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Because the articles in this journal are primarily the work of undergraduate students, the reader should bear in mind that: (1) the studies are possibly less complex in design, scope, or sampling than professional publications and (2) the studies are not limited to significant research. The articles published in this journal represent primarily the work of the undergraduate student(s), the reader should bear in mind that: (1) the studies are possibly less complex in design, scope, or sampling than professional publications and (2) the studies are not limited to significant findings. The basis for accepting papers for publication is the agreement among three professional reviewers that the project, hypothesis, and design are well researched and conceived for someone with an undergraduate level of competence and experience.

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1. The primary author of a submitted manuscript must be an undergraduate student who is a member of Psi Chi. Manuscripts from graduate students will be accepted only if the work was completed as an undergraduate student and not more than 6 months has passed since graduation. Additional authors other than the primary author may include non–Psi Chi students as well as the faculty mentor or supervisor. Membership verification information (member ID number) for the primary author must be included.

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3. All manuscripts must be prepared according to the Publication Manual of the American Psychological Association (6th ed.).

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b. An email address so that receipt of your manuscript can be acknowledged.

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Are You the Problem, or the Solution? Changing Male Attitudes and Behaviors Regarding Sexual Assault
Alexandra Cassel, Colgate University

Relationship Between Perfectionism and Academic Cheating
Christina R. Krone and Steve V. Rouse, Pepperdine University
Lisa M. Bauer*, Pepperdine University and University of Missouri-Columbia

The Inversion Effect: Biological Motion and Gender Recognition
Benjamin McGlothlin, Dawn Jiacoletti, and Lonnie Yandell*
Belmont University

Perceived Vulnerability to HIV Infection, Anti-Gay Prejudice, and College Student Behavior
Laura C. Spiller, Beverly Stiles, David Carlston, and Laura A. Hise
Midwestern State University

Examining Relationships: Communication and Satisfaction in Lesbian and Heterosexual Women
Elizabeth Brasheir and Jennifer L. Hughes*, Agnes Scott College

Awards and Grants Overview
Research reveals that sexual assault is a significant problem on college campuses, occurring especially frequently among the student population (Koss, Gidycz, & Wisniewski, 1987; Lonsway, 1996; Muehlenhard & Linton, 1987). The significant majority of rape victims are female (Fisher, Cullen, & Turner, 2000; Hsu, Reid, & Schult, 2009; Poppen & Segal, 1988) while 9 out of 10 perpetrators of all forms of sexual violence are male (Fisher et al., 2000; Poppen & Segal, 1988). Illogically, attempts at preventing sexual assault on college campuses usually target women (the victims); yet men are far more likely to be the perpetrators of sexual violence. The present study evaluated how male attitudes, measured by rape myth acceptance, and behaviors, measured by willingness to seek information, could be changed pro-socially. A false feedback paradigm was used to manipulate male personal responsibility by presenting men with sham rape myth acceptance scores. Results indicate that men who received the “high score” (signifying high rape myth acceptance) had greater personal responsibility for the issue, and thus increased concern, as determined by lower rape myth acceptance at post-test and willingness to seek out further information on SA minimization. In order to incite change, men need to feel personally responsible for the issue of SA.

Prevalence of Sexual Assault

For the purpose of this study, sexual assault is defined in accordance with most state penal codes: “Non-consensual oral, vaginal, or anal penetration by force or threat of force” constitutes sexual assault or rape (New York Coalition Against Sexual Assault [NYSCASA], 2008a). Sexual abuse differs from sexual assault in that it is “non-consensual fondling, kissing, or rubbing against private areas where there was no attempt or occurrence of sexual penetration” (NYSCASA, 2008a). The findings of the National Institute of Justice (NIJ) Sexual Assault Study (2000) support the overrepresentation of
college students in statistics pertaining to sexual victimization and perpetration, finding 84 incidents of completed rape and 71 incidents of attempted rape in a national sample of nearly 4,500 women during an academic semester (Fisher et al., 2000).

The Colgate Campus Life Survey (Hsu et al. 2009) confirmed that Colgate students’ experiences are consistent with those of college and university students nationwide. More than 70% of Colgate students reported experiencing some type of sexual harassment. Almost 50% of all female students reported experiencing sexual abuse; more than 25% reported experiencing attempted sexual assault or attempted rape; and more than 16% reported having been the victims of sexual assault since moving to Colgate. Sexual assault is associated with greater psychological distress, drug and alcohol abuse in adulthood, poorer perceptions of physical health, and increased rates of attempted suicide (NYSCASA, 2007; NYSCASA, 2008b). Thus, rape constitutes a serious problem and warrants increased attention.

Rape Myth Acceptance
Prevention and intervention programs that target the issue of sexual assault generally aim to alter underlying attitudes regarding gender relations and rape. The literature on this topic often refers to “rape myth acceptance” as the predominant indicator of a proclivity to rape (Burt, 1980; Gilmartin-Zena, 1987; Lerner, 1980; Lonsway & Fitzgerald, 1994). Rape myths have been defined as “attitudes and beliefs that are generally false, but are widely and persistently held, and that serve to deny and justify male sexual aggression against women” (Lonsway & Fitzgerald, 1994, p. 134). Rape myths have also been expressed as an example of the just-world phenomenon, which is “the predisposition to believe that the world is a just place where good things happen to good people and bad things happen only to those who deserve them” (Lonsway & Fitzgerald, 1994, p. 36). To defend this belief system, people often seek evidence that supports the idea that victims brought about or deserved their adversity (Lerner, 1980). Rape myths thus function to explain why rape victims deserved the rape, and, interestingly, to reaffirm a person’s false sense of security regarding immunity to sexual assault.

Rape myth acceptance scales have been devised to measure willingness to believe or accept these ideas that a) trivialize the crime and b) shift the blame from the perpetrator to the victim (Brownmiller, 1975; Burt, 1980; Lonsway & Fitzgerald, 1994). These rape myth acceptance scales have been useful in determining associated attitudes. In fact, higher levels of rape myth acceptance have been found to correlate with more negative and stereotypical attitudes toward women (Lonsway & Fitzgerald, 1994), higher tolerance for sexual harassment (Reilly, Lott, Caldwell, & DeLuca, 1992), and actual sanction for domestic violence (Saunders, Lynch, Grayson, & Linz, 1987).

Rape myth acceptance scales have been useful in discovering associated attitudes and associated behaviors. Higher rape myth acceptance has been correlated with self-reported likelihood of raping (Briere & Malamuth, 1983; Check & Malamuth, 1985; Hamilton & Yee, 1990), sexually aggressive behavior (Lonsway & Fitzgerald, 1994), significantly less blame for the perpetrating man (Check & Malamuth, 1985; Quackenbush, 1989), and greater likelihood of blaming the victim (Blumberg & Lester, 1991; Check & Malamuth, 1985). Individuals with greater acceptance of rape myths are less likely to label a scenario “rape” (even when it meets the legal criteria), in both student (Fischer, 1986; Norris & Cubbins, 1992) and non-student samples (Burt & Albin, 1981).

Men and Rape Myth Acceptance
The aforementioned findings of rape myth acceptance and related attitudes and behaviors are typically true for both men and women. However, men are more likely to accept rape myths than women (Burt, 1991; Payne, Lonsway, & Fitzgerald, 1999) in both student (Ashton, 1982; Blumberg & Lester, 1991) and non-student samples (Dye & Roth, 1990). Intuitively, this suggests that men are more likely to hold the associated attitudes and engage in the associated behaviors that have been found to correlate with higher levels of rape myth acceptance. For example, college men are more likely than college women to view sexually coercive behavior as acceptable (Hattery-Freetly & Kane, 1995; Haworth-Hoeppner, 1998). The fact that men are more likely to accept and promote rape myths is a compelling reason to aim efforts in minimizing sexual assault at men.

Sexual Assault Prevention Programs
Most intervention programs focus on minimizing rape myth acceptance and other relevant attitudes by incorporating theoretical models of attitude change in programming. Potter, Moynihan, Stapleton, and Banyard (2009) make use of Peripheral
It was hypothesized that the emotional response to or awareness of the problem of sexual assault through the use of proactive imagery in campaign posters. This technique increased willingness to participate in actions aimed at reducing sexual violence and resulted in long-term effects, as participants at an in-person training session at a later date had higher “action scale” scores after viewing the campaign posters. Unfortunately, the results were less effective for male than female participants. Females were more likely to report seeing the posters in the first place, and when compared to the males who did report seeing the posters, women had significantly higher pre-contemplation and contemplation scale scores than males. Also problematic was the fact that the approach, although somewhat successful, was not based on an experimental design, and thus limited the ability to draw causal inferences. This further promotes the need for a male-centered, experimental approach at minimizing sexual assault and associated attitudes.

A study by Gilbert, Heesacker, and Gannon (1991) is among the few efforts to incorporate a theoretical model in programming directed solely at men. They leveraged the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) central-route attitude change literature to experimentally determine whether higher levels of motivation, ability, and thought favorability could effectively change male attitudes regarding sexual assault. They found that the group of men receiving the ELM-based intervention showed significantly more attitude change than a control group. It is believed that central-route attitude changes are longer-lasting and exert more influence over behavior than attitude change created by peripheral route processing (Petty & Cacioppo, 1986). However, Gilbert et al. (1991) reported that the effect size was significant only for men with less aggressive sexual histories, suggesting that the approach is less successful in changing the attitudes of the actual perpetrators of sexual assault. Although incorporating the ELM into program development has had positive outcomes, increasing personal salience of the information is usually manipulated through the use of culturally specific information. Personal relevance can be further enhanced if the individual himself is targeted, not just his group membership.

It has been suggested that rape myth acceptance can be successfully reduced through educational interventions (Fonow, Richardson & Wemmerus, 1992; Lee, 1987; Malamuth & Check, 1984). Lee (1987) revealed through pre-test/post-test comparisons that a two-part educational workshop significantly shifted men’s attitudes toward rape over time. The effective program first reviewed myths and facts about rape, and then used empathy exercises and suggestions of personal and political actions to prevent rape. The inclusion of definitions and statistics about the prevalence of sexual assault often utilizes fear appraisals. Lee (1987) proposed that men can be presented with shocking statistics regarding rape, but until they recognize their own responsibility for rape, rape prevention efforts will have limited success. While potentially successful, the fear appraisal approach relies upon empathy for the victim rather than negative consequences for the perpetrator and feelings about oneself.

The Present Study
The primary aim of the present study is to determine if and how male attitudes and behaviors regarding sexual assault can be changed prosocially. Whereas previous research adapting the ELM to minimizing rape myth acceptance has focused on personal relevance through group identity (i.e., all men at Colgate), the present study focuses on personal relevance through specific individual identity. Upon completion of the Illinois Rape Myth Acceptance Scale (IRMA, Lonsway & Fitzgerald, 1994), participants were unknowingly given false feedback paradigm that gives men personal responsibility for sexual assault and what they could do to help minimize its prevalence. Through this intervention, men could perhaps decrease their rape myth acceptance scores.

Predictions. It was hypothesized that the false feedback paradigm that gives men personal responsibility for sexual assault would increase concern, and thus willingness to learn about pro-social action. It was predicted that those given more personal responsibility in the high rape myth acceptance score (HS) condition would be significantly more willing to engage in the educational component, and therefore have a lower post-test IRMA score as compared with those in the low rape myth acceptance score (LS) condition and the control condition. Additionally, those with higher...
personal responsibility would be more likely to rate the vignettes as dangerous situations, would be more likely to report intervening, and would be more likely to take the pamphlet at the conclusion of the trial.

Because all participants, regardless of condition, were given the educational packet, it was predicted that IRMA scores would decrease at post-test overall. However, because those in the HS condition had increased personal relevance and identity salience as compared to the LS and control conditions, their within-subject change from time 1 to time 2 was expected to be more drastic.

Method

Participants
Participants for this study were recruited from the Introductory Psychology course at Colgate University. Because the study focused on male attitudes and behaviors regarding sexual assault, the participant pool was comprised solely of men. A total of 49 men (M_Age = 18.30, SD = 0.68, age range: 17-21 years) participated in the study. The sample was mostly White (75.5%) with limited ethnic diversity (12.2% Latino, 8.2% Asian, 4.1% Black). Of these participants, 97.9% reported their sexual orientation as heterosexual, while 2.1% reported their sexual orientation as “unsure.” Participants received one-hour credit as compensation.

Materials and Procedure

The present research was reviewed and approved by the Institutional Review Board at Colgate University (protocol #FR-F10-04). Participants read and signed consent forms. A pencil-and-paper survey was employed for the majority of the study. First, participants completed a pre-test packet. This packet assessed baseline rape myth acceptance, as measured by the 45-item Illinois Rape Myth Acceptance Scale (Lonsway & Fitzgerald, 1994). This scale, which has been cross-validated for strong internal consistency and construct validity (Payne et al., 1999), includes 45 statements to be judged on a 7-point scale (1 = strongly disagree, 5 = strongly agree). Of the 45 items, five are filler, creating a range of possible scores from 40 to 280.

Four weeks later, all participants returned to complete the study. The independent variable in this experiment was a false-feedback test score. The false-feedback manipulation, modeled after standardized test score sheets, was constructed using plausible subscale and total scores, together with a figure of a normal distribution. Participants were randomly assigned to one of three experimental conditions regarding pre-testing IRMA test results: high score (HS), low score (LS), or control. This manipulation used a between-groups design. The experimenter met with each participant one-on-one to administer and explain their “results” from the IRMA scale they completed four weeks prior. In the low condition, participants were told that they scored in the 8th percentile of rape myth acceptance, suggesting that they did not positively endorse rape myths. In the high condition, participants were told that they scored in the 97th percentile of rape myth acceptance, suggesting that they are likely to positively endorse rape myths. In the control condition, no results were given.

Directly following the manipulation, participants were told to read an educational packet that merely offered real statistics concerning sexual assault, as well as suggestions for ways men can help. The educational component was comprised of information from The New York State Coalition Against Sexual Assault (2008), The National College Women Sexual Victimization Study (Fisher et al., 2000), and the Ms. Magazine Study (Koss, 1988), and educated men by debunking common myths.

