a mood, and/or an affective trait; it is often referred to as dispositional gratitude (Fehr et al., 2017). McCollough et al. (2002) defined dispositional gratitude as “a generalized tendency to recognize and respond with grateful emotion to the roles of other people’s benevolence in the positive experiences and outcomes that one obtains” (p. 112) and included within their definition four facets: intensity, frequency, span, and density.

The frequency facet is a particularly important one, as McCollough et al. (2002) stated that individuals with a grateful disposition reported feeling grateful more often than others, and that this grateful feeling could be brought on even by simple favors done by others. It has also been shown that those who perceive someone to have helped more in a situation are more grateful to that person, supporting the idea that people who participate in prosocial behavior more often will receive more gratitude, thus encouraging them to continue that behavior (Chow & Lowery, 2010). Wood et al. (2010) suggested that gratitude plays a role in psychological health and physical well-being.

Looking specifically at the workplace, Fehr et al. (2017) provided a model of gratitude in the workplace, called the Multilevel Model of Gratitude in Organizations. This model suggested that there are three levels of gratitude experienced in three different ways: episodic gratitude experienced at the event level, persistent gratitude experienced at the individual level, and collective gratitude experienced at the organizational level. In particular, they suggested that gratitude at the individual employee level could increase well-being and communal relationships within the workplace. Similar results were found by Ford et al. (2018). They found that daily gratitude felt toward one’s organization predicted higher organizational citizenship.

Other studies have also corroborated this claim that gratitude can increase employee well-being, specifically in that positive visualizations
and writing-based interventions can increase job performance, and that gratitude interventions can decrease job burnout (Allen & McCarthy, 2016; Chan, 2011). These research findings reinforce the idea that experiencing gratitude in the workplace can be good for employees. However, most of these studies focused on employee-generated gratitude, but did not investigate how external gratitude (i.e., from one’s supervisor) affects employees. A survey by the John Templeton Foundation found that employees believed having a supervisor that expressed their gratitude towards them would increase their morale and work ethic, suggesting that the effects of this external gratitude may be extensive and should be studied (Kaplan, 2012).

Perceived supervisor and organizational support and perceived supervisor gratitude are concepts that are most likely closely related. Generally, gratitude may be one facet of support. Support, or social support specifically, is usually grouped into five categories: supportive actions, appraisal, social cognition, symbolic interactionism, and relationships (Lakey & Cohen, 2000). Perceived gratitude falls into the supportive actions category, as this category is defined as “supportive behaviors provided by others” (p. 30). Because support is a multifaceted concept, it may be helpful to investigate every aspect of it individually and how each category plays a part in the overall perception of support. External gratitude may also affect other facets of employees’ opinions about their organization such as affective organizational commitment and job satisfaction.

Eisenberger et al. (1986) defined perceived organizational support as “the extent to which the organization values [an employee’s] contributions and cares about their well-being” (p. 504). They found that employees form global beliefs about perceived organizational support and that these beliefs influence absenteeism. Eisenberger et al. (2002) also found that perceived organizational support was related to other positive employee outcomes such as job satisfaction, positive mood, and lessened withdrawal behavior. However, Tucker et al. (2018) cautioned that supervisors who have low emotion regulation often create more stress for their employees when attempting to show support. They suggested that emotion regulation is an important skill to have as a supervisor.

Perceived supervisor support is similar to perceived organizational support, but it involves employees’ relationship with their direct supervisor instead of the organization as a whole. Eisenberger et al. (2002) found a relationship between perceived supervisor support and perceived organizational support. The researchers found, using data from many different organizations, that perceived supervisor support was positively related to a temporal change in perceived organizational support, suggesting that perceived supervisor support can lead to perceived organizational support.

Affective organizational commitment is the emotional bond that an employee feels they share with their organization, and job satisfaction is often an antecedent to affective organizational commitment (Chordiya et al., 2017). For retail sales workers, Eisenberger et al. (2002) found a negative relationship between perceived supervisor support and employee turnover, mediated by perceived organizational support, suggesting that the role and position of the supervisor can have a significant effect on perceived organizational support, perceived supervisor support, and affective organizational commitment.

Job satisfaction was defined by Locke (1969) as “a pleasurable or positive emotional state resulting from an appraisal of one’s job” (p. 309). It has been shown to be significantly related to positive affectivity by Connolly and Viswesvaran (2000), suggesting that those with more positive affect, including a proclivity for gratitude, could experience more job satisfaction than their peers with lower positive affectivity. Job satisfaction has also been shown to be positively correlated with individual and institutional gratitude (Waters, 2012).

For the current study, we investigated whether supervisors’ expressions of gratitude would predict employees’ feelings about the organization and their supervisor. We hypothesized that employees’ perceptions of their supervisors’ expressed gratitude would be a predictor of their perceived organizational support, perceived supervisor support, affective organizational commitment, and job satisfaction.

Method

Participants

We recruited 320 participants to take our online survey. We excluded data from 22 participants because they gave the same answers throughout the survey, and we thought it was possible that they did not read some of the questions, especially because some of the items from the scales were positive and some were negative. Another 20 participants’ data were excluded because they discontinued the survey during or after the first scale.
We asked participants to write their sex on the survey, and 147 participants identified as women and 131 participants identified as men. The average age of the participants was 39.08 (SD = 11.16). They listed their ethnic/racial background as being European American or White (80.9%); African American or Black (8.3%); Asian (5.0%); multi-racial (3.6%); and Hispanic, Latino, or Spanish (2.2%). None of the participants identified as American Indian or Alaska Native; Middle Eastern or North African; or Native Hawaiian or other Pacific Islander. They also did not mark “other” or “prefer not to answer.” The participants reported living in the United States in the Midwest (22.7%), the Northeast (15.9%), the South (34.3%), and the West (27.1%). Three participants did not answer the question about where they lived.

The participants characterized their jobs as an employee of a for-profit company/business or as an individual working for wages, salary, or commission (71.9%); a local, state, or federal government employee (13.3%); an employee of a not-for-profit, tax-exempt, or charitable organization (10.4%); or self-employed in a personal or family business, professional practice, or farm (4.7%). They worked on average 42.58 (SD = 7.43) hours per week, including work not performed at their workplace. Three participants did not report their work hours. Fourteen percent of the participants had more than one job. They were instructed to take the survey based on the job where they worked the most hours. For salary, participants reported making less than $35,000 (32.5%), making between $35,000 and $49,999 (21.7%), and making between $50,000 and $74,999 (30.7%). Fewer participants reported making between $75,000 and $99,999 (9.4%) or making over $100,000 (5.8%).

**Measures**

**Affective Organizational Commitment**

Like Rhoades et al. (2001), we used five items from the Affective Commitment Scale (Meyer & Allen, 1997; Meyer et al., 1993) and one item about pride in organizational membership from the Organizational Commitment Questionnaire (Mowday et al., 1979) to assess affective commitment. Example items include “I feel a strong sense of belonging to my organization” and “I am proud to tell others I work at my organization.” Participants responded using a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Rhoades et al. (2001) reported an alpha coefficient of .85 for the scale, and we found an alpha coefficient of .95 for this study. To establish validity evidence, Rhoades et al. (2001) found the scale to positively correlate with perceived organizational rewards, organizational support, procedural justice, and supervisor support.

**Job Satisfaction**

The Michigan Organizational Assessment Questionnaire:Job Satisfaction subscale (Cammann et al., 1979, 1983) was used for this study. The subscale consists of three items including “All in all I am satisfied with my job,” “In general, I don’t like my job (reverse-coded),” and “In general, I like working here.” Other authors have used 5-, 6-, and 7-point Likert-type scales (Bowling & Hammond, 2008), and for this study a 5-point Likert-type scale was used ranging from 1 (disagree) to 5 (agree). Bowling and Hammond (2008) found an alpha coefficient of .84 for the scale, and we found an alpha coefficient of .95 for this study. They also found evidence for validity of the subscale by finding positive correlations with affective commitment, career satisfaction, coworkers, job involvement, justice (i.e., distributive, interactional, procedural), normative commitment, organizational commitment, pay, promotional opportunities, satisfaction with work itself, and supervision. They also found negative relationships with anxiety, depression, emotional exhaustion, frustration, general psychology strains, job tension, and physical symptoms.

**Perceived Organizational Support**

The Survey of Perceived Organizational Support (Eisenberger et al., 1986; Eisenberger et al., 1990; Shore & Tetrick, 1991; Shore & Wayne, 1993) was developed to assess an individual’s feelings about being supported by their organization. For this study, we used the 8-item short form listed by Rhoades et al. (2001). Example items include “My organization really cares about my well-being” and “My organization strongly considers my goals and values.” Participants used a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Rhoades et al. (2001) found an alpha coefficient of .90 for the scale, and we found an alpha coefficient of .95 for this study. To establish validity evidence, Rhoades et al. (2001) found it to positively correlate with affective organizational commitment, perceived organizational rewards, procedural justice, and supervisor support.
Perceived Supervisor Support
To evaluate participants’ beliefs that their supervisors cared about their well-being and valued their contributions, we used an adapted form of the Survey of Perceived Organizational Support like Rhoades et al. (2001) used. They replaced the word “organization” with “supervisor” for four of the items. Example items include “My supervisor cares about my opinions” and “My work supervisor really cares about my well-being.” Participants used a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Rhoades et al. (2001) found an alpha coefficient of .90 for the scale, and we found an alpha coefficient of .95 for this study. To establish evidence for the validity of the scale, Rhoades et al. (2001) found that it positively correlated with affective organizational commitment, perceived organizational rewards, perceived organizational support, and procedural justice.

Supervisor’s Gratitude
One question was used to assess supervisor’s gratitude: “My direct supervisor shows his or her gratitude towards me.” Participants used a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Procedure
After Agnes Scott College institutional review board approval, participants were recruited using Amazon Mechanical Turk (MTurk). To be considered for the study, individuals had to be employed at least 30 hours per week and live in the United States. Participants were each paid $0.50. Participants were asked to complete a 10-minute online survey using SurveyMonkey. The survey contained scales about gratitude, job satisfaction, organizational commitment, organizational support, and supervisor support. The survey also asked about demographic information. Participants were directed to a page thanking them for taking the survey, but no formal debriefing was given.

Results
An examination of the correlations in Table 1 showed that all variables were positively and significantly correlated with each other. We expected the correlations to be positively related to one another because the variables were assessing positive feelings about supervisors and organizations.

We then analyzed our data to evaluate our hypotheses using four separate linear regressions. We used regression because we wanted to see if perceived gratitude expressed by a supervisor affected organizational support, supervisor support, affective organizational commitment, and job satisfaction. In support of our hypotheses, we found that the perception of gratitude expressed by a direct supervisor positively predicted perceived organizational support ($\beta = .64, p = .001$, adjusted $R^2 = .41$) and perceived supervisor support ($\beta = .82, p = .001$, adjusted $R^2 = .67$). In addition, we found that the perception of gratitude expressed by a direct supervisor positively predicted affective organizational commitment ($\beta = .62, p = .001$, adjusted $R^2 = .38$) and job satisfaction ($\beta = .50, p = .001$, adjusted $R^2 = .25$).

