Psi Chi
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3. All manuscripts must be prepared according to the Publication Manual of the American Psychological Association (5th ed.).

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Research on intergender attraction is broad and extensive. Studies on personality characteristics (Regan & Joshi, 2003; Sprecher & Regan, 2002), evolutionary forces (Buss, 1989; Cramer & Schaeffer, 1996) and physical appearance (Kalof, 1999) have been used to define those factors which influence attraction. Self-report methods, commonly used to study attraction, have shown support for the subjective nature of attraction formation and the likelihood of dependence upon multiple factors for complete development (Regan & Joshi, 2003; Sprecher & Regan, 2002). Furthermore, different verbal communication styles are stereotypically associated with gender and differ in presentation (Edwards & Hamilton, 2004; MacGeorge, Graves, Feng, Gillihan, & Burleson, 2004; Tannen, 1990). The differences between these stereotypical gender communication patterns are important in understanding communication, but may also have a role in attraction (Feldstein, Dohm, & Crown, 2001; Montgomery, 1986). This study concerns the manipulation of these previously identified stereotypical communication patterns of the genders to find possible differences in attraction.

Intrinsic Values and Attraction

Various personality characteristics and intrinsic values (e.g., social skills, personality) have an impact on attraction between genders. Although there are many differences in attraction factors between the genders, personality characteristics like intelligence,
humor, and intellect are highly valued by both men and women (Regan & Joshi, 2003). However, this was only true when the participants considered partners in a long-term romantic relationship. Other characteristics such as warmth and kindness, expressiveness and openness, and a sense of humor also played a critical role in attraction (Sprecher & Regan, 2002). Especially in romantic relationships, social competence and other socially interactive components of the personality are consistently self-reported as of more importance in determining attraction than other factors (Regan & Joshi; Sprecher & Regan). A possible explanation for this importance linked to interactive components of personality may be that having many friends is socially acceptable, but having more than one romantic partner concurrently is not. The fact of being limited to only one romantic partner implies a lack of social variability for the individual in social situations with that partner and a socially competent partner may be viewed as beneficial. Self-reported high importance assigned for intrinsic characteristics such as social competence may be a direct result from being limited to one partner (Sprecher & Regan).

Certain characteristics of personality are valued more highly depending on other conditions such as length and type of the relationship. Regan and Joshi (2003) found that when adolescents were asked what they valued most in a mate, the length of the relationship influenced the participants’ responses: those who were asked about long-term relationships valued the potential partner’s social interaction ability higher than physical characteristics, while short-term relationships had a much higher rating for physical characteristics over personality. This notable difference in response may be a result of short-term relationships not having extensive social interaction and social competence would be unnecessary in fulfilling the expectations of a successful relationship. Types of relationships are another influence on attraction formation and what is valued most in determining attraction. Across all types of relationships, platonic or romantic, those qualities implying social competence and social support are rated of higher importance in a partner than the physical qualities of an individual (Sprecher & Regan, 2002). This may be a consequence of both genders choosing romantic partners from their existing groups of friends (Sprecher & Regan).

Although no specific gender differences in attraction have surfaced in regards to type and length of the relationship, gender differences do appear when participants are asked to rate the importance of physical attractiveness (Cramer & Schaeffer, 1996; Sprecher & Regan, 2002). Specifically, men rated the attractiveness of women in regards to physical appearance as more important than when women are rating men (Cramer & Schaeffer). In this case, the ideal mate for a male has been identified as one who has “high reproductive value”—young and fertile, active and healthy, and attractive and sexually responsive (Cramer & Schaeffer). This may account for the emphasis that men place on the physical attractiveness of women. In fact, men are more likely to connect physically attractive women with positive and successful relationships (Kalof, 1999). Women, however, rated physical attractiveness important only after satisfying the desire for education and good earning capacity in their prospective partners (Cramer & Schaeffer). Other studies have found other similar results that support these conclusions, but all of these results can only be as accurate as the limitations of self-report methodology (Buss, 1989; Kalof, 1999).

Evolutionary Perspective of Attraction

Buss (1989) conducted a large cross-cultural gender attraction study and concluded that evolution may be the driving force behind attraction of the genders regardless of other possible confounding variables such as culture. Buss argued that men and women use inherently different mating strategies and have different mate preferences due to evolutionary processes. Thus, those men who did not find a suitable mate to ensure the continuation of their genetics may not have been successful. Likewise, women who did not find a suitable mate for protection and care of the young offspring could not be as successful in their roles of maintaining their genetic line. The evolutionary approach to attraction implies that: men are more attracted to women capable of childbearing and women are attracted to those men who can offer protection and stability. Men may value youthful, fertile, healthy, and physically attractive women because they have higher potential for successful reproduction (Buss; Cramer & Schaeffer, 1996). Women, on the other hand, value high-resource potential in men, possibly because that quality implies a better protective environment. Those men who are seen as ambitious, socially competent, motivated, intelligent, honest, college educated, and who have a high earning capacity are self-reported as much more attractive to women (Buss; Cramer & Schaeffer).

According to Buss (1989), parental investment plays a supportive role in an understanding of attraction. From conception through nurturance of the child to adulthood, women of our ancestral past have had a much longer time of parental investment with their offspring than did men. As a consequence, these women should have looked to men that would be dependable, supportive, protective, have an ability to
provide for the offspring, and offer protection for the woman (Buss). Those men who are older and have more experience may be seen as more attractive than those who have less experience or who are younger (Buss). However, women did not self-report the same strong connections of physical appearance with higher reproductive capability in men as did the men in their self-reports. This may be a consequence of men’s fertility not being as distinguishable from physical characteristics as the future fertility of women may be by their physical appearances (Buss). The varying levels of importance of physical attraction imply that an issue of gender difference continues in contemporary society (Kalof, 1999; Regan & Joshi, 2003).

Although future fertility, physical appearance, and providing capability are ranked high in importance by this evolutionary perspective, basic social skills, intrinsic characteristics, and personality factors are still valued highly in romantic relationships (Regan & Joshi, 2003; Sprecher & Regan, 2002). The high importance of these personal qualities suggest that attraction may be partially determined or influenced by the socially communicative elements of personality, not just personality characteristics and evolutionary forces. Social qualities can often be discovered through communication between individuals and, consequently, may have a substantial effect on attraction between the genders.

Communication Patterns of the Genders

Communication has been used as a way to separate the genders even further into their own distinct “cultures” (Edwards & Hamilton, 2004; MacGeorge et al., 2004; Tannen, 1990). According to Tannen, women and men are vastly different in their approaches to communicating with one another, supporting this “two-cultures theory.” According to this theory, both genders verbally communicate in entirely different styles, causing misunderstandings and miscommunications similar to what may arise between members of different cultures. Women show tendencies to focus on intimacy and men exhibit preferences towards independence in their communications. Friction between the sexes occurs as both attempt to understand one another’s verbal communication patterns through their own communication contexts (Tannen).

Edwards and Hamilton (2004) found that misunderstandings, frustration, and perplexity are all by-products of this difference in communication styles, in a self-report study. Furthermore, men may be more likely than women to view themselves in a hierarchal society where they are either “one-up” or “one-down” in comparison to the rest of society (Tannen, 1990). This serves as an explanation of the stereotype that men are more aggressive and competitive than women. Women, however, may tend to view society in a more communal and intimate way than men. Women generally displayed an increased desire for intimacy, trust, and emotional support from those whom they come in contact with, rather than a desire for competition with those they come in contact with (Edwards & Hamilton, 2004; MacGeorge et al., 2004; Tannen, 1990).

Boys, at an early age, are taught that language is a vehicle for accomplishing instrumental tasks, conveying important information, and maintaining status and autonomy (MacGeorge et al., 2004). As a result, this would suggest that boys value close relationships for their instrumental features and functions. Girls, on the other hand, are socialized to believe that close relationships serve emotional and expressive functions (MacGeorge et al.). Language and talk are the vehicles for girls to express themselves, communicate feelings, and to develop intimacy and trust with others (MacGeorge et al.). The gender-dependent beliefs regarding communication are quite different, but the outcomes of these communication styles are similar, implying that one communication pattern is not superior to the other (MacGeorge et al.).

Although men self-report their verbal communicative efforts with women as nonassuming and respectful, women interpret their communication techniques as belittling, dismissive, and as “talk” devoid of empathy (MacGeorge et al., 2004; Tannen, 1990). This influences another difference in communication under the “different cultures” theory. Men are generally more prone to be problem solvers and see communication as the medium to give advice and help solve problems. As women express their problems through their communications with men, men take their usual role and attempt to aid women with their problems (Tannen). In contrast, women, who value intimacy and empathy, focus on listening and understanding as men speak to them (Tannen). Therefore, women show a tendency to tell men their problems and receive problem-solving solutions. Likewise, as men express themselves to women, they receive understanding and empathy instead of the problem-solving solutions they may have originally desired (Tannen). These situations and communication tendencies all serve to add to the confusion and misunderstandings between the genders.

Other research (Edwards & Hamilton, 2004), regarding this “different cultures” theory, however, reveal positive benefits of different communication styles (Edwards & Hamilton). One study that attempted to offer further support to Tannen’s (1990) theories, regarding gender verbal communication differences,
discovered that when both a supportive, nurturing orientation and an assertive, competitive orientation are present in a relationship, they serve to eliminate possible cross-sex miscommunications (Edwards & Hamilton, 2004). Participants were given several different scenarios were asked to rate cooperativeness of the individuals involved, dominance and nurturance displayed, and cross-sex miscommunication. Edwards and Hamilton (2004) suggests that the two different styles are fully functional and provide support for a protective quality in both types of these communications. When communication is seen as beneficial to both parties and cooperation the goal, miscommunication between the genders was significantly decreased. Likewise, when both stereotypical communication patterns of the sexes are present, regardless of the gender that maintains those patterns, misunderstandings and miscommunications are at a minimum (Edwards & Hamilton, 2004). Edwards and Hamilton (2004) further postulated a more complex model for gender communication, stating that gender role is a better predictor of communication styles rather than biological sex.

Michaud and Warner (1997) further separated gender stereotypical verbal communicative patterns into six categories, four linked to men (solve the problem, change the subject and move on, tell them not to worry, and tell a joke) and two linked to women (express empathy and share a similar experience). With the administration of the Communication Styles Survey, Michaud and Warner (1997) asked participants to rate themselves on the likelihood of responding in a given scenario on each of these six choices. Men were more likely to change the subject or tell a joke than women were, and women preferred offering sympathy and reacted more positively to receiving advice than men. These findings support the general stereotype of men and women, with women being more likely to be supportive and men more likely to be avoidant. However, these statistically significant results had small effect sizes, offering limited support for gender differences in communication styles.

**Gender Verbal Communication and Attraction**

In an attempt to find a socially desirable model of communication, Feldstein and colleagues (2001) asked both genders to rate each other on their speed of speech in relation to social attractiveness. A Likert-type scale was used, where dependent variables of perceived competence and social attractiveness were measured as the perceived rate of speech altered between the participants. Women rated all the speakers as more competent than did the male listeners and all the listeners considered the male speakers to be more socially attractive than the female speakers (Feldstein et al., 2001). The different strategies of verbal presentation of men and women may have influenced this finding. Men generally used the strategy of “status assertive mode” by using language as a vehicle to establish their status in situations and women used more affiliative and interpersonally positive communication (Feldstein et al., 2001). Most importantly, however, Feldstein and colleagues (2001) supports the conclusion that people display a tendency to like others with similar attitudes, interests, and personality characteristics, or at least those whom they perceive to be similar to themselves. Those speakers whose speech rates were the most similar to the listener’s own speech rate were ranked more socially attractive than dissimilar speech rates (Feldstein et al., 2001). Furthermore, these results support the idea that mimicking another person’s speech patterns are, in fact, attractive to the other person in the conversation.

Although typically categorized as a woman-related communication pattern, Montgomery (1986) used open communication, a process by which personal information is inferred from verbal and nonverbal behavior, as an independent variable in relation to attraction. Participants in this study were asked to have a discussion with each other and after completing the discussion, a self-report measure for peer attraction and open communication were administered. When determining attraction, the participants relied upon stylistic communication components rather than content components in the speakers’ speech when rating them (Montgomery, 1986). This lends support that the differences in communication between the genders are different in styles and purpose, but not in outcome (MacGeorge et al., 2004; Tannen, 1990). These results support the general conclusion that open communication can accurately predict interpersonal attraction, more than perceived attraction (Montgomery, 1986).

Although the results of Montgomery (1986) support the belief that open communication has more superiority in attraction formation, this study had several limitations that may cause this conclusion to not be completely generalizable. During the interactions between the individuals in the research discussions, open communication may have been seen as a socially appropriate behavior and, as a result, other behaviors may have been unknowingly suppressed. Participant bias, due to interaction with those whom the participants rated higher for social attractiveness, may have also interfered with the results. The continual actions and reactions in response to one another in the discussions are likely to influence interpersonal attraction and may have confounding possibilities.
Attraction and Communication Patterns

Wright, Bates, and Ferguson

Extensive amounts of research has been devoted to studying attraction and the development of attraction, but the effects that specific communicative methods or styles of the genders have on attraction have not been thoroughly studied in the literature to date. This study further defines the effects of general communication patterns of men and women on attraction between the two genders using a self-report survey similar to that used in Michaud and Warner (1997), and two conversations patterned after each stereotypical gender verbal communicative pattern suggested by Tannen (1990). We hypothesize that both genders will identify with the stereotypical communication patterns of their gender set forth by earlier research. Furthermore, we expect that both genders will display a general tendency to rate those communication techniques linked to the stereotypical woman model (express empathy and concern, share similar experiences, and ask further questions about how they feel) as more important to them individually in attraction than those techniques linked to men (tell a joke and provide humor, change the subject and move on, offer advice to help solve problems).

Method

Participants

Participants (N = 164) were solicited from four lower-level psychology classes on the Utah State University campus, were given optional credit for their psychology class, and entered into a prize drawing for their participation. Ages of participants ranged from 18 to 51 with a mean age of 21.43 years. Male participants numbered 73, female participants 91 and all participants reported to be heterosexual. The majority of participants (n = 154) were of White/EuroAmerican descent and the remaining 10 participants represented Hispanic/Latina(o)/ Mexican American, Asian American, Native American/ American Indian, Multiracial or Other. Seventy-eight percent indicated they were members of the Church of Jesus Christ of Latter-day Saints and the other twenty-two percent were spread between other religions equally (one to two percent). Of the participants, 24% were declared psychology majors, 67% had never taken a psychology course previous to their current class, and 53% were college freshman students. Only 35% indicated their current involvement in a committed relationship, either dating or married.

Materials

A survey questionnaire titled “Attractive Communication Styles Survey (ACSS)” was used in data collection. This survey was patterned closely after the Communication Styles Survey that was developed by Michaud and Warner (1997) which used similar questions to ascertain certain styles of communication. An alteration was made by substituting “ask further questions about how they feel” in place of “tell them not to worry," in accordance with Tannen’s (1990) theories regarding women communication styles and to provide a third component to the women style since three components were identified for the men style by Michaud and Warner (see Appendix A for sample question). Likert-type questions were used in assessing the likelihood of participants responding in certain situations on a scale of 1 to 5 (1 = never responding that way and 5 = always responding that way). After reading the situation, participants were asked how they would respond by giving them six choices: change the subject and move on, tell a joke and provide humor, give advice, offer empathy and support, share a similar experience, and ask further questions about feelings. These choices reflect men/women stereotypical response styles (Michaud and Warner). Participants were asked to give a rating on a 1 to 5 scale for each of the six choices. Following the first five questions, another five questions gave similar scenarios and asked participants to indicate on the same scale how they would like those of the opposite gender to respond.