When the participant reported having completed the reading component, the experimenter administered the dependent measures. The following two vignettes were used as behavioral intention measures designed to assess the effectiveness of the manipulation in real-world situations. Every participant responded to both vignettes. Vignette A describes an encounter at a typical Colgate party at a downtown apartment.

Imagine that you are going to a party in a downtown apartment. On the way to the party, one of your friends announces, “I’m gonna’ fuck some bitch tonight no matter what.” Later that evening, you witness that friend groping a woman in the corner of the room. She seems angry, ducks underneath his arm, and walks away. He pursues her—laughing—grabs her hand, and starts pulling the woman toward the bedrooms.

Vignette B describes a scene at a local bar, “The Jug.”

Imagine that you are at The Jug. You see a male friend buying drinks for a woman who is already so drunk that she is slurring her words and can barely stand up. You
Changing Male Attitudes and Behaviors Regarding SA

was executed at the conclusion of each trial to
a funnel debriefing (Bargh & Chartrand, 2000) ten pamphlets remaining in the room). Lastly, additional pamphlet (i.e., there were less than results. Once the participant left the laboratory, concern that social pressure would confound the each participant’s private lab cubicle, there was no assault. Because the pamphlets were located in more about what they could do to prevent sexual the choice to obtain a pamphlet at the conclusion information regarding SA, participants were given gauge their willingness to proactively seek further education component. In the lab where the participant completed the study there was a stack of ten pamphlets. Participants were then asked to complete a demographic questionnaire, including such categories as race or ethnicity, age, and sexual orientation. In order to participants were given the choice to obtain a pamphlet at the conclusion of the study. This pamphlet contained the information from the educational component. In the lab where the participant completed the study there was a stack of ten pamphlets. Participants were told they could freely take a pamphlet to learn about what they could do to prevent sexual assault. Because the pamphlets were located in each participant’s private lab cubicle, there was no concern that social pressure would confound the results. Once the participant left the laboratory, it was recorded whether or not he obtained the additional pamphlet (i.e., there were less than ten pamphlets remaining in the room). Lastly, a funnel debriefing (Bargh & Chartrand, 2000) was executed at the conclusion of each trial to

For each vignette, the following questions were asked: “What is going on in the situation?”, “How would you respond if you saw this happening?”, “How likely would you be to intervene?” Research assistants coded the qualitative analyses to ensure reliability. The qualitative responses to the question, “What is going on in the situation?”, were separated into two groupings: severity ratings and blame attributions. Severity ratings were coded into three categories; the sexual happenings were either assessed as: a) normal/common/“just sex;” b) coercion, taking advantage; or c) attempted rape, committed rape, or future rape. Blame was either attributed to: a) him, b) her, c) both, or d) no mention. The qualitative responses to “How would you respond if you saw this happening?” were coded into the following three “response” categories: a) something indirect, b) something direct, or c) nothing at all. An interrater reliability analysis using the Kappa statistic was performed to determine consistency among raters. The interrater reliability for the raters indicated perfect agreement, Kappa = 1.00, (p < .001).

Participants then completed the post-test IRMA, the identical 45-item questionnaire as the pre-test. A within-group design was employed for the pre-test and post-test IRMA comparison. Participants were then asked to complete a demographic questionnaire, including such categories as race or ethnicity, age, and sexual orientation. In order to gauge their willingness to pro-actively seek further information regarding SA, participants were given the choice to obtain a pamphlet at the conclusion of the study. This pamphlet contained the information from the educational component. In the lab where the participant completed the study there was a stack of ten pamphlets. Participants were told they could freely take a pamphlet to learn about what they could do to prevent sexual assault. Because the pamphlets were located in each participant’s private lab cubicle, there was no concern that social pressure would confound the results. Once the participant left the laboratory, it was recorded whether or not he obtained the additional pamphlet (i.e., there were less than ten pamphlets remaining in the room). Lastly, a funnel debriefing (Bargh & Chartrand, 2000) was executed at the conclusion of each trial to

gauge any suspicion regarding the false feedback manipulation and ensure to the participants that the false results were in no way a reflection of their true character or beliefs.

Results

Statistical analyses were conducted to determine changes, if any, regarding attitudes. A mixed-design ANOVA was used with an alpha level of .05 to test whether the personal responsibility manipulation had an effect on post-test IRMA scores. There was a main effect of time, as IRMA scores decreased across conditions from time 1 to time 2, F(1, 40) = 79.90, p < .001, η² = .54. Pre-test IRMA scores (M = 93.43, SD = 26.52) were dramatically higher than post-test IRMA scores (M = 87.11, SD = 25.19). There was no main effect of experimental condition on post-test IRMA scores, F(2, 40) = 0.329, p = .72. The main effect of time was qualified by an interaction between time (pre-test/post-test) and experimental condition. There was a statistically significant difference between conditions in IRMA reduction from time 1 to time 2, F(2, 40) = 12.16, p < .001, η² = .17. As shown in Figure 1, those in the “low score” condition had a more drastic decrease in rape myth acceptance at post-test than those in the control group. Moreover, consistent with expectations, those in the “high score” condition, had the most extreme decrease in rape myth acceptance at post-test.

A chi-square test of goodness of fit was performed to examine the relation between experimental condition and whether or not participants took the informational pamphlet. The relation between these variables was significant, χ²(2) = 8.41, p = .015, V = .42. Figure 2 reveals that those in the high condition (61.50%) were significantly more likely to take the pamphlet than those in the control condition (28.60%) and low condition (14.30%). Interestingly, those in the low condition were even less willing to take the pamphlet than those in the control group.

Although there were significant changes in attitudes, it seems that those attitude changes were not necessarily consolidated yet into behavioral changes. The men were asked to analyze somewhat ambiguous sexual assault scenarios. A one-way, between-subjects ANOVA was conducted to test whether the personal responsibility manipulation had an effect on participants’ ratings of their likelihood to intervene in the situations. There was not a statistically significant effect for either vignette A, F(2, 45) = 0.129, p = .89, or vignette B,
$F(2, 46) = 0.069, p = .93$. This discrepancy between successful attitude change, yet a lack of behavioral application prompted a closer analysis of the actual content of the qualitative responses for the vignettes.

A chi-square test of goodness of fit was used to assess a relationship between experimental condition and severity ratings for both vignette A and vignette B. The manipulation did not have a significant effect on severity ratings for either vignette, $\chi^2(4) = 5.51, p = .24$ and $\chi^2(4) = 1.22, p = .88$, respectively. Similarly, the relationship between experimental condition and blame attribution was not significant for vignette A, $\chi^2(6) = 4.82, p = .57$, or vignette B, $\chi^2(6) = 6.10, p = .41$. The chi-square goodness of fit measuring a relationship between experimental condition and response to the situation of vignette A was marginally significant, $\chi^2(4) = 8.88, p = .06, V = .43$. As seen in Figure 3, the more personal responsibility the participant was given, the more likely he was to report directly intervening: Men in the “low score” condition were more likely than those in the control condition to directly intervene, and men in the “high score” condition were the most likely to report an inclination for direct intervention in the situation. There was not, however, a statistically significant relationship between experimental condition and response to the situation of vignette B, $\chi^2(4) = 3.19, p = .53$.

**Discussion**

The primary purpose of the experiment was to determine if, and how, men’s attitudes and behaviors regarding sexual assault could be changed prosocially. As expected, the experimental approach replicated previous studies in the effectiveness of education on decreasing rape myth acceptance. Participants in the experimental conditions were impacted by the personalization as compared to those in the control group. Interestingly, this impact persisted even when personalization was of a positive nature. This suggests that any personalization bestows the individual with a sense of responsibility, thus increasing concern about and motivation for sexual assault prevention. In line with expectations, those in the HS condition had an especially drastic decrease in rape myth acceptance at post-test, and were more likely to obtain a pamphlet at the conclusion of the study. Men can easily shrug off rape prevalence figures by believing that they are not involved and therefore do not need to care, even when these alarming statistics are relevant to their own identity group (i.e., men at Colgate). However, presenting men with personalized results sheets intended to cue the information relevant to individual identity seems to enhance motivation for attitude change, particularly when the rape myth acceptance “results” were negative and thus blatantly expressed the need for education on the issue.

Consistent with the Elaboration Likelihood Model, several programs in rape prevention have included activities for reading and writing about potentially dangerous sexual situations. These exercises are included with the belief that rumination forces participants to process the information more actively, and perhaps induces empathy, enhancing attitude change (e.g., Linz, Fuson, & Donnerstein, 1990). Thus, all participants should have benefited from the inclusion of this measure, but those in the HS condition should have reacted most drastically. This was the case. The experimental condition interacted with time to affect rape myth reduction and likelihood to seek further information regarding SA in the form of a pamphlet.
While the manipulation had an effect on men’s attitudes (as determined by reduced rape myth acceptance and increased willingness to care about the issue by taking a pamphlet), it seems that these attitude changes were not yet consolidated into behavioral changes. The vignettes were used as behavioral intention measures designed to assess the effectiveness of the manipulation in real-world situations. Only the judgments for responding to the situation in vignette A were marginally significantly affected by the personal responsibility manipulation. Logically, the more personally responsible the participant felt for sexual assault, the more inclined he might be to directly intervene in a situation likely to lead to rape. However, severity ratings and blame attribution were not affected by the manipulation. In other words, it seems that even those men in the HS condition who achieved a drastic decrease in rape myth attitudes were no more likely than those in the low and control conditions to rate the scenarios as dangerous and no more likely than those in the low and control conditions to attribute the blame to the male perpetrator.

Limitations and Future Considerations
There were limitations to this study that should not be left unmentioned. Firstly, the sample size was relatively small, and the majority of participants were first-year students. A larger sample size, and one more representative of all grade levels would be ideal. Secondly, there was no conscious effort to counterbalance the order of presentation of the two vignettes. Presenting the two scenarios in the same order to all participants could potentially be a confound, resulting in unwanted order effects. An unfortunate drawback was the absence of a direct measure documenting whether participants actually read the educational packet. It was assumed that post-test IRMA scores and vignette responses would reflect if participants had been educated on the issue through the reading. A more direct measure of whether or not participants read the packet, rather than the indirect indicators, would improve the accuracy of the results.

Lastly, it would be useful to include a mood measure in a replication study. This would allow insight to the mechanisms at work in the personal responsibility manipulation. It is assumed that reporting personalized, negative results enhances motivation and willingness to care about the issue, but measuring mood (i.e., anger, guilt, fear, anxiety) would clarify the process by which the
manipulation lowers rape myth acceptance and increases willingness to seek further information on sexual assault.

Conclusion
The way intervention programs currently function (i.e., by targeting women) may be inadvertently perpetuating rape myths. By focusing on what women can do to prevent sexual assault, these approaches send the message that women are responsible for their own protection, thereby blaming the victim. Male-centered strategies, conversely, target potential perpetrators and work to dismantle rape myths and misinformation, as well as to problematize elements of rape culture.

While there are attempts at raising awareness about sexual assault on Colgate’s campus through events such as information sessions and discussions, the “typical” Colgate male is generally not in attendance. The use of a false-feedback paradigm successfully increased personal responsibility (and thus motivation) in men regarding sexual assault, as seen in their greater willingness to seek further information on the issue.

Although participants’ meta-theoretical attitudes decreased through the experiment, their intuitions about real-world situations remain engrained. This finding has great utility for future research and intervention programs. While attitudes can be changed through identity salience, new techniques must be devised to ensure that these changed attitudes have application to interactions with the environment. The results of this study add to the literature on sexual assault minimization by providing evidence that increasing personal responsibility, particularly as it relates to one individual, enhances motivation to care about the issue and willingly engage in prevention efforts.

References
Bechhofer (Eds.), Acquaintance rape: The hidden crime (pp. 26–40). New York, NY: Wiley.
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Research examining the prevalence of college cheating found 81.7% of participants reporting engagement in a form of cheating during their undergraduate career (Yardley, Domenech Rodríguez, Bates, & Nelson, 2009), confirming the common belief of rampant dishonesty in academia today. The Teen Ethics Survey (Deloitte & Touche USA LLP, 2007) reported that 71% of teens feel fully prepared to make ethical decisions in the workplace, yet 40% believe that lying, cheating, plagiarizing, and even violence are sometimes necessary to succeed in school. Of teens who believe academic dishonesty is acceptable on some level, a personal desire to succeed was cited as the primary justification 54% of the time. As cheating persists in academia, understanding the motives behind cheating behaviors can shed light into possible solutions. Yardley et al. (2009) cited that the most common reasons for cheating were time constraints and assisting a friend, whereas pressure from family or having to retake the class were least likely to be the motivating factor. The pressure to succeed and specifically to reach a standard of perfection can arise from many sources, including oneself or society (Hewitt & Flett, 1991). The present study examined perfectionism as a possible predictor for academic dishonesty due to similarities in motivations for academic cheating and perfectionism.

**Academic Dishonesty**

Recent research on academic dishonesty has examined different predictors for a wide range of behaviors classified as academic cheating. The most commonly reported form of academic dishonesty is copying homework, followed by plagiarism, and then submitting someone else’s paper as one’s own (Thorpe, Pittenger, & Reed, 1999). Predictors of academic dishonesty previously examined in past studies include academic pressure, personal desire to succeed, and time constraints. However, the role of personality traits, particularly perfectionism, has not been widely explored in this context. The present study aimed to examine the relationship between three types of perfectionism (self-oriented, socially-prescribed, other-oriented) and the frequency and recency of engagement in academic dishonesty.