Discussion
For this study we hypothesized that employees’ perceptions of their supervisors’ expressed gratitude would be a predictor of employees’ perceived organizational support, perceived supervisor support, affective organizational commitment, and job satisfaction. We found perceived supervisor gratitude to be a significant positive predictor for each of our dependent variables.

In the proposed Multilevel Model of Gratitude in Organizations by Fehr et al. (2017), they suggested that gratitude initiatives such as appreciation programs and developmental feedback could help increase episodic gratitude, which in turn could lead to increased organizational citizenship and resilience. The findings from the current study support their findings with perceived supervisor gratitude predicting perceived organizational support, perceived supervisor support, affective organizational commitment, and job satisfaction.

Our findings show that increasing expressed supervisor support could be a good method to increase employee felt support, satisfaction, and commitment. Using our research findings,
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Organizations could develop training programs and initiatives to encourage supervisors to express gratitude to their workers and to use values of positive psychology in their everyday work. Organizations could also promote employees to the level of supervisor who are more prone to showing gratitude.

Strengths and Limitations
There were several strengths of our research. One strength was the diversity and size of our sample. Because we recruited our participants using MTurk, we were able to reach a wide range of people from different geographical regions, types of jobs, and incomes. This suggests that our findings may be more generalizable than if we had only recruited individuals locally. Another strength was that we used reliable measures that had evidence for their validity. In addition, not much research has been conducted on gratitude and the workplace, and the findings from this study can be used to develop future studies on the topic.

Our research did have a few limitations. Although the use of MTurk had benefits, it also limited our sample in the sense that those who do not use MTurk could not participate. Another limitation was that most of our sample identified as being White. We would have hoped to have a more racially/ethnically diverse sample so that our sample more fully represented the workers in the United States. Another limitation is that we used just one item to assess supervisor gratitude. Because gratitude is a complex, multifaceted concept, using just one item to measure gratitude could have influenced our results. For example, the respondents could have felt their supervisors showed gratitude in some ways and not in other ways, but had to give an overall assessment. Finally, supervisors’ behaviors, including expressions of gratitude, change throughout the day, so when we asked participants about their supervisors, they could have been thinking about one specific instance of behavior that did not represent their supervisors’ typical behaviors (Ford et al., 2018).

Future Work
We believe that the significant data, along with our perceived limitations, provide a wealth of future research ideas for this topic. First, because of the lack of racial/ethnic diversity in our sample, it would be beneficial to repeat our study but recruit participants who are more representative of the workplace domestically and globally. Researchers may also want to evaluate whether these findings generalize to different classes, genders, and sexuality represented in the workplace.

Another avenue of research could be experimental. Because gratitude interventions have been shown in the past to increase gratitude (Krejtz et al., 2016; Seligman et al., 2005), it may be valuable to see if gratitude interventions could increase supervisors’ expressed gratitude. For instance, there could be two groups, one where supervisors simply write about events of their day in a journal every day for a set period of time (i.e., control), and the other where supervisors write in a journal every day about things that they were grateful for, specifically in reference to their employees (i.e., experimental). It is possible that the experimental group could, during and/or after the study, show higher levels of expressed gratitude, which could in turn impact their employees.

A third possible study could include evaluating specific ways that supervisors express gratitude and how this affects employees’ perceptions of the workplace. Different expressions of gratitude may produce more effective or salient reactions in employees, and thus may be more effective to use. These different expressions can include raises, compliments, notes/letters, awards, and others. If one expression of gratitude was found to be more effective in boosting employee morale, it would be advantageous to use that. The opposite is also true. If another expression of gratitude is found to be significantly less effective than the others, it would be important for supervisors to know that.

One thing to note is that we asked employees to tell us if they thought their supervisors showed gratitude toward them. Our participants’ perceptions were important for our study because those ultimately impact the employees’ perceived support, job satisfaction, and commitment, but it could be the case that their supervisors were actually showing gratitude and the employees were not realizing it. This would be an interesting topic for future research.

This study sought to answer the question of how supervisors’ expressed support affected various measures of job satisfaction and commitment in employees. We found that this expressed gratitude was a strong predictor of all our factors (i.e., perceived organizational support, perceived supervisor support, job satisfaction, and affective organizational commitment). These findings have many implications for the workplace in terms of increasing employee well-being by encouraging supervisors to express their gratitude and support to their employees.
References

Author Note. Joseph W. McKeon https://orcid.org/0000-0002-9467-0472 Kayla M. Trumbull https://orcid.org/0000-0002-0907-4992 Jennifer L. Hughes https://orcid.org/0000-0002-7978-5650 Joseph W. McKeon is now a master's degree candidate at the Department of Psychology, Georgia State University. Kayla M. Trumbull is now a master's degree candidate at the Department of Psychology, Valdosta State University.

The third author of this article was also the Invited Editor for this special issue of Psi Chi Journal of Psychological Research. Therefore, this article was masked and assigned to a different editor in order to reduce potential bias and ensure that it received a consistently rigorous peer-review process.

Correspondence concerning this article should be addressed to Jennifer Hughes, Department of Psychology, 141 E. College Ave., Agnes Scott College, Decatur, GA 30030. Email: jhughes@agnesscott.edu

Correction to McKeon et al. (2020).


The correct authorship listing (Joseph W. McKeon, Kayla M. Trumbull, and Jennifer L. Hughes) has now been corrected on the Psi Chi Journal website and should be used in all citations and references moving forward.

Psi Chi Journal recognizes challenges faced by transgender and nonbinary authors when updating their records to reflect their identities. The journal’s Editorial Team is committed to supporting authors and facilitating name changes to best respect the language people use to describe themselves’ (APA Publication Manual 5.2 & 5.5).

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Socioeconomic Differences in Worker Involvement in Labor Union Activities

Peter J. McEachern and Christopher J. Budnick*
Department of Psychology, Southern Connecticut State University

ABSTRACT. The success of organized labor is aided by worker involvement in voluntary, union-related activities such as leadership roles and the socialization of new members. Established models of the attitudinal antecedents of this involvement (e.g., the exchange-covenant model; Snape & Redman, 2004) hold that positive attitudes toward unions in general are involvement's primary predictor, with effectiveness of one's own union being of secondary importance. However, these findings are gathered largely from high-socioeconomic status (SES) samples (e.g., university professors; see, e.g., Fiorito et al., 2014), and even more diversely sampled studies do not test for the influence of SES. Therefore, using a socioeconomically and occupationally diverse sample (n = 94), we examined whether established union involvement models apply equally to low- and high-SES union members. We found that, in high-SES individuals, general attitudes about unions positively predicted self-reports of past involvement, \( b = 0.70, t(79) = 2.57, p = .01, CI_{95\%} [.16, 2.15] \), and future involvement interest, \( b = 0.77, t(79) = 2.45, p = .02, CI_{95\%} [.15, 1.40] \); results were null for average- (past involvement \( p = .81 \), future \( p = .83 \)) and low-SES workers (past involvement \( p = .10 \), future \( p = .24 \)). Our findings indeed suggest that the exchange-covenant model is only applicable to high-SES union workers. General union attitudes are ostensibly irrelevant to overall involvement from their low-SES counterparts, possibly due to greater influence of social and material resource exchange on low-SES union members considering becoming involved in union activities. Future union involvement research should account for the influence of socioeconomic factors.

Keywords: labor unions, exchange-covenant model, theory of planned behavior, resource mobilization theory, conservation of resources

Union members are better paid than their nonunion counterparts (Hirsch, 2004) and receive better fringe benefits, such as employer-provided health insurance and pensions (Buchmueller et al., 2004). Unions improve job safety, reduce occupational stress, and help create more cohesive organizational cultures (Baugher & Timmons Roberts, 2004; Hagedorn et al., 2016). However, to properly function and better workers’ lives, unions rely heavily on voluntary, unpaid involvement from members. Such involvement can take the form of leadership roles, participation in communal union activities, or even simply informal discussion of the union with others (Fiorito et al., 2010; Monnot et al., 2011; Parks et al., 1995; Tetrick et al., 2007). Unions failing to secure members’ voluntary engagement in often mundane, but necessary, activities will likely also fail to effectively launch their members into political activism (Yu, 2014). Thus, much research has attempted to understand the antecedents of union involvement (e.g., Bamberger et al., 1999; Fiorito et al., 2014).

Most models of union involvement, such as the exchange-covenant model (Snape & Redman, 2004), hold that union members most reliably
volunteer in union activities when they hold positive general union attitudes; that is, positive attitudes toward unions’ existence rather than toward their specific union (Kelly & Kelly, 1994; Newton & Shore, 1992; Snape & Redman, 2004). For example, individuals may hold attitudes that are generally supportive of unions in the aggregate while simultaneously holding negative attitudes about their specific union. Members with positive general union attitudes tend to incorporate union membership into their social identity more readily, and therefore tend to be more involved in union activities even amid possible frustrations with their union (Newton & Shore, 1992; Snape & Redman, 2004). However, one potential unaddressed gap in these models is a relative lack of diversity in the research surrounding their creation (Snape & Redman, 2004).

The study of union involvement antecedents has focused largely on high-socioeconomic status (SES) workers, mainly college professors or other educators (Fiorito et al., 2011; Fiorito et al., 2014; Goeddeke & Kammeyer-Mueller, 2010; Iverson & Kuruvilla, 1995; Kelly & Kelly, 1994; Snape & Redman, 2004). Although a few studies examined low-SES workers (Fullagar et al., 2004; Tetrick et al., 2007), and others captured ostensibly socio-economically diverse samples (Fiorito et al., 2010; Green & Auer, 2013; Kelloway & Barling, 1993; Parks et al., 1995), none directly examine SES’s relationship to union involvement. Some studies did analyze income as a predictor of union membership (e.g., Hirsch, 1980), but not involvement.

Only one of the aforementioned studies directly compared union involvement antecedents across industries, but this was primarily for the purpose of validating a self-report measure of involvement (Parks et al., 1995). Administration of the measure to Canadian nurses and retail workers found that higher wages predicted greater involvement in both groups, but more so among nurses. Still, occupation alone is not an adequate indicator of SES (Cornfield & Kim, 1994). Thus, no studies that we are aware of have directly examined SES’s role regarding participation in union activities.

Given that, across and within unions, membership rosters often exhibit much diversity, better understanding of how SES influences the relationship between union involvement and involvement’s antecedents should provide insights informative to the current literature and also for unions seeking to maximize participation from all members. Therefore, we employed a survey study (n = 94) assessing perceived SES as a moderator of relationships between union involvement and potential antecedents. This research contributes to the organizational, personnel, and business psychology literatures by confirming past findings regarding antecedents of union involvement and extending those findings by examining whether SES alters relationships between union involvement and its antecedents.