Tannen (1990) supported the notion that men are more likely to use communication as a tool in the societal hierarchy involving problem solving and competition; women, on the other hand, value communication as a means of social networking for support, placing emphasis on intimacy and expression. Based upon this research, two brief conversations tailored to college-age individuals concerning normal life issues and decision making between two people of opposite gender were then distributed to the participants to read on paper. This included one conversation with a stereotypical man’s communicative pattern and another conversation exhibiting typical woman’s communicative patterns. Both conversations had a second person’s narrative that was designed to be gender non-
specific, with stereotypical communication styles of both men and women according to Tannen. Instructions included asking the participant to assume that he/she was the person with the gender nonspecific narrative, so that only one narrative in each conversation varied according to these stereotypical communication styles. In order to hold relative physical attractiveness constant, identical virtually-created pictures were provided for both conversations (Braun & Gruendl, 2001). After the conversations were completely read, the Conversation Survey Questionnaire (CSQ) was administered to participants for assessment of attraction to the conversations. Several questions were asked to assess participant attraction to the conversation (e.g., who would you like to go on a date with, who are you most attracted to romantically?).

Procedure

The surveys were administered and completed in university classroom settings on campus. The ACSS, conversations, and CSQ were all placed in packets and administered to participants following an informed consent letter read to all participants. Controlling for possible order effects, the ACSS and the CSQ were evenly distributed in order of appearance in the packet. Also, each conversation was evenly varied in order of appearance in the packets to control for any further possible order effects. Participants were informed that the study was about attraction and communication, but not informed of the hypotheses. Upon completion of the materials in the packet, participants were asked to sign an attendance sheet and a sheet for the prize drawing. All survey materials were kept in a locked cabinet following participation in the study and participants were notified that results of the study would be made available to them via email.

Results

Attractive Communication Styles Survey

After conducting a series of independent sample t tests, a few significant differences were revealed. Men responded that they were more likely to “tell a joke and provide humor” than women. All other differences in participant responses regarding how they identified themselves were nonsignificant (Table 1). Further significant differences were found when comparing the data asking the participants to rate attractiveness of communicative styles in the opposite gender (Table 2). Women displayed a significant difference, being more likely to want men to “ask further questions about how they feel.” Although mean scores were extremely low for both gender scores, men also exhibited a tendency for “changing the subject and moving on” in prospective partners more than women did. No other responses about attractiveness of the opposite gender’s conversation pattern were found to have significant differences between the genders.

Communication Survey Questionnaire

Data collected from the CSQ suggest that participants showed a general inclination and preference toward the female type of communication. Women showed an intensely strong preference for the stereotypical type of communication of their gender with over 75% of the participants choosing a “three” or “four” for the majority of the questions. Although women tended to have an intense desire for their own gender’s style of communication in their prospective partners, men did not prefer the stereotypical men style, but their mean scores were all significantly on the stereotypical women communicative style side of the scale. A single sample t test revealed that both mean scores for the genders for all questions on the CSQ were significantly on the women side of the conversation scale (Table 3). Over 70% of male participants chose a “three” or a “four” on many of the questions in the CSQ. Further statistical analysis with a series of independent samples t tests revealed significant differences between every single question on the CSQ between men and women except for “most attracted to romantically” (Table 4). Although all responses for both genders were distributed on the stereotypical women side of the communication scale, almost all questions displayed a significant difference between the genders.

Discussion

The data collected on the ACSS were supportive of some of the expectations of this study and contradictory of others. Men were more likely to “tell a joke and provide humor,” supporting the notion of Tannen (1990) that men are “generators of humor.” Women did not have a stronger preference for “tell a joke and provide humor” in their ratings of prospective partners, however, offering little support to her theory of women being “appreciators of humor.” Given the literature on genders and gender communication, we expected men further to define themselves according to other types of male-typical communicative patterns (i.e., give advice, change the subject), but this was not the case. Men were less likely to define themselves with these communicative patterns than women. This may be explained broadly by the negative connotation that may be attached to these two communicative patterns. Both men and women may not want to be known as selfish by giving their own advice or
by changing the subject when they are uncomfortable regardless of what they may do in reality.

Women displayed a significant preference over men for men to “ask further questions about how they feel,” supporting the earlier research findings of women preferring their own gender style of communication. We further expected to see more differences in women responses, defining themselves according to the stereotypical women style of communication than was evident in the results. The free response setup of the ACSS may have contributed to this discrepancy since participants could rate themselves on each of the six communicative patterns, making it possible for all participants to score themselves highly on those qualities they viewed positively. Possibly, college-aged women may not identify themselves with the three

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Independent Samples T Tests for ACSS Self-Ratings</th>
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<tbody>
<tr>
<td>Gender</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Offer Empathy and Support (Self)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>18.60 (4.32)</td>
</tr>
<tr>
<td>F</td>
<td>19.71 (4.26)</td>
</tr>
<tr>
<td>Change the Subject and Move On (Self)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>11.37 (4.60)</td>
</tr>
<tr>
<td>F</td>
<td>10.11 (4.66)</td>
</tr>
<tr>
<td>Give Advice (Self)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>17.59 (4.52)</td>
</tr>
<tr>
<td>F</td>
<td>18.11 (4.14)</td>
</tr>
<tr>
<td>Share Similar Experiences (Self)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>12.08 (3.91)</td>
</tr>
<tr>
<td>F</td>
<td>11.96 (3.79)</td>
</tr>
<tr>
<td>Tell a Joke and Provide Humor (Self)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>16.77 (4.49)</td>
</tr>
<tr>
<td>F</td>
<td>13.49 (4.01)</td>
</tr>
<tr>
<td>Ask More Questions About How They Feel (Self)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>18.75 (4.14)</td>
</tr>
<tr>
<td>F</td>
<td>19.98 (4.71)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Independent Samples T Tests for ACSS Ratings of Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Offer Empathy and Support (Others)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>18.78 (5.39)</td>
</tr>
<tr>
<td>F</td>
<td>19.87 (5.10)</td>
</tr>
<tr>
<td>Change the Subject and Move On (Others)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>10.63 (5.13)</td>
</tr>
<tr>
<td>F</td>
<td>8.77 (5.18)</td>
</tr>
<tr>
<td>Give Advice (Others)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>17.99 (4.68)</td>
</tr>
<tr>
<td>F</td>
<td>19.05 (4.54)</td>
</tr>
<tr>
<td>Share Similar Experiences (Others)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>18.36 (4.44)</td>
</tr>
<tr>
<td>F</td>
<td>18.68 (3.37)</td>
</tr>
<tr>
<td>Tell a Joke and Provide Humor (Others)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>18.51 (4.81)</td>
</tr>
<tr>
<td>F</td>
<td>17.48 (4.50)</td>
</tr>
<tr>
<td>Ask More Questions About How They Feel (Others)</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>17.40 (5.15)</td>
</tr>
<tr>
<td>F</td>
<td>19.47 (4.94)</td>
</tr>
</tbody>
</table>
stereotypical women communication patterns or there may be more patterns other than the identified three (express empathy and concern, share a similar experience, and ask further questions about how they feel). Further research may yield productive results in expanding the stereotypical women pattern of communication to include more than these three patterns.

The original hypotheses were all supported by the collected data on the CSQ. Women expressed a tendency to prefer their own gender’s type of communication pattern in attraction to the opposite gender. Women exhibited a strong preference for men who had verbal communication skills including expressing empathy and concern, sharing similar experiences,

<p>| TABLE 3  |
| One Sample T Tests for Composite CSQ Scores |</p>
<table>
<thead>
<tr>
<th>N</th>
<th>M</th>
<th>(SD)</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite Scores (M)</td>
<td>73</td>
<td>2.74</td>
<td>(1.00)</td>
<td>6.35</td>
<td>72</td>
</tr>
<tr>
<td>Composite Scores (W)</td>
<td>91</td>
<td>3.29</td>
<td>(.89)</td>
<td>13.81</td>
<td>90</td>
</tr>
</tbody>
</table>

Test Value = 2

<p>| TABLE 4  |
| Independent Samples T Tests Statistics for CSQ Questions |</p>
<table>
<thead>
<tr>
<th>Gender</th>
<th>M</th>
<th>(SD)</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go on a Date With</td>
<td>M</td>
<td>3.00</td>
<td>(1.39)</td>
<td>1.97</td>
<td>162</td>
</tr>
<tr>
<td>F</td>
<td>3.37</td>
<td>(1.03)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talk to Again</td>
<td>M</td>
<td>3.01</td>
<td>(1.27)</td>
<td>2.83</td>
<td>160</td>
</tr>
<tr>
<td>F</td>
<td>3.54</td>
<td>(1.09)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>See Again in the Future</td>
<td>M</td>
<td>2.97</td>
<td>(1.26)</td>
<td>3.12</td>
<td>160</td>
</tr>
<tr>
<td>F</td>
<td>3.54</td>
<td>(1.05)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most Successful Romantic Relationship</td>
<td>M</td>
<td>3.00</td>
<td>(1.24)</td>
<td>2.52</td>
<td>160</td>
</tr>
<tr>
<td>F</td>
<td>3.43</td>
<td>(.92)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most Attracted to Romantically</td>
<td>M</td>
<td>2.82</td>
<td>(1.27)</td>
<td>1.87</td>
<td>162</td>
</tr>
<tr>
<td>F</td>
<td>3.18</td>
<td>(1.15)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be Friends With</td>
<td>M</td>
<td>2.53</td>
<td>(1.32)</td>
<td>2.63</td>
<td>162</td>
</tr>
<tr>
<td>F</td>
<td>3.09</td>
<td>(1.36)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have a Relationship With</td>
<td>M</td>
<td>3.01</td>
<td>(1.17)</td>
<td>2.22</td>
<td>162</td>
</tr>
<tr>
<td>F</td>
<td>3.40</td>
<td>(1.03)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give Phone # or Contact Info to</td>
<td>M</td>
<td>2.88</td>
<td>(1.23)</td>
<td>2.78</td>
<td>160</td>
</tr>
<tr>
<td>F</td>
<td>3.34</td>
<td>(.91)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give Phone # or Contact Info to</td>
<td>M</td>
<td>2.33</td>
<td>(1.45)</td>
<td>3.14</td>
<td>152</td>
</tr>
<tr>
<td>F</td>
<td>3.03</td>
<td>(1.31)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell Your Friends About</td>
<td>M</td>
<td>2.42</td>
<td>(1.48)</td>
<td>3.27</td>
<td>152</td>
</tr>
<tr>
<td>F</td>
<td>3.14</td>
<td>(1.22)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
and asking further questions about how they feel. This further supports Tannen’s (1990) hypothesis of women desiring men to understand them and communicate with them on a more open manner. The strong emphasis that women placed on the opposite gender’s ability to “ask further questions about how they feel” on the ACoSS also support the findings of Montgomery (1986), suggesting open communication styles, usually associated with stereotypical women patterns of communication, are more desirable to women. The slight preference that men exhibited for stereotypical women patterns in the CSQ questions also supports Montgomery’s finding that open communication preferences did not vary across the gender variable.

Although men and women responses did favor the stereotypical women types of communication on the CSQ, there were still significant differences between the genders on several of the questions. This finding may be the result of differing intensities of attraction the genders have toward the stereotypical communicative patterns of women. Mean scores suggest that women strongly favor the communication patterns associated with their gender and men slightly favor those same verbal patterns. This finding supports the idea that gender differences in attraction may not be as evident in verbal communicative patterns as has been suggested by earlier research, but only differs in the intensity of attraction.

The typical difficulties associated with self-report measures are the principle limitations of this study. The social pressure to “look good” or to conform to local social standards and expectations, regardless of secured anonymity, may have caused participants to bias their responses. In a possible attempt to avoid cognitive dissonance, participants may have responded according to how they hope or believe they will become rather than an objective interpretation of themselves. Furthermore, verbal and written descriptions of how a participant would act or want others to act may be very different from the way the participant does act or want others to act in a similar situation in reality. A research design that circumvents these difficulties (i.e., behavioral observation, dyadic interactions) would be ideal for further research on the influence of gender communicative patterns on attraction formation between the genders. Additionally, a statistically proven measurement for the conversations should be developed and employed with any further study on conversations and their influence on opposite gender attraction. Further research may also be warranted in non-heterosexual, cross-cultural and cross-socioeconomic populations to determine if these populations exhibit differences in levels of attraction according to stereotypical gender communication patterns.

References


**APPENDIX A**

**Attractive Communication Styles Survey Sample Question**

10. Suppose you relate a negative experience you had with your boss at your job one night to a person of the opposite gender that you know. How would like him/her to respond?

<table>
<thead>
<tr>
<th>Response</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer empathy and support</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Change the subject and move on</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Give advice and help him/her solve the problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Share a similar experience you have had yourself</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Tell a joke and provide humor</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Ask further questions about how they feel</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
The sociocultural theory maintains that women’s dissatisfaction with their bodies comes from the thin body ideal of Western societies; the tendency for women to view their body as an object rather than a functioning system; and the “thin is good” assumption that emphasizes the rewards of being attractive or thin and the costs of being unattractive or fat (Morrison, Kalin, & Morrison, 2004). Interestingly, the discrepancy between the definition of the ideal female body and the actual size of women’s bodies is increasing. It has been reported that whereas the average American woman under thirty has become increasingly heavier, media images of women have become increasingly thinner (Wiseman, Gray, Mosimann, & Ahrens, 1992). The emphasis placed on women’s physical appearance and the ways in which media represents women’s bodies may contribute to the acceptance of a body as an object orientation (Morrison et al.).

Body Image in Women

The study of body image began at the turn of the twentieth century. However, over the past two decades, research interest in body image has grown due to the increasing prevalence of eating disorders (Wingwood, Diclemente, Harrington, & Davies, 2002). Body image may be understood as a multidimensional concept that represents how individuals “think, feel, and behave with regard to their own physical attributes” (Morrison et al., 2004, p. 571). In Western society, a civilized female body is defined by ideals of beauty, which studies show are generally ultra-thin, unrealistic, and impossible for most women to attain. Commonly expressed ideologies about women’s bodies include: women being constantly aware of and attending to their bodies, women’s bodies as texts through which their morals and values will be read, women’s bodies as objects and commodities, women’s bodies existing to serve others, beautiful women are thin, and women should suppress their bodily appetites (Rubin, Nemeroff, & Russo, 2004). Women’s bodies often are scrutinized and evaluated in accordance with these ideals of attractiveness and/or thinness.