**ABSTRACT.** The present study examines the relationship between three types of perfectionism (self-oriented, socially-prescribed, other-oriented) and the frequency and recency of engagement in academic dishonesty. Eighty-three Pepperdine University undergraduates completed three questionnaires used to gather demographic information and to measure levels of perfectionism, and the frequency and recency of academic cheating. Ninety-eight percent of the sample reported engaging in at least one academic cheating behavior at some point during their life. Self-oriented perfectionism scores of individuals who reported engagement in both “submitting someone else’s paper as my own” and “dishonest reporting of attendance for an internship, service-learning, or similar requirement for a course” were significantly lower than those who did not report engaging in these behaviors. Socially-prescribed perfectionism scores positively correlated with frequencies of dishonest attendance reporting. The results can be used to better understand the role of personality traits in academic dishonesty.
In recent years, the role of perfectionism has been evaluated extensively. Nathanson et al. (2006) examined many variables including demographic variables, the Big Five Personality dimensions, and scholastic competence and found that the “Dark Triad” of narcissism, Machiavellianism, and subclinical pathology were the best predictors of cheating.

De Bruin and Rudnick (2007) suggest that individuals with low conscientiousness are more likely to procrastinate or put forth low effort on academic tasks, which may lead to cheating. This result may occur because their lack of discipline may not create as much concern about breaking rules because cheating provides a solution to their dilemma. Nathanson et al. (2006) did not find support for an association between conscientiousness and cheating. A possible explanation for this discrepancy is that the trait of conscientiousness encompasses many components, some of which may possibly conflict. DeYoung, Quilty, and Peterson (2007) differentiate the components of conscientiousness initially proposed by Roberts, Chernyshenko, Stark, and Goldberg (2005) as industriousness, characterized as one’s need for achievement and orderliness, which emphasizes cautiousness and methodicalness in one’s ability to plan. The ambition aspect of industriousness could potentially be related to a motivation to cheat because of a desire to succeed at all costs. This possible relationship may be negated by the effects of the orderliness component, which may cause a lack of motivation to cheat because the individual may feel confident and competent in his or her abilities due to successful preparation.

As technology has advanced in recent years, the Internet has had a more prominent role in the classroom and has led to increased opportunities for plagiarizing and cheating. Karim, Zamzuri, and Nor (2009) reported that neuroticism has a positive association with usage of the Internet for dishonest behaviors and that the perceived anonymity of the Internet could lead to the decreased accountability of students, which can be directly related to attitudes toward the acceptability of cheating.

Despite the considerable amount of research conducted in the area of personality and cheating, a relationship that has not been examined thoroughly is the relationship between cheating and the multidimensional trait of perfectionism. The only known study that examined the role of perfectionism in academic cheating found no significant correlation between the three dimensions of perfectionism and cheating. In this study by Nathanson et al. (2006), the course exams taken by college undergraduates were evaluated by a computer software program, S-Check, to identify the pairs of students who cheated on the test based on the similarity of their answers. The students also completed personality and demographic measures.

Relationships between the different predictors (e.g., Big Five personality dimensions, overall cognitive ability, verbal ability, narcissism) and cheating were examined. Despite finding significant correlations with other personality variables, such as the “Dark Triad,” no association between perfectionism, as measured by the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991), and cheating was identified. However, this study involved a naturalistic observation in a college classroom where the prevalence of cheating, about 4%, was much smaller than self-reported rates. Additionally, the system used to identify academic dishonesty was a computer program that was only able to identify cheating pairs and was unable to differentiate between the active cheater (the person doing the cheating) and the passive cheater (the person whose work was being copied). The present study aimed to address these limitations.

**Perfectionism**

Perfectionism is widely regarded as a multidimensional trait based on three characteristics: to whom the perfectionistic behavior is attributed, the object at which the behavior is directed, and the behavior’s adaptive (positive) and maladaptive (negative) aspects (Hewitt & Flett, 1991; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Perfectionist cognitions arise when an individual observes a discrepancy...
between his or her own high standards and actual behavior (Rudolph, Flett, & Hewitt, 2007). The Hewitt and Flett model of perfectionism (1991) is comprised of self-oriented perfectionism, other-oriented perfectionism, and socially-prescribed perfectionism as measured by the MPS (Hewitt & Flett, 1991). The components of the model were based on the differences between to whom the perfectionistic behavior is directed and to whom the perfectionistic behavior can be attributed.

**Self-Oriented perfectionism.** Self-oriented perfectionism is defined as “setting exacting standards for oneself and stringently evaluating and censoring one’s own behavior,” (Hewitt & Flett, 1991, p. 457) which is motivated by the desire to be perfect in conjunction with the avoidance of failure (Hill, Hall, & Appleton, 2010). Self-oriented perfectionism is associated with the worrying accompanying test anxiety (Stoeber, Feast, & Hayward, 2009).

**Socially-Prescribed perfectionism.** Socially-prescribed perfectionists perceive others’ imposing high standards and expectations upon themselves (Hewitt & Flett, 1991). Individuals with high scores of socially-prescribed perfectionism are hesitant to try new activities due to the possibility of failure (Kobori, Yamagata, & Kijima, 2005). Socially-prescribed perfectionism is also associated with total levels of test anxiety (Stoeber et al., 2009a).

**Other-Oriented perfectionism.** The third dimension of perfectionism is other-oriented perfectionism. This will not be examined in the present study as other-oriented perfectionists project their high standards and expectations outward onto others (Hewitt & Flett, 1991) and based on this research, it would not be expected to be related to the cheating behavior of an individual.

**Motivations for Perfectionism**
Stoeber et al. (2009a) suggest that people with different types of perfectionism have different motivations for their perfectionist behavior. They assert that self-oriented perfectionism is positively correlated with autonomous reasons for studying, while socially-prescribed perfectionism is associated with controlled reasons for studying. Self-oriented perfectionists are intrinsically motivated to study based on their desire to achieve perfection, while socially-prescribed perfectionists are extrinsically motivated by pressures to achieve perfection placed on them by others (e.g., parents, teachers, friends). Furthermore, when self-oriented perfectionism is controlled for, socially-prescribed perfectionism has a negative correlation with intrinsic motivation, consistent with previous research (Conroy, Kaye, & Fifer, 2007) suggesting that socially-prescribed perfectionists are primarily concerned with the fear of failure and living up to the standards others set for them.

**Maladaptiveness of Perfectionism**
Some suggest that self-oriented perfectionists have maladaptive coping strategies due to excessive self-doubts, critical parents with high expectations, and concerns over making mistakes and are therefore more prone to distress and experience more anxiety (Martiment & Ferrand, 2007; Rice & Mirzadeh, 2000; Rudolph et al., 2007). Conroy et al. (2007) suggest that high levels on any of the three subscales of perfectionism can have a negative impact on academic goals, which suggests that all three dimensions are somewhat maladaptive and calls into question whether adaptive perfectionism can exist if all three exhibit maladaptive behavior to varying degrees.

In contrast, Miquelon, Vallerand, Grouzet, and Cardinal (2005) suggest that some adaptive self-oriented perfectionist qualities exist, such as better academic adjustment. The self-determined motivation toward academic activities exhibited by self-oriented perfectionists was found to be associated with better academic adjustment. Therefore, the performance of self-oriented perfectionists is suggested to be positive, yet the impact on their stress and anxiety levels may still be maladaptive. Further research is needed to reconcile these conflicting findings.

The Big Five Traits that are correlated with perfectionism are conscientiousness (self-disciplined, aims for achievement), extraversion (outgoing, seeks company of others), agreeableness (friendly, cooperative), and neuroticism (experiences unpleasant emotions easily, such as depression or anxiety). Openness to experience (inventive, appreciates variety of experiences) has not been shown to be associated with perfectionism. Neuroticism is the best predictor of an increase in socially-prescribed perfectionism over time (Stoeber, Otto, & Dalbert, 2009). Consequently, conscientiousness is the best predictor of increase in self-oriented perfectionism over time (Stoeber et al., 2009b).

**Overview of the Current Study**
Both academic cheating behaviors and perfectionism have been shown to be correlated...
Relationship Between Perfectionism | Christina R. Krone, Steve V. Rouse, and Lisa M. Bauer

with personality traits (e.g., neuroticism and conscientiousness). The motivations to engage in academic dishonesty have great similarities with the motivations of perfectionism, such as not feeling prepared, yet experiencing an overwhelming pressure to succeed. However, these two constructs have yet to be examined in order to gain a broader insight into a greater range of academic cheating behaviors. The present study assessed cheating on course examinations, as previously investigated by Nathanson et al. (2006), as well as other examples of academic cheating (e.g., homework assignments, plagiarism). The present study employed self-report to examine the relationship between perfectionism and cheating. The present study also examined the link between pressures to succeed, manifested in the trait of perfectionism, and the prevalence of academic cheating.

Due to the relationships established between the personality traits of conscientiousness and neuroticism and cheating and perfectionism, the following hypotheses were formulated. Based on research conducted by Karim et al. (2009), which suggests low conscientiousness scores are predictive of academic dishonesty, as well as Stoeber et al.’s research (2009b) that shows a correlation between high conscientiousness and self-oriented perfectionism, it was hypothesized that self-oriented perfectionism scores would be negatively associated with frequency and recency of reported cheating. Additionally, Karim et al. (2009) suggested high neuroticism scores were predictive of cheating, and Stoeber et al.’s research (2009b) found neuroticism to be positively correlated with socially-prescribed perfectionism. Therefore, it was also hypothesized that high socially-prescribed perfectionism scores would be positively correlated with frequency and recency of reported cheating. These hypotheses are important to evaluate in order to further understand the role of perfectionism in instances of academic dishonesty.

Method

Participants

The sample consisted of 83 participants from a psychology participant pool. Participants ranged in age from 18 to 24 years of age with an average age of 18.8 (SD = 1.13) and the majority of the sample (76.8%) was comprised of 18 (n = 43) and 19 (n = 20) year olds. Participants took part in the study in fulfillment of a course requirement and registered online. Women comprised 73.2% of the sample and men comprised 26.5% of the sample. Seventy-three percent of the sample identified as White (n = 60), 14.1% as Asian American (n = 12), 1.2% American Indian/Alaska Native (n = 1), 4.8% Black or African American (n = 4), and 6.0% Other (n = 5). The sample predominantly reported their ethnicity as non-Hispanic or Latino (n = 67, 81.9%) with 18.1% of participants identifying as Hispanic or Latino (n = 15). The majority of participants were first-year students (n = 45, 54.9%), 25.6% were sophomores (n = 21), 15.7% were juniors (n = 13), and 3.6% were seniors (n = 3). One participant’s data were excluded from the analyses due to a failure to complete the battery of questionnaires.

Materials

Participants completed a packet of questionnaires that included measures of demographics, perfectionism, and academic dishonesty.

Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991). The MPS is a 45-item questionnaire that measures self-oriented perfectionism (e.g., “I must always be successful at school or work”), socially-prescribed perfectionism (e.g., “The people around me expect me to succeed at everything I do”), and other-oriented perfectionism (e.g., “I have high expectations for the people who are important to me”) using a 7-point Likert scale ranging from 1 (disagree) to 7 (agree). Previous research has shown the MPS to be valid (three MPS scales correlate with other measures of perfectionism) and internally reliable (Cronbach alpha values for the three subscales well above .70; Hewitt & Flett, 1991; Stoeber et al., 2009a; Stoeber et al., 2009b). In the present study, the internal reliability coefficient was .92 for the full 45-item scale, and the self-oriented, other-oriented, and socially-prescribed subscales had respective Cronbach’s alpha values of .91, .76, and .85. The coefficients for all subscales are well within the acceptable levels for research purposes.

Academic Dishonesty Questionnaire. The Academic Dishonesty Questionnaire (ADQ) consists of 11 two-part items created for the present research (see Appendix). The first part asks the participants to estimate how frequently they have engaged in a behavior in their lifetime (e.g., “I have submitted someone else’s paper as my own”). The second part uses a 5-point Likert scale ranging from 1 (never engaged in behavior) to 5 (within the past academic semester) to measure how recently the participant engaged in academic cheating. Data from the recency subscale were separated into two groups—those who reported engaging...
in the behavior at any point during their lifetime and those who reported never engaging in the behavior, due to the high number of participants who were first-year students in their first college semester. The administration of the questionnaires took place in the first month of the semester, and the previous academic semester for the first-year students was their final semester of high school. The first-year students would not have been able to provide answers 4 (since entering college) or 5 on the ADQ, therefore answer choices 2 (before high school) through 5 were combined into one category. Cronbach’s alpha values for the recency and frequency subscales were .78 and .62 respectively. The internal consistency value is acceptable for the recency subscale and questionable for the frequency subscale.

Procedure
Participants were given the MPS, ADQ, and a demographic questionnaire in person to complete in that specific order.

Results
Prevalence of Cheating
Ninety-eight percent of the sample reported engaging in one or more academic cheating behavior at some point during their life. The most common form of cheating behavior was allowing someone else to copy their homework (95.1%). Other common forms of cheating were copying someone else’s homework (91.1%), receiving information about a test prior to taking the test (82.9%), and giving information about a test prior to taking the test (75.6%). The recency breakdown of each behavior can be found in Table 1.

Primary Correlations
The primary analyses examining the correlations between the total score on the ADQ and the self-oriented and socially-prescribed subscales of perfectionism were not significant, $r(80) = -.183$, $p = .100$; $r(80) = .013$, $p = .910$; see Figures 1 and 2). The total score on the ADQ was calculated as the sum of the 11 behaviors the participant reported engaging in at some point in his or her life for a maximum score of 11. Consistent with prior research, the subscales of the MPS were highly intercorrelated (see Table 2).