Antecedents of Union Involvement
Two antecedents are primary to most union involvement models: (a) general union attitudes and (b) the perceived instrumentality/effectiveness of one’s own union in accomplishing its goals (i.e., union instrumentality; Bamberger et al., 1999; Kelly & Kelly, 1994; Newton & Shore, 1992; Snape & Redman, 2004). We defined general union attitudes as feelings and opinions toward unions and their effectiveness in general (Fiorito et al., 2010; McShane, 1986). Thus, general union attitudes reflect individuals’ overall affective assessment of whether unions, across industries, are positive and helpful entities. In contrast, perceived union instrumentality/effectiveness is the degree to which union members believe their specific union can reliably secure them material benefits (Chacko, 1985). Thus, much prior union involvement research has centered on the importance of general union attitudes versus the perceived effectiveness of one’s own union (Bamberger et al., 1999; Snape & Redman, 2004). The prevailing conclusions of these studies, drawn without regard to socioeconomic factors and often utilizing strictly high-SES samples, is that general union attitudes are of primary importance to encouraging union members’ involvement in union activities.

Consistent with the above findings, the exchange-covenant model of union involvement holds that the most committed and involved union members are those who feel most positively about unions in general (Snape & Redman, 2004). Members with positive general union attitudes might view their union activity as a duty resulting from a covenant between the self and the union. Such a significant agreement lacks a transactional element once it is made; regardless of how effective covenant-oriented members perceive their union to be at securing material and social benefits and resources, their level of involvement remains consistent (Newton & Shore, 1992). Conversely, union members who primarily value their union’s...
instrumentality can still be motivated to participate in voluntary activities, but less reliably so (Kelly & Kelly, 1994; Newton & Shore, 1992; Snape & Redman, 2004). Such members value the union only insofar as they can receive material or social benefits from it, seeing their membership as an affectless economic exchange (Snape & Redman, 2004). Although these members may participate in union activities that do not require much commitment or personal sacrifice (e.g., attending union meetings), they will shy away from more difficult or time-consuming forms of participation such as attending national union conferences or running for union office (Kelly & Kelly, 1994; Snape & Redman, 2004). When the benefits of union membership begin to go away, these members will be quicker to abandon the union (Newton & Shore, 1992). Still, both general union attitudes and perceived union instrumentality should lead to the initiation of union participation. In fact, much involvement research has concluded that general union attitudes are largely predicted by the perceived instrumentality of one’s own union (Bamberger et al., 1999; Newton & Shore, 1992). Thus, we expected both general union attitudes and perceived union instrumentality to associate with more union involvement.

Material resource exchange is not the only type of exchange examined in the exchange-covenant model (Snape & Redman, 2004). As opposed to resource-based instrumentality perceptions, perceived union support measures the degree to which workers believe their union cares about them and is sensitive to their needs. Therefore, union support perceptions are based more on social rather than economic considerations. For long-term union members, perceived support from the union seems to influence participation more than instrumental- ity (Sinclair & Tetrick, 1995; Snape & Redman, 2004; Tetrick et al., 2007). Higher perceived union support also more strongly predicts intentions to stay with the union compared to general union attitudes or instrumentality when membership is voluntary. That finding suggests that perceived union support’s influence on involvement may also be related to union commitment (Snape & Redman, 2004). Therefore, we expected perceived union support to associate positively with union involvement as well.

Besides general attitudes and social/economic exchanges, most union involvement research has examined the role of job satisfaction (Bamberger et al., 1999; Goeddeke & Kammeyer-Mueller, 2010; Kelloway & Barling, 1993; Monnot et al., 2011; Parks et al., 1995). This construct is generally viewed as a proxy for resource allocation attributed to the employer rather than the union. Thus, although some studies have found that job satisfaction correlates positively with perceived union instrumentality and commitment to the union, it relates negatively to participation in all kinds of union activities no matter the amount of resource investment required (Bamberger et al., 1999; Goeddeke & Kammeyer-Mueller, 2010; Kelloway & Barling, 1993; Kuruvilla & Fiorito, 1994; Monnot et al., 2011; Parks et al., 1995). Workers may attribute satisfactory working conditions to their union but simultaneously interpret that satisfaction as an indication they can relax their union involvement. Based on that reasoning, we expected job satisfaction and union involvement to negatively associate.

More recent evidence has suggested that, in addition to the union involvement antecedents discussed thus far, perceived behavioral control may also influence union members’ participation (Fiorito et al., 2014). Workers doubting that their personal efforts will result in positive job outcomes should be less likely to participate in union activities, regardless of their attitudes about unions or their job. Although only Fiorito et al. (2014) has measured the relationship between perceived behavioral control and union involvement, their findings are consistent with other work on perceived behavioral control and job performance (Townsend et al., 2002). Fiorito et al.’s (2014) findings are also consistent with resource mobilization theory (Klandermans, 1984; Obserschall, 1975). That theory holds that union members are more likely to engage in collective action when they believe their own efforts will influence the outcome. Therefore, to add to those limited findings, the present research also examined perceived behavioral control’s relationship to union involvement. Considering the existing evidence for various attitudinal antecedents of union involvement, we sought to confirm those past reports by predicting that (H1a) General union attitudes, (H1b) perceived union instrumentality, (H1c) perceived union support, and (H1d) perceived behavioral control would relate positively to union involvement; and (H2) job satisfaction would relate negatively to union involvement.

**SES and Union Involvement**

Besides confirming past observations, we also focused on extending past work by considering
how SES might alter those relationships. We measured SES in a manner consistent with prior organized labor research. Organized labor typically conceives of SES using a Marxist framework: members of socially dominant groups along the lines of variables like race, gender, occupation, income, citizenship, educational attainment, and age are more likely to have greater access to material resources from society and through their workplace and therefore to be of higher SES (Burgoon et al., 2010; Chang, 2003; Cornfield & Kim, 1994). As such, much prior union involvement research has compared blue-collar workers (i.e., those who perform manual labor) with white-collar ones (i.e., those in the service industry), essentially assuming these groups to represent low- and high-SES workers, respectively (e.g., Cook et al., 1978; Monnot et al., 2011; Owen et al., 1989). However, blue/white-collar status is not an adequate SES proxy: some blue-collar professions net far greater salaries than white-collar ones (Sasso, 2019).

Recent work on SES and union formation interest has taken a different approach: short, subjective, self-report measures (Mellor, 2016; Mellor & Golay, 2016). For that work, study participants chose their closest match from a list of social class options ranging from “poor” to “upper class.” The researchers argued that, although objective demographic variables can predict union interest, such sentiments ultimately hinge on workers’ subjective perceptions of their social identity and their workplace’s collective identity. Thus, measuring perceived social class allows researchers to examine individuals’ perceptions of their resource access (Mellor, 2016). Examining resource access and allocation subjectively rather than objectively is consistent with research on other industrial and organizational and occupational health psychology constructs, such as organizational justice theory (Greenberg, 1987) and conservation of resources theories of stress (Hobfoll, 1989). Consistent with that work, we measured perceived social class to represent SES.

At least two predictions about SES’s relationship to union involvement exist. Most union involvement models and meta-analyses have suggested that general union attitudes are the strongest predictor of involvement (Bamberger et al., 1999; Fiorito et al., 2010; Goeddeke & Kammeyer-Mueller, 2010; Kelly & Kelly, 1994; Monnot et al., 2011; Newton & Shore, 1992; Snape & Redman, 2004). Importantly, low-SES workers tend to hold more positive union attitudes relative to high-SES workers (Cornfield & Kim, 1994; Kerrissey & Schofer, 2013; Mellor, 2016; Mellor & Golay, 2016). Thus, one prediction is that low-SES workers will be more involved with their union than their high-SES counterparts.

Yet, although low-SES workers’ positive general union attitudes might encourage union participation, their actual participation may be hindered because they lack requisite resources required to engage in voluntary and unpaid union activities (Snape & Redman, 2004). According to resource mobilization theory (Klandermans, 1984; Oberschall, 1973), workers lacking time and/or financial resources will be less likely to participate in a movement without immediate returns for resource expenditures. This might suggest that low-SES workers will exhibit a weaker relationship between general union attitudes and union involvement than high-SES workers. Consistent with other resource-based theories of effort expenditures (Demerouti et al., 2001; Greenberg, 1987; Hobfoll, 1989), we hypothesized that (H3) SES would relate positively to union involvement and (H4) SES would moderate the relationship between general union attitudes and union involvement, such that general union attitudes would more strongly relate to union involvement in high-SES workers compared to low-SES workers.

Resource mobilization theory also suggests that lack of resources’ hindrance of involvement can be offset by (a) increasing the perceived benefits of collective action, and/or (b) strengthening an individual’s perceived influence of their own efforts on attaining said outcomes (Klandermans, 1984). Thus, low-SES workers with limited resources might be forced to adopt a more exchange-oriented decision-making process regarding union involvement. They may also be more reluctant to involve themselves in voluntary union activity if they are satisfied with their jobs (i.e., they do not perceive a resource imbalance) or if they do not believe their own efforts will make a difference in the outcome of union action. As such, we predicted that (H5a) SES would moderate the relationships between perceived union instrumentality, (H5b) perceived union support, (H5c) job satisfaction, and (H5d) perceived behavioral control and union involvement, such that they will more strongly relate to union involvement in low-SES workers compared to high-SES ones.
Method

Participants and Procedures

This project was approved by Southern Connecticut State University’s Institutional Review Board after expedited review. Participants provided electronic consent to participate after reading a short study description describing the study’s purposes and the types of questions they would answer.

Union workers (N = 120) from the United States were recruited in one of three ways: (a) via posters placed in various establishments and outdoor bulletin boards in the Northeast, (b) through local union leaders and/or employees who informed workers of the study via internal mailing lists after approving the survey, or (c) via posts on the social media site Reddit.com. All potential survey respondents viewed the same recruitment flyer, which invited them to take a 10-minute, online survey hosted on Qualtrics regarding their “opinions about [their] union, unions in general, and [their] job” for a chance to win one of 10 Amazon gift cards ($100.00 USD). Twenty-two participants were eliminated for completing an insufficient amount of the survey (between 4% and 38%). Per procedures of Tabachnick and Fidell (2013), an additional four participants were excluded for completing surveys in more than three standard deviations greater or less than the mean reading time, resulting in a final n of 94.