Empirical studies have found that many women experience a discrepancy between their actual body and their ideal body, causing a unique form of shame. Diets are viewed as to promise women relief from body shame arising from the dissatisfaction with body size,

What Did She Say? An Examination of the Influence of Conversation and Media Exposure on Participants’ Body Objectification and Anxiety

The present study was conducted to determine whether exposure to media photographs and overheard conversation, including fat-talk or good-looking talk, affected women’s self-objectification and anxiety levels. Forty-nine female participants were asked to complete anxiety and self-objectification questionnaires following exposure to media/no media and fat talk/good-looking talk. Three hypotheses were proposed: (a) participants who viewed media photographs of female models would be more self-objectifying and anxious than those who did not view the photographs; (b) women exposed to fat talk would be more self-objectifying and anxious than those exposed to good-looking talk; and (c) women who experienced the media exposure with fat talk would report the highest self-objectification scores and anxiety levels. Results indicate mixed support for these hypotheses.
placing many women at risk for disordered eating (Noll & Fredrickson, 1998). Additionally, Wiederman (2000) maintains that women’s sexual desirability is often equated with physical attractiveness and thinness. Women have a heightened awareness of how their bodies appear to others, particularly men, influencing their body images. Women with this heightened awareness often have “internalized observers’ perspectives” on their bodies and chronically monitor themselves in anticipation of how others will judge their appearance and treat them (Calogero, 2004, p. 16). Feelings of shame about the body can be elicited by the anticipation of a simple gaze from a male individual, which is the result of internalizing the sexually objectifying male gaze (Calogero, 2004). However, the messages women receive with regard to how they should perceive their bodies come from many different sources (e.g., family, peers, etc.); of particular relevance to the present study is the media’s influence on females’ body image perception.

**Media Influence on Body Image**

Researchers who study eating-disordered cognitions and behaviors have suggested that the mass media, particularly women’s magazines, play a role in eliciting negative body images (Eskes, Duncan, & Miller, 1998). More specifically, many believe that reading beauty and fashion magazines leads women to internalize and embrace the thin ideal, motivating them to attain it at times through pathogenic practices (Thomsen, Weber, & Brown, 2002). Anorexia nervosa and bulimia nervosa are biopsychosocial disorders that result in distortions of self-image and self-perception. The onset of these diseases typically falls between early adolescence and early adulthood when most young women are susceptible to cultural pressures for thinness and thus, more likely to be involved with and influenced by the media. The heightened susceptibility to these pressures and influences from the media is believed to be due to the preoccupation with appearance and identity during adolescence. In fact, teenagers are believed to be among the heaviest users of mass media. Recent reports indicate that more than 6.5 million adolescent girls read Seventeen, Teen, and YM; all of which are popular magazines targeted at teenage girls (Thomsen et al., 2002).

One consequence of the media is believed to be the development of unrealistic standards of beauty. Studies have suggested that magazine content supports the perception that female happiness and success are tied to physical appearance, with ultrathinness being preferred and the most important form of self-improvement (as cited in Thomsen et al., 2002). Research also proposes that when women become dissatisfied with their inability to match the ideals offered in magazine photographs and advertisements, they begin to develop eating-disordered thoughts possibly leading to anorexic or bulimic tendencies (Thomsen et al.). Statistically significant relationships between reading fashion magazines and body dissatisfaction have been found (Harrison & Cantor, 1997). Similarly, another study found that individuals who saw images of thin fashion models were more likely to report higher levels of body dissatisfaction than those who saw nonfashion images (as cited in Thomsen et al.). Additionally, exposure to images depicting thinness may lead to short-term reductions in self-esteem, distortions in body-size estimation, and a more depressed mood (Thomsen et al.). In fact, what is important to note about media exposure is its pervasiveness. In today’s society, it is extremely difficult to seclude oneself from media ideals of beauty. Often a related implication of media coverage of female bodies is the portrayal of the female body (and body parts) as an object to be evaluated.

**Body Objectification**

One of the most promising theoretical approaches to understanding the problems of negative body image and disturbed patterns of eating in women is the objectification theory. According to Fredrickson and Roberts (1997), growing up in a society that objectifies the female body and sexualizes all women leads women to self-objectify. Specifically, objectification theory maintains that women are socialized to view and treat themselves as objects and thereby become preoccupied with their own physical appearance, denoting self-objectification (Noll & Fredrickson, 1998). Self-objectification is argued to have destructive psychological consequences, such as increased shame and anxiety, decreased opportunity to achieve high motivational states due to interruption of cognitive flow, and insensitivity to bodily cues (Gapinski, Brownell, & LaFrance, 2003). Diverting attention inward, self-objectification involves women monitoring their own bodies as a reaction to or in anticipation of the sexually objectifying gaze of others. Self-objectification is thought to be associated with increased anxiety, particularly with regard to one’s appearance, because of the attention required by habitual body monitoring (Gapinski et al.).

Nitcher and Vukovic (as cited in Gapinski et al., 2003) coined the term “fat talk” to describe the self-disparaging body talk that occurs in peer groups and contains an element of social influence. Fat talk uses weight as a reference point for feelings; saying “I’m fat” can be like saying “I feel out of control” or “I feel depressed.” Some claim that a person who does not...
engage in fat talk may be frowned upon, as though she thinks her body is flawless. Fat talk can also be used to disclose vulnerability; a girl may use it to be the first to publicly criticize her own body as a defense against others who may have been thinking the same thing. In this manner, fat talk may be objectifying because it directs attention to the appearance of the body, assuming that others are evaluating one’s body and that one should be the first to criticize her own appearance (Gapinski et al.). Oppositely, it has been questioned whether fat talk could reassure rather than objectify. In this view, as fat talk is directed at the self, it could divert the listener’s attention away from her own body, potentially reducing the negative affects of self-objectification. Specifically, if the listener is worrying about her own body, fat talk may serve to reassure and encourage her, possibly leading to the thoughts “It’s okay, she thinks she looks bad, too.” Fat talk is viewed as one factor that may impact the experience of self-objectification (Gapinski et al.).

The present study was aimed at determining whether increased objectification or increased reassurance is associated with fat talk, to determine what effects good-looking talk may have on participants, and to understand whether media photographs can influence body objectification. It was hypothesized that participants who viewed media images of female models would be more self-objectifying and anxious than those who did not view the images; and that those women exposed to fat talk would be more self-objectifying and anxious than those exposed to good-looking talk. Additionally, it was hypothesized that women who experienced the media exposure with fat talk would have the highest self-objectification scores and anxiety levels.

**Method**

**Participants**

Participants in the present study comprised of 49 volunteer female college students from a small, private liberal arts college in the Midwest. There were 11 freshmen, 13 sophomores, 15 juniors, 9 seniors, and 1 nonreporting student who participated. The majority of participants came from psychology courses and received extra credit for their participation, but some were volunteers solicited from other courses on the college campus. All participants were randomly assigned to the four experimental conditions. The APA Code of Ethics was followed in all conditions.

**Measures**

Anxiety. Spielberger’s (1983) State-Trait Anxiety Inventory (STAI) has been used extensively in research and clinical practice to assess individuals’ anxiety levels. It is made of separate self-report scales for measuring state and trait anxiety. The State-Anxiety scale consists of 20 statements evaluating how the participant feels “right now.” The qualities measured by this scale include feelings of apprehension, tension, nervousness, and worry. The Trait-Anxiety scale consists of 20 statements that assess how the participant “generally feels.” The 40 question test allows individuals to respond on a 4-point Likert scale. Each item is given a weighted score of 1 to 4. A rating of 4 indicates the presence of a high level of anxiety for 10 state anxiety items and 11 trait anxiety items (e.g., “I feel strained”). A high rating indicates the absence of anxiety for the remaining 10 state anxiety items and 9 trait anxiety items (e.g., “I feel secure”). The scoring weights for the anxiety absent items are reversed. To obtain scores, the weighted scores are summed for the 20 items that make up each scale. The scales can vary from a minimum of 20 to a maximum of 80. Each STAI item was required to meet validity criteria at each stage of the test development process in order to be retained for further evaluation and validation. There is evidence of concurrent, convergent, divergent, and construct validity of the STAI scales. Correlations of the STAI scales and other measures of personality provide evidence of convergent and divergent validity. Reliability for the State-Anxiety scale has a low stability because the responses to the items are supposed to reflect the influence of situational factors that exist during the time of the test. For the State-Anxiety scale the coefficients ranged from .16 to .62, whereas the range for the Trait-Anxiety scale was .65 to .86 (Spielberger, 1983). In the present study, the reliability coefficient for state anxiety was $\alpha = .93$ and for trait anxiety reliability was $\alpha = .92$.

**Self-Objectification.** The Self-Objectification Questionnaire quantifies individual differences in self-objectification by assessing the extent to which individuals view their bodies in appearance-based (objectified) terms versus competence-based (nonobjectified) terms (Noll & Fredrickson, 1998). The questionnaire asks participants to rank a list of body attributes in ascending order of how important each is to their physical self-concept; *most impact is* ranked as 1, whereas *least impact is* ranked as 12. Twelve body attributes include six that are appearance-based (i.e., physical attractiveness, coloring, weight, sex appeal, measurements, and muscle tone) and six that are competence-based (i.e., muscular strength, physical coordination, stamina, health, physical fitness, and physical energy level). Scoring is computed by summing the ranks for the appearance and competence attributes.
separately and then computing a difference score. Scores range from -36 to 36, with higher scores reflecting a greater emphasis on appearance, interpreted as greater self-objectification. The Self-Objectification Questionnaire demonstrates satisfactory construct validity and scores were shown to correlate positively with scores from similar measures (Noll & Fredrickson, 1998). No specific reliability scores were available.

**Fat talk.** Fat talk was expressed as “This shirt looks horrible on me; I look so fat; My stomach is totally hanging out!” Whereas good-looking talk was expressed as “I love this shirt on me; It fits so cute and makes me look really skinny!” Each phrase contained the same number of words and was equally as positive and negative. The idea of fat talk was derived from the Gapinski et al. (2003) study, whereas good-looking talk was designed and first used in this study. Good-looking talk was established to help further determine which effect—increased/decreased objectification or increased/decreased anxiety—is associated with type of talk heard.

**Demographics and media.** A demographic questionnaire was also utilized to assess age, weight, height, academic year, and self-report stress level. Additionally, media images of thin female models—none of celebrity status—from fashion and men’s magazines were used.

**Procedure**

All participants were tested individually in one of two separate research cubicles. One cubicle contained a small table and chair facing a mirror with pictures of female models posted all around it. The other cubicle contained only a small table and chair. Participants were randomly assigned into the four experimental conditions. The four experimental conditions were good-looking talk/no media image exposure; good-looking talk/media image exposure; fat talk/no media image exposure; and fat talk/media image exposure. Each participant was welcomed upon arrival and immediately after was given an opportunity to read and sign an informed consent form. While the participant was completing this introductory process, she was informed that the experimenter forgot some materials, and thus she was left alone in the cubicle for one minute to allow her to view the pictures of the female models or sit in an undecorated cubicle, depending on the experimental condition. Hence, the experimenter left the cubicle for one minute regardless of the condition to allow for exposure to the models or lack thereof.

Following the one minute time lapse, the experimenter returned and gave the participant instructions for the completion of the questionnaire packet and informed her that the experimenter would be waiting in the hallway. As the experimenter was walking away from the cubicle, a confederate approached and proceeded with either the “good-looking talk” or the “fat talk,” depending on the randomly assigned condition. Although not directly addressed, if participants questioned the presence of media images, the researcher responded, “Those pictures are being used for a different study going on.” Upon completion of the questionnaires, the participant was allowed an opportunity to ask questions, thanked for her participation, and was informed that debriefing would be completed via email.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Intercorrelations Between Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Type of talk</td>
<td>1.00</td>
</tr>
<tr>
<td>(2) Magazine viewing</td>
<td>1.00</td>
</tr>
<tr>
<td>(3) Age</td>
<td>1.00</td>
</tr>
<tr>
<td>(4) Weight</td>
<td>1.00</td>
</tr>
<tr>
<td>(5) Height</td>
<td>1.00</td>
</tr>
<tr>
<td>(6) Body objectification</td>
<td>1.00</td>
</tr>
<tr>
<td>(7) State anxiety</td>
<td>1.00</td>
</tr>
<tr>
<td>(8) Trait anxiety</td>
<td>1.00</td>
</tr>
</tbody>
</table>

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

Exploratory Analyses

Prior to main analyses, correlational analyses were conducted to examine interrelations among the present study’s variables as presented in Table 1. Nonsurprisingly, trait and state anxieties were significantly correlated \( (p < .01) \), suggesting that the more state anxiety a participant experienced, the more trait anxiety was present within the participant. Interestingly, state anxiety and body objectification evidenced an inverse relationship \( (p < .01) \). This correlation suggests that as participants’ body objectification increased, their state anxiety decreased. Lastly, type of talk heard and trait anxiety also correlated \( (p < .05) \), suggesting that when fat talk was heard, participants’ trait anxiety increased.

Main Analyses

To examine the effect of conversation and media images on body objectification, a 2 (talk) x 2 (images) analysis of variance (ANOVA) was conducted. Results indicated no main effect of conversation, \( F(1,45) = .01, ns, \eta^2 = .00 \); or media images, \( F(1,45) = .26, ns, \eta^2 = .01 \); and no significant interaction, \( F(1,45) = .94, ns, \eta^2 = .02 \). However, examination of marginal means (see Figure 1) suggested that perhaps with a larger sample size a significant interaction may have appeared.

To examine the effect of conversation and media images on state and trait anxiety, two 2 (talk) x 2 (images) ANOVAs were done. Results for state anxiety indicate a marginally significant main effect of conversation, \( F(1,45) = 3.00, p = .09, \eta^2 = .06 \). Although nonsignificant, individuals who heard good-looking talk experienced higher state anxiety \( (M = 42.79) \) than individuals who heard fat talk \( (M = 37.37) \). No main effect of media, \( F(1,45) = .04, ns \). No significant interaction between the variables was found, \( F(1,45) = .05, ns \). Results for trait anxiety indicate a significant main effect of conversation, \( F(1,45) = 4.22, p = .04 \). That is, individuals who heard good-looking talk experienced higher trait anxiety \( (M = 42.57) \) than individuals who heard fat talk \( (M = 37.09) \). No main effect of media, \( F(1,45) = .90, ns \). No significant interaction between the variables was found, \( F(1,45) = .00, ns \).

Discussion

The present study was designed to examine how exposure to media photographs and overheard conversation, including fat talk or good-looking talk, affect women’s self-objectification and anxiety levels. Specifically, it was hypothesized that participants who viewed media models would be more self-objectifying and anxious than those who did not view the images. Secondly, women exposed to fat talk were expected to be more self-objectifying and anxious than those exposed to good-looking talk. Additionally, it was hypothesized that women who experienced the media exposure combined with fat talk would report the highest self-objectification scores and anxiety levels. Results indicated a lack of support for these hypotheses, but revealed some interesting findings.

An interesting, significant finding indicated that participants who heard good-looking talk reported a higher level of trait anxiety. This finding is odd because trait anxiety scores are described as being enduring and nontransient, whereas state anxiety scores are designed to reflect the influence of situational factors that exist during the time of the test. Participants in the present study were instructed to complete the state anxiety scale first, with the trait anxiety scale being completed second. Perhaps the situational factors created by the experimenter (i.e., media images and type of talk) did not take affect on the participant until after they had completed the state anxiety scale and were filling out the trait anxiety scale. Although nonsignificant, individuals who were exposed to good-looking talk also reported higher levels of state anxiety than those exposed to fat talk. Opposite of the present study’s hypotheses, this finding suggests that being exposed to good-looking talk increases anxiety levels in some women. Perhaps hearing that another woman is not only satisfied with her appearance, but also views herself as “skinny” brings attention to dissatisfaction with one’s own body and appearance, and results in the anxiety experienced along with that dissatisfaction.
An additional interesting (but nonsignificant) finding implied that women who heard good-looking talk and viewed the media images were more self-objectifying than those who heard fat talk and viewed the images. This result suggests that perhaps women who experienced good-looking talk and viewed media images objectified themselves more because of an awareness that another individual (i.e., the confederate) described herself as thin in addition to the thin media image models. Additionally, participants who heard fat talk and were exposed to media images self-objectified least. In this case, fat talk conceivably offered social support and was indeed beneficial for women as suggested by Gapinski et al. (2003). For example, if the participant was worrying about her own body, fat talk may have served to reassure her. This participant may have been contemplating thoughts such as; “It’s okay, she thinks that she looks fat too” or “I may not be as thin as these models, but maybe I’m not as bad off as she is.” In both situations, one possible explanation is that some women who overheard fat talk or good-looking talk by the nonvisible confederate peer assumed that the individual in question truly did possess the desirable or undesirable quality.