Analyses of Individual Items
Each individual item of the ADQ was then analyzed separately by using $t$ tests to identify differences in perfectionism scores between those who reported engaging in the behavior at some point during their life and those who reported never engaging in the behavior (see Table 1) and correlating the frequency of engagement in the behavior with the subscales of perfectionism.

| TABLE 1 |
| Summary of Recency of Engagement in Academic Cheating Behaviors for Individual Items of the ADQ (n = 83) |

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Before College</th>
<th>Since Entering College or Within Past Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.9%</td>
<td>71.6%</td>
<td>18.5%</td>
</tr>
<tr>
<td>2</td>
<td>4.9%</td>
<td>70.7%</td>
<td>24.4%</td>
</tr>
<tr>
<td>3</td>
<td>42.7%</td>
<td>54.9%</td>
<td>2.4%</td>
</tr>
<tr>
<td>4</td>
<td>51.2%</td>
<td>42.7%</td>
<td>6.1%</td>
</tr>
<tr>
<td>5</td>
<td>97.6%</td>
<td>1.2%</td>
<td>1.2%</td>
</tr>
<tr>
<td>6</td>
<td>93.9%</td>
<td>4.9%</td>
<td>1.2%</td>
</tr>
<tr>
<td>7</td>
<td>80.5%</td>
<td>17.1%</td>
<td>2.4%</td>
</tr>
<tr>
<td>8</td>
<td>17.1%</td>
<td>53.7%</td>
<td>29.3%</td>
</tr>
<tr>
<td>9</td>
<td>24.4%</td>
<td>51.2%</td>
<td>24.4%</td>
</tr>
<tr>
<td>10</td>
<td>57.3%</td>
<td>36.6%</td>
<td>6.1%</td>
</tr>
<tr>
<td>11</td>
<td>87.8%</td>
<td>12.2%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Note. “Before College” percentages include “Before High School” and “While in High School.” For individual item analyses, recency was dichotomized into “Never Engaging in Behavior” or “Previously Engaging in Behavior,” combining “Before College” and “Since Entering College” categories.
correlated with frequencies of dishonest attendance reporting, \( r(78) = .23, p = .044 \).

**Demographic Correlations and Analyses**

Reported GPA was not significantly correlated with any of the perfectionism subscales; however, GPA negatively correlated with the total score on the ADQ, \( r(79) = -.234, p = .036 \). No other demographic variables, including biological sex, were found to have significant relationships with any of the perfectionism subscales or academic dishonesty scales. Contrary to prior research (DeAndrea et al., 2009; Thorpe et al., 1999), no significant difference in reporting academic cheating was found between males and females, \( t(80) = 0.325, p = .787 \).

**Discussion**

The objective of this study was to investigate possible relationships between perfectionism (self-oriented and socially prescribed) and academic cheating. Results showed no relationship between overall academic cheating and perfectionism. Therefore, the initial hypotheses were not supported.

Despite the lack of support for a negative relationship between self-oriented perfectionism and overall academic cheating, significantly lower self-oriented perfectionism scores were found for those individuals who reported submitting someone else’s paper as their own and having been dishonest in reporting attendance for an internship, service-learning, or other requirement for a course. The higher self-oriented perfectionism scores of participants who did not engage in these two specific behaviors could suggest an adaptive quality of self-oriented as suggested by the adaptive vs. maladaptive theory of perfectionism (Frost, Marten, Lahart, & Rosenblate, 1990). Initially seen as measuring a negative attribute, self-oriented perfectionism has displayed the possibility of possessing adaptive qualities in the present study as well as in prior literature (Miquelon et al., 2005; Rudolph et al., 2007). As previously mentioned, a potential basis behind a possible negative relationship between self-oriented perfectionism and reported engagement in cheating behaviors could be the preparedness associated with the orderliness component of conscientiousness (DeYoung et al., 2007).

No overall significant difference was found between socially-prescribed perfectionism and engagement in academic cheating. However, the frequency of engagement in dishonest reporting of attendance for a course requirement had a significant positive correlation with socially-prescribed perfectionism. Only ten participants reported engaging in this behavior so further analysis with a larger sample of participants who have engaged in this behavior before would be beneficial.

Consistent with past research suggesting a relationship between academic cheating and cognitive/scholastic ability (Nathanson et al., 2006), higher GPA scores were correlated with lower total scores on the ADQ.

**Limitations**

Limitations of the present study include a reliance on self-report measures that may or may not accurately reflect the actual engagement in academic cheating behaviors since these behaviors are not typically socially desirable. The questionnaire order was not counterbalanced in the administration of the surveys; therefore a priming effect could have occurred (i.e., taking the MPS beforehand potentially influenced the participants’ responses on the ADQ). Additionally, the frequency subscale had a questionable value for internal consistency, which limits the potential for significance. The ADQ also did not include any items directly related to dishonest Internet usage, which has become a resource for academic dishonesty in recent years. In addition, the percent of the sample that reported engagement in select academic cheating activities since entering college or within the past academic
The respective number of participants who reported that they had “cheated off of someone on a test” or “let someone cheat off of me on a test” since entering college or within the past academic semester were two and five. Only one participant reported that they had “submitted someone else’s paper as my own” since entering college and one participant reported that they had “let someone submit my paper as their own” within the past academic semester. Two participants reported that they had “plagiarized another’s work” and five reported that they had “looked at study material during a test” since entering college or within the past academic semester. Zero participants answered that they had reported dishonest attendance since entering college, yet a positive correlation was present between socially-prescribed perfectionism and engagement in reporting dishonest attendance. Due to the small percentage of individuals who reported engaging in these academic cheating behaviors since entering college, it may be difficult to generalize the correlations between perfectionism and the engagement in those behaviors in college.

The low number of participants who reported engagement in academic cheating behaviors since entering college could possibly be attributed to the timing of the data collection. The majority of the sample, 54.9%, classified themselves as first-year students and the surveys were administered within the first six weeks of their attendance at the university. Therefore, their academic experience was still quite limited, as many of the participants had not yet taken a college exam. Also, the most recent academic semester for students classifying themselves as first-year students would have occurred during the second semester of their senior year of high school. To avoid possible inconsistencies in evaluation for cheating recency within the participant pool, the recency scale was dichotomized. Because the academic atmosphere and expectations differ from high school to college, generalizing the results of the present study to colleges and universities must be done with caution.

### Conclusion

The adaptiveness and maladaptiveness of perfectionism still remains unclear. Further research in the area of academic cheating and perfectionism should study the adaptive and maladaptive dimensions of perfectionism and their relationship with academic cheating. Another area of possible research is the examination of the relationship between perfectionism and broader dishonest behaviors beyond cheating in academia, for example in the workplace.

Whether the pressure originates from within oneself or society, college students at a private university feel the desire to be perfect as suggested by the sample averages for each subtype of perfectionism being higher than the population means (see Table 2). Results of the present study indicate that partial relationships between perfectionism and academic cheating exist and further research can show to what extent the different types of perfectionism relate to engagement in academic cheating behaviors in college.

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>M</th>
<th>SD</th>
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<tbody>
<tr>
<td>1. Self</td>
<td></td>
<td>.604**</td>
<td></td>
<td>-.183</td>
<td>55.40</td>
<td>9.944</td>
</tr>
<tr>
<td>2. Other</td>
<td></td>
<td></td>
<td>.410**</td>
<td></td>
<td>54.26</td>
<td>9.835</td>
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<tr>
<td>3. Social</td>
<td></td>
<td></td>
<td></td>
<td>.013</td>
<td>51.79</td>
<td>9.961</td>
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<tr>
<td>4. ADQT</td>
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<td></td>
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<td></td>
<td>5.31</td>
<td>2.095</td>
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</tbody>
</table>

*p < .001. Note: The Multidimensional Perfectionism Scale is from Hewitt and Flett (1991). Mean scores on the MPS are standardized.

![Scatterplot Demonstrating Correlation Between Total Score on the ADQ (ADQTOT) and Socially-Prescribed Perfectionism (SSP) Score](image)
Overall, the alarming 98% of the sample reporting engagement in one or more of the cheating behaviors reiterates the importance for studying academic dishonesty in order to maintain the future integrity of academic institutions and curb the rampant cheating found today.

References


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### APPENDIX A

**Academic Dishonesty Questionnaire**

On a scale from 1 to 5, rate how **recently** you have engaged in the following behaviors to the best of your knowledge:

1. never engaged in this behavior
2. engaged in behavior before high school
3. engaged in behavior while in high school
4. engaged in behavior since entering college
5. engaged in behavior within the past academic semester

Fill in each blank with **how many times**, to the best of your knowledge, you have engaged in the following behaviors over the course of your lifetime.

<table>
<thead>
<tr>
<th>Behavior</th>
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<th>2</th>
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<th>4</th>
<th>5</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td>1. I have copied someone's homework.</td>
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<td>I have engaged in this behavior ___ time(s) in my life.</td>
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<td>2. I have let someone copy my homework.</td>
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<td>I have engaged in this behavior ___ time(s) in my life.</td>
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<td>3. I have cheated off of someone on a test.</td>
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<td>I have engaged in this behavior ___ time(s) in my life.</td>
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<tr>
<td>4. I have let someone cheat off of me on a test.</td>
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<td>I have engaged in this behavior ___ time(s) in my life.</td>
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<tr>
<td>5. I have submitted someone else's paper as my own.</td>
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<td>I have engaged in this behavior ___ time(s) in my life.</td>
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<tr>
<td>6. I have let someone submit my paper as his or her own.</td>
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<td>I have engaged in this behavior ___ time(s) in my life.</td>
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<td>7. I have plagiarized another's work.</td>
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<td>1</td>
<td></td>
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<td>I have engaged in this behavior ___ time(s) in my life.</td>
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<td>11. I have been dishonest in reporting attendance for an internship, service-learning, or similar requirement for a course.</td>
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Motion perception is the process of inferring the speed and direction of objects that move in a visual scene given some input (Royden, 2000). Although this process appears straightforward to most observers, it has been a hard problem from a computational perspective and extraordinarily difficult to explain in terms of neural processing (Royden, 2000). Many of the most relevant objects in the environment are those that move, because motion provides an important source of information about distance and shape. The world is dynamic, meaning motion detection is vitally important for survival (Albright & Stoner, 1995). Therefore, perception of motion is a critical function of the visual system (Geisler, 2008).

Among the moving objects humans encounter in everyday life, none are more relevant or important than other people. As highly social and group-oriented creatures, humans rely heavily on the ability to perceive what other people are doing and then infer from gestures and expressions what others may be intending or feeling (Blake & Shiffrar, 2007). Because of the importance of perceiving human activity, the human brain appears to contain specialized neural machinery for registering biological motion (Grossman, 2005). One of the most interesting examples of the resourcefulness of human vision, showing how mechanisms have developed to perceive human activity due to its importance for humans’ everyday lives, is the ability to see biological motion. Biological motion is the movement patterns of living organisms, such as humans or animals (Johansson, 1973). Visual functions evolved to detect motion, specifically biological motion.

Experimenters demonstrated the ability to perceive biological motion by using point-light animations that depict human activity using only
a small number of light points strategically placed at different locations on a moving human body (Johansson, 1973; Neri, Morrone, & Burr, 1998). Johansson (1976) found that from only a few moving light points located at the joints, participants perceptually organized the point-light animation into a gestalt, (i.e., walking person) at an exposure time of 0.2 s, and 40% of participants perceived a human body in such motion at presentation times as short as 0.1 s. Viewing point-light animations, human observers can make a wide variety of perceptual judgments that not only include the identification of the activity being executed, but also the recognition of the identity, gender, and emotional state of the “actor” used to create the point-light display (for a review of these findings see Blake & Shiffrar, 2007).

Research has shown that observers made distinguishing judgments and recognized gender based on these displays (Blake & Shiffrar, 2007; Hill & Johnston, 2001). Human observers adapted to complex biological motions that distinguish men from women. Viewing the gait of one gender biased judgments of subsequent gaits toward the other gender (Jordan, Fallah, & Stoner, 2006). Research has shown when biological motion is presented upside down, or inverted, perception is strongly impaired (Troje & Westhoff, 2006). McKone (2004) illustrated this effect using facial identification. McKone (2004) found that 64% of participants identified images correctly when inverted compared to 93% of subjects identifying correctly when the images were subsequently presented upright. Furthermore, participants were less confident in their selections of inverted faces, even when the selections had been correct. Research has shown an inversion effect. Specifically, accuracy of judgments were reduced when an image was rotated 180°, but what about point-light displays of figures?

Explanations of how observers are able to extract information from point-light displays generally fall into two categories. A review of each would not add significant weight to this study. Both explanations argue that experience with specific events is necessary for perception (Shipley, 2003). The research on orientation effects in biological motion perception has led to the same conclusion. Similar to the inversion effect in facial recognition, if biological-motion point-light displays are presented upside down, perception identification suffers (Pavlova & Sokolov, 2000; Sumi, 1984). Shiffrar, Lichtey, and Chatterjee (1997) found that 100% of participants could identify that a point-light display was human when upright, but less than 20% could recognize a human when the point-light display was inverted 180°. This inversion effect seemed to occur regardless of the experimental task and affected detection of a point-light walker (Bertenthal & Pinto, 1994; Pavlova & Sokolov, 2000; Troje, 2003). Thus far, no one has examined the effects of inversion on identifying the gender of a point-light display.

The primary aim of this experiment was to examine the inversion effect using a novel task to examine how inversion impairs gender classification. Participants selected male or female as a classification when experimenters presented upright and inverted gender differentiated stimuli. Humans have the ability to make gender judgments based on point-light displays (Blake & Shiffrar, 2007; Hill & Johnston, 2001), but humans’ ability to perceive biological motion of faces is lessened when these faces are inverted (Jordan et al., 2006). It was expected that observers would be less accurate at recognizing gender in inverted point-light displays of human biological motion.

Method

Participants
Participants (N = 27) included 11 men and 16 women enrolled in an Introduction to Psychological Science class. Participants volunteered and received credit toward a participation grade for their class. Participants’ ages ranged from 18-32 years (M = 20.44, SD = 2.48). Participants included two first-year students, 14 sophomores, seven juniors, three seniors, and one graduate student. Data on the participants’ ethnicity was not gathered.

Materials
Demographic questionnaire. Experimenters gave a demographic questionnaire to each participant. The survey consisted of demographic questions that included age, gender, and school classification of participants. This survey was administered before data collection.