The sample was comprised mostly of men (60.6%, n = 57). Women accounted for 36.2% of the sample (n = 34), whereas three participants (3.2%) reported their gender as “other” or “prefer not to answer.” Most participants racially identified as White (81.9%, n = 77), with two identifying as Black (2.1%), two as Hispanic or Latino (2.1%), three as Asian or Pacific Islander (3.2%), and four as multiracial (4.3%). Six participants (6.4%) declined to report their race. All participants ranged in age from 21 to 80 years (M = 48.85, SD = 13.27). About 70% of participants reported their political affiliation with the Democratic Party (n = 58), with another 18.1% describing themselves as moderate or unaffiliated (n = 17), 8.5% identifying with the Republican Party (n = 8), and the remaining participants (11.7%; n = 11) declining to report their political affiliation. Most participants had either a graduate degree (45.7%, n = 43) or had no college degree (42.6%, n = 40), with an additional 10 participants (9.4%) reporting either an associate’s or bachelor’s degree as their highest level of education. One participant declined to report their education. Each survey respondent was asked to report their occupation’s industry. Most participants worked in higher education (44%, n = 41) or construction-related trades (31%, n = 29). An additional four participants (4.3%) reported working in other white-collar occupations, six (6.4%) in other blue-collar ones, and another four (4.3%) were either retired or gave no answer to the industry question. All participants had been members of their union for an average of 16.94 years (SD = 11.56), and the vast majority were full-time workers (84%, n = 79). As for SES, most participants reported being either middle class (57.5%, n = 46) or working class (35.0%, n = 28); fewer participants reported upper (5.0%, n = 4) and poor/underemployed (2.5%, n = 2) standing.

Measures

All bivariate correlations, descriptive statistics, and measure reliabilities are reported in Table 1. Most of the measures used in the present research were previously validated by the studies cited in their descriptions. A few were not formally validated, namely, the single-item measures of union involvement (Fiorito et al., 2014), political orientation (Waytz et al., 2016), and socioeconomic status (Mellor & Golay, 2016), as well as the perceived union support measure (Goeddeke & Kammeyer-Mueller, 2010). However, the sources from which they are taken detailed their creation and intended use to a satisfactory degree for use in the present research.

Union Involvement

Past research measured union involvement in one of two ways. Most research has respondents complete checklists of union activities they have performed (Fiorito et al., 2011; Goeddeke & Kammeyer-Mueller, 2010; Green & Auer, 2013; Kelloway & Barling, 1993; Kelly & Kelly, 1994; Parks et al., 1995; Snape & Redman, 2004; Tetrick et al., 2007). However, other studies use short, subjective measures asking participants to rate their perceptions of past involvement and/or intentions to become involved in the future (Fiorito et al., 2010; Fiorito et al., 2014; Kuruvilla & Fiorito, 1994; Sinclair & Tetrick, 1995). We elected to also include subjective measures for two reasons. First, due to the diversity of occupations we expected, we wanted to include a broad involvement measurement in case the checklist did not capture all of the union activities a worker could have performed. Second, the only prior study to assess perceived behavioral control’s relationship
to union involvement (Fiorito et al., 2014) took this approach, which allowed this study to confirm and extend those initial findings.

**Union Involvement Checklist.** Because of validation across industries, we used the Parks et al. (1995) checklist. Participants indicated their completion of union activities (score 1; noncompletion scored 0) on a 3-factor, 14-item checklist (Parks et al., 1995). Seven of the items assessed administrative involvement (e.g., serving as an elected union official), three items assessed engagement in informal, prounion activities (e.g., helping a new member learn about the union), and four items assessed intermittent, regularly occurring union activities (e.g., ratification of a new collective bargaining agreement). Because the validation of this measure examined sum scores representing each factor rather than a composite involvement score (Parks et al., 1995), we used the same scoring approach. We did not devise specific hypotheses for each factor due to a lack of prior evidence from which to draw on SES and union involvement.

**Subjective Union Involvement.** To assess subjective union involvement, we used two items from Fiorito et al. (2014) focused on perceptions of past union involvement (“Which of the following best describes your level of activity in your union during the past year?”) and future involvement intentions (“How interested would you be in volunteering to help your union in the next year?”). Participants responded on 4-point scales from 1 (not active at all) to 4 (very active) for past involvement and 1 (not interested) to 4 (very interested) for the future intentions. Higher scores indicated greater perceived involvement/interest.

**General Union Attitudes**

Eight items (e.g., “Unions are a positive force in this country”; McShane, 1986) assessed general union attitudes using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Higher mean scores represent more positive attitudes toward unions generally.

**Perceived Union Instrumentality**

Ten items (e.g., “How good is your union at getting you better wages?”; Chacko, 1985) assessed perceived union instrumentality using a 4-point Likert-type scale from 1 (not at all good) to 4 (very good).

**Perceived Union Support**

A shortened version of the Perceived Organization Support measure (Eisenberger et al., 1986; shortened version previously validated by Goeddeke & Kammeyer-Mueller, 2010) assessed perceived union support. This measure features six items (e.g., “My union strongly considers my goals and values”) using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Higher mean scores indicate greater perceived support from the union.

### Table 1

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<td>2. Perceived Union Instrumentality</td>
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<td>3. Perceived Union Support</td>
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<td>4. Job Satisfaction</td>
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<td>5. Perceived Behavioral Control</td>
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<td>6. Socioeconomic Status</td>
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<td>7. Subjective Past Involvement</td>
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<td>8. Future Involvement Interest</td>
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<td>.36**</td>
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<td>9. Administrative Activities</td>
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<td>10. Supportive Activities</td>
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<td>11. Intermittent Activities</td>
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<td>−.06</td>
<td>.24**</td>
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M 4.61 3.22 4.04 4.31 3.55 3.64 2.59 2.54 2.19 2.18 2.78  
SD 0.69 0.61 0.92 0.83 0.89 0.66 1.03 1.16 2.57 1.15 1.26

Note: Numbers on the diagonal are scale reliabilities.

* p < .05. ** p < .01.
Job Satisfaction
The Overall Job Satisfaction Scale (Cammann et al., 1983) features three items (e.g. “All in all, I am satisfied with my job) scored using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), with higher mean scores indicating greater job satisfaction.

Perceived Behavioral Control
A 4-item measure of control appraisal (Parker et al., 2006) with anchors ranging from 1 (strongly disagree) to 5 (strongly agree) assessed perceived control related to problems in the workplace (example statement: “In my job, most of the problems that I experience are completely ‘out of my hands.’”). All four items were reverse coded such that a higher score indicated more perceived control in the workplace.

Demographic Information
The demographic variables included questions about racial and gender identity, age, political orientation (Waytz et al., 2016), education level, industry in which they work, and tenure at the employer and the union. SES was assessed using a single-item, self-report measure (Mellor & Golay, 2016). Participants indicated their current SES as: poor (1), underemployed (2), working class (3), lower middle class, upper middle class (both 4), lower upper class, and upper class (both 5). A higher number indicates higher perceived SES.

Analysis Approach
We tested Hypotheses 1–3 using bivariate correlational analyses. Hypotheses 4 and 5 were tested using hierarchical linear regression. SES and the focal attitudinal antecedent (i.e., either general union attitudes, perceived union instrumentality, perceived union support, job satisfaction, or perceived behavioral control) were entered in Step 1, with their interaction term added in Step 2 to predict each measure of union involvement (subjective past involvement, future involvement interest, and the three union activity checklist factors). Results and discussion focus on significant variance increases due to the addition of the interaction term. Where such increases were found, simple slopes analyses at ± 1 SD determined the nature of the moderation. Due to a limited sample size, we refrained from including control variables in the analyses. Additionally, as we conducted several regression-based tests with numerous predictors, we sought to avoid increases in Type I error by using the Bonferroni correction to adjust alpha. We calculated this correction in two ways: (a) based on the overall number of regression predictors and interaction terms (eight; adjusted \( p = .007 \)), and (b) based on the total number of regression models analyzed (20; adjusted \( p = .003 \)). As such, to take the most conservative approach, we only interpreted regression models as significant when \( p < .003 \).

Although the final \( n \) of the sample was 94, missing data resulted in smaller \( n \)s in analyses of SES (94 = 80). For variables in which less than 5% of responses were missing, missing data were replaced using the series mean. Hypotheses 4 and 5 were tested using the Bonferroni correction to adjust alpha. We calculated this correction in two ways: (a) based on the overall number of regression predictors and interaction terms (eight; adjusted \( p = .007 \)), and (b) based on the total number of regression models analyzed (20; adjusted \( p = .003 \)). As such, to take the most conservative approach, we only interpreted regression models as significant when \( p < .003 \).

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Results
Hypotheses 1–3: Correlation Tests
Simple correlation analyses partially supported H1a. General union attitudes significantly positively correlated with subjective past involvement, \( r(94) = .21, p = .04 \), future involvement interest, \( r(94) = .28, p = .006 \), and supportive activities, \( r(94) = .23, p = .03 \).

Analyses partially supported H1b. Perceived union instrumentality significantly positively correlated with subjective past involvement, \( r(94) = .45, p < .001 \), future involvement interest, \( r(94) = .28, p = .006 \), and supportive activities, \( r = .23, p < .001 \).

Perceived union support significantly positively correlated with subjective past involvement, \( r(94) = .31, p = .002 \), future involvement interest, \( r(94) = .36, p < .001 \), and supportive activities, \( r(94) = .29, p < .001 \), which partially supports H1c.

H1d was fully supported. Perceived behavioral control significantly positively correlated with subjective past involvement, \( r(94) = .41, p < .001 \), future involvement interest, \( r(94) = .41, p < .001 \), administrative activities, \( r(94) = .22, p = .03 \), supportive activities, \( r(94) = .33, p < .001 \), and intermittent activities, \( r(94) = .24, p = .02 \).

Hypothesis 2 was partially supported. Job satisfaction significantly negatively correlated only with administrative activities, \( r(94) = -.24, p = .02 \).
Support was not found for Hypothesis 3 because, although significant correlations were observed between SES and union participation, they were in the opposite direction of that hypothesized. Higher SES associated with less subjective past involvement, \( r(80) = -.39, p < .001 \), future involvement interest, \( r(80) = -.44, p < .001 \), and supportive activities, \( r(94) = .02, p = .22 \). However, the significant interaction, \( F(3, 76) = 8.78, p < .001 \), qualified these effects, \( R^2 = .06 \) and \( 95\% [0.00, 0.21] \), but not general union attitudes, \( R^2 = .04 \) and \( 95\% [0.00, 0.16] \). Consistent with our hypothesis, simple slopes analysis found a positive relationship between union attitudes and subjective past involvement among high-SES workers, \( b = .70, t(79) = 2.57, p = .01, CI_{95\%} [0.16, 1.25] \), but a nonsignificant relationship for low-SES ones, \( b = -.81, t = -1.69, p = .10, CI_{95\%} [-1.77, 0.15] \). Figure 1 visually documents the interaction.