Surprisingly, although non-significant, participants who did not view media images were more body objectifying overall than those who viewed the media images. This finding goes against prior research and suggests that media does not have an effect on women’s self-objectification. Past research has examined the relationship between reading magazines (i.e., fashion magazines) and the development of cognitions consistent with body image disturbance and unhealthful attitudes about food (Thomsen et al., 2002). Levine, Piran, and Stoddard (as cited in Thomsen et al.) suggested that most researchers acknowledge their belief in the negative impact of the media on the minds of women, but making the connection between the media and body image has been more challenging. It is possible that in the present study, the participants in the no-media condition were occupied by looking into the mirror, or simply did not look at the media images in the media condition as the experimenter had hoped.

Although the present study did not confirm fat talk as a significant negative experience leading to objectification, the potentially dangerous impact of fat talk should not be underestimated. Specifically, fat talk perpetuates the overvalued ideal of thinness and disgust of fat, which may be particularly damaging those to susceptible to eating problems. Gapinski and colleagues (2003) noted that girls and women with eating disorders may take this type of discourse more literally than non-disordered eating individuals. For troubled women, fat talk may serve to legitimize pathological beliefs about shape and weight (Gapinski et al., 2003). Thus, research on body disparaging fat talk is important and should be continued to assess its impact in contrast to good-looking talk.

The present study was limited to a small, private, liberal arts college, which led to a small sample size that may be ungeneralizable. Some suggestions for future studies may include obtaining a larger, more representative sample. It also may be beneficial for a future sample to include the adolescent age, as this is the time period when many believe that body objectifying begins. Moreover, it may be interesting to include men in a study of fat and good-looking talk and body objectification to evaluate if there are similar pressures for male body perfection. Further research should also be conducted on good-looking and fat talk; possibly creating a ‘control talk’ group may be beneficial for understanding the effects of type of talk heard. Also, it is important to consider the effects of the mirror (present in all conditions, simply because of the design of the building) on the participants’ self-objectification and anxiety levels, as a mirror may force one to become more self-aware. Future research should include mirror presence as an additional independent variable.

What is the cost of objectification across the lifespan? Throughout their lives, women could be at increased risk for eating disorders and depression, in part, due to objectification (Fredrickson & Roberts, 1997). Thus, the challenge is to recognize the threat it poses to women and attempt to change it. It may be important for our culture to change the meanings assigned to the female body. Perhaps federal restrictions and warnings on advertisements should be explored as means to protect public health to help regulate the use of objectifying ads. Another important step is to educate girls and women to make them more fully aware of the range of adverse psychological effects that objectifying images and treatment can have on them. This awareness could strengthen girls and women to resist these negative effects, and help them to experience their bodies in a more positive way.

References


Several studies have found that many variables, such as sociocultural factors, body image disturbance, and poor interceptive awareness contribute to young women’s eating behavior (Brookings & Wilson, 1994; Cogan, Bhalla, Sefa-Dedeh, & Rothblum, 1996; Grisset & Norvell, 1992; Pike, 1995; Stice, Nemeroff, & Shaw, 1996; Tylla & Subich, 1996, 2004). The current societal standard of beauty is thinner than the average woman (Evans, 2003; Greenberg, Eastin, Horfschire, Lachlan, & Brownell, 2003; Lokken, Worthy, & Trautmann, 2004). Women who cannot achieve this ideal figure may experience a distorted body image and anxiety (Evans; Lokken et al.). Those women striving to change their body size to achieve this perfect body image may encounter various health disorders such as anorexia nervosa and/or bulimia nervosa. Each year, around five million Americans suffer from an eating disorder (Sullivan, Bulik, Fear, & Pickering, 1998).

Women who develop these eating disorders try different measures to achieve their ideal body size and, in this process, their body image may become distorted in their minds. This distortion encourages the onset of an eating disorder (Vohs, Bardone, Joiner, Abramson, & Heatherton, 1999; Williamson, Cubic, & Gleaves, 1993). Women with an eating disorder continue to consider their current body size to be larger than their ideal body size (Williamson et al.). In fact, body image disturbance is a criteria required for clinical diagnosis of anorexia nervosa and/or bulimia nervosa (American Psychiatric Association, 1994).

Women who do not have an eating disorder also may be at risk for body image distortions (Heatherton, 1993; Hsu, 1982; Zellner, Harner, & Adler, 1989). For example, women often base their self body image on what men think their body should look like, rather than on their actual body (Molloy & Herzberger, 1998; Patel & Gray, 2001). In addition, Evans (2003) found that women associate a thin body size with life successes. Even a small amount of weight gain can negatively affect a woman’s body image (Foster, Wadden, & Vogt, 1997). Weight loss treatment is associated with an increased rating of one’s appearance and body satisfaction (Foster et al.). Researchers have found that more than 80% of women report having one or more dieting behaviors daily (Mintz & Betz, 1988). Watching one’s weight is the norm for young adult women (Mintz & Betz).

* Faculty supervisor
More recent studies have demonstrated that race may also be a factor in body image perception (Barnett, Keel, & Conoscenti, 2001; Cogan et al., 1996; Molloy & Herzberger, 1998; Shaw, Ramirez, Trost, Randall, & Stice, 2004). Both African-American and Caucasian women are susceptible to developing an eating disorder; however, disordered eating tends to be more prevalent in Caucasians (Edwards-Hewitt & Gray, 1995; Lester & Petrie, 1998; Striegel-Moore & Smolak, 1996). African-American women are less likely to develop low self-esteem and/or inappropriate body images (Molloy & Herzberger, 1998; Patel & Gray, 2001). One reason may be that African-American men prefer larger women than do Caucasian men (Greenberg & LaPorte, 1996; Jackson & McGill, 1996; Rosenfeld, Stewart, Stinnett, & Jackson, 1999). African-American women are more accurate about estimating the body size preferred by African-American men, whereas Caucasian women assume that Caucasian men prefer thinner body types than they actually prefer (Patel & Gray, 2001).

The current study combined elements of previous research. Molloy and Herzberger (1998) examined whether self-esteem and body image differ across race. Mintz and Betz (1988) assessed the type and occurrence of eating disorder behavior among college women and explored the attitudes of women classified into different eating categories. The general purpose of our study was to examine body image and its relationship to eating behaviors among African-American and Caucasian women. We hypothesized that Caucasian women would have a lower body satisfaction and a higher degree of unhealthy eating behaviors than African-American women. We also expected that the higher the level of body satisfaction, the lower the degree of unhealthy eating behaviors.

**Method**

**Participants**

Participants were 75 Caucasian and 70 African-American undergraduate women enrolled in a southeastern public university. Three participants of other races were excluded from the study. The mean age was 20.66 (SD = 2.94). The participants were recruited from different classes at the university. Some students received extra credit for participating depending upon the professor. Sixty percent of participants were in a relationship and 40% were not. All participation was voluntary.

**Materials**

The Questionnaire for Eating Disorder Diagnoses (Mintz, O’Halloran, Mullholland, & Schneider, 1997) was administered. The Questionnaire consisted of questions related to the following topics: past and current weight, exercise, dieting, and attitudes or behaviors about eating or binging. The participant’s responses were obtained on 6-point Likert scale or by yes or no answers. The scoring manual for The Questionnaire for Eating Disorder Diagnoses (Mintz et al., 1997) used the participants’ height and weight to convert it to a Body Mass Index (BMI). After the BMI was determined, the participants were categorized into specific weight categories. After a weight category was determined, the participants were diagnosed into one of the following categories for either eating-disordered (Anorexia, Bulimia, Subthreshold Bulimia, Menstruating Anorexia, Binge Eating Disorder, Non-binging Bulimia) or non-eating disordered (Symptomatic or Asymptomatic behavior). These categories are based on diagnostic criteria from the DSM-IV. These diagnoses were originally found in the study conducted by Mintz et al., 1997). In addition, in a demographic questionnaire, participants were asked to rate themselves on a 3-point scale as an unhealthy eater, a healthy eater, or a very healthy eater.

Participants also completed the Body Esteem Scale (Franzoi & Shields, 1984). This tool was used to allow the participants to rate their body image. The Body Esteem Scale (BES) consisted of 35 items. The participants rated the items dealing with sexual attractiveness (termed sexual attractiveness body esteem), weight concern (termed weight concern body esteem), and physical condition (termed physical condition body esteem) on a 5-point scale according to how satisfied or dissatisfied they were with their bodies. The scale ranged from 1 = have very strong negative feelings to 5 = have very strong positive feelings. The higher the score, the higher the participant’s body esteem in that category. In other words, reporting higher weight concern body esteem would indicate that a woman feels better about her weight. The total body satisfaction/esteem score was obtained by adding the responses in each of the three categories (sexual attractiveness, weight concern, and physical condition). This test allowed us to determine each participant’s overall body image by assessing her satisfaction with her own body.

**Procedures**

Surveys were distributed in group settings. The participants completed the Questionnaire for Eating Diagnoses followed by the Body Esteem Scale. The demographic survey was given last to minimize any priming that may have resulted from the questions asked. No person-identifiable information was collected.
Results

Independent t tests revealed no significant differences between African-American and Caucasian women on age, height, weight, body mass index, body frame, or weight category. In contrast, African-Americans had higher scores (higher self-esteem) on the following body esteem scales: sexual attractiveness, \( t(143) = -4.96, p < .01 \); weight concern, \( t(143) = -5.84, p < .01 \); and physical condition, \( t(143) = -2.57, p < .05 \). African-Americans also reported a higher ideal weight than Caucasian women, \( t(137) = -2.25, p < .05 \). On the self-rating of eating habits, Caucasian women reported better eating habits than African-American women, \( t(143) = 2.01, p < .05 \). The means are depicted in Table 1.

The majority of women (71%) categorized themselves as having healthy eating habits (See Table 2). An ANOVA was used to compare women across the three eating habit categories (unhealthy, healthy, and very healthy). These groups did not significantly differ on age or height. There were significant differences on weight, \( F(2, 140) = 15.69, p < .01 \); BMI, \( F(2, 140) = 13.99, p < .01 \); and body frame, \( F(2, 142) = 7.38, p < .01 \). Post-hoc tests revealed that women in the unhealthy category weighed more, had higher BMI scores, and larger body frames than women in the other two categories. There was also a significant difference in ideal weight, \( F(2, 136) = 6.85, p < .01 \), with women in the unhealthy category reporting a higher ideal weight.

The three eating habit groups did not differ on sexual attractiveness body esteem; however, there were significant differences for body esteem about weight concern, \( F(2, 142) = 6.67, p < .01 \) and body esteem about their physical condition, \( F(2, 142) = 6.58, p < .01 \). Post-hoc tests revealed that women in the unhealthy category had lower body esteem about their weight and about their physical condition than women in the other two categories.

Although the majority of women rated themselves as having healthy eating habits, only 10.4% of participants were diagnosed as ‘asymptomatic normal’ based on the Eating Disorder Diagnoses Questionnaire. Eighty percent of women reported some symptoms of chronic dieting or disordered eating behaviors and 4.2% fit the criteria to be diagnosed with an eating disorder. More Caucasian women were categorized as having an eating disorder or engaging in chronic dieting than were African-American women. The frequencies are depicted in Table 3.

We further categorized women into 3 groups: Asymptomatic, Symptomatic, and Eating Disordered. The three groups did not differ on ideal weight or sexual attractiveness body esteem. However, they did differ on weight, \( F(2, 140) = 3.64, p < .05 \); weight concern body esteem, \( F(2, 141) = 3.56, p < .05 \); and physical condition body esteem, \( F(2, 141) = 9.82, p < .01 \). Post-hoc tests revealed that women with diagnosable eating disorders weighed more and had lower weight concern and physical condition body esteem.

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### Table 1

<table>
<thead>
<tr>
<th></th>
<th>Sexual Attractiveness</th>
<th>Weight Concern</th>
<th>Physical Condition</th>
<th>Ideal Weight</th>
<th>Eating Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td>53.06*</td>
<td>36.66*</td>
<td>32.99**</td>
<td>132.54**</td>
<td>1.66*</td>
</tr>
<tr>
<td></td>
<td>(8.04)</td>
<td>(9.40)</td>
<td>(6.90)</td>
<td>(18.22)</td>
<td>(.48)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>46.83</td>
<td>27.93</td>
<td>29.87</td>
<td>126.00</td>
<td>1.81*</td>
</tr>
<tr>
<td></td>
<td>(7.08)</td>
<td>(8.60)</td>
<td>(7.70)</td>
<td>(16.12)</td>
<td>(.46)</td>
</tr>
</tbody>
</table>

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

---

### Table 2

<table>
<thead>
<tr>
<th>Eating Habit Categories</th>
<th>Very Unhealthy</th>
<th>Healthy</th>
<th>Very Healthy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>40.0</td>
<td>103.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Percent</td>
<td>27.6</td>
<td>71.0</td>
<td>1.4</td>
</tr>
</tbody>
</table>
An independent $t$ test was used to compare women who were in a relationship with women who were not in a relationship. No significant differences were found between these categories of women on height, weight, BMI, age, body frame, ideal weight, eating habits, weight category, sexual attractiveness body esteem, and weight concern body esteem.

Several correlations were found between variables. Women who weighed more had a larger body frame, $r(107) = .63, p < .01$. Weight concern body esteem was negatively correlated with weight, $r(107) = -.43, p < .01$; meaning that the higher women’s body esteem relates to weight, the lower their actual weight. Similarly, physical condition was negatively correlated with weight, $r(107) = -.21, p < .05$; indicating that the higher a woman’s body esteem about her physical condition, the lower her weight.

We also found positive correlations between weight concern body esteem and sexual attractiveness body esteem, $r(109) = .63, p < .01$; physical condition body esteem and sexual attractiveness body esteem, $r(109) = .61, p < .01$; and weight concern body esteem and physical condition body esteem, $r(109) = .64, p < .01$. In other words, high body esteem in one category was related to high body esteem in all categories.

### Discussion

The results of the current study supported our hypothesis that African-American women would have a higher body satisfaction than Caucasian women. We found that African-Americans rated their sexual attractiveness, weight concern, and physical condition body esteem higher than Caucasian women, even though their physical structure (height, weight, etc.) did not differ. These findings match the results of previous studies (Molloy & Herzberger, 1998; Patel & Gray, 2001).

Our results also showed that African-American women had a higher ideal weight than Caucasian women. One possible explanation is that African-American women feel better about their bodies in general and thus, may be more accepting of themselves at a heavier weight. Another possibility is that this attitude may reflect the fact that African-American men tend to prefer heavier body types than do Caucasian men (Rosenfeld et al., 1999). Finally, this racial difference mirrors the media, which typically portrays African-American women at a heavier weight than Caucasian women (Gerbner, Gross, Morgan, & Signorelli, 1994).