Point-light displays. Point-light displays have been created and programmed for gender recognition by the Biological Motion Lab at Queens University in Ontario, Canada (Queens University Biomotion Lab, 2009). The program has a point-light figure performing an activity and instructs participants to select the gender of the figure. The point-light displays were displays of frontal movement where the figure was performing
a multitude of movements such as sitting, standing, walking, throwing, jumping, running, and stretching. Dell computers running Windows XP were used to show the point-light displays to the participants on monitors set at a standard 60Hz refresh rate. Each participant was given a percent correct after 10 trials and then scored after 21 trials. Participants completed 21 trials in each of the four conditions (two inverted and two upright blocks). Participants received an accuracy ratio (total correct/total seen) out of 21 for each block indicating the percentage of point-light figures they correctly identified by gender as well as an accuracy ratio indicating the correct percentage for male and female point-light stimuli. Participants’ final accuracy ratios were calculated out of 84 trials (42 inverted, 42 upright). A participant’s score could have ranged from 0–84 out of 84, as well as a score out of the number seen of inverted stimuli, male stimuli. The inverted point-light stimuli were created by pressing a set of keys on the keyboard that inverted the entire display by 180°.

**Design**

The design was a 2 (upright vs. inverted stimuli) x 2 (male vs. female stimuli) x 2 (male vs. female participants) mixed method using block randomization to counterbalance the two conditions (inverted point-light displays vs. normal point-light displays) in four trials. The point-light program randomized the number of male \((M = 44.67, SD = 3.67)\) and female \((M = 39.29, SD = 3.67)\) stimuli seen. Participants saw as few as 31 of one gender of stimuli and as many as 53 of one gender.

**Procedure**

Experimenter told participants the study was investigating the perception of biological motion using point-light displays. Participants received and read an informed consent form, had an opportunity to ask questions, and signed the form. Participants completed the demographic survey.

Researchers informed the participants that point-light displays are animations that depict human activity using only a small number of light points strategically placed at different locations on a moving human body. Researchers demonstrated one trial to show participants the program, which was not scored. Researchers explained to participants,

> You will now complete 21 trials for each of the four blocks in a specified order under the supervision of a researcher. You will indicate whether you think the display is depicting a male or female. The researcher will record the data for each trial at the end of 21 stimuli displays, and you will be directed on what to do for the next block of trials. When you are done, wait for the researcher to direct you on the next trial set and at the end wait to be debriefed. These are subjective judgments and we are interested in your perceptions, so do not worry about right and wrong answers or your score being any measure of your skills or abilities.

Gender recognition response options for participants to make a gender selection were generic male or female pictures, similar to restroom distinguishing figures, with male or female written under the appropriate selection choice.

Researchers used block randomization to determine the order in which each participant completed each of the four trials. Thirty-three sessions were run with 1 to 4 participants in each group. No more than two participants were assigned to a researcher during any session to allow for close monitoring. Participants viewed each display for 2 s, but there was no time limit on responding to the gender recognition task.

Participants completed 84 trials (21 for each trial block and 42 for each condition). They were debriefed, given the opportunity to ask questions, informed of when and where the research would be presented, and thanked. The entire experiment took approximately 15 minutes.

**Results**

A 2x2x2 mixed ANOVA yielded a statistically significant main effect for stimulus type (inverted or normal stimuli) \(F(1, 25) = 19.38, p < .001, \eta^2 = .15\), meaning that upright stimuli accuracy ratios \((M = .66, SD = .08)\) were significantly greater than inverted stimuli accuracy ratios \((M = .54, SD = .09)\). No other main effect was statistically significant. The ANOVA also yielded a significant interaction between stimulus type (upright or inverted) and stimulus gender (male or female) \(F(1, 25) = 13.95, p < .001, \eta^2 = .04\), meaning the inversion effect impacted male and female stimuli differently. The inversion effect had more of an impact on male stimuli accuracy ratios (see Figure 1). Further analyses showed that participants were performing at chance levels (50%) for the
inverted male stimuli, $\chi^2(1, N = 515) = 0.05, p = .82$, $\Phi = .000098$, but not for the inverted female stimuli, $\chi^2(1, N = 619) = 12.80, p < .001$, $\Phi = .021$, the upright female stimuli, $\chi^2(1, N = 586) = 40.47, p < .001$, $\Phi = .069$, or the upright male stimuli, $\chi^2(1, N = 548) = 78.95, p < .001$, $\Phi = .144$. No other interactions were statistically significant.

**Discussion**

In this experiment we found that participants were more accurate at recognizing gender in point-light displays of human biological motion when they were presented upright than when they were inverted. Similar to the inversion effect in facial recognition tasks, biological-motion point-light displays that are presented upside down result in an impaired perception (Sumi, 1984; Pavlova & Sokolov, 2000). The inversion effect seems to be present regardless of the experimental task in relation to biological motion tasks (Bertenthal & Pinto, 1994; Troje, 2003; Pavlova & Sokolov, 2000). These inversion effects seem to support Shipley’s (2003) findings that experience with specific events is necessary for perception because people do not live in an inverted world.

Interestingly, there was more of an inversion effect on male stimuli than on female stimuli. When inverted, participants were less accurate at recognizing gender, but they were significantly more accurate at recognizing inverted female stimuli than inverted male stimuli (see Figure 1). The figure shows that recognition of male stimuli was impacted by the inversion effect significantly more than female stimuli. Our first thought was that this finding might be due to different numbers of male and female participants and differences in biological motion gender preference. Participants are more efficient in categorizing same gender faces (Cellerino, Borghetti, & Sartucci, 2004), and gender differences favoring women have been found in facial recognition tasks (Lewin & Herlitz, 2002). Although facial recognition seems to depend on participant gender preference, the results did not indicate that gender preference produced the significant interaction between stimulus type and stimulus gender. Some participants reported making decisions based mostly or solely on point-light “hips,” which could be pursued to determine why male stimuli were affected more by the inversion effect than female stimuli.

Although the study produced statistically significant results, there were some limitations. The participant sample size ($N = 27$) and homogeneity, due to where the sample was selected from, are issues that should be resolved when furthering this line of research. The nature of the task and the media used were limited by the programming abilities of the researchers. These issues could be resolved and evaluated further with a replication of the study.

Future research should focus on explaining why the inversion effect affects male and female stimuli differently. First and foremost, because this is novel research, the first step must be to replicate results. Replicated results will allow researchers to move forward with more assurance that there truly is a difference in the inversion effect on male versus female stimuli. Although there was no significant three-way interaction, the scope of this research did not originally include a search for point-light gender preference. Future research could organize male and female groups to specifically test for a point-light gender preference similar to facial recognition preference. Although the inversion effect is well documented, the accuracy ratios could include timing as another measure. Results might indicate that people are quicker at responding to normal point-light stimuli than inverted stimuli and that people are also quicker when responding to female inverted stimuli than to male inverted stimuli. Extended research could also determine where participants are looking to make gender recognition selections. Participants indicated looking at hip motion, so research could determine whether female point-light hip motion is easier to recognize. Eye tracking experiments using a similar methodology would allow researchers to help determine where participants were looking to...
recognize gender and what cues they were using. Based on the results, the inversion effect is more prominent for male stimuli than for female stimuli in point-light recognition tasks. This gender dependence effect is unknown for other biological motion stimuli. Our results indicate that the cues for male recognition may be so subtle that they are more susceptible to interference than female recognition. There was information available to participants when female figures were shown that was not present when male figures were shown. This could relate to the biological female form, mate selection, or some other visual stimuli not discussed. It seems clear that this is a line of research worth pursuing because of the importance of understanding the nature of human perception of biological motion. The perception of biological motion plays a huge role in our dynamic and social society. Without the resources the visual system puts into biological motion perception, we would not have the same abilities of interaction. Our research highlights sensitivity of this highly complex system, and could be used to help explain other errors of the visual perception system.

References


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Editor Note. At Psi Chi Journal we understand that gender is a cultural/social term and that sex is a more appropriate word to describe males and females when referring to a biological distinction. However, in this manuscript we felt that replacing gender with sex rendered the content confusing (i.e., sex could be understood as sexual behavior) and made an editorial decision to use the term gender instead. This is consistent with APA style.
Thirteen percent of new cases of HIV occur in youth under the age of 25 (Centers for Disease Control [CDC], 2008). Although college students are not categorized as high risk for HIV infection relative to other populations, they engage in high rates of risky sexual behaviors (Lewis, Miguez-Burbano, & Malow, 2009). These behaviors include frequent sexual encounters, sex with multiple partners, and inconsistent condom use (Civic, 2000; Heeren, Jemmott, Mandeya, & Tyler, 2007; O’Sullivan, Udell, & Patel, 2006). Moreover, college students frequently engage in these behaviors while under the influence of drugs and/or alcohol (Davis, Sloan, MacMaster, & Kilbourne, 2007; Randolph, Torres, Gore-Felton, Lloyd, & McGarvey, 2009; Trepka et al., 2008). Given that college students engage in behaviors that put them at risk for contracting HIV and other sexually transmitted diseases (STDs), a significant effort has been made to reduce infection by increasing student awareness of HIV and STDs in general, as well as increasing knowledge regarding risk and protective factors associated with contraction of HIV.

After years of intervention with this population, research on education and disease prevention demonstrates mixed effectiveness. On the positive side, studies show that young people in the U.S. are relatively aware of the risks of HIV infection, desire to avoid these risks, and know effective prevention strategies (Heeren et al., 2007; O’Sullivan et al., 2006). Unfortunately, the risk-taking behavior of young adults has changed little despite decades of extensive proliferation and distribution of educational materials aimed at decreasing risk behaviors and increasing preventative behaviors. Furthermore, even though college students are aware that consistent use of condoms during sexual intercourse is the most effective method of reducing HIV infection, they report low levels of consistent condom use (Civic, 2000; Davis et al., 2007; Heeren et al., 2007; O’Sullivan et al., 2006; Trepka et al., 2008).

Perceived Vulnerability to HIV Infection, Anti-Gay Prejudice, and College Student Sexual Behavior

Laura C. Spiller, Beverly Stiles, David Carlston, and Laura A. Hise
Midwestern State University

ABSTRACT. Despite demonstrating adequate knowledge and awareness of HIV/AIDS, college students continue to report low levels of safe sex behaviors. Effective risk reduction strategies rely on identifying and addressing cognitive barriers such as prejudice that HIV/AIDS is a disease affecting only certain populations such as gay males and intravenous drug users. These beliefs can interfere with the success of effective HIV/AIDS prevention programs by making it difficult, embarrassing, or threatening to engage in preventive behaviors. This study tested the hypothesis that prejudice toward gay men would predict perceived personal vulnerability to HIV infection and engagement in protective sexual behaviors, specifically talking with one’s partners about the chance of HIV transmission and being tested for HIV infection. Students with higher levels of anti-gay prejudice reported less perceived vulnerability of HIV infection, after controlling for higher risk sexual behaviors, $R^2 = .19, F(1,148) = 8.30, p = .004$. Greater prejudice was also related to less likelihood of having been tested in the past year. We discuss implications for augmenting prevention programs by targeting misconceptions stemming from anti-gay prejudice.
sexual intercourse dramatically reduces the rate of HIV/STD transmission, there has been limited evidence of increased consistent condom use (Civic, 2002; Scholly, Katz, Gascoigne, & Holck, 2005). These findings indicate that although educational campaigns provide a necessary and valuable foundation for disease control, they are not sufficient to affect essential changes in the risk-taking behaviors of young people (O’Sullivan et al., 2006).

Research has expanded to look beyond knowledge to account for engagement in protective behaviors (Stiles & Kaplan, 2004). Given that college students do not base their estimates of risk of infection on actual statistics, rates of infection, or the risky sexual behaviors in which they engage, there must be other salient factors accounting for risk perception. One possible factor is that college students’ risk judgments are influenced by cognitive heuristics, decision-making shortcuts (Tversky & Kahnemann, 1974). For example, in estimating their own or their partner’s risk of contracting a sexually transmitted infection, a person may compare themselves to a representation of what constitutes a high risk individual (Malloy, Fisher, Albright, Misovich, & Fisher, 1997; Ward, Disch, Levy, & Schensul, 2004). Rather than rely on known methods for protection from infection, people view themselves as safe since they are not demographically similar to those known to be at the highest risk. In short, beliefs regarding who is at risk of HIV contraction are likely to influence college students’ assessments of their own overall risk of infection as well as the risk associated with their behaviors.

As the awareness of HIV/AIDS increased in the 1980’s and the majority of infected individuals were gay men, the AIDS epidemic quickly became associated with male homosexuality and nicknamed the “gay plague” (Ruel & Campbell, 2006). Sexually-prejudiced individuals may ascribe homosexuality as the primary risk factor for HIV/AIDS and thus minimize their own personal risk. Individuals with this particular sexual prejudice may believe that because they and their partners are heterosexual, they are safe from risks of transmission (Ward et al., 2004). Therefore, individuals who are prejudiced against gay men may believe that HIV/AIDS only strikes gay men and fail to recognize the risk to heterosexuals. This misperception is inaccurate and dangerous, because according to the CDC, the majority of individuals under 25 who contract HIV now do so through heterosexual transmission (O’Sullivan et al., 2006).

Sexual prejudice toward gay men and AIDS-related stigma can interfere with the success of effective HIV/AIDS prevention and care programs by making it difficult, embarrassing, or threatening to engage in preventive behaviors such as asking sexual partners about their HIV status and being tested for HIV. In fact, a large, multi-site survey found that higher perceptions of STD stigma predicted whether participants had been tested for HIV in the previous year (Fortenberry et al., 2002). In addition, Stipp and Kerr (1989) found a relationship between sexual prejudice and AIDS misinformation. Their findings linked sexual prejudice to a lack of acceptance of media information about AIDS, which in turn reduced the effectiveness of prevention messages. Sexual prejudice also hinders an individual’s ability or willingness to engage in protective sexual behaviors (Boone & Duran, 2009). Consequently, sexually-prejudiced people view discussing HIV risk and testing for HIV as unnecessary potentially threatening to them socially due to the risk of being associated with homosexual or bisexual behaviors (Brooks, Etzel, Hinojos, Henry, & Perez, 2005).