**Hierarchical Linear Regression Analyses**

As previously specified, our focus for these results is on significant variance increases due to the addition of an interaction term. Interested readers may refer to our online supplementary materials (https://doi.org/10.17605/OSF.IO/UGQRS), which contain full model statistics. Due to multicollinearity of perceived union instrumentality and support, \( r(94) = .80, p < .001 \), Hypothesis 5a was not tested.

**Hypothesis 4**

Significant interactions were found between SES and general union attitudes on the two subjective union involvement measures.

**Subjective Past Involvement.** Results showed main effects for SES, \( b = -.80, t = -4.28, p < .001 \), \( CI_{95\%} [-1.18, -.43] \), but not general union attitudes, \( b = -.06, t = -.24, p = .81, CI_{95\%} [-.53, 0.42] \). However, the significant interaction, \( b = 1.15, t(79) = 2.44, p = .02, CI_{95\%} [1.21, 2.09] \), qualified these effects, \( \Delta R^2 = .06, F(3, 76) = 7.50, p < .001 \). Consistent with our hypothesis, simple slopes analysis found a positive relationship between union attitudes and subjective past involvement among high-SES workers, \( b = .70, t = 2.57, p = .01, CI_{95\%} [0.16, 1.25] \), but a nonsignificant relationship for low-SES ones, \( b = -.81, t = -1.69, p = .10, CI_{95\%} [-1.77, 0.15] \). Figure 1 visually documents the interaction.

**Future involvement interest.** Results showed main effects for SES, \( b = -.97, t = -4.49, p < .001 \), \( CI_{95\%} [-1.40, -.54] \), but not general union attitudes, \( b = .06, t = .22, p = .83, CI_{95\%} [-.49, 0.61] \), on future involvement interest. However, the significant interaction, \( b = 1.08, t(79) = 1.99, p = .05, CI_{95\%} [0.00, 2.16] \), qualified these effects, \( \Delta R^2 = .04, F(3, 76) = 8.78, p < .001 \). Consistent with our hypothesis, simple slopes analysis found a positive relationship between general union attitudes and future involvement interest among high-SES workers, \( b = .77, t = 2.45, p = .02, CI_{95\%} [0.15, 1.40] \), but a nonsignificant relationship among low-SES workers, \( b = -.65, t = -1.18, p = .24, CI_{95\%} [-1.76, 0.45] \). Figure 2 visually documents the interaction.

**Hypothesis 5b-d**

No significant interactions between SES and any of the focal antecedents of this hypothesis (i.e., perceived union support, job satisfaction, perceived behavioral control) were observed, which fails to provide support for Hypothesis 5. Although we did observe significant main effects, the focus of these hypothesis tests was specifically on increases in variance explained due to the addition of the interaction term. Therefore, we do not elaborate on these results (see Table 2 for Hypothesis 5’s regression coefficients for models in which significant main effects were observed). For full model statistics, please see the online supplementary material for this study.

**Post-Hoc Power Analyses**

Given a limited sample size for this study, we conducted post-hoc power analyses using G*Power 3.1 (Faul et al., 2007). Power is equal to one minus \( \beta \), the chance of Type II error. Analyses returning a \( 1 - \beta \) of .80 or higher are adequately powered (Cohen, 1988; Royall, 1997). As noted in the
Method, our sample size for the correlation analyses was slightly larger \((n = 94)\) than for the regression analyses involving SES \((n = 80)\). Therefore, we first conducted a post-hoc power analysis to determine whether our bivariate analyses were adequately powered to detect a medium or larger magnitude effect \((\text{effect size estimate} = .30 \ [\text{medium effect per} \ Cohen, 1988], \text{error probability} = .05, \text{sample size} = 94)\). The results indicated that the power for our correlation analyses was .84 \((\text{lower/upper critical} \ r = \pm .20)\), which exceeds the .80 standard. This result suggests that these analyses achieved adequate power thresholds to detect a significant bivariate relationship of moderate or stronger magnitude.

To determine whether our regression analyses were adequately powered, we conducted two power analyses. The first examined the power concerning the omnibus test, that is to declare an overall regression model significant given a medium or larger effect \((\text{effect size estimate} = .15 \ [\text{medium effect per} \ Cohen, 1988], \text{error probability} = .05, \text{sample size} = 80, \text{number of predictors} = 3 [2 \text{ independent variables and their interaction term}]\). The results showed this study’s power as .82, which exceeds the minimum .80 threshold and suggests this work was adequately powered to identify significant model variance deviations from zero of moderate or stronger magnitude. We next examined this study’s power for detecting a significant moderate or stronger increase in variance explained with the addition of the interaction term \((\text{effect size estimate} = .15 \ [\text{medium effect per} \ Cohen, 1988], \text{error probability} = .05, \text{sample size} = 80, \text{number of tested predictors} = 3 [2 \text{ independent variables and their interaction term}]\). These results \((\text{power} = .87)\) also suggested that this work was adequately powered to identify a significant increase in variance explained by interaction term. Given the results of these post-hoc power analyses, the present findings appear adequately powered. However, nonsignificant effects should be interpreted with the caveat that smaller effects may be present, which this research was not adequately powered to detect.

### Discussion

**Implications for Theory and Future Research**

Our first set of hypotheses sought to confirm relationships between union involvement and several antecedents \(i.e., \) general union attitudes, perceived union instrumentality, perceived union support, job satisfaction, perceived behavioral control; these hypotheses were partially supported. Stronger general union attitudes, perceived instrumentality of the union, perceived union support, and perceived behavioral control all associated
with stronger subjective perceptions of past union activity involvement and future involvement interest. Consistent with our prediction, job satisfaction negatively correlated with subjective union involvement and future involvement interest. We observed consistent results when analyzing those variables’ relationship with the more objective checklist measure of union activities.

Interestingly, and confirming Fiorito et al. (2014), perceived behavioral control displayed the strongest relationships to all involvement measures. However, extending that work, the present data failed to identify SES as a moderating influence, suggesting that perceived behavioral control transcends SES and resource access perceptions. At a minimum, this result also suggests that future research examining predictors of union involvement consider statistically controlling for perceived behavioral control. This finding may additionally suggest that future research consider whether union involvement antecedents additively (rather than multiplicatively) contribute to predicting union involvement.

Also of importance, our results were opposite of our predictions concerning the influence of SES on union involvement. Low-SES members reported more current and future involvement interest compared to high-SES individuals. As noted previously, there were two possible predictions concerning union involvement and SES. The first was that low-SES individuals would exhibit more involvement as they also tend to hold more positive general union attitudes (Cornfield & Kim, 1994; Kerrissey & Schofer, 2013; Mellor, 2016; Mellor & Golay, 2016), which, per the exchange-covenant model (Snape & Redman, 2004), should lead to more union involvement. On the other hand, resource mobilization theory suggests that low-SES individuals will expend less effort toward union activities relative to high-SES individuals unless they perceive immediate benefit or a high level of personal control to influence outcomes (Klandermans, 1984). As other resource-based theories (e.g., Demerouti et al., 2002) suggest that, when resources are limited (such as they are for low-SES workers), effort from discretionary tasks should be reduced, this finding stands in contradiction to predictions originating from that work. As such, typical resource-based theories of motivation may not equally apply to the union setting. However, these results are consistent with Kerrissey and Schofer’s (2013) assertion that unions tend to align themselves with low-SES priorities and modes of thought rather than high-SES ones.

Perhaps our observation that low SES correlates with greater union involvement results from the lack of a strong social safety net in the United States (Shafer & Edin, 2018). Only one study, relying on a Canadian sample, reported that higher income positively related to greater union involvement (Parks et al., 1995). The disparity between those findings and the present results may be due to societal and political differences between Canada and the United States (e.g., Moon et al., 2000). Within the United States, unions may be one of the only resources for job improvement and other supportive functions available to low-SES individuals, whereas high-SES individuals likely have more alternatives. This finding contributes to the current literature by indicating that union research may not generalize geographically. As such, cross-cultural research examining differences and similarities in the antecedents of union involvement are warranted. Such findings might even be instrumental in improving union participation in the United States by adopting effective or avoiding less effective methods, policies, and practices utilized globally.

Although our expectations of reduced involvement in low-SES workers were errant, we did find support for our prediction that the relationship between union attitudes and union involvement

### TABLE 2, CONTINUED.

<table>
<thead>
<tr>
<th>Regression Models for Union Involvement Antecedents and SES (Statistically Significant Models Only)</th>
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<tbody>
<tr>
<td><strong>Outcome Variable</strong></td>
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<tr>
<td>Future Involvement Interest</td>
</tr>
<tr>
<td>Step 1: Perceived Behavioral Control (centered)</td>
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<tr>
<td>SES (centered)</td>
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<tr>
<td>Step 2: Perceived Behavioral Control (centered)</td>
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<tr>
<td>SES (centered)</td>
</tr>
<tr>
<td>Perceived Behavioral Control x SES</td>
</tr>
<tr>
<td>Full model: F(3, 76) = 12.40, p &lt; .001, R² = .33</td>
</tr>
<tr>
<td>Future Involvement Interest</td>
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<tr>
<td>Step 1: Job Satisfaction (centered)</td>
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<tr>
<td>SES (centered)</td>
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<tr>
<td>Step 2: Job Satisfaction (centered)</td>
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<tr>
<td>SES (centered)</td>
</tr>
<tr>
<td>Job Satisfaction x SES</td>
</tr>
<tr>
<td>Full model: F(3, 76) = 6.24, p = .001, R² = .20</td>
</tr>
</tbody>
</table>

Note: SES = socioeconomic status. For all models, df = 79.

*p < .05, **p < .01.
Practical Applications

Based on this work, unions looking to encourage worker involvement in voluntary activities should heed two takeaways. First, regardless of SES, perceived behavioral control was the strongest predictor of involvement in this study. Although only correlational, this result is consistent with longitudinal data gathered by Fiorito et al. (2014) and with work on resource mobilization theory (Klandermans, 1984). Secondly, in this research, general union attitudes related to involvement in high-SES workers to a greater degree than low-SES ones. This result suggests an involvement profile for low-SES members that does not seem to quite fit the dynamic established by past involvement models (e.g., Newton & Shore, 1992; Snape & Redman, 2004). Although low-SES workers like unions more than their high-SES counterparts (Cornfield & Kim, 1994; Kerrissey & Schofer, 2013; Mellor, 2016; Mellor & Golay, 2016) and were found in the present research to be more involved, their involvement seems based more on resource exchange than their attitudes toward unions in general, even though prior models implied that general union attitudes are key. Perhaps these prior models found resource exchange to be a weaker predictor because the high-SES workers comprising most of their samples did not need to prioritize the union’s activities the way low-SES workers do.