### TABLE 3

<table>
<thead>
<tr>
<th>Frequency for Eating Behavior Diagnoses by Race</th>
<th>Overall Frequency</th>
<th>African-American Frequency</th>
<th>Caucasian Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic Severely Underweight</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Asymptomatic Low Weight</td>
<td>8</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Asymptomatic Normal</td>
<td>15</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Asymptomatic Overweight</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Asymptomatic Moderately Obese</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Symptomatic Subthreshold Non-Binging Bulimia</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Symptomatic Subthreshold Binge Eating Disorder</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Symptomatic Binge Dieter</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Symptomatic Subthreshold Behavioral Bulimia</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Symptomatic Chronic Dieter</td>
<td>13</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Symptomatic Other</td>
<td>83</td>
<td>54</td>
<td>29</td>
</tr>
<tr>
<td>Subthreshold Bulimia</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Bulimia Purging Type</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>NonBinging Bulimia</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Binge Eating Disorder</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
In addition to differences in body image, Caucasian women reported healthier eating habits than African-American women. Caucasian women had more insecurity and lower ideal weights, which might be a motivator to be more conscientious about their eating. In addition, there may be cultural differences in food intake. Granner, Sargent, and Calderon (2004) suggest that Caucasians have greater family encouragement for fruit and vegetable intake compared to African-Americans.

When examining the overall sample, we found that the majority of women exhibited symptoms of chronic dieting or eating disordered behavior. This finding is consistent with previous research which demonstrates high rates of dieting and eating disorders across college campuses (Klemchuk, Hutchinson, & Frank, 1990). Despite reporting these symptoms, most women categorized themselves as having healthy eating habits. This discrepancy raises the question of how young adult women define healthy eating. Women in the healthy and very healthy eating categories weighed less and reported lower ideal weights than women in the unhealthy eating category. It is possible that symptomatic eating allows these women to maintain lower weights, which is perceived as healthy by young adult women (Polivy & Herman, 1987). Another possibility is that when symptomatic eating is the norm among peers, that eating behavior is considered healthy.

A related issue might be the motivations behind the symptomatic eating behaviors. Putterman and Linden (2004) recently argued that chronic dieting for weight loss is more harmful than chronic dieting for health reasons. For example, heavy drinking in female college students is linked to chronic dieting, perhaps in an attempt to lose weight gained through alcohol consumption (Stewart, Angelopoulos, Baker, & Boland, 2000). In general, young women are more likely to diet in order to lose weight than are older women (Putterman & Linden).

Our second hypothesis was that the higher the level of body satisfaction, the lower the degree of unhealthy eating behaviors. This hypothesis was supported. Women who felt more positively about their weight and women who felt they were in good physical condition reported healthier eating habits. These results were similar to those of Mintz and Betz (1988) who found that higher body satisfaction related to lower rates of symptomatic eating behaviors. Women in our study had similar responses to women surveyed more than 15 years earlier, suggesting that these attitudes have been consistent over time.

We also found that women who weighed less had higher body esteem about their weight and higher physical condition body esteem. This finding suggests that women who weigh less feel better about themselves. These findings are consistent with previous research (Evans, 2003; Matz, Foster, Faith, & Wadden, 2002). In today’s society, thinness is a desired characteristic.

Previously, Molloy and Herzberger (1998) argued that women base their body image on what they believe men desire in women. In our study, women with a steady partner did not differ from women without a steady partner. This finding may suggest that other factors exert a stronger influence on young women’s eating behaviors. Alternatively, women may be basing their body image on men in general, rather than relying on a specific man’s opinion. If this were the case, then women would not need a partner to have an internalized image of a male preference.

Women who had overall high body esteem scores in one category (sexual attractiveness, weight concern, or physical condition) had high body esteem scores in all three categories. This implies that women tend to have global feelings about their body, rather than having unique attitudes about each category of body esteem. The only exceptions were found in women with diagnosable eating disorders and women in the unhealthy eating category. These women reported lower weight concern and physical attractiveness body esteem, but did not differ from other women on sexual attractiveness body esteem. This finding may indicate that sexual attractiveness is not linked to body size and deserves further investigation.

Future research also may want to address the relationship between body frame and eating behaviors. Our results indicated that women who have larger body frames weigh more and are more likely to report unhealthy eating patterns. We also found that women who were taller had unhealthy eating habits. It makes sense that women with a large body frame would weigh more. However, having a large body frame does not explain the reason behind unhealthy eating habits.

Counseling services at colleges and universities encounter significant numbers of women facing problems related to eating behaviors and weight-related issues (Kashubeck-West & Mintz, 2001). This study addresses a very timely issue, health disparities between black and white Americans in the United States. It addresses a topic area that will be of interest and use to counseling psychologists who focus on eating disorders in college populations. Because of the prevalence of eating disorders on college campuses, it is important for college students, professors, and others who come into contact with college women, to be educated about college women’s views of themselves and their weight. Early interventions of eating disorders are imperative for the present and future health.
of the woman with the disorder (Dixon-Works, Nenstiel, & Aliabadi, 2003). It is important to address this issue with women at a young age due to the fact that the highest incidence of disordered eating occurs in women during adolescence and young adulthood (Gandour, 1984). It is also imperative to counseling psychologists to realize this significance in a young female’s life while they are aiding her in the transition first from adolescence to young adulthood, and then from a young adult to an independent, autonomous adult. An increased understanding of a woman’s perspective of herself and her body image may enable counseling psychologists to guide her to make better choices for herself and her situation.

References


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Effects of Own and Partner’s Gender on Cooperation in the Prisoner’s Dilemma Game

The effect of a partner’s gender on the decision to be cooperative or noncooperative was assessed using a contemporary, real-world variant of the Prisoner’s Dilemma game. Forty male and forty female college students were asked to imagine that they were going on an oil expedition in which they could operatively choose to search together or uncooperatively choose to search alone. Each decision was made independently, but the outcome depended on both participants’ decisions. It was found that although women cooperated more than men, men and women cooperated significantly more when their partner was a woman. Furthermore, in response to a question about partner cooperativeness, women rated their partners as more cooperative during the game whereas men rated their partners as more competitive. However, all of the participants made more noncooperative decisions as the game went on.

Ever since kindergarten, we have been reminded of the importance of sharing. Though we may not be fighting over blocks or Barbies® anymore, every one of us encounters numerous situations in our lives that involve sharing and cooperating with another person. From fighting over the last cookie to keeping your mouth shut in a debate to avoiding a brawl over a sensitive issue, we all engage in or observe situations in which people can choose to cooperate or to compete with another person. However, one question one might ask is: Who will cooperate more, men or women? Furthermore, does the gender of the other person in the conflict affect each person’s level of cooperativeness?

One of the most common paradigms to evaluate cooperativeness and competitiveness is the Prisoner’s Dilemma game. This game involves at least two people making independent decisions that will produce an outcome for each person that depends on both his or her responses and that of the partner(s). Depending on the decisions made by each participant, the outcome will be either a maximum gain, moderate gain, or no gain at all (Rapoport, 1960). When using the Prisoner’s Dilemma game to examine gender and cooperativeness, results have been mixed regarding whether a difference exists in cooperative behavior exhibited by men and women. However, it has been shown that the level of cooperation men and women demonstrate is different in certain situations. For example, Hartman (1980) showed that when playing the classic Prisoner’s Dilemma game, men in same-sex pairs tended to be more cooperative than women in same-sex pairs in situations in which their partners made decisions in direct response to their own and when a simulated partner (with predetermined responses) played the game in a cooperative manner. On the other hand, women tended to be more competitive than men when their partners showed no consistency in their cooperative/competitive decision-making patterns. Results such as these are expected by certain researchers who hold the evolutionary theory and the social-role theory to be true. These theories suggest that men are more likely to act competitively in social dilemmas because of greed (or the temptation to take advantage of others’ cooperation) while women are more likely to act cooperatively.

* Faculty supervisor
GENDER AND COOPERATION □ Carter, Schneider, Byrun, Forest, Jochem, and Levin

because of fear (or the feeling that one’s cooperation may be exploited). Experimenters found that when allowing these effects to occur simultaneously in the Prisoner’s Dilemma, they cancel each other out leaving no difference in the levels of overall cooperation between men and women. When inducing either fear or greed in the participants, the outcomes of cooperation were consistent with the theories (Simpson, 2003). Other researchers (Smith, Verson & Tarte, 1975) have found that when initial preset trials with a confederate partner are cooperative, both men and women tend to be more cooperative through the rest of the trials in which confederates display random amounts of cooperativeness. In addition, when initial preset trials were meant to be competitive, it was found that participants were more cooperative when the partners were of the same sex.

Though the aforementioned studies suggest there is little or no difference in levels of cooperation between men and women, other studies have shown otherwise. For example, when examining cooperation using two puzzle completion exercises, Segal, Connelly, and Topoloski (1996) found that 8–11 year-old female-female pairs of children showed higher levels of cooperation than any other pair of children. Another study showed that when using a variation of the Prisoner’s Dilemma game imitating corporate managerial decisions, college students paired with simulated female partners responded more cooperatively than when paired with a simulated male partner (Ferguson & Schmitt, 1988).

In the current study, we set out to determine if the sex of a partner impacted cooperativeness. We compared how male-male groups, female-female groups, and female-male groups differed in cooperativeness. In order to do this, we manipulated whether a person was paired with a member of the same sex or opposite sex. Because the research done by Segal et al. (1996) and Ferguson and Schmitt (1988) suggested that more cooperativeness is expected when women are present in pairs, we hypothesized that men and women in female-present pairs would act in a more cooperative manner than men and women in male-present pairs. Furthermore, because multiple trials in the Prisoner’s Dilemma game permit participants to learn about and respond to their partner’s choices, we examined changes in male and female cooperativeness between the first and second half of the game. Finally, because women are socially expected to be more cooperative and male are socially expected to be more competitive, we hypothesized that overall women would rate themselves as more cooperative than men would rate themselves.

Method

Participants

Eighty students attending the University of Iowa volunteered to participate in the study, 40 male and 40 female participants. Experimenters recruited participants at the student union and main library where students were expected to have some leisure time. Experimenters approached potential participants by asking them to volunteer 5 to 10 min of their time to help out with a class project for Experimental Psychology. Persons who agreed to participate were then tested in pairs that were nonsystematically, yet consecutively, assigned at the time of recruitment. After recruiting was complete, 20 men and 20 women were tested in same-sex dyads and 20 men and 20 women were tested in opposite-sex dyads.

Material

A one-page scenario was created to explain the modified Prisoners’ Dilemma task as well as outline the possible choices and consequences. This scenario was original to the study and was designed to simulate real-world behaviors in the situation of resource scarcity. In this case, the scarce resource was oil and the task involved choosing to explore the oil cooperatively or noncooperatively. Index cards, labeled “T” for search together and “A” for search alone, were given to each participant to use in the decision-making task to indicate his or her choice. (See appendix for scenario given to participants.) Experimenters recorded the outcomes of each trial on a dry-erase board. Eight trials were split into two blocks (four trials per block) in order to examine whether there had been a change in cooperativeness over time. The experimenters decided that four trials would accurately depict a participant’s level of cooperativeness. No more than eight total trials were run due to limited time. After the trials were finished, participants were asked to fill out a 10-question survey that was used to determine the demographics of the participants, how cooperative the participants were in general, how the participants perceived their partner’s cooperativeness, and how much the recent increase in gas prices had affected them.

Procedure

For this between-subjects, multivariate design, participants were placed into dyads in which their partner was either the same sex or the opposite sex. Because we looked at the effect one’s partner had on his or her decision of cooperativeness, pairing according to participant gender became our primary independent variable. After each participant was paired
up, both participants were instructed by the experimenter to read the scenario. Because there were six different experimenters, a script was used to ensure that every pair of participants was instructed in the same manner. Participants were asked to imagine that they were going on eight oil expeditions with their partner. They were informed that they could earn up to 100 barrels of oil in each expedition, but the number of barrels of oil each participant received depended on each participant’s independent decision to search for the oil together or alone. The participants were asked to make their decisions silently and secretly for each trial.

The dependent variable in this study was the degree of cooperation. By using a variation of the Prisoner’s Dilemma game, the experimenters were able to operationally define cooperation as choosing to search for oil with one’s partner (Card T). Therefore, in choosing to search together, the person is said to be cooperative, and in choosing to search alone, the person is said to be noncooperative. By choosing to cooperate, one of two outcomes could occur depending on the participant’s partner’s decision. In one situation, the participant’s partner could also choose to cooperate (search together), leaving both the participant and his or her partner with 50 barrels of oil. In the other situation, the participant’s partner could choose to not cooperate (search alone), leaving the participant with no barrels of oil and the partner with 100 barrels of oil. However, if the participant chooses to be noncooperative while his or her partner chooses to be cooperative, the participant will end up with 100 barrels of oil, leaving the partner with none. If both participants choose to be noncooperative, neither of them will receive any barrels of oil. All of these possible outcomes were presented to the participants before they made any decisions during the game.

After having read the scenario, participants were asked if they understood everything and were reminded to make their decisions secretly by placing either Card A or Card T face down on the table in front of them. Once both participants had made their decisions, they were to pick up the cards and show the experimenter (and their partner) what they had chosen. The experimenter proceeded to record the number of oil barrels each participant would receive on the dry-erase board so that each participant was aware of how well he or she was doing compared to his or her partner. The decision-making process was repeated for a total of eight trials. As an incentive, the participants were awarded two Tootsie Rolls each (small prizes) if they tied in the final number of oil barrels received, or if one participant ended up with more oil barrels in the end, he or she received jumbo-sized Jolly Rancher candy item (big prize). After the prizes were distributed, each participant filled out a questionnaire scaled low to high from 1–10 that included questions about self-rated generosity during the game, perceived partner generosity during the game, and how cooperative the participant feels he or she is in everyday life.

At the completion of data collection, total levels of cooperation were calculated for each participant by separately adding the number of cooperative choices (Card T) in the first and second half of the eight trials. Each cooperative choice counted as one point whereas each noncooperative choice counted as zero points. We wanted to examine the level of cooperativeness for each half of the eight trials in order to see if there was a different trend in how men and women made their decisions during the beginning of the game compared to how they made their decisions at the end of the game.

**Results**

The mean number of cooperative responses was analyzed with a 2 (sex of participant) X 2 (sex of partner) X 2 (first versus second trial block) analysis of variance, with the first two factors between-subjects and the third factor within-subjects. The cooperativeness scores could range from 0 to 4 in each trial block. Mean cooperative scores were calculated for each condition (M-M, N-F, F-M, F-F) on each trial block. Recall that a condition reflects only the cooperative choices of one participant, not his or her partner; so M-F indicates a male playing against a female, and F-M indicates a female playing against a male. Women working with women were the most cooperative in both trial blocks, and all four conditions were more coopera-

<p>| TABLE 1 |
| Mean Number of Cooperative Responses for Trial Blocks 1 and 2. |</p>
<table>
<thead>
<tr>
<th>Sex of Partner</th>
<th>Sex of Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>Trial Block 1</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2.45 (1.28)</td>
</tr>
<tr>
<td>Female</td>
<td>2.86 (1.01)</td>
</tr>
<tr>
<td>Trial Block 2</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2.05 (1.40)</td>
</tr>
<tr>
<td>Female</td>
<td>2.19 (.98)</td>
</tr>
</tbody>
</table>

Note. The mean number of cooperative responses ranges low to high from 0-4 (N = 80). Standard Deviations in parentheses.
tive on the first trial block than on the second (see Table 1).