In sum, there is growing support suggesting that anti-gay prejudice may influence an individual’s perceived vulnerability to HIV infection. This relationship is especially troubling given the impact of vulnerability estimates on engagement in protective behavior. Specifically, the Health Belief Model (HBM; Becker, 1974; Rosenstock, Strecher, Becker, 1988), the most commonly used model for explaining the adoption of preventive behavior for guarding against disease, suggests that as individuals’ perceived vulnerability increases, so will their engagement in protective behaviors. In other words, it is likely that an individual’s anti-gay prejudices may inaccurately lower his or her perceived vulnerability and reduce the likelihood of engaging in HIV protective behaviors. If this is the case, then addressing anti-gay prejudice would play a crucial role in the creation of effective HIV/AIDS prevention programs.

In this study we explore whether sexual risk behaviors, including having sex under the influence of alcohol or drugs, having multiple partners, and the inconsistent use of condoms, are expected to be related to perceived risk of HIV infection. We also test the following hypotheses:

1) We predict that greater perceived vulnerability to HIV infection will be related to higher rates of HIV-specific protective behaviors.
behaviors, specifically talking to partners about the risk of HIV transmission and being tested for HIV infection.

2) We predict that after controlling for sexual risk behavior, anti-gay prejudice will contribute unique variance to the prediction of perceived vulnerability to HIV. Specifically, we expect those expressing stronger anti-gay attitudes to report less perceived vulnerability.

3) Similarly, we predict that anti-gay prejudice will be associated with a decreased likelihood of protective sexual behaviors.

Methods

Participants
The original sample of participants included 395 undergraduate students attending a southern, state-supported college of approximately 6,000 students. Students who had not been sexually active in the past 12 months and students who were married were excluded from the sample leaving a sample size of 184 students. As we were interested in heterosexual students’ perception of risk and use of protective behaviors, we also excluded 17 respondents who reported a history of a same-sex sexual relationship. Thus, the final sample used in the analyses consisted of 167 students. Of the 167 students in the sample, 61% were women (n = 102), and 39% were men (n = 65). Ages ranged from 17 to 25, with a mean age of 20.6 (SD = 1.9). About 44% of our sample was ranked as first year students or sophomores (n = 72) and 56% were ranked as juniors or seniors (n = 95). The majority of respondents were White American (69%, n = 114) with 10% African American students (n = 17), 9% Latino/Hispanic students (n = 15), and 12% of students reporting various other ethnicities (n = 19; such as mixed, other, Caribbean Black, Native American).

Procedure
A convenience sample of student participants was recruited from both upper and lower division courses in order to survey enough students from each grade level to obtain as nearly as possible a representative sample of the college’s population. Course areas that were surveyed included undergraduate introductory sociology and psychology courses and a variety of upper division courses across all six colleges, all randomly selected. The participants represented 44 different majors across all six colleges out of 52 possible majors on campus.

This research was approved by the University’s committee for the Protection of Human Subjects. Participation was voluntary and no incentives for participation were offered. Five students declined to participate. Students completed the questionnaires during class time; class instructors were not present. The researchers obtained informed consent, distributed the survey, and were present to answer any questions. Students placed their responses in a box with a small opening at the top. To ensure anonymity, student names were never recorded or requested.

Survey

Demographics. Respondents indicated their sex, age, ethnic background, college major, year in school, sexual orientation, and marital status (e.g., married and living with spouse).

Anti-gay prejudice. Students responded to two statements (see Table 1) assessing moral judgment about same-sex relationships and negative affective response to same-sex relationships, two primary components of sexual prejudice associated with HIV contraction (Herek, 2000). They responded to the statements using a 4-point Likert-type scale ranging from 1 (agree strongly) to 4 (disagree strongly). Items were averaged to form a single anti-gay prejudice score with higher scores reflecting more negative attitudes. The correlation between the two items is .75, p < .001. Table 1 presents the frequencies of student responses to the anti-gay prejudice items. A majority of students (59%) strongly agreed with the statement “Sex between 2 men is just plain wrong.” Similarly, 41% strongly agreed with the statement “I think male homosexuals are disgusting.”

Perceived vulnerability. Participants responded to a statement measuring their perception of vulnerability to HIV infection: “What do you think your chances are of getting HIV/AIDS?” This item

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<td>Frequency (Percentage) of Responses to Survey Items</td>
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<td>Sex between two men is just plain wrong</td>
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was measured on a 5-point Likert-type response scale that ranged from 1 (no chance) to 5 (very high).

**Sexual risk behaviors.** Students answered questions assessing sexual behaviors associated with risk for sexually transmitted diseases (STDs) in general, as well as unwanted pregnancy. Two dichotomous, yes/no items assessed whether or not the respondent had sex while under the influence of either alcohol or drugs in the past 12 months. Respondents also indicated how many sexual partners they had in the past 12 months by choosing a range of numbers: 1, 2–3, 4–5, 6–10, or more than 10. The item was coded so that higher numbers represent more partners.

The survey also assessed inconsistency in condom use during oral, anal, and vaginal types of sexual activity. The response options for these items asked students to indicate how often they used a condom on a scale ranging from 0 (never) to 4 (always). The option to respond never had this kind of sex was coded as missing data. Due to high numbers of missing data on the questions asking about anal and oral sex, only the item assessing condom use during vaginal sex was used in the analyses. Follow-up questions assessed the respondent’s reasons for using or not using condoms. Participants were provided a list of possible reasons (e.g., condoms not available, trust my partners, drunk or high) and indicated whether or not each reason applied to them; thus, respondents could indicate multiple reasons for not using condoms.

**HIV-specific protective behaviors.** Students also responded to items assessing behaviors associated with reduced risk of contracting HIV. Students answered the question: “Have you talked with your sex partner(s) about the chances of infecting each other with HIV?” Responses included options for not discussed with any partners, discussed with some partners, and discussed with all partners. Students also responded to the question “Have you ever been tested for HIV?” Follow-up questions assessed how many times in the past year the participant had been tested for HIV and their reasons for being tested or not being tested.

**Results**

Table 2 includes descriptive statistics and correlations between all variables.

**Perceived Vulnerability and Sexual Risk Behaviors**

When participants were asked to assess their chances of becoming infected with HIV/AIDS, 75% (n = 126) indicated that they perceive some risk of infection, even if slight, and 25% (n = 41) perceived themselves to be at no risk of becoming infected. Eight percent (n = 14) of the sample indicated that they perceived their level of risk as being either high or very high.

The relationship between perceived vulnerability and sexual risk behaviors were assessed. Students who had more sexual partners perceived themselves to be at greater risk for HIV infection, r = .39, p < .001. This is especially important as approximately half (49%, n = 80) of the sample reported having had multiple sexual partners over the past year. Students who reported having sex under the influence of alcohol (48%, n = 80, M = 2.72, SD = 1.15) did not perceive their risk to be higher than those who reported they had not had sex while under the influence of alcohol (M = 2.56, SD = 1.23, t(163) = 0.87, p = .38). Moreover, students’ perception of risk for HIV infection was not related to their use of condoms, r = .02, p = .86. This also is an important finding, as only 21% percent (n = 39) of respondents stated that they always use a condom during vaginal intercourse and 12% (n = 23) stated they never use a condom during intercourse.

**Perceived Vulnerability and HIV-specific Protective Behaviors**

Thirty-four percent (n = 43) of participants had been tested for HIV at some time in the past. Of those who were tested, the majority (n = 29, 67%) reported that the testing was part of routine medical care, while another 28% (n = 12) reported they were tested after having unprotected sex. Perceived vulnerability to HIV infection was related to whether or not students had ever been tested for HIV, r = .21, p = .008. Students who had been tested for HIV (M = 2.46, SD = 0.88) rated themselves as more vulnerable to HIV infection than those who denied having been tested (M = 2.05, SD = 1.01; t(98.37) = -2.86, p = .01). Of those not tested, the majority (73%) responded that they had not been tested because they did not perceive themselves to be at risk of infection.

Half (50%, n = 83) of the participants in this sample indicated that they had not talked with any of their sexual partners in the past 12 months about the chances of infecting each other with HIV. Perceived risk was not related to whether respondents talked with their partners about HIV infection, r = .015, p = .84.
Anti-Gay Prejudice and Perceived Vulnerability

A regression analysis was used to determine whether anti-gay prejudice was associated with perceived vulnerability to HIV infection after controlling for sexual risk behaviors (see Table 3). Of the sexual risk behaviors, only “number of sexual partners” was correlated with perceived vulnerability, thus this was the only variable controlled for in the regression. As hypothesized, anti-gay prejudice predicted perceived vulnerability over and above the number of sexual partners $R^2 = .19, \Delta R^2 = .04, F(1,148) = 8.30, p = .004$.

Anti-gay Prejudice and HIV-Specific Protective Behaviors

As predicted, an inverse relationship was identified between anti-gay prejudice and being tested for HIV/AIDS ($r = -.17, p = .02$), indicating that individuals who are prejudiced against gay men are less likely to undergo testing for HIV/AIDS. The predicted inverse relationship was not found between anti-gay prejudice and talking to sexual partners about the possibility of HIV infection, $r = .09, p = .21$.

Discussion

This study evaluated the hypothesis that, regardless of an individual’s sexual behavior, anti-gay prejudices may lower his or her perceived vulnerability and reduce the likelihood of engaging in HIV protective behaviors. Consistent with previous research (e.g., Randolf et al., 2009), higher risk sexual behaviors were evident at significant rates. For example, the majority of the sample reported engaging in sexual activity with multiple partners in the past year. Of these sexually active college students, less than a quarter reported consistent condom use during intercourse.

Findings from the current research indicated that a majority of college students are concerned that at least some personal vulnerability exists for contracting HIV. However, student’s evaluation of their vulnerability to HIV infection was unrelated to their engagement in higher risk sexual behaviors. Only the number of sexual partners in the past year correlated with ratings of perceived vulnerability. In short, these findings are consistent with those of previous reports indicating that college students express minimal concern about HIV infection despite engaging in behaviors known to increase risk for infection (e.g., Boone & Duran, 2009; Davis et al., 2007; Opt & Loffredo, 2004; Opt, Loffredo, Knowles, & Fletcher, 2007; O’Sullivan et al., 2006; Teague, 2009). People, especially young adults, are motivated to minimize their anxiety about the dangers in life, engaging in self-serving cognitions such as illusory invulnerability (Thompson, Kyle, Swan, Thomas, & Vrungos, 2002). This tendency to estimate one’s vulnerability as low may allow individuals to avoid behaviors that are recommended for safe sex but generally considered uncomfortable and potentially embarrassing, such as condom use and talking to partners about sexually transmitted infections.

We examined whether ratings of vulnerability were related to enactment of HIV-specific protective behaviors. The Health Beliefs Model (Becker 1974) explains that those who evaluate the risk to their health as low are not likely to take preventive action, perhaps exposing them to greater risk. As predicted, vulnerability was related to whether or not participants had ever been tested for HIV. However, it was unrelated to whether they had talked to some or all partners about the risk of HIV transmission. Testing was often reported to have occurred as part of routine medical care; thus it may have been easier for those who recognized risk to obtain HIV testing. Talking to one’s partner about HIV, even for those who acknowledge some risk of transmission, may be hindered by embarrassment, fear of negative responses from the partner.

<table>
<thead>
<tr>
<th>Variables</th>
<th>M (SD) or n (%)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anti-gay prejudice</td>
<td>3.09 (.99)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Perceived vulnerability</td>
<td>2.19 (.94)</td>
<td>-.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Sex influence of alcohol</td>
<td>80.00 (48%)</td>
<td>-.02</td>
<td>.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sex influence of drugs</td>
<td>25.00 (15%)</td>
<td>-.05</td>
<td>.18</td>
<td>.37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Number of partners*</td>
<td>1.74 (.97)</td>
<td>.09</td>
<td>.39</td>
<td>.30</td>
<td>.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Condom use</td>
<td>3.23 (1.30)</td>
<td>.04</td>
<td>.01</td>
<td>-.01</td>
<td>-.16</td>
<td>-.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Talk with partner</td>
<td>76.00 (45%)</td>
<td>-.09</td>
<td>-.03</td>
<td>-.15</td>
<td>-.14</td>
<td>-.07</td>
<td>.07</td>
<td></td>
</tr>
<tr>
<td>8. HIV tested</td>
<td>56.00 (34%)</td>
<td>-.17</td>
<td>.21</td>
<td>.08</td>
<td>-.05</td>
<td>.12</td>
<td>-.05</td>
<td>.25</td>
</tr>
</tbody>
</table>

Note. Frequencies represent those reporting they had sex under the influence of alcohol in the past year, had sex under the influence of drugs in the past year, talked to at least 1 partner about HIV, and having been tested for HIV.

*p < .05; **p < .01, one-tailed.
and even difficulty acknowledging the intention to have sexual intercourse (Ryan, Franzetta, Manlove, & Holcombe, 2007).

As predicted, higher levels of anti-gay prejudice predicted less perceived risk of HIV infection after controlling for the number of sexual partners. There are a number of possible explanations for this relationship, including the role of the representativeness heuristic in estimating vulnerability. Those who exhibit anti-gay prejudice are more likely to view HIV as a gay-male disease and judge themselves as dissimilar and apart from those in the high-risk “category” as well as perceive themselves as only having a minimal risk for HIV (Boone & Duran, 2009; Mickler, 1993).

Another possible explanation is that variables such as sexual conservatism or religiosity contribute both to increased negative attitudes about gay men as well as higher rates of safe sexual behavior, such as abstinence and monogamy, which reduce actual vulnerability. Future research should investigate beliefs such as sexual conservatism that are related to sexual prejudice and other social stereotypes that may be cognitive barriers hindering HIV prevention efforts.

Anti-gay prejudice was also evaluated for its relation with engagement in protective behaviors such as HIV/AIDS testing and talking to sexual partners about the risk of HIV/AIDS infection. Students who expressed higher levels of anti-gay prejudice against gay men were found to be less likely to undergo HIV/AIDS testing. Anti-gay prejudice may make it even more difficult, embarrassing, or threatening for an individual to engage in preventive behaviors, such as HIV testing, out of fear for negative social consequences (Brooks et al., 2005).