For unions attempting to maximize involvement, these results may suggest a dual-pronged approach. For low-SES union members, union leadership may find benefit in attempting to increase perceptions of personal behavioral control (e.g., providing a newsletter identifying how individual members have contributed to the union) or by acting in a manner that will heighten perceptions of union support (e.g., making frequent contact to determine if union members’ needs/concerns are properly addressed). This suggestion is consistent with both past research (e.g., Tetrick et al., 2007) and the results reported here. Yet, to facilitate the participation of high-SES union members, the results of this work suggest that union leadership may benefit from providing materials and information (e.g., brochures concerning why unions may benefit from providing materials and information (e.g., brochures concerning why unions are valuable across industries) that could help to improve general union attitudes. Still, future work should replicate these findings before unions tailor involvement-increasing interventions to the socioeconomic makeup of their membership.

Limitations and Additional Future Directions

The limited sample size of this study reflects a historically strained relationship between industrial/organizational psychology and organized labor (Zickar, 2004). Nonetheless, this real-world sample provided a diverse pool of workers from which to draw our conclusions. Moreover, post-hoc power analyses suggested that this work had adequate power to detect a medium or larger magnitude effect in the data. This provides some confidence concerning the adequacy of this sample for drawing...
conclusions from the reported results. However, null results should be interpreted with caution because this sample was not large enough to provide the statistical power to detect smaller effects. As such, future work should incorporate larger sample sizes to confirm the current findings. The possibility does remain that SES might moderate relationships between some of the antecedents (i.e., perceived behavioral control, perceived union support, job satisfaction) but at a magnitude too small to detect with the reported samples. Future research with larger samples would be useful to confirm or disconfirm that possibility.

The number of regression models run (i.e., 20) is high for a study of this sample size. Yet, such methods are warranted by the lack of prior research on SES’s influence on union involvement. To avoid inflated Type I error probability, we calculated two corrections to critical alpha and adopted the more stringent. This conservative approach provides further confidence that the reported results are not due to repeated testing. The reported relationships demonstrate that even one’s perceived socioeconomic standing may influence their primary union involvement motivators. The results of this research highlight a potential need for the alteration of those models or the creation of different union membership models that account for socioeconomic levels, if not different job classes or industries.

Conclusion

Based on recent polling data, public opinion of labor unions is at its most positive levels in around 50 years (Jones, 2019). The current political climate is thus friendlier to unions than at any other time in recent memory. Unions desiring to benefit from this positive sentiment to facilitate increased growth and relevance would be wise to examine the attitudinal antecedents of worker involvement in unpaid, union-based activities, especially given the integral function of these activities to the health of a union (e.g., Tetrick et al., 2007). Our study may contribute to future union growth by highlighting a possible lack of generalizability of the exchange-covenant model of union membership (Snape & Redman, 2004), which holds that general attitudes about unions are the most reliable predictor of worker involvement in labor unions. Although this was indeed the case in high-SES workers, the same could not be said of low-SES ones. Acknowledging these SES-based differences in union involvement and working to fully uncover them in future work will aid the mission of organized labor.

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Author Note

Peter J. McEachern @ https://orcid.org/0000-0003-3059-587X

Peter J. McEachern is now a master’s degree candidate at the Department of Psychology, George Mason University.

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Correspondence concerning this article should be sent to Peter J. McEachern by email at pmceach@masonfive.gmu.edu.
Evaluating Academic and Work-Related Factors in Working Community College Students With and Without Children

Megan Crow Brauer1 and Michelle Singer Foust2*
1Department of Psychology, Cleveland State University
2Division of Social Sciences and Human Services, Lorain County Community College

ABSTRACT. Research has indicated that an increasing number of college students work at least part-time, which is particularly true of community college students (Velez et al., 2018). Although balancing school and work is a challenge, adding parenthood creates a major opportunity for conflict for the 22% of undergraduate students who are also parents, nearly half of whom attend community college (Cruse et al., 2019). For the present research, we investigated the differences between working student parents and working students on academic and work-related variables. We surveyed 145 working students, with 30.30% parents, at a Midwest community college and assessed grade point average, family–school conflict, school–family conflict, continuance commitment, job involvement, job performance, and organizational citizenship behaviors. Using independent-groups $t$ tests, we found significantly higher family–school conflict, $t(143) = 3.36, p = .001, d = 0.60$, school–family conflict, $t(143) = 4.81, p < .001, d = 0.92$, and continuance commitment, $t(143) = 2.41, p = .017, d = 0.43$ for working student parents compared to working students. However, analysis of covariance results demonstrated there was no longer a statistical difference in continuance commitment when controlling for age, $F(1, 142) = 0.14, p = .706, \eta_p^2 = .001$. These results signal both a burden for working student parents and a vital opportunity for employers and colleges to intervene.

Keywords: grade point average, school–family conflict, continuance commitment, community college, student parent

Compared to four-year students, more students are enrolled at public two-year institutions who work full-time and are enrolled part-time (Velez et al., 2018). More specifically, 50% of full-time and 78% of part-time students attending two-year universities were working in 2017 (McFarland et al., 2019). Unfortunately, this merger of academic and work burdens, which is typical for community college students, is detrimental; working full-time and only being enrolled part-time has been negatively associated with college completion, rendering students less likely to graduate (Skomsvoe et al., 2011). Low employer support can also have an unfavorable effect on academic success (Wood et al., 2016). Completion rates for community college students have reached a dangerously low level. In 2014, only 5% of students in the United States attending a two-year university earned their degree in two years (Complete College America, 2014). According to the American Association of Community Colleges, only 28% of all community college students who were enrolled both full-time and part-time beginning in 2012 completed their program at the same institution within 6 years (Juszkiewicz, 2019). These challenges compound when school and work are combined, making it important to study academic and work-related variables for community college working students.

A select subpopulation of working students are also parents and these working student parents

*Faculty mentor
often manage three domains of school, work, and family. The additional responsibility of parenthood poses incremental challenges and working student parents represent an understudied demographic of college students (Moreau, 2016). Of undergraduates in the United States in the 2015–16 school year, 22% were parents and of those, 70% were mothers and 42% attended a two-year college (Cruse et al., 2019). These working student parents manage a major balancing act when these domains collide, necessitating a resolution of these divergent domains (Lovell, 2014b). In a survey of community college students in Mississippi, 39% of student parents were employed and 72% of student parents reported experiencing significant life stress (Hess et al., 2014). They cited balancing school, work, and family as a major source of that stress and, for 29% of student parents, work interfered with school, whereas 44% indicated that family responsibilities interfered with school.

The manner in which these individuals are able to attend to their roles without sacrificing their attentiveness to any one area is worth investigating. A study using Latina student parents addressed the extraordinary challenges that working student mothers can face (Jiménez & Oliva, 2017). In addition to overseeing family, school, and work commitments, student-mothers had the challenge of their parenting role not being recognized on campus as they dealt with negative societal and cultural expectations of parents in higher education. This was echoed by Sallee and Cox (2019) who found that student parents had to adhere to what the authors called a “normative student identity,” meaning they had to conform to what was typically expected of students, believing they had to manage their parenting duties without an impact on school performance. For instance, parents employed creative strategies such as sharing course videos with their children and explaining coursework to children as methods of studying (Peterson, 2016). A study of a four-year urban university found that “time poverty,” or the lack of time to dedicate to school because of hours spent per week on childcare-related tasks, negatively affected college persistence rates and credit accumulation (Wladis et al., 2018). As a result of the ongoing struggle to achieve balance, working student parents often experience a reduction in their motivation to complete college (Lovell, 2014a) as well as increased feelings of school interfering with family (Bragger et al., 2005).

### Academic Variables

Assessing the academic performance of working students and working student parents involves primarily an evaluation of differences in grade point average (GPA), as GPA has been used in several studies as a proxy for academic performance (e.g., Lang, 2012). Some research has found that there is no significant difference in GPA for working students compared to nonworking students (Lang, 2012; Mounsey et al., 2013) and no significant relationship between number of hours worked and GPA (Alfano & Eduljee, 2013). Other studies have found that working part-time while in college might have a positive effect on GPA and a neutral or negative effect as the hours of work increase past part-time (Tessem et al., 2014; Torres et al., 2011). The current research sought to extend knowledge beyond working versus nonworking students to include an examination of GPA differences when the factor of parenthood is added.

GPA alone gives a partial picture of what is involved in academia. With the balancing that is inherent in being a working student, the amount of responsibility is magnified for students who work and have children (Fairchild, 2003). The organizational literature has extensively studied the spillover effect from work to family and family to work, which occurs when the demands in the different domains are incompatible and as a result, the demands of one area take precedence over the other leading to conflict (Netemeyer et al., 1996). Work–family conflict results in negative workplace attitudes and performance (Amstad et al., 2011; Gilboa et al., 2008; Hoobler et al., 2010; Odle-Dusseau et al., 2012) and has been positively correlated with job and family stress (Amstad et al., 2011; Shockley & Singla, 2011).

For the working community college population, significant conflict occurs when academic pressures are added to the work and family domains. For instance, higher levels of work–school conflict, which is defined as work interfering with school, have been related to decreased academic performance (Butler, 2007) as well as decreased job satisfaction, increased burnout, and increased turnover intentions (Laughman et al., 2016). Higher levels of school–work conflict, which is defined as school interfering with work, contribute to subjective stress and burnout (Kremer, 2016). Giancola et al. (2009) examined the various conflicts between the three domains of work, school, and family, and although the greatest source of stress was work, the most significant conflict was between school

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and family. As suggested in previous research, more needs to be done to understand conflict between these three domains (Denning et al., 2018; Giancola et al., 2009), especially within the school role (Kremer, 2016).

With the additional responsibilities of being a working student parent, it is also imperative to examine family–school conflict, which is defined as the family domain taking precedence and interfering with school and school–family conflict, which is defined as school taking precedence and interfering with the family domain (Giancola et al., 2009). Therefore, to get an overall picture of how community college students are performing academically and balancing responsibilities, we measured GPA, school–family, and family–school conflict.

**Work-Related Variables**

An assessment of performance in the work domain and how it might be affected by academic and parenthood status involves a number of variables. Ample research has been conducted demonstrating the importance of workplace attitudes and behaviors on job performance. One such variable is continuance commitment, or the commitment one has to an organization due to the perceived costs associated with leaving the organization (Allen & Meyer, 1990; Meyer & Allen, 1991). For example, an individual might stay committed to an organization because they have accrued a plethora of vacation days or because they do not believe they could find another suitable job. We specifically focused on continuance commitment because it assesses the extent to which a person is committed to their job out of necessity; this is the type of commitment most relevant when looking at working student parents who have the added pressure of providing for a family. Individuals with higher continuance commitment are more likely to have work–family conflict (Benligiray & Sönmez, 2012; Meyer et al., 2002) and stress (Hogan et al., 2013) but are less likely to have actual turnover behavior (Meyer et al., 2002). Furthermore, employees who are high in continuance commitment have lower levels of job satisfaction (Meyer et al., 2002), job involvement (Hogan et al., 2013), and job performance (Luchak & Gellatly, 2007; Meyer et al., 2002), where job involvement was referred to as the emotional extent to which someone participates in their work and job performance was defined as how well an employee is doing their job.