The within-subjects test results showed that a significant trials main effect of fewer cooperative responses on the second trial block than on the first generalized across both the sex of the participant and the sex of the partner. In other words, there was a significant difference in cooperativeness from the first to the second trial block, \( F(1, 77) = 12.10, p < .01 \), but no interactions with trial block; in fact, the difference showed the participants in all combinations to be less cooperative in the second trial block than in the first. The between-subjects analysis of sex of participant approached significance, indicating a trend toward greater overall cooperativeness for women, \( F(1, 77) = 3.58, p = .06 \). In addition, both men and women, when partnered with a female, made more cooperative decisions, \( F(1, 77) = 4.60, p = .04 \). The lack of interaction between sex of respondent and sex of partner indicates that the influence of partner gender was independent of participant gender. These results are shown graphically in Figure 1.

The survey data were analyzed using an independent groups \( t \) test for mean self-generosity. Men and women rated their own generosity in the game on a scale of 1 to 10. The mean score for men was 6.00 (SD = 2.58), and the mean scores for women was 7.00 (SD = 2.42). This difference was statistically significant, \( t(79) = -1.80, p = .03 \). Likewise, a \( t \) test showed significant results for the rating of one’s partner’s generosity, \( t(79) = -2.26, p = .03 \). The mean score for men was 5.98 (SD = 2.45) and for women was 7.15 (SD = 2.21). Not only did women rate themselves as more generous, but they also rated their partners as more generous than did men.

Discussion

As indicated from the analysis of the cooperative response data in the two trial blocks, the gender of both participant and participant’s partner in a Prisoners’ Dilemma game affected cooperation. Women tended to be more cooperative than men, and both genders were more cooperative in the presence of women. The initial effect of gender is consistent with earlier findings and may be related to social values; women are taught to be cooperative, whereas men are taught to be competitive. The analyses comparing the trial blocks demonstrated that everyone, regardless of sex, was less generous as the game progressed. Participants adapted their choices to reflect the earlier choices of their partners (as shown in women’s diminished adherence to gender stereotypes in the second trial block). Therefore, the interaction between players is important to the decisions made.

The main finding of this study was that gender of one’s partner affected the number of cooperative choices across trial blocks. Both genders were more cooperative with women, perhaps in response to expectations of women’s cooperation. Social values of fairness and equality may help explain this finding; because women are often perceived as more selfless and caring for others (Eagly & Steffen, 1984), their partners reciprocated the generosity to be fair or equal. These data from the survey also indicated that social values influenced the game and participants’ perceptions of it. Women rated themselves as more generous and their partners as more generous in the game than did men. Thus, interactions involving a woman were perceived as more cooperative. Results show that games with women were actually more cooperative than those with men, so participants’ perceptions as indicated in the surveys corresponded to the decision data.

Extending beyond the experimental setting, the findings of this study imply that gender of partners in potentially competitive situations may influence the amount of cooperation. Women are playing increasingly important roles in fields that were once male-dominated such as the military and business, so the cooperation of mixed gender teams is a relevant issue to many domains in today’s society. Understanding how these teams cooperate can help build team solidarity and improve performance. This study indicates that when deciding how to allocate scarce resources, fairness and equality are more likely to result when a woman is involved in the decision task. A potential limitation of the study, however, is that different results
might have been observed for different scenarios. The oil search task, while relevant to the contemporary issue of increasing gas prices, might not generalize to situations with different incentives for cooperation and competition. For example, participants might have behaved differently if they were rewarded with money.

Future research should be conducted to determine why these effects occur. Researchers might establish an operational definition of fairness and assess the influence of gender on fairness in a Prisoners’ Dilemma game. More survey questions could be used to determine how participants perceive the situation and what they value in the game. Furthermore, because joint decisions often involve persons who have previously worked together, future research should study the effects of knowing one’s partner before playing the game. Because this study found that experience and interaction affected the amount of cooperation in a Prisoners’ Dilemma, it is likely that interaction prior to the game will be a significant factor in determining the outcomes of the game.

References


**APPENDIX**

Welcome to Oil Expedition 2005! Due to the recent increase in gas prices, you and your partner have decided to go on an oil expedition. The area that you will search has 100 barrels of oil available. You can choose to search this area on your own or search with your partners. IF you both choose to search together, you will be guaranteed to find the oil, and each of you will receive 50 barrels of oil. If one of your chooses to search the area alone while the other chooses to search the area together, the personal searching alone finds the oil first and is able to extract all of it on his or her own, leaving with all 100 barrels of oil. However, if both of you choose to search for the oil alone, neither will have the resources to extract the oil, and neither of you will get any oil. You will be going on this expedition 8 times, and you will be able to choose whether you search for the oil alone or together before each expedition. You will not be able to talk to your partner about your decision.

During the expedition, you will be given two index cards, one labeled “T” and one labeled “A”. IF you would like to search together, place Card T face down in front of you without letting your partner see your choice. IF you would like to search alone, place Card A face down in front of you without letting your partner see your choice. Once both you and your partner have made your decisions, the experimenter will ask you to turn over your cards and will tell you how many barrels of oil you will receive. The expeditions will occur one at a time. You will find out how many barrels of oil you will receive. The expeditions will occur one at a time. You will find out how many barrels of oil you will receive after each expedition. Remember to make your decisions privately and to have fun on your oil expedition! Good Luck!

<table>
<thead>
<tr>
<th>Your Choice</th>
<th>Your Partner’s Choice</th>
<th>Barrels You Receive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card T</td>
<td>Card A</td>
<td>0</td>
</tr>
<tr>
<td>Card A</td>
<td>Card A</td>
<td>0</td>
</tr>
<tr>
<td>Card T</td>
<td>Card T</td>
<td>50</td>
</tr>
<tr>
<td>Card A</td>
<td>Card T</td>
<td>100</td>
</tr>
</tbody>
</table>

After the game is finished, prizes will be distributed based on the number of oil barrels obtained.
As the decades progress, so do our ideas about work and family. Whereas in the mid-20th century a typical middle-class American family consisted of a bread-winner husband, a stay-at-home wife, and 2.5 children, the roles and expectations in American families today have changed. More and more women are going to work, both part-time and full-time. Nearly sixty percent of women over the age of 16 were employed in 2004, and in the same year women comprised forty-six percent of the labor force (United States Department of Labor, Women’s Bureau, 2005). These changes in the work force have accordingly led to changes in the home. Women no longer have the same amount of time to dedicate to childcare and household tasks as they did in the past, yet these responsibilities cannot be shirked. Thus, employed married women are either expected to maintain the same level of involvement in the home as married women who do not work, or to have a lower level of home involvement regardless of the husband’s effort.

Either way, incongruencies in the demands of home and work are bound to arise for both women and men, leading them to experience work-family conflict (WFC) and family-work conflict (FWC). Work-family conflict can be defined as the extent to which pressures within a person’s work role interfere with responsibilities from their family role (e.g., not having time to do yard work because of a work deadline that requires extra hours; Grant-Vallone & Donaldson, 2001). In contrast, family-work conflict is experienced within the work domain and can be defined as the extent to which pressures within a person’s family role interfere with obligations from their work role (e.g., missing work in order to take care of a sick child). Because WFC has been shown to negatively impact a person’s overall well-being (Grant-Vallone & Donaldson), researchers should continue to gather information about which factors contribute to work and family interference and who these conflicts burden most frequently.

The Role of Stress

Previous studies have shown that WFC is negatively related to overall well-being (Grant-Vallone & Donaldson, 2001) and positively related to psychological distress (Noo, 2002). It is not a far stretch then, to hypothesize that WFC also is associated with high levels of stress. In fact, Fox and Dwyer (1999)
found that three workplace stressors (workload, work variability, and frequency of stressful events) were significantly associated with WFC in their study. These authors also reported that three family stressors (marital tension, no spouse help, and lack of child care) were significantly related to FWC.

While these findings are important, generalizing Fox and Dwyer’s (1999) results can be difficult because of their unique sample of female nurses. Also, even though they found the occurrence of certain stressors to be positively correlated with WFC and FWC, they did not measure their participants’ perceived levels of stress. In their conceptualization, Cohen, Kessler, and Underwood (1995) define stress as the response arising when the requirements of a situation exceed subjective appraisals of one’s ability to cope. Using this definition as a guide, the authors of this study believe it is important to focus on individuals’ perceptions of their own stress rather than the number of stressors present. Therefore, it would be beneficial to examine whether individuals’ reports of stress are related to their reports of WFC and FWC.

Parenthood

Parenthood is another factor which has been linked to WFC. Recently, Winslow (2005) found that employed individuals with children under the age of eighteen experienced more WFC than did employed nonparents, regardless of the employee’s gender. However, Winslow’s definition of WFC included both work interfering with family, as well as family interfering with work, and did not differentiate between the two as the majority of current studies do. In another study, Grant-Vallone and Donaldson (2001) did not find a significant difference in levels of WFC between single nonparents and married parents; however, they did report that parents with young children agreed more emphatically than did other participants that they experienced high levels of WFC. In a study of dependent care responsibilities and work attitudes of federal employees, Buffardi, Smith, O’Brien, and Erdwins (1999) found that being the parent of a preschool or school-aged child was related to lower satisfaction with work-family balance in dual-income participants. Going a step further, Bedeian, Beverly, and Moffett (1988) proposed that parental demands indirectly affected life satisfaction through WFC.

Gender Differences

The work and family conflict literature focuses much attention to gender differences. In a study of Israeli workers, Cinamon and Rich (2002) found that women experience higher levels of both WFC and FWC than men, and that the occurrence of WFC is more frequent for women. Duxbury and Higgins (1991) reported similar findings in their research on American dual-income couples. These authors theorized that one reason WFC occurs less frequently in men is because they often have less home responsibilities than do women. They also proposed that WFC in women with high work involvement is influenced by anxiety and guilt surrounding their ability to perform traditional family roles. In contrast with these findings, Winslow (2005) reported no gender differences in the amount of WFC experienced by employees in her sample for either the year 1977 or 1997. However, it should again be emphasized that Winslow did not differentiate between WFC and FWC in this study, which could account for her differing results. Also, not all of her participants were in dual-income families, which could have an effect on the degree of WFC and FWC experienced.

Although gender roles have begun to change, researchers still report that women spend more time engaged in home activities such as housework and childcare than men (Parasuraman & Simmers, 2001). And even when women’s increasing work hours give them less time at home, men do not necessarily increase their share of household responsibilities (Almeida, Maggs, & Galambos, 1998). It seems then that women maintain more home responsibilities than their husbands, despite being employed outside the home. This imbalance in family obligations could cause women to experience more conflict between work and family than men.

In summary, interest in the study of work and family conflict in dual-income couples has increased throughout recent decades, but there is still a need for research in many specific areas of this topic. Specifically, the differences between work interfering with family and family interfering with work should be addressed, as the relationship is not necessarily bidirectional. Also, because the actual number of stressors present in either work or family settings may differ from individuals’ perceptions of their own stress, participant self-reports of stress should be used in the analysis of the effects of stress on WFC and FWC. Finally, since conclusions regarding the amount of WFC and FWC experienced by men versus the amount experienced by women have thus far been contradictory, more research should be conducted on this topic in an effort to bring resolution to this discussion.

Keeping these research needs in mind, the authors of the current study have three main goals: to determine the relationship between the perceived stress of individuals in dual-income couples and their reports of WFC and FWC; to explore the effect of parenthood on the levels of stress, WFC, and FWC experienced by
individuals in dual-income couples; and to examine gender differences with these variables.

The first hypothesis is that individuals in dual-income couples with high levels of WFC will report higher levels of stress than individuals in dual-income couples with lower levels of WFC. This same pattern of findings is expected when reports of FWC and stress are analyzed.

Also, the authors of the current study make several hypotheses regarding parenthood: First, individuals in dual-income couples with young children (ages 9 and under) will have higher levels of WFC and FWC than nonparents and individuals with older children (ages 10 and older). In addition, individuals in dual-income couples with young children will report higher levels of stress than nonparents and individuals with older children.

Finally, with regards to the debate over gender differences in work and family conflict, the authors of the current study propose that dual-income women will have higher levels of WFC and FWC. It is also hypothesized that women will have greater stress than men in dual-income couples.

The authors would like to address the use of the term dual-income in this study. Throughout the literature, several terms are used to refer to working couples including dual-earner, dual-income, and dual-career; however, these terms are not clearly defined and are sometimes used interchangeably. Some researchers have attempted to define these terms (Hiller and Dyehouse, 1987), but there is not yet a consensus as to how they should be operationalized. For the purpose of this study, the authors chose to describe the participants as dual-income because it is a more inclusive term than dual-career and does not exclude individuals or couples who consider their employment to be a job rather than a career.

Method

Participants

Participants included 173 heterosexual dual-income couples who were married at the time of data collection. The majority of the sample was White (85.0%), followed by 11.0% Black, 1.4% Hispanic, and 2.7% who identified themselves as other. Women ranged from 21 to 65 years of age, with a mean of 44 years. Men were between the ages of 21 and 74, with a mean of 46 years. The average length of marriage for couples was 17 years. Most couples had children (71.9%), but fewer than half of all couples had children living at home (49.3%). Men spent slightly more hours at work (45) on average than did women (39). The sample was highly educated, with 36% of women and 32% of men receiving a bachelor’s degree, and 38% of women and 40% of men receiving a masters degree or higher. The vast majority of participants were employed in white collar occupations (90.8% of women and 89.4% of men). Couples’ combined incomes ranged from $20,000 to over $150,000, with an average between $90,000 and $99,000 per year.

Materials

Demographics. Each spouse in the dual-income couples completed a separate questionnaire. All participants were asked to report demographic information including age, race, education level, hours worked per week, and number and age of all children, specifically children living at home. Questionnaires were identical for each spouse and included 24 items assessing three variables: stress, work-family conflict, and family-work conflict.

Stress. The 14-item Perceived Stress Scale (PSS) developed by Cohen, Kamarck, and Mermelstein (1983) was used to measure stress. An example item includes, "In the last month, how often have you been upset because of something that happened unexpectedly?" Items were rated on a Likert scale from 1 to 5, never to very often, with higher scores indicating greater perceived stress. For the three samples used by Cohen et al., coefficient alphas for the PSS ranged from .84 to .86. An alpha coefficient of .86 was found by the authors of the current study. Cohen et al. compared the PSS to the Center for Epidemiologic Studies Depressive Scale (CES-D; Radloff, 1977), which measures depressive symptomatology and found that the PSS measured a different and independent predictive construct.

Work-family conflict and family-work conflict. The five-item Work-family Conflict Scale and five-item Family-work Conflict Scale developed by Netemeyer, Boles, and McMurrian (1996) were used. An example item from the Work-family Conflict Scale includes "The demands of my work interfere with my home and family life," and an example item from the Family-work Conflict Scale includes "Things I want to do at work don’t get done because of the demands of my family or partner." Responses were rated on a Likert scale ranging from 1 to 5 (strongly disagree to strongly agree) with higher scores indicating greater WFC or FWC. Netemeyer et al. reported alpha coefficients of .88 to .89 for the Work-family Conflict Scale and .83 to .89 for the Family-work Conflict Scale. The authors of the current study found alpha coefficients of .90 and .82 for the Work-family Conflict Scale and Family-work Conflict Scale, respectively. Negative correlations between WFC and FWC and organizational commitment and job satisfaction were provided by Netemeyer et al. as evidence for the construct validity of
their scales. They also found positive correlations with job tension, role conflict, role ambiguity, intention-to-leave an organization, and search-for-another-job.