Although this study adds to our understanding of the attitudes contributing to college students’ perceived risk for HIV infection, several weaknesses inherent in the methodology of the current study may limit the generalizability and interpretation of the results. Although some of the hypothesized associations were statistically significant, the amount of variance predicted by anti-gay prejudice is small. The small convenience sample suggests that this research should be replicated and may not generalize to young adults outside of the college environment. Another limitation of this research is the reliance on single items with limited response options to measure key variables. It is possible the restricted range on some of our measures may have limited our ability to detect potential relationships between anti-gay attitudes, perceived vulnerability, and behavior. Future research should include the use of multiple-item scales which may measure these concepts with greater reliably and sensitivity. Additionally, future research should control for contextual factors that may be related to vulnerability estimates and decisions of whether to enact safe sex behaviors, such as the length of relationship, and presumptions of monogamy. Finally, we acknowledge that problems such as recall bias, social desirability, and self-selection are a constant challenge with self-report methods.

Interventions that incorporate methods to reduce anti-gay prejudice and address the misconception that HIV is a “gay disease” may reduce cognitive barriers to implementing safe sex practices. We concur with Valdiserri’s (2002) statement that, “To underestimate the insidious power of stigma is to risk the very success of effective HIV prevention and care programs” (p. 341).

References


**Author Note.** Laura C. Spiller, Beverly Stiles, David Carlston, and Laura A. Hise | Perceived Vulnerability to HIV Infection
Examining Relationships: Communication and Satisfaction in Lesbian and Heterosexual Women

Elizabeth Brashier and Jennifer L. Hughes
Agnes Scott College

ABSTRACT. In light of the current literature concerning communication and satisfaction in relationships, we examined whether there are differences in communication and its impact on the relationship and sexual satisfaction of lesbian and heterosexual women. A sample of 209 heterosexual and 94 lesbian women completed an online survey about relationship satisfaction, sexual satisfaction, and communication variables. Greater physical touch indicated greater relationship satisfaction for lesbian compared to heterosexual women. There was not a significant interaction between sexual orientation and physical touch in relation to sexual satisfaction. Greater words of affirmation indicated greater sexual satisfaction for heterosexual women compared to lesbian women. There was no significant interaction between sexual orientation and words of affirmation in relation to relationship satisfaction. There was no significant difference between lesbian and heterosexual women on relationship satisfaction, nor was there a significant difference between lesbian and heterosexual women on sexual satisfaction. A central implication from these findings is that working to improve verbal communication in heterosexual couples and physical touch in lesbian couples might lead to improved sexual satisfaction. These findings are important to consider from the perspective of both couples and sex therapy work.

While variables including sexual satisfaction, communication, and relationship satisfaction have been examined extensively in heterosexual women, the habits and experiences of lesbian women in these areas are notably under-researched (Kurdek, 1993). Researchers have explored lesbian couples’ issues in the context of lesbian and gay couples research (Kurdek, 2005); few studies, however, have compared lesbian and heterosexual women on various relationship and sexual issues (Kurdek, 1993). Communication about sex and relationship, sexual satisfaction, and relationship satisfaction are important factors in the maintenance and health of relationships (Kurdek, 1993, 2008) regardless of orientation, and we examine them here.

Communication
A central issue when examining relationships is communication. A core component of satisfaction in both heterosexual marriage (Gottman & Levenson, 1992) and same-sex partnerships (Kurdek, 1998) is that effective communication is key for sustaining a healthy relationship over time (Regan, 2011; Spanier & Lewis, 1980). Here, we use Gottman’s (1994) definition: clear and honest communication (pertaining to relationship and/or sexual issues) between partners.

There exists a demonstrated and significant connection between communication and satisfaction in relationships (Gottman & Levenson, 1992; Regan, 2011; Rogge & Bradbury, 1999). Partners who lack the necessary skills to communicate effectively often suffer from heightened...
dissatisfaction in their relationships, and poor communication has been shown to predict distress in marriages (Markman, 1979). Mackey, Diemer, and O’Brien (2004) found that communication emerged as a central element in explaining greater satisfaction in both same-sex and heterosexual relationships. Openness to self-disclosure in relationships has been demonstrated to result in greater relationship satisfaction (MacNeil & Byers, 2004). Conversely, couples that experience distress in their relationships are more likely to avoid communication (Christensen & Heavey, 1990).

But what about couples who, instead of experiencing conflict that leads to lessened communication, avoid communication and conflict altogether? Evidence strongly suggests that these couples—those who avoid discussing possible areas of conflict—eventually experience emotional separation, which often results in major conflict (Metz, Rosser, & Strapko, 1994). Few studies have compared the communication—verbal or physical—of heterosexual and lesbian women in the same study, and, despite heightened attention towards the gay and lesbian communities in political and social arenas, few researchers have examined same-sex communication. It is thus difficult to make predictions about communication in lesbian couples that are rooted firmly in findings from the current literature. We base our hypothesis regarding communication on the existing, albeit slim, literature.

According to Bell and Weinberg (1978), lesbians fare better when it comes to verbal communication than heterosexual women, heterosexual men, and gay men. This is not surprising given that women are simply more likely than men to use language to interact (Leaper, 1994). Perhaps in a partnership in which both members are women, communication about the relationship would be more successful because both partners are “speaking the same language.” There is also considerable evidence that lesbian couples are stronger in domestic communication—talking about chores and division of household labor and childcare—than heterosexual couples (Peplau & Cochran, 1990). Perhaps this type of communication would carry into more romantic topics, like childcare—than heterosexual couples (Peplau & Byers, 1995). Relationship quality affects sexual satisfaction and frequency of sex are positively related to relationship quality—it is sensible to posit that lesbian couples would experience greater relationship satisfaction due in part to a better ability to discuss sex (Bell & Weinberg, 1978). Also, according to recent findings by Kurdek (2008), lesbian women experience greater relationship satisfaction than heterosexual women.

**Sexual Satisfaction**

Strong evidence exists in the literature suggesting a positive association between a couple’s relationship satisfaction and sexual satisfaction (Purnine & Carey, 1997). According to Lawrance and Byers (1995), relationship quality affects sexual satisfaction. Additionally, relationship satisfaction, as a by-product of poor communication, leads to lessened sexual satisfaction (Schenk, Pfargl, & Rausche, 1983). There is, however, debate as to whether a causal relationship exists (Henderson-King & Veroff, 1994; Sprecher, 2002). Does relationship satisfaction affect sexual satisfaction? Is it the reverse? Or, as research suggests, is there perhaps a mediating variable, like communication, that affects both simultaneously (Byers & Demmons, 1999)?

Here, we follow both the Interpersonal...
Exchange Model of Sexual Satisfaction (Lawrance & Byers, 1995) and more recent findings from Byers (2005) that indicate that relationship satisfaction is positively related to sexual satisfaction. As discussed above, the literature suggests that lesbian couples experience greater relationship satisfaction, possibly because of stronger communication, than heterosexual couples; lesbian couples also experience greater intimacy in their relationships (Kurdek, 1998). Thus, it is reasonable to hypothesize that lesbian couples would also experience greater sexual satisfaction. We hope to explore this connection in the present study.

Hypotheses
Given the existing literature, we present six hypotheses. Words of affirmation will serve as a more important form of communication for relationship satisfaction for heterosexual women than for lesbian women. Words of affirmation will also serve as a more important form of communication for sexual satisfaction for heterosexual women as compared to lesbian women. Physical touch will serve as a more important form of communication for relationship satisfaction for lesbian women than for heterosexual women. Physical touch will serve as a more important form of communication for sexual satisfaction for lesbian women as compared to heterosexual women. Lesbian women will experience greater relationship satisfaction than heterosexual women. Lesbian women will also experience greater sexual satisfaction than heterosexual women.

Method
Participants
Our participants consisted of 209 heterosexual women and 94 lesbian women. Participants listed their racial background as being 78.1% White, 3.6% Black, 4.6% Asian, 7.9% Hispanic, and 4.1% other. The average age for participants was 29.21 (SD = 1.34). The majority of the participants had a Bachelor’s degree (34%) or a graduate degree (30.4%). The rest had not earned college degrees (35.6%). Seventy-nine percent of the participants lived with their partner and 67.4% had children who lived with them. The couples reported being with their partners for the following lengths of time: 1–6 months (9.6%), 6–12 months (5.7%), 1–2 years (15.1%), 2–3 years (9.9%), 3–5 years (8.7%), 5–7 years (10.8%), 7–10 years (9.6%), and greater than 10 years (30.3%).

Procedure
Fourteen research assistants recruited individuals in relationships using e-mail flyers, paper flyers, and social media. Participants were asked to complete a brief survey online. Requirements to participate were that individuals had to live in the United States, be in a relationship, and have access to take the survey online.

Participants were asked to answer items concerning basic demographic information, relationship satisfaction, sexual satisfaction, and communication. While participation was voluntary, those who agreed to participate were entered into a computer-generated drawing to win a $100 Amazon gift card.

Measures
Love languages. The 30-item Five Love Languages Profiles for men and women by Chapman (2004) was developed to assess the ways in which couples communicate, including physical touch and words of affirmation. Participants were asked to rate how well their partners were doing in those love languages. Each item gave participants the option to select which of two sentences sounded more like their preference in a romantic relationship, with a sample item being “I love having my partner’s undivided attention” versus “keeping the house clean is an important act of service.” Participants selected a letter (A, B, C, D, or E) to indicate their choice, with each letter corresponding to a different love language. In our survey, we changed all instances of the word “wife” or “husband” to “partner” in order to be more inclusive. The measure was scored by adding how many times the participant chose each letter. The letter with the highest score indicated the participant’s main love language.

Relationship satisfaction. A 7-item measure developed by Hendrick (1988), the Relationship Assessment Scale, assessed relationship satisfaction. Participants answered each item using a 5-point Likert scale, with an example item being “In general, how satisfied are you with your relationship?” Greater relationship satisfaction is indicated by a higher score. When measured against the more widely used Spanier (1976) Dyadic Adjustment Scale, this scale had a .80 correlation. The author reported an alpha reliability coefficient of .86 (Hendrick, 1988). For this study a .87 alpha reliability coefficient was found.

Sexual satisfaction. Developed by Abraham et al. (2009), the Sexual Relationship Scale (SRS) is an 8-item measure used to assess sexual satisfaction.
An example item includes “When we have sex I feel close to my partner.” A 6-point Likert scale ranging from 1, strongly disagree, to 6, strongly agree, was used. Higher scores indicate greater sexual satisfaction. To support the discriminant validity of the scale, Abraham et al. (2009) found the sexual satisfaction scores were significantly lower in men and women with sexual dysfunction. They reported coefficient alphas ranging from .88 to .89 for the scale. For this study a .88 alpha coefficient was found.

Results
Four univariate analyses of variance and two independent sample t tests revealed significance on two of our six hypotheses (see Table 1). Our hypothesis that physical touch would be more important for relationship satisfaction for lesbian women compared to heterosexual women was supported. Greater physical touch indicated greater relationship satisfaction for lesbian women (M = 30.45, SD = 4.10) compared to heterosexual women (M = 30.14, SD = 4.34), F(8, 313) = 1561.05, p = .031. There was not a significant interaction between sexual orientation and physical touch in relation to sexual satisfaction, F(9, 303) = 15.64, p = .161. Our hypothesis that words of affirmation would be more important for sexual satisfaction for heterosexual women as compared to lesbian women was supported. Greater words of affirmation indicated greater sexual satisfaction for heterosexual women (M = 39.10, SD = 8.57) compared to lesbian women (M = 37.68, SD = 8.84), F(8, 303) = 389.59, p = .024. There was no significant interaction between sexual orientation and words of affirmation in relation to relationship satisfaction, F(8, 313) = 11.92, p = .241, ns. There was not a significant difference between lesbian and heterosexual women on relationship satisfaction, t(314) = .479, p = .489, nor was there a significant difference between lesbian and heterosexual women on sexual satisfaction, t(304) = .522, p = .471.

Discussion
Our findings support two of our six hypotheses: Words of affirmation were more important for heterosexual women than for lesbian women when examining sexual satisfaction, and physical touch was more important for lesbian women than for heterosexual women when examining relationship satisfaction. Our other hypotheses were not statistically significant. Our significant results were theoretically consistent in that words of affirmation would be more important for heterosexual women when considering satisfaction, and that physical touch would be more important for lesbian women.

Somewhat surprisingly, our hypotheses that physical touch would be important for sexual satisfaction, specifically for lesbian women, and that words of affirmation would be important for relationship satisfaction, specifically for heterosexual women, were not supported. This appears to be theoretically inconsistent in that it would make sense for physical touch as a form of communication to be more important for lesbian couples in sexual satisfaction if it is more important in relationship satisfaction. Also, because words of affirmation as a form of communication were more important for heterosexual women in terms of greater sexual satisfaction, a relationship between this variable and relationship satisfaction in heterosexual women was expected. These inconsistencies suggest that the link between sexual and relationship satisfaction is perhaps not as strong as the literature suggests.

Additionally, our hypotheses that lesbian women would experience greater relationship and sexual satisfaction than heterosexual women were not supported. This is surprising given evidence that lesbian women experience greater satisfaction in relationships than heterosexual women (Kurdek, 1998; 2008).

Our results are consistent with previous literature that suggests that communication is an important variable for satisfaction in relationships (Gottman & Levenson, 1992; Rogge & Bradbury, 1999). Couples who communicate poorly often suffer lower relationship satisfaction; conversely good communication skills in a relationship have been related to heightened relationship satisfaction (Mackey et al., 2004; MacNeil & Byers, 2005). While the existing literature did not provide evidence for differences in the type of communication between

### Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Heterosexual</th>
<th>Lesbian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Relationship Satisfaction</td>
<td>30.14, 4.34</td>
<td>30.45, 4.10</td>
</tr>
<tr>
<td>Total Sexual Satisfaction</td>
<td>39.10, 8.57</td>
<td>37.68, 8.84</td>
</tr>
<tr>
<td>Words of Affirmation</td>
<td>3.89, .97</td>
<td>4.26, .81</td>
</tr>
<tr>
<td>Physical Touch</td>
<td>4.15, .99</td>
<td>3.91, 1.17</td>
</tr>
</tbody>
</table>
lesbian and heterosexual women, or the potential importance of different types of communication on sexual or relationship satisfaction, the link between communication and satisfaction in relationships is well established.