When individuals are committed to their work, they may demonstrate organizational citizenship behaviors (OCBs), which are actions beyond an individual’s required tasks that aim to improve the well-being of an individual or organization (Williams & Anderson, 1991). There are several ways to assess these actions, and our present focus was on organizationally directed OCBs, which are the macro, less personal type of behaviors perhaps most neglected due to parental duties. For example, an individual might speak positively about the organization to friends or work extra hours to help meet a goal. OCBs have been found to be positively related to job satisfaction (Whitman et al., 2010), job involvement (Dieffenbordff et al., 2002), and performance (Deery et al., 2017; Nielsen et al., 2009; Podsakoff et al., 2009). Despite the positive implications of OCBs, community college students balancing work and family might be unable to perform these voluntary actions. We are unaware of how various work behaviors are affected for students managing parenthood. This led us to conclude that our assessment of work-related variables would include evaluations of continuance commitment, job involvement, job performance, and OCBs for working students and working student parents.

**Hypotheses**

Because of the apparent conflict levels faced by working student parents, we wanted to better understand how working student parents’ academic and work performance are affected by competing demands. There has been research looking at working students’ performance in these areas, but there is a dearth of research on the increasing population of working student parents. Therefore, we hypothesized that working student parents as compared to working students: (a) would perform differently academically, measured by GPA, (b) would report different family–school conflict and school–family conflict, (c) would report different continuance commitment, (d) would differ in job involvement, (e) would differ in job performance, and finally, (f) would report different organizational citizenship behaviors.

**Method**

**Participants**

Participants (N = 145) were students selected utilizing convenience sampling at a Midwestern community college who also work (68.30% part-time [less than 30 hours per week], 31.70% full-time [30 or more hours per week], M = 29.03 per week, SD = 12.54). Eighty percent of the participants were women and most of the sample (76.60%)...
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identified as European American, followed by 8.30% Hispanic/Latino, 7.60% African American, and 4.80% biracial/multiracial. The average age of participants was 25.27 years old (SD = 9.41), with a range of 17 to 55 years, and 30.30% (n = 44) of the students were also parents. The students in our sample took an average of 10.41 credit hours per semester (SD = 4.90) with an average GPA of 3.13 (SD = 0.54). The average age of working student parents was 36.11 years old (SD = 8.61) compared to 20.55 years old (SD = 4.63) for working students, which is a statistically significant difference, t(143) = 14.11, p < .001, d = 2.25. Employment status differed for the samples, as 47.70% of working student parents reported full-time status as compared to 24.80% of working students. Working student parents worked an average of 30.77 hours per week (SD = 11.80) compared to 28.28 hours per week (SD = 12.83) for working students, with no significant difference in average number of hours worked per week, t(143) = 1.10, p = .27, d = 0.20. Working student parents reported having an average of 1.27 jobs (SD = 0.45) compared to 1.32 jobs (SD = 12.83) for working students, with no significant difference in average number of jobs, t(143) = −0.50, p = .62, d = 0.10. Working student parents enrolled in an average of 8.80 credit hours per semester (SD = 3.29) compared to 11.14 credit hours per semester (SD = 5.33) for working students, a statistically significant difference in average number of credits per semester, t(140) = −2.69, p = .008, d = 0.53. Finally, working student parents reported an average GPA of 3.03 (SD = 0.56) compared to 3.17 (SD = 0.56) for working students, indicating no significant difference in GPA between the two groups, t(139) = −1.44, p = .153, d = 0.27.

Measures

**Grade Point Average**
GPA was self-reported on a standard 4.0 scale.

**Family–School Conflict and School–Family Conflict**
Family–school conflict and school–family conflict were assessed using the Work–Family Conflict and Family–Work Conflict scales, but adapted for school (Netemeyer et al., 1996). Participants answered using a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree). A sample question on the 5-item Family–School Conflict Measure is, “Family–related strain interferes with my ability to perform school–related duties” and a sample question on the 5-item School–Family Conflict Measure is, “Things I want to do at home do not get done because of the demands school puts on me.” Both of the original scales have demonstrated acceptable reliability and validity (Netemeyer et al., 1996). For our sample we found a coefficient alpha reliability of .92 for family–school conflict and .95 for school–family conflict. High scores on each of these measures indicates more conflict between school and family.

**Continuance Commitment**
Continuance commitment, or an employee’s commitment based on the perceived economic and social costs of leaving the organization, was assessed using Meyer and Allen’s (1997) 8-item subscale from their Organizational Commitment Scale. Participants responded on a 7-point Likert-type scale from 1 (strongly disagree) to 7 (strongly agree) to items such as, “Too much in my life would be disrupted if I decided I wanted to leave my organization now.” Research has shown acceptable psychometric properties including reliability and evidence of construct validity for the scale (Meyer et al., 2002). For our sample we found a coefficient alpha reliability of .82. High scores reflect stronger organizational commitment.

**Job Involvement**
Job involvement was assessed using the 10-item Job Involvement Scale (Kanungo, 1982) which assessed participants’ cognitive state of psychological identification with their job. Participants responded on a 6-point Likert-type scale from 1 (strongly disagree) to 6 (strongly agree) to items such as, “Most of my interests are centered around my job.” Research has demonstrated acceptable reliability and evidence for the criterion validity of the measure (Kanungo, 1982; Paterson & O’Driscoll, 1990). For our sample we found a coefficient alpha reliability of .87. High scores reflect more job involvement.

**Job Performance**
Job performance was measured using Williams and Anderson’s (1991) 7-item measure assessing performance of in–role behaviors at work, or behaviors that are required on the job. Participants indicated their agreement with items reflecting task performance using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) on items such as, “I perform tasks that are expected of me.” We found an unacceptable coefficient alpha reliability of .60 for our sample. As a result, we did not engage in further examination of job performance.
Organizational Citizenship Behaviors

OCBs were assessed by the Organizational Citizenship Behaviors Scale (Williams & Anderson, 1991), specifically, the OCBs that focus on the organization. Participants used a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) to indicate their level of agreement on items such as, “I give advance notice when unable to come to work.” For our sample we found a coefficient alpha reliability of .39, indicating poor consistency within the items. Considering Henderson et al.’s (2019) review of William and Anderson’s measure, which indicated problems that might exist with the scale and its negatively worded items, we recalculated the coefficient alpha with the negatively worded items removed. The resulting coefficient alpha was .44, which still indicated poor consistency in our sample. As a result, we did not engage in further examination of OCBs.

Demographics

The following demographic questions were asked: sex, age, race, parental status, work status, number of jobs, and number of credit hours this semester.

Procedure

After gaining approval from the Lorain County Community College institutional review board (IRB #1894), community college students were primarily recruited from the college’s introductory psychology courses as well as the nursing program and given extra credit for participation outside of class time. Some participants learned of the survey from other psychology courses and word-of-mouth, therefore they were not provided extra credit. Using an electronic link to our survey in Google Forms, participants electronically signed an informed consent, which notified them that their participation was optional and confidential. Participants responded to questions that assessed academic and work-related variables including GPA, family–school conflict, school–family conflict, continuance commitment, job involvement, job performance, OCBs, and basic demographic questions. At the conclusion of the survey, participants were informed of who they could contact if they had any questions.

Results

Descriptive statistics including mean, standard deviation, possible range, minimum, maximum, and coefficient alpha reliability for all study variables can be found in Table 1. Note that only 141 data points were collected for GPA because four participants did not provide data. As can be seen, the observed minimum and maximum values for scale scores, which represent averages within the various response categories, cover the possible range for all variables. The coefficient alpha reliability estimates in our sample met the acceptable level of .70 or higher for all variables except job performance (α = .60) and OCBs (α = .39), leaving us skeptical of any outcomes obtained on these measures and therefore, we did not assess the related hypotheses. We theorized that perhaps the OCB measure itself was not an appropriate fit for our sample of community college students.

The intercorrelations between all study variables can be found in Table 2. Continuance commitment was significantly positively correlated with family–school conflict, r(143) = .36, p < .001, as well as school–family conflict, r(143) = .29, p < .001, indicating that as a working student’s conflict between school and family increased, so did their level of continuance commitment to an...
organization. As conflict increased, students tended to be more committed due to the costs associated with leaving the organization. Continuance commitment was also significantly negatively correlated with GPA, \( r(139) = -.25, p < .001 \). As continuance commitment to the organization increased, performance within the classroom decreased. Not surprisingly, family–school conflict and school–family conflict were significantly positively correlated, \( r(143) = .57, p < .001 \).

The hypotheses in the current study assessed differences between working student parents and working students at a community college on academic and work-related variables including GPA, family–school conflict, school–family conflict, continuance commitment, and job involvement. Using independent-groups \( t \)-tests, results demonstrated that working student parents have significantly higher family–school conflict, \( t(143) = 3.36, p = .001, d = 0.60 \), school–family conflict, \( t(143) = 4.81, p < .001, d = 0.92 \), and continuance commitment, \( t(143) = 2.41, p = .017, d = 0.43 \), compared to working students. It is notable that the effect sizes for all three significant findings are regarded as medium to large (Cohen, 1988). Interestingly, they did not differ in GPA or job involvement (see Table 3). The statistically significant age disparity in our sample led us to wonder if age could be a reason for some of the differences found in family–school conflict, school–family conflict, and continuance commitment between working student parents and working students. We discovered that age had a significant positive correlation with family–school conflict, \( r(143) = .18, p = .03 \), school–family conflict, \( r(143) = .32, p < .001 \), and continuance commitment, \( r(143) = .29, p = .005 \) (see Table 2). Therefore, we conducted an analysis of covariance to compare our two groups on these variables while adjusting for age as a covariate. Results demonstrated that working student parents indeed have significantly higher family–school conflict, \( F(1, 142) = 6.52, p = .012, \eta^2_p = .04 \) and school–family conflict, \( F(1, 142) = 6.40, p = .012, \eta^2_p = .04 \). However, there was no longer a statistical difference in continuance commitment between working student parents and working students when adjusting for age, \( F(1, 142) = 0.14, p = .706, \eta^2_p = .01 \) (See Table 4). It is notable that the effect sizes for the two significant findings are regarded as small (Cohen, 1988).