Procedure
The current research was part of a larger study of work and family conflict. Researchers personally approached 812 dual-income and single-income couples to complete the questionnaire using the snowball sampling technique; however, only dual-income couples were included in this study. Couples were from 18 states, with 88% of couples living in southern states. Identical paper-based questionnaires and online surveys were used. Participants were instructed to complete the survey independently and were discouraged from discussing their answers with their spouses. Responses were anonymous, and individuals were matched to their spouses based on a mutually agreed upon code word, and if this method failed, by their wedding date. Of the 812 couples who were approached, 283 matching pairs of questionnaires were returned by mail or completed online. An additional 144 surveys received were unable to be matched, yielding a response rate of 33% for individual surveys. Of the total number of dual-income and single-income couples who responded to this survey, 173 dual-income couples were included in this study.

Results
It was expected that individuals in dual-income couples with high levels of WFC would report higher levels of stress than individuals in dual-income couples with lower levels of WFC. Additionally, the same pattern of results was expected in relation to FWC and stress. To test these hypotheses, groups were divided upon code word, and if this method failed, by their wedding date. Of the 812 couples who were approached, 283 matching pairs of questionnaires were returned by mail or completed online. An additional 144 surveys received were unable to be matched, yielding a response rate of 33% for individual surveys. Of the total number of dual-income and single-income couples who responded to this survey, 173 dual-income couples were included in this study.

Discussion
This study yielded several important findings. Dual-income couples with high levels of WFC and FWC reported higher levels of stress than individuals in dual-income couples with lower levels of WFC and FWC, respectively. No gender differences were found in the degree of WFC or FWC experienced, but women reported higher levels of stress than men. Individuals in dual-income couples with young children reported more WFC and FWC than nonparents and individuals with older children; however, there were no significant differences in reports of stress between these groups.

The first finding, that individuals reporting higher levels of WFC and FWC reported higher levels of stress than did individuals reporting lower levels of WFC and FWC, is supported by the past literature. Fox and Dwyer (1999) found that several workplace stressors were associated with WFC and several family stressors related to FWC.

The work and family conflict literature has had mixed reports of gender differences in WFC and FWC. Many studies (e.g., Cinnamon & Rich, 2002; Duxbury...
& Higgins, 1991) have found that women experience higher levels of both WFC and FWC than men, but other research (e.g., Winslow, 2005) did not show gender differences in work and family conflict, and still others (e.g., McElwain, Korabik, & Rosin, 2005) reported that women had higher levels of FWC, but found no gender differences in WFC. Although contrary to the authors’ hypotheses, the results of the current study support Winslow’s findings of no differences between men and women’s reports of WFC and FWC. It is difficult to determine whether there are in fact no gender differences on these variables, or whether the lack of gender differences in this study is due to characteristics of the sample such as type of employment or hours worked per week.

Past literature supports the finding in this study that parents of young children experienced higher levels of WFC and FWC than nonparents and parents of older children (Grant-Vallone & Donaldson, 2002; Winslow, 2005). Although WFC and FWC are related to stress, and being the parent of a young child is related to work and family conflict, this study did not find the presence of young children in the home to be significantly related to stress. This could be because individuals in dual-income families feel so much stress in their lives that the presence or absence of young children is not enough to make a large impact on the degree of stress they experience.

Several limitations of this study should be taken into consideration when reviewing the results, mainly in regards to the sample. Firstly, despite the researchers’ best efforts at recruiting a diverse sample, the majority of the participants were White. Also, the sample had a higher median income than the actual U.S. population, making generalization of the results to dual-income couples with a lower socio-economic status questionable. In addition, the majority of participants in this study were highly educated, and may not be representative of the population; however, the number of high school graduates enrolling in colleges and universities is on the rise (United States Department of Labor, Bureau of Labor and Statistics, 2005), so more and more of the population is receiving higher education. Finally, even though participants were instructed not to discuss the questionnaires with their spouses, there was no way for the researchers to ensure participants followed this procedure. It is possible that participants who did communicate with their spouse about the questionnaire responded differently than they would have had the questionnaire not been discussed.

Despite these mentioned limitations, this study has many strengths. Previous work and family conflict research has not always differentiated between WFC and FWC (Winslow, 2005). The authors of the present study felt that the distinction between the two was important, and so examined them separately. Also, this study evaluated participants’ perceived levels of stress rather than the number of environmental stressors present, since people’s perceptions are germane to their feelings. In addition, this study contributed to the growing debate over gender differences in the work and family conflict literature. Finally, the impact of children on work and family conflict was addressed, a topic which has been thus far understudied.

This study has several important implications. First, levels of WFC and FWC are lower for parents of older children than for parents of younger children; therefore, as individuals’ children grow up, they can expect their overall experience of work and family conflict to subside somewhat. It is important for parents of young children to know that they can look forward to lower levels of work and family conflict in the future.

Also, since this study revealed that high levels of WFC and FWC lead to high levels of stress, it would follow that reducing the levels of WFC and FWC would result in less stress. Reducing work and family conflict would be especially beneficial for women, since they experience higher levels of stress than do men.

Several research questions arise in light of the current study’s findings that should be addressed by future work and family conflict studies. Since both WFC and FWC lead to stress, the factors causing WFC and FWC should be determined. Once these factors are identified, it would then be important for researchers to suggest ways in which they could be lessened or eliminated, so that people are presented with tangible ways to reduce the work and family conflict in their lives.

Children of all ages, but especially young children living in the home, contribute to the degree of WFC and FWC experienced. It would be worthwhile for researchers to examine whether the utilization of childcare reduces the amount of FWC parents experience. Also, it would be interesting to determine whether the number of children living in the home impacts WFC and FWC.

The discussion on gender differences in the work and family conflict literature has been thus far inconclusive, probably as a result of the variety of samples used. Therefore, it would be beneficial for researchers to conduct a meta-analysis to determine whether gender differences in the degree of WFC and FWC experienced actually exist.
References


Gambling has been a form of entertainment for years and comes in a variety of forms. One form of gambling that has become a norm in many societies is the lottery. Research has suggested that a lottery player is more likely to misperceive the randomness than people who do not play the lottery (Rogers & Webley, 2001). Lottery players are aware of the odds of success, but they have a tendency to ignore them (Rogers & Webley). They are also prey to gambler’s fallacy, which is the tendency to believe that the successful completion of a prior event will positively affect the next event; thus, leading an inaccurate statistical interpretation (Riniolo & Schmidt, 1999; Rogers & Webley).

Another aspect that affects a person’s interpretation of a gambling situation is their belief in good luck. It has been demonstrated that people who considered themselves lucky were more confident of their success as opposed to the people who were classified as not lucky; however, there was no difference when actual play was investigated (Watt & Nagtegaal, 2000). Consequently, a person’s belief in good luck may not be as significant in games that involve rational strategies.

Blackjack, a game that involves rational strategies, has various methods that enhance a player’s probability of winning. For example, the strategy known as Basic requires the integration of the player’s and dealer’s totals in order to determine if one should hit or stand (Chau, Phillips, & Von Baggo, 2000). Even though this strategy offered a more realistic chance of winning, blackjack players had a tendency of returning to a personalized strategy (Chau, Phillips, & Von Baggo). Players also had a tendency to follow a general decision-making process that did not fully utilize long-term probabilities. These processes involved the use of past events and short-term odds to dictate how much a player would bet. A blackjack player would increase the size of a bet if they won the previous hand and decrease the size of a bet after losing a hand (Chau & Phillips).

The previous section has highlighted empirical providing an investigation of strategies used in games ranging from the lottery to blackjack. While No Limit Texas Hold’em has gained in popularity in the past couple of decades, empirical studies investigating successful strategies have been lacking. In order to understand the strategies, one needs to understand

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**Skill or Luck:**

The Statistical Interpretation of “No Limit Texas Hold’em” Players

The present study investigated differences in statistical knowledge. Thirty male “No Limit Texas Hold’em” players were asked if they viewed this game as one of skill or luck. Participants read 10 mock situations in which they had to choose the percentage that best resembled their chance of beating their opponent. The results showed that the players who classified “No Limit Texas Hold’em” as a game of skill correctly interpreted more statistical questions, and the participants who classified it as luck were more likely to incorrectly view their hand as winning 50% of the time. Consistent with predictions, the skill players exhibited more statistical knowledge and the luck players were more likely to view the situations as a coin flip.

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the structure of the game, which is explained in further detail in the following section.

In No Limit Texas Hold’em, the second person from the dealer’s left must post a big blind, which is the minimum bet, before the cards are dealt. The person to the immediate left of the dealer posts a small blind that is half of the minimum bet. Thus, if the minimum bet is $50, then the small blind equals $25 and the big blind equals $50. The dealer and blinds rotate clockwise around the table. After the blinds are posted, two cards are dealt facedown to each player; these are considered pocket cards. After a round of betting, the dealer discards the top card and displays the next three cards face up on the table; this is known as the flop. The flop is followed by another round of betting. The next two steps, the turn and river, are identical. The top card of the deck is discarded and the next card is placed face up on the table. Another round of betting follows. The five cards on the table are used in conjunction with a player’s pocket cards to make the best five-card hand possible. In all there are a total of four rounds of betting, any of which a player can opt to bet all of their chips. Because a player has the ability to move all-in, multiple strategies can be used.

The purpose of this study was to investigate the differences between No Limit Texas Hold’em players—those who think it is a game of skill and those who think it is luck. It was hypothesized that a player who classified No Limit Texas Hold’em as a game of skill would correctly answer more statistical questions than those who classified it as luck. Furthermore, the “luck” players were expected to incorrectly choose 50% as their chances of winning more often than the “skill” players.

Method

Participants

Thirty male volunteers were asked to participate in a survey before they played in a No Limit Texas Hold’em tournament. The age of the participants ranged from 21 to 55 with the average age being 31.9. Eleven of the thirty participants were United States Postal Service (USPS) employees.

Materials and Procedure

A statistical survey regarding No Limit Texas Hold’em was constructed and consisted of fourteen questions. The first ten questions consisted of mock situations in which the participant had to state the probability that their hand would beat an opponent (see Figure 1). All ten of the mock situations gave a pre-flop, heads up scenario, meaning that the participants were exposed to four cards in every question (e.g., their hold cards and their opponent’s hold cards). The statistics for the mock hands were obtained from Card Player (2006) and cross checked with the World Poker Tour Enterprises, Inc.’s (2006) statistics. The participants were asked to pick the percentage that best resembled their chance of winning the hand before the flop. Four options were provided; one option was at or near 50% (chance), while the other options ranged as low as 20%–43% and as high as 57%–70%. The correct answers for 2 of the 10 scenarios were close to 50%; 43% and 57%.

The participants were then asked three demographic questions: gender, age, and if they were a USPS employee. It was known in advance that the facilities of interest had a high turnout of USPS employees, so that question was added. The final question asked participants to gauge whether luck or skill was more influential when playing No Limit Texas Hold’em. The answer to the final question determined each participant’s group classification. The participants signed an informed consent form before completing the questionnaire, which took approximately 10 min. The participants were then debriefed once the questionnaire was collected.

In an attempt to control nuisance variables, the participants were recruited from facilities hosting No Limit Texas Hold’em tournaments, all materials were

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**FIGURE 1**

Two mock situations.

<table>
<thead>
<tr>
<th>Mock Situation 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your Hand</td>
</tr>
<tr>
<td>Opponent’s Hand</td>
</tr>
<tr>
<td>What are your chances of winning before the flop?</td>
</tr>
<tr>
<td>a) 30%</td>
</tr>
<tr>
<td>b) 40%</td>
</tr>
<tr>
<td>c) 50%</td>
</tr>
<tr>
<td>d) 70%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mock Situation 2:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your Hand</td>
</tr>
<tr>
<td>Opponent’s Hand</td>
</tr>
<tr>
<td>What are your chances of winning before the flop?</td>
</tr>
<tr>
<td>a) 40%</td>
</tr>
<tr>
<td>b) 50%</td>
</tr>
<tr>
<td>c) 60%</td>
</tr>
<tr>
<td>d) 70%</td>
</tr>
</tbody>
</table>

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administered and collected before the tournament, and all participants surveyed were men. Recruiting participants from a facility hosting a *No Limit Texas Hold’em* tournament reduced the chance of surveying nonplayers. All materials were administered and collected before the tournament rather than after the tournament for a couple of reasons. First, players may be emotional after elimination from a tournament thus biasing the results. Also, the order in which a person is eliminated could be a reflection of his knowledge base and view of *No Limit Texas Hold’em*. In an attempt to control gender differences only men were surveyed because the facilities visited had more male players.

**Results**

An independent *t* test was conducted on the type of player (skill or luck) in terms of the number of statistical questions correctly answered out of 10 and the number of times the wrong answer chosen was 50%. In both instances, homogeneity of variance was assumed. There were fifteen participants in each group (skill and luck). There was a significant difference between the type of player and how many questions they correctly answered, *t*(28) = 3.86, *p* < .01, two-tailed. An inspection of the means in Figure 2 shows that the participants who classified themselves as skill players (*M* = 6.73, *SD* = 1.83) had a higher number correct than the luck players (*M* = 4.27, *SD* = 1.67) with regards to correctly interpreting statistical questions. There was also a significant difference between the type of player and the amount of times 50% was chosen, *t*(28) = -2.291, *p* < .05, two-tailed. As shown in Figure 2, the luck players (*M* = 2, *SD* = 1.41) would incorrectly choose 50% more often than the skill players (*M* = 1, *SD* = .93). The USPS employees did not significantly differ from the other participants in terms of group classification, *t*(28) = 1.12, *p* > .05, two-tailed; the number correct, *t*(28) = -.98, *p* > .05; and choosing 50%, *t*(28) = .73, *p* > .05. It was also observed that the tournament with a $20 buy-in had more luck players (*n* = 8) than skill players (*n* = 4), as opposed to the $60 tournament (*n* = 7 and *n* = 11, respectively).

**Discussion**

This study examined if a player’s view of *No Limit Texas Hold’em* influenced his statistical interpretation. As expected, it was found that the players who viewed the game as one of skill identified the correct percentage more often than the luck players. The study also revealed that the luck players were more likely than the skill players to incorrectly choose 50% as their chance of winning. Gambler’s fallacy may be more prevalent in the luck players and may explain their inability to correctly solve the statistical questions. Future research studies should investigate if the luck players fall prey to gambler’s fallacy more often than the skill players.

This research also found that skill players were more likely to play the higher stake tournaments than the luck players, which is interesting to note considering that previous research has demonstrated that people who view themselves as lucky are more confident of their success (Watt & Nagtegaal, 2000). Future studies should investigate if the people who view themselves as lucky are more likely to play games that entail more luck (e.g., lottery). Also, this study found no significant difference in USPS employees and non-employees in terms of their statistical knowledge and their view on *No Limit Texas Hold’em*. 

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**FIGURE 2**

Mean ratings for the number correct out of ten based on playing style.