Lesbian women are often better at verbal communication than heterosexual couples (Bell & Weinberg, 1978), perhaps because they are more likely to use language to interact (Leaper, 1994). It would be plausible, then, that desiring words of affirmation—a form of verbal communication—in a relationship would be less important for lesbian women because good verbal communication already exists. Thus, our finding that words of affirmation are more important for heterosexual women than for lesbian women when considering sexual satisfaction is consistent with the literature in that we would expect heterosexual women, who have less present verbal communication in their relationships, to have a greater desire for words of affirmation. This could mean that if heterosexual women desire greater verbal communication, then the presence of good verbal communication could have greater effects on sexual satisfaction for these women than for lesbian women, who seem to naturally use verbal communication more effectively.

Our finding that physical touch as a form of communication is more important for lesbian women than for heterosexual women when considering effects on relationship satisfaction is consistent with the literature in that sexual and physical contact seems to appear more often in heterosexual relationships (Matthews et al., 2005). While lesbian couples are better at verbal communication than heterosexual couples, physical touch—whether sexual or otherwise—may not be as present.

An implication from these findings is that working to improve verbal communication in heterosexual couples might lead to improved sexual satisfaction. Likewise, working to improve physical touch in lesbian couples might lead to improved relationship satisfaction. These findings are important to consider from the perspective of both couples and sex therapy work.

Our study is strong in several areas. First, it is one of few studies examining lesbian and heterosexual women on variables regarding communication, relationship satisfaction, and sexual satisfaction in the same sample. Second, it is one of the first studies in the literature to specifically examine words of affirmation and physical touch in the context of lesbian and heterosexual women’s relationship and sexual satisfaction. Third, our study was based on previously used scales with established reliability and validity.

A potential limitation in our study is that we used an online survey. It is possible that we lost potential participants because our survey required Internet access. Using an online survey, however, is more environmentally friendly than a paper survey and increases feasibility of the research by reducing costs and time demands.

A second potential limitation was that our data was self-reported, and there exists the possibility that participants’ perceptions of their own experiences are different than their actual experiences. This, however, is theoretically consistent in that we were interested in lesbian and heterosexual women’s perceptions of communication, sexual satisfaction, and relationship satisfaction.

Our study points in several directions for possible future research. It would be interesting to examine lesbian couples who report having good physical and sexual communication to investigate whether physical touch would still be as important when that type of communication is perceived to be present. It would likewise be interesting to examine heterosexual couples who report having excellent verbal communication skills; would words of affirmation still be as important for women in these couples?

Another possible variable to include in future studies would be relationship confidence. Is communication still as important for women who are more confident in their relationships? Or are women who have high relationship confidence in relationships in which communication is already high, perhaps leading to better confidence? It would also be helpful to reexamine our non-significant results to better understand why physical touch was not significant for sexual satisfaction among lesbians and also why verbal communication was not significant for relationship satisfaction among heterosexual women. It would also be interesting to reexamine relationship satisfaction and sexual satisfaction in these two groups of women giving existing evidence supporting differences that we did not find in this study.

References
Communication and Satisfaction


Psi Chi sponsors a variety of award competitions each year. Listed below is a brief overview. For more information, please visit [www.psichi.org/Awards](http://www.psichi.org/Awards).

<table>
<thead>
<tr>
<th>Name of Award</th>
<th>Description of Award</th>
<th>Submission Deadline</th>
<th>Who Can Apply?</th>
<th>Award Amount/Prize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandura Graduate Research Award</td>
<td>Awards the student submitting best overall empirical study; cosponsored by APS</td>
<td>February 1</td>
<td>Graduate</td>
<td>Travel expense to APS, Plaque, 3yr APS membership</td>
</tr>
<tr>
<td>Cousins Chapter Award</td>
<td>Presented to one chapter that best achieves Psi Chi's purpose</td>
<td>February 1</td>
<td>Chapter</td>
<td>One $3,500 award, Travel to APA, Plaque</td>
</tr>
<tr>
<td>Newman Graduate Research Award</td>
<td>Awards the student submitting best overall empirical study; cosponsored by APA</td>
<td>February 1</td>
<td>Graduate</td>
<td>Travel expense to APA, Plaque, 3yr journal subscription</td>
</tr>
<tr>
<td>Kay Wilson Leadership Award</td>
<td>Awards one chapter president who demonstrates excellence in the leadership of the local chapter</td>
<td>April 1</td>
<td>Chapter President (chapter nomination)</td>
<td>One $500 award, Travel to APA, Plaque</td>
</tr>
<tr>
<td>Allyn &amp; Bacon Psychology Awards</td>
<td>Awards for the best overall empirical study submitted</td>
<td>May 1</td>
<td>Undergraduate</td>
<td>1st place—$1,000, 2nd place—$650, 3rd place—$350</td>
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<tr>
<td>Guilford Undergraduate Research Awards</td>
<td>Awards for the best overall research papers submitted</td>
<td>May 1</td>
<td>Undergraduate</td>
<td>1st place—$1,000, 2nd place—$650, 3rd place—$350</td>
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<tr>
<td>Building Bonds Awards</td>
<td>Awards to recognize collaborative activity by a Psi Chi and Psi Beta chapter</td>
<td>June 1</td>
<td>Chapter</td>
<td>$100 award, Plaque</td>
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<tr>
<td>Model Chapter Awards</td>
<td>All chapters meeting the five criteria will receive $100</td>
<td>June 30</td>
<td>Chapters</td>
<td>$100 each chapter</td>
</tr>
<tr>
<td>Diversity Article Awards</td>
<td>Awards for best <em>Eye on Psi Chi</em> articles published by student authors on diversity issues</td>
<td>July 1</td>
<td>Graduate, Undergraduate</td>
<td>Four $300 awards</td>
</tr>
<tr>
<td>Regional Research Awards</td>
<td>Up to 78 awards presented for the best research papers submitted as Psi Chi posters for the regional conventions</td>
<td>Deadlines Vary, Fall/Winter</td>
<td>Graduate, Undergraduate</td>
<td>$300 each (number varies)</td>
</tr>
<tr>
<td>Denmark Faculty Advisor Award</td>
<td>To one outstanding faculty advisor nominated by the chapter who best achieves Psi Chi's purposes</td>
<td>December 1</td>
<td>Faculty Advisor (chapter nomination)</td>
<td>Travel expense to APA, Plaque</td>
</tr>
<tr>
<td>Kay Wilson Officer Team Leadership Award</td>
<td>Awards the best chapter officer team for exceptional leadership as a group</td>
<td>December 1</td>
<td>Chapter</td>
<td>$2,000 award ($1,000 for chapter + $1,000 for officers)</td>
</tr>
<tr>
<td>Regional Chapter Awards</td>
<td>Presented to one chapter in each of the six regions that best achieve Psi Chi's purpose</td>
<td>December 1</td>
<td>Chapter</td>
<td>Six $500 awards, Plaque</td>
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<tr>
<td>Regional Faculty Advisor Awards</td>
<td>To six outstanding faculty advisors (one per region) who best achieve Psi Chi's purpose</td>
<td>December 1</td>
<td>Faculty Advisor (chapter nomination)</td>
<td>Six $500 awards, Plaque</td>
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<tr>
<td>Society Annual Convention Research Awards</td>
<td>Up to 8 awards (4 grad, 4 undergrad) presented for the best research papers submitted for APA/APS conventions</td>
<td>December 1</td>
<td>Graduate, Undergraduate</td>
<td>$500 graduate (number varies), $300 undergraduate (number varies)</td>
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<tr>
<td>Name of Grant</td>
<td>Description of Grant</td>
<td>Submission Deadline</td>
<td>Who Can Apply?</td>
<td>Award Amount/Prize</td>
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<td>---------------------------------------------------------------------------------------</td>
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<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Graduate Assistantship Grants</td>
<td>Provides funding for teaching and research graduate assistantships during any academic semester</td>
<td>January 1</td>
<td>Graduate</td>
<td>Eight assistantships of $3,000</td>
</tr>
<tr>
<td>Collaboration Grants</td>
<td>Provides funds for a Psi Chi chapter and a Psi Beta chapter to collaborate on a shared activity</td>
<td>January 20 - June 1</td>
<td>Chapter</td>
<td>Four $500 grants</td>
</tr>
<tr>
<td>FBI NCAVC Internship Grants</td>
<td>Provides living expenses for a 14-week unpaid FBI NCAVC internship to conduct research</td>
<td>February 1 - June 1</td>
<td>Graduate, Undergraduate</td>
<td>Two grants, up to $7,000 each</td>
</tr>
<tr>
<td>APS Summer Research Grants</td>
<td>Provides opportunities to conduct research during the summer with sponsors who are APS members</td>
<td>March 1</td>
<td>Undergraduate</td>
<td>Six $5,000 grants ($3,500 student + $1,500 sponsor)</td>
</tr>
<tr>
<td>CUR Summer Research Grants</td>
<td>Provides opportunities to conduct research during the summer with sponsors who are CUR members</td>
<td>March 1</td>
<td>Undergraduate</td>
<td>Two $5,000 grants ($3,500 student + $1,500 sponsor)</td>
</tr>
<tr>
<td>SRCD Summer Research Grants</td>
<td>Provides opportunities to conduct research during the summer with sponsors who are SRCD members</td>
<td>March 1</td>
<td>Undergraduate</td>
<td>Two $5,000 grants ($3,500 student + $1,500 sponsor)</td>
</tr>
<tr>
<td>Summer Research Grants</td>
<td>Provides opportunities to conduct research during the summer at recognized research institutions</td>
<td>March 1</td>
<td>Undergraduate</td>
<td>Fourteen $5,000 grants ($3,500 student + $1,500 sponsor)</td>
</tr>
<tr>
<td>Faculty Advisor Research Grants</td>
<td>Provides funding for the direct costs of a project to support faculty advisors’ empirical research</td>
<td>June 1</td>
<td>Faculty Advisor</td>
<td>Twelve grants, up to $2,000 each</td>
</tr>
<tr>
<td>STP Assessment Resource Grants</td>
<td>Supports projects to develop assessment tests, instruments, and processes for the APA Guidelines for the Undergraduate Psychology Major</td>
<td>June 1</td>
<td>Psi Chi Faculty Members</td>
<td>Three $2,000 grants</td>
</tr>
<tr>
<td>APAGS/Psi Chi Junior Scientist Fellowships</td>
<td>Provides funding for a 1st-year or 2nd-year graduate-level project</td>
<td>June 30</td>
<td>Psi Chi Members, APAGS Members</td>
<td>Four fellowships, $1,000 each</td>
</tr>
<tr>
<td>SuperLab Research Grants</td>
<td>Two awards for conducting the best computer-based research</td>
<td>October 1</td>
<td>Graduate, Undergraduate</td>
<td>SuperLab software, Response pad</td>
</tr>
<tr>
<td>Thelma Hunt Research Grants</td>
<td>Enables members to complete empirical research on a question directly related to Psi Chi</td>
<td>October 1</td>
<td>Faculty, Graduate, Undergraduate</td>
<td>Two grants up to $3,000 each</td>
</tr>
<tr>
<td>Undergraduate Psychology Research Conference Grants</td>
<td>To support local/regional undergraduate psychology conferences. Total grant money available is $15,000</td>
<td>October 1</td>
<td>Sponsor(s) of local and regional conference</td>
<td>Up to $1,000 each (number varies)</td>
</tr>
<tr>
<td>Regional Travel Grants</td>
<td>Provides $3,000 per region to assist students with travel expenses to a regional convention</td>
<td>Varies</td>
<td>Graduate, Undergraduate</td>
<td>Up to $300 each (number varies)</td>
</tr>
<tr>
<td>Graduate Research Grants</td>
<td>To provide funds for graduate students to conduct a research project. Total grant money available is $20,000</td>
<td>November 1 - February 1</td>
<td>Graduate</td>
<td>Up to $1,500 each (number varies)</td>
</tr>
<tr>
<td>Mamie Phipps Clark Research Grants</td>
<td>Enables members to conduct a research project focusing on ethnic minorities. Total grant money available is $10,000</td>
<td>November 1 - February 1</td>
<td>Faculty, Graduate, Undergraduate</td>
<td>Up to $1,500 each (number varies)</td>
</tr>
<tr>
<td>Undergraduate Research Grants</td>
<td>Funding to defray the cost of conducting a research project. Total grant money available is $35,000</td>
<td>November 1 - February 1</td>
<td>Undergraduate</td>
<td>Up to $1,500 each (number varies)</td>
</tr>
</tbody>
</table>
Psi Chi Journal of Undergraduate Research Broadens Its Scope

The Board of Directors recently made a significant change to the Psi Chi Journal of Undergraduate Research, Psi Chi’s peer-reviewed journal founded in 1995. This change will better serve all Psi Chi members, and increase submissions, readership, and the overall prestige of the Journal.

- The name has changed to Psi Chi Journal of Psychological Research now that Psi Chi accepts submissions from undergraduate first authors as well as graduate students and faculty Psi Chi members.

- Undergraduate work will not compete against the work of graduate students and faculty for a place in the Journal. Each piece will be reviewed based on education level.

- The Journal will continue to be peer-reviewed by doctoral-level psychology faculty and uphold the tradition of mentoring all Psi Chi authors through the review, revision, and publication processes.

We invite all Psi Chi undergraduates, graduate students, and faculty to submit their research to the new Psi Chi Journal of Psychological Research at http://www.psichi.org/pubs/journal/submissions.aspx.