### Table 3

<table>
<thead>
<tr>
<th></th>
<th>Working Student Parents</th>
<th>Working Students</th>
<th>( t )</th>
<th>( p )</th>
<th>( d )</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>3.03 0.46</td>
<td>3.17 0.56</td>
<td>-1.44</td>
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<td>.27</td>
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<tr>
<td>FSC</td>
<td>4.17 1.72</td>
<td>3.15 1.67</td>
<td>3.36</td>
<td>.001</td>
<td>.60</td>
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<tr>
<td>SFC</td>
<td>5.40 1.25</td>
<td>4.02 1.71</td>
<td>4.81</td>
<td>.001</td>
<td>.92</td>
</tr>
<tr>
<td>CC</td>
<td>4.97 1.43</td>
<td>4.36 1.41</td>
<td>2.41</td>
<td>.017</td>
<td>.43</td>
</tr>
<tr>
<td>JI</td>
<td>2.98 0.93</td>
<td>3.21 1.08</td>
<td>-1.22</td>
<td>.224</td>
<td>.23</td>
</tr>
</tbody>
</table>

Note: GPA = grade point average; FSC = family–school conflict; SFC = school–family conflict; CC = continuance commitment; JI = job involvement. \( p < .05 \). \( \eta^2 \) = effect size.

### Table 4

<table>
<thead>
<tr>
<th></th>
<th>Working Student Parents</th>
<th>Working Students</th>
<th>( F )</th>
<th>( p )</th>
<th>( \eta^2_p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
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<tr>
<td>FSC</td>
<td>4.30 0.36</td>
<td>3.09 0.20</td>
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<td>.012</td>
<td>.04</td>
</tr>
<tr>
<td>SFC</td>
<td>5.22 0.34</td>
<td>4.10 0.19</td>
<td>6.40</td>
<td>.012</td>
<td>.04</td>
</tr>
<tr>
<td>CC</td>
<td>4.63 0.30</td>
<td>4.50 0.17</td>
<td>0.14</td>
<td>.706</td>
<td>.01</td>
</tr>
<tr>
<td>JI</td>
<td>3.03 0.22</td>
<td>3.19 0.12</td>
<td>0.29</td>
<td>.589</td>
<td>.01</td>
</tr>
</tbody>
</table>

Note: GPA = grade point average; FSC = family–school conflict; SFC = school–family conflict; CC = continuance commitment; JI = job involvement. SE = standard error. \( p < .05 \). \( \eta^2_p \) = effect size.

### Discussion

The aim of this study was to investigate academic and work-related differences between working student parents and working students to pinpoint the effect of parenthood and balancing three potentially conflicting roles in the work, student, and family domains. Although gaining some traction, there is a scarcity of research regarding working student parents (Moreau, 2016) as more focus has been on comparing working students and their peers who do not work. Additionally, previous research has focused primarily on work–family and work–school conflict. We extended the understanding of balancing multiple roles by focusing our efforts on family–school and school–family conflict, which has been understudied despite evidence that the most significant interrole conflict was between school and family (Giancola et al., 2009).
Academic Variables

Conflicting research exists relative to the impact on academic success of working while in college. Some have found that working part-time had a positive effect on college GPA up to a certain number of hours but a neutral or negative effect as the hours increased (Tessema et al., 2014; Torres et al., 2011) whereas others have demonstrated no difference in GPA between working and nonworking students (Lang, 2012; Mounsey et al., 2013). The current study did not specifically compare working-students to nonworking-students but rather, we sought to extend the literature on GPA by incorporating parenthood, thus comparing the GPAs of working students to working student parents.

For hypothesis (a), we found that working student parents did not differ from working students in their GPA, which aligns with Wladis et al. (2018). While it is encouraging that parents were able to maintain a GPA equivalent to non-parents, it is not a direct comparison because working student parents in our study enrolled in significantly fewer credit hours per semester compared to working students. Therefore, while it is possible that working student parents took fewer credit hours in order to maintain their GPA, previous research has indicated the result of this reduced enrollment being a lengthy time involved in community college degree completion (Complete College America, 2014; Juszkielewicz, 2019). Although we did not measure completion rates, we do have some concern about potential impact of reduced credit hour enrollment on our population.

Consistent with hypothesis (b), we found that there is a difference in how working student parents rate their family–school conflict and school–family conflict compared to working students. For the unique population of working student parents, we found significantly higher family–school conflict and school–family conflict compared to working students, indicating that working student parents reported more interference from school into the family domain and vice versa for family responsibilities interfering with school. We found a positive correlation between age and family–school conflict as well as school–family conflict with older students experiencing higher conflict levels. The difference in both conflicts between working student parents and working students remained significant even when controlling for age. Although little research has been conducted on family–school conflict and school–family conflict (Kremer, 2016), previous research has illustrated that other types of role conflict, such as work–family and work–school, can result in a panoply of negative consequences including increased stress (Amstad et al., 2011; Kremer, 2016; Shockley & Singla, 2011), decreased school performance (Butler, 2007), decreased workplace attitudes and performance (Amstad et al., 2011; Gilboa et al., 2008; Hoober et al., 2010; Odle-Dusseau et al., 2012), and decreased job satisfaction (Laughman et al., 2016). Our findings align with other studies that discuss the struggles faced by working student parents (Hess et al., 2014; Jiménez & Oliva, 2017; Lovell, 2014b; Peterson, 2016) and point to the need for more research on this population (van Rhijn & Lero, 2014) and their family–school conflict and school–family conflict (Kremer, 2016).

Together these findings on GPA, family–school conflict, and school–family conflict indicate that, although working student parents take fewer credit hours per semester, they do not differ in their GPA compared to working students despite experiencing increased demands on their time. Perhaps working student parents consciously manage their multiple role demands by limiting their credit-hour enrollment, or perhaps the management of the three distinct roles with limited time has helped these student parents to evolve, becoming adept at operating efficiently and more effectively in all domains.

Work-Related Variables

We found a difference for continuance commitment for working student parents as compared to working students, supporting hypothesis (c). Working student parents reported higher continuance commitment, suggesting that these students feel like they do not have the same freedom to leave a job that is afforded to individuals without children. However, when adjusting for age, this difference in continuous commitment is no longer significant. The significant relationship between age and continuous commitment is positive, which signifies that older students have more continuance commitment for their job. Age, not parenthood, appears to portend why some students do not have the same freedom to leave a job as their younger peers may.

Additionally, continuance commitment was significantly positively correlated with family–school conflict and school–family conflict, indicating that, as a student’s conflict between school and family increased, so did their level of continuance commitment derived from need. A similar relationship between role conflict and continuance commitment
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was demonstrated in other studies (Benligiray & Sönmez, 2012; Meyer et al., 2002), indicating that, as working student parents' conflict between work and family increased, so did their level of continuance commitment to an organization. Continuance commitment in the current study was significantly negatively correlated with GPA for the entire sample, suggesting that a student who needs to prioritize their work, perhaps for financial purposes, might see their school performance suffer as a result. Other studies have demonstrated the detrimental link between increased continuance commitment and decreased job satisfaction (Meyer et al., 2002), job involvement (Hogan et al., 2013), job performance (Luchak & Gellatly, 2007; Meyer et al., 2002), job dedication (Cichy et al., 2009), and life satisfaction (Lambert et al., 2013). Our results suggest pronounced difficulties for older students: their increased age is correlated with higher conflict levels, which is correlated with higher continuance commitment. This is particularly relevant given our sample of working student parents was significantly older than working students. Because parent-status is also associated with higher conflict levels, our findings suggest that our specific population of working student parents might experience negative workplace and life attitudes and outcomes above and beyond their peers, especially when they are also of non-traditional age. Further research needs to discern the point at which age, conflict levels, and continuance commitment converge and put a student in danger of not completing their education.

Contrary to hypothesis (d), we did not find a difference for reported job involvement for working student parents as compared to working students. We were surprised to not have found a significant difference between working student parents and working students on job involvement. We envisioned that the incremental hours of work and the addition of parenthood, a role in which a person is likely highly emotionally invested, would have meant a corresponding decrease in involvement at work. We thought that this would be supported because a working student parent’s emotional reserves often are expended, an idea similar to “time poverty” as discussed in Wladis et al. (2018). In alignment with previous research, we found that significantly more working student parents were employed full-time compared to working students. However, hours worked per week were not statistically different for working student parents. These two groups also did not differ significantly in number of jobs held.

We did not evaluate hypothesis (e) regarding job performance and (f) regarding OCB. This was because we found insufficient coefficient alpha levels for those scales and therefore did not analyze those variables.

Limitations and Suggestions for Future Research

Our study had some limitations as well as notable opportunities for future research. The data in our study were collected via surveys, and despite using standardized, psychometrically sound measures, self-report data can lead to common method bias. Internal threats to validity can be a problem when using self-reported response surveys, and it is therefore suggested that future research use data that is not self-reported, such as official transcript GPAs as well as job performance and OCB ratings from supervisors.

Regarding limitations within our sample, 80% of our participants were women, 30.30% of the students were parents (primarily women), and the most (76.60%) identified as European American. This limited our ability to investigate possible differences between women and men in their roles as parents; previous work comparing student mothers to student fathers suggested there are gender differences that warrant further empirical investigation (Moreau, 2016). The lower number of working student parents in our sample gives us concern over limited statistical power in comparing working student parents to working students. It should be noted, however, that we did find significant differences in our comparisons despite the modest parent sample.

Our primarily European American sample also limited our investigation of race or ethnicity. This is unfortunate because past research has found differences. For example, Jiménez and Oliva (2017) found that Latina student mothers had to navigate the college landscape while dealing with negative societal and cultural expectations of parents in higher education. Future investigations of both gender and race differences in student parents in terms of academic and work-related variables is warranted. Relationship status would be an important variable to use in future research. In addition, those who provide care for other family members, such as aging parents would be valuable to study.

An additional concern with our sample is the use of introductory psychology students who may be early in their college experience. Family–school conflict and school–family conflict could be a byproduct of insufficient time spent adjusting to
multiple roles, and in time, student parents might better manage their roles.

Unfortunately, we found unacceptable reliability estimates in our sample for job performance and OCBs. Future research should investigate job performance and OCBs to determine whether parenthood affects these work-related variables for working students. Investigating several types of OCBs could add to our understanding of the impact that multiple roles have on these important workplace behaviors.

Conclusion
Our investigation into working student parents at a community college found higher levels of family–school conflict, school–family conflict, and continuance commitment compared to working students. We determined that age was positively correlated with conflict levels in that as age increased, family–school conflict and school–family levels also rose. However, there was still a significant difference in conflict levels between working student parents and working students, even when we controlled for age. In addition, after controlling for age, we did not find that continuance commitment levels were significantly different between working student parents and working students. This suggests that the reason student parents experienced heightened continuance commitment is more likely a product of age than parental status, with student parents being significantly older than students without children. Regardless of the cause, this indicates that the older group of working student parents reported feeling less able to leave their job due to the necessity of the work and that the more conflict they experienced between their various domains, the more likely they were to remain at their job. Employers and community colleges should consider providing interventions for working student parents to decrease conflict among work, school, and family.

References


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Author Note. Megan Crow Brauer is now at The University of Akron, Department of Psychology. We have no known conflict of interest to disclose. Correspondence concerning this article should be addressed to Megan Crow Brauer, The University of Akron, Akron, OH. Email: mcc114@zips.uakron.edu
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