**FIGURE 3**

Mean ratings for incorrectly choosing 50% based on playing style.
Future studies should investigate if personality characteristics (e.g., locus of control, self-efficacy) play a role in how players perceive the game. Another variable that influences a player’s view is the type and amount of exposure they have had (e.g., how much time have they spent playing, reading, or watching tournaments on television). Future studies should also investigate if the skill players win more tournaments and utilize the statistics of the game more often than the luck players. Previous research has found that blackjack players were more likely to return to a personalized strategy and vary their bet size based on a “good” or “bad” streak (Chau & Phillips, 1995; Chau, Phillips, & Von Baggo, 2000). Thus, research undertaken in the future should investigate if there is a difference between the skill and luck players with regards to being on a good or bad streak.

This study is very limited considering the complex nature of “No Limit Texas Hold’em,” which always involves a certain amount of skill and luck. Another limitation is that the only situations investigated in this research were pre-flop, heads up situations. This research is restricted in the sense that all of the participants were men from the same geographic region. Counterbalancing was not used and the participants were forced to choose between skill and luck. Thus, future research studies should use fill-in the blank when asking statistical questions and a continuum so participants are not forced to choose skill or luck. This study involved and is directed at players who are not at the professionals. Due to the lack of research of in this area, this research was conducted as an initial investigation and potentially lays the groundwork for future research projects.

Reference

Underpinnings of Academic Success: Effective Study Skills Use as a Function of Academic Locus of Control and Self-Efficacy

Research indicates an internal locus of control (LOC) and high self-efficacy (SE) are related to greater academic performance. However, how LOC and SE relate to self-reported study skills use, a known precursor to academic performance, is not entirely clear. Participants’ scores on the LOC and SE scales were split down the median to produce a $2 \times 2$ matrix, wherein an internal LOC and high SE would hypothetically correspond to the greatest self-reported use of study skills. The results revealed that participants with a moderate LOC and moderate SE reported significantly less study skills use than the other 3 groups. The authors discuss how greater academic performance is implied through LOC, SE, and their attendant pattern of study skills use.

It is not uncommon to hear a student blame a teacher for a low grade in a course, but the implications of such comments are not always addressed. Incidentally, these occurrences provide insight into where the student believes the control of reinforcement over an outcome exists. Within the framework of social learning theory, Rotter (1966) introduced generalized expectancies for internal versus external control of reinforcement, which refers to the belief or expectation that control of reinforcement for future outcomes exists primarily within oneself or in external sources. For example, individuals with a prototypical internal locus of control perceive a direct link between their actions and the rewards and punishments they incur in day-to-day life. Individuals with a prototypical external locus of control believe that rewards and punishments vary with external sources, such as luck, fate, or powerful others. The construct of locus of control has enjoyed widespread attention in the scientific literature, which logs a compelling record of its usefulness.

An internal locus of control is often tied to greater academic performance (Carden, Bryant, & Moss, 2004). One explanation for this pattern of data is that students with an internal locus of control perceive a link between their behavior and control over the reinforcement, which makes them more likely to put forth the effort to do well. Logically, their external counterparts are less consistent in their academic efforts because the reward for the behavior is expected to come from external sources. For example, Trice and Hackburt (1989) examined the relationship between academic locus of control and college absenteeism. The researchers measured students’ locus of control, and then asked students to keep diaries for 6 weeks, in which they recorded absences and noted whether those absences were illness-related. There was a significant correlation between an external locus of control score and absences unrelated to illness. Furthermore, Gump (2004) established a strong negative relationship between absences and course grade. These data lay credence to the claim that an internal locus of control is characteristic of effortful students who are more likely to perform better academically. When students believe the reward will become from internal sources (as opposed to external ones), they are more likely to do what is necessary to perform well (e.g., attend class). Thus, an internal locus of control

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is linked to academic effort, which in turn affects academic performance.

In another instance where effort (or lack thereof) can impede student success, Janssen and Carton (1999) studied how procrastination would be influenced by locus of control and task difficulty. In this study, procrastination was defined as “the act of needlessly delaying a behavior until the point of some discomfort” (Janssen & Carton, p. 436). Students completed an academic locus of control scale, and then received one of two homework assignments of varying difficulty. No significant effects of task difficulty on procrastination were observed, but students with an internal locus of control tended to begin the assignment earlier than their external counterparts, and took significantly fewer days to complete and return the assignment. Carden, Bryant, and Moss (2004) reported similar findings; when students were categorized into internal and external groups by splitting locus of control scores down the median, students with an internal locus of control emerged with less procrastination and greater academic performance (as measured by self-reported cumulative GPA).

Onwuegbuzie and Daley (1998) found a positive correlation between locus of control and the study habits of students. In this study, undergraduate participants completed an inventory of questionnaires to ascertain the characteristics of successful students. The profile of a successful student emerged as one that has an internal locus of control, more individualistic tendencies, and higher perceived scholastic competence, self-worth, and intellectual ability. Locus of control was the strongest predictor of study habits for the sample. Onwuegbuzie and Daley showed that an internal locus of control was predictive of what students do while studying for an upcoming examination (study habits).

The premise behind locus of control is that students with internal scores are more willing to put forth the effort to do well in academic pursuits, because they believe the outcome can be influenced by effort. If the student is to put forth the effort to do well, it is assumed that he or she must be confident the exertion will produce the intended result. This degree of confidence in the ability to complete a task is known as self-efficacy (Bandura, 1977, 1986). Self-efficacy is also an important variable underlying student effort, leading to academic success.

Self-efficacy has been linked to academic performance (Chemers, Hu, & Garcia, 2001). Chemers et al. measured the self-efficacy, adjustment, and stress of freshmen one quarter of the way into the academic year, and then had them complete the same measures toward the end of the academic year. High academic self-efficacy was positively related to academic performance and adjustment in college students. In a study of Australian nursing majors, Andrew (1998) found that self-efficacy in science predicted academic performance in both physical science and bioscience courses.

There is a positive relationship between self-efficacy, academic performance, and persistence, as demonstrated by a meta-analytic study by Multon, Brown, and Lent (1991). In two meta-analyses, the authors found a relatively strong relationship with self-efficacy for performance and persistence (effect size estimates of .38 and .34, respectively). Interestingly, age appeared to moderate the relationship between self-efficacy and performance. For students who fell within the normal achievement range, the relationship between self-efficacy and performance increased with age. Multon, Brown, and Lent (1991) offered the explanation that older students simply have more experience by which to gauge their academic strengths and weaknesses, which results in a stronger relationship between efficacy beliefs and performance. In any event, the effect sizes reported in these meta-analyses are a strong indicator that self-efficacy influences performance in academe.

Performance can be impeded in a number of ways, such as when students procrastinate prior to an upcoming exam. However, the impediment may not be deliberate procrastination; students may simply avoid help in the classroom when needed. In this situation, self-efficacy has surfaced as an important variable. Ryan, Gheen, and Midgely (1998) found that higher levels of help seeking were associated with high self-efficacy. It appears that students with high self-efficacy are more inclined to seek help when they need it, and may, therefore, do better in school.

Thus, locus of control and self-efficacy are independently predictive of a host of important academic criteria, but how these constructs independently and interdependently lead to academic success remains open to further inquiry. This study more directly investigated study skills (a known precursor to academic success) as a key factor, rather than just a correlate, between locus of control and self-efficacy. The authors hypothesized that students with an internal locus of control and high self-efficacy would report the greatest use of effective study skills.

**Method**

**Participants**

The participants were 127 undergraduate students (46 men and 81 women) from a small public master’s level university in the Midwest. The participants were recruited from introductory psychology classes and
received course credit for participation. Mean ages for men and women were 19.85 and 21.83 years, respectively. Participants were treated according to the ethical guidelines of the American Psychological Association (APA, 2002).

**Materials**
Participants completed an inventory of three questionnaires. Participants completed the 28-item dichotomous Academic Locus of Control Scale (Trice, 1985). This scale was validated for use with a college population and measures student beliefs of control over academic results. Trice reported acceptable test-retest reliability for a five week interval at .92. Participants also completed the 32-item Study Skills Self-Efficacy Scale (Silver, Smith, & Greene, 2001), which has students rate how accurately each statement describes their behavior along a 6-point Likert scale (1 = strongly agree, 6 = strongly disagree). This scale measures student self-efficacy, or confidence, in study strategies. Reliability data were not reported along with the published scale. In addition, to measure the extent to which participants used effective study strategies, a 20-item questionnaire was developed for this study from a list of effective study habits described by Ellis (1994, p. 100-104). This questionnaire addressed how often students used context, visualization, types of elaborative rehearsal, as well as favorable study conditions (i.e., reduced distractions and proper lighting when studying). For example, one item stated, “I use a mix of memory strategies in order to retain information (e.g., acronyms to remember lists of words, interactive imagery to remember places and events, etc.).” This questionnaire asked participants to answer along a 6-point Likert scale (1 = always, 6 = never) the extent to which they used each particular study technique.

**Procedure**
The investigators informed participants that the purpose of the study was to survey attitudes of college students about their academic behavior. The three questionnaires were administered in counterbalanced order so that the possibility of order effects was minimized. Participants were allowed 30 min to complete the questionnaires, although no participants approached this time limit. The actual purpose of the study, including an explanation of the concepts measured by the surveys, was revealed after the questionnaires had been collected.

**Results**
Researchers split participants’ scores on the LOC and SE scales down the median to assign participants to groups. Few participants’ scores reflected an external locus of control or low self-efficacy. Therefore, participants were selected and categorized according to an internal (M = 8.01, SD = 2.45) or moderate (M = 14.88, SD = 2.13) locus of control score and a high (M = 66.69, SD = 11.37) or moderate (M = 99.60, SD = 13.00) self-efficacy score to yield four groups of participants. The scores from participants on the study skills scale (the dependent variable) had a possible range of 20–120. Scores were transformed so that higher scores denote greater self-reported use of study skills. The mean scores and standard deviations on the study skills scale for each group are presented in Table 1.

A 2 (LOC) x 2 (SE) between-group analysis of variance (ANOVA) along with partial eta-squared effect size estimates revealed that both locus of control, F(1, 123) = 12.15, p < .01, η² = .09; and self-efficacy, F(1, 123) = 23.17, p < .01, η² = .16, had main effects for study skills. Participants who were categorized as having an internal locus of control reported significantly greater use of study skills than participants with moderate locus of control. In addition, participants who were categorized as having high self-efficacy reported significantly greater use of study skills than participants with moderate self-efficacy. No significant interaction between locus of control and self-efficacy was observed, F(1, 123) = .01, p > .93.

Although the interaction between locus of control and self-efficacy was not significant, the authors elected to further investigate the combined effects with Bonferroni post-hoc tests, p < .05. The tests revealed that participants who were categorized as having both an internal locus of control and high self-efficacy reported significantly greater use of study skills (M = 95.19, SD = 6.87) than participants in the moderate locus of control and moderate self-efficacy.
group ($M = 86.41$, $SD = 6.46$). However, the group with an internal locus of control and high self-efficacy did not report significantly different study skills use than the groups with an internal locus of control and moderate self-efficacy ($M = 91.69$, $SD = 6.48$), or a moderate locus of control and high self-efficacy ($M = 92.74$, $SD = 6.41$). Note that the participants who were categorized as having a moderate locus of control and moderate self-efficacy reported significantly less study skills than their counterparts in each of the other three groups.

**Discussion**

Independently, locus of control and self-efficacy had their predicted effects on study skills. Students with an internal locus of control reported greater use of study skills than students with a moderate locus of control. Similarly, high self-efficacious students reported greater use of study skills than their counterparts with moderate self-efficacy. These effects were observed despite the range restriction; few students scored toward the external end of the locus of control scale and the low end of the self-efficacy scale.

The hypothesis, that an internal locus of control with high self-efficacy would correspond to the greatest self-reported use of study skills, was partially supported. When locus of control and self-efficacy were combined, students with an internal locus of control and high self-efficacy had the highest mean study skills scores of all groups; scores were not significantly higher than for students with either an internal locus of control and moderate self-efficacy, or a moderate locus of control and high self-efficacy. However, having either an internal locus of control or high self-efficacy (or both) resulted in students reporting significantly greater self-reported use of study skills than their counterparts with both a moderate locus of control and moderate self-efficacy.

These results suggest that when students perceive control over reinforcement in their academic behavior, and/or they have confidence that their behavior will produce the intended result, they use more effective study skills. This is consistent with the scientific literature. Students with an internal locus of control tend to attend more classes when they are not ill (Trice & Hackburt, 1989); begin assignments earlier and take fewer days to complete assignments (Janssen & Carton, 1999); use study behaviors that involve greater depth of processing (Onwuegbuzie & Daley, 1998); and perform better academically (Carden, Bryant & Moss, 2004). It seems that students with an internal locus of control are more effortful than their external counterparts due to expectations of control over reinforcement for academic behavior.

High self-efficacy is related to adjustment (Chemers, Hu, & Garcia, 2001), greater academic performance and persistence (Multon, Brown, & Lent, 1991), success in science courses (Andrew, 1998), and higher levels of help seeking (Ryan, Gheen, & Midgely, 1998). When students are confident their behavior will produce the intended effect, they are more likely to put forth the effort to do well. Even though the equation of academic performance is complex and multivariate, self-efficacy appears to be an underpinning of academic success; high self-efficacy is characteristic of an effortful and successful student.

These data suggest that as students adopt more external beliefs of reinforcement and have less self-efficacy, they use effective study skills at a less frequent rate. It may be that identifying students with both external beliefs of reinforcement and low self-efficacy would be a worthwhile starting point for educators aiming to improve how their students study, especially when students’ responses to questions about their study habits are influenced by social desirability. Thus, one of the ways that teachers can identify students who may not be studying effectively is through conversation. How students expect to be rewarded (locus of control) and how much confidence they express in whether their study habits actually work (self-efficacy) may be a subjective indicator of which students are at the greatest risk for not using established study techniques. In conversation, educators may be in a prime position to learn more about the potential causal link between locus of control, self-efficacy, and the use of effective study skills.

Moreover, it is possible that the relationship between locus of control, self-efficacy, and study skills is multi-directional. Educators could train high school students to use more effective study skills, thereby improving students’ self-efficacy and shifting their expectations of control from external to internal sources. Accordingly, increased use of effective study skills may then correspond with more internal expectations of control over rewards and greater confidence. Instead of locus of control and self-efficacy affecting study skills use, one may possibly reverse the relationship and manipulate study skills to affect locus of control and self-efficacy.

Few participants scored toward the external end of the academic locus of control scale or toward the low end of the self-efficacy scale. The range restriction notwithstanding, locus of control and self-efficacy form an attendant pattern of study skills use. If more scores toward the extreme ends of both scales were better represented in this study’s sample, this pattern would possibly be more pronounced. Extreme scores were not necessarily expected in a postsecondary edu-
cation sample, and this may be due to individuals with an external locus of control and/or low self-efficacy not pursuing postsecondary education. When students expect control of reinforcement to come from external sources and have low self-efficacy in their study habits, they may, therefore, be less likely to pursue education beyond high school. It is also possible that endorsing a high number of items on the low end of these scales may not be socially desirable. Future research could explore these possibilities by testing a high school sample and controlling for social desirability.

Although locus of control and self-efficacy were already strong predictors of academic performance, this study implies that locus of control and self-efficacy are related to academic performance through the effortful use of effective study skills. A more direct test of this hypothesis would be to examine study skills as a mediator in the relationship between locus of control, self-efficacy, and academic performance. Baron and Kenny (1986, p. 1,176) explained that “a given variable may be said to function as a mediator to the extent that it accounts for the relation between the predictor and the criterion.” It is perhaps through study skills that locus of control and self-efficacy have their effect on academic performance.

References


Prior to the 1990s, most medical studies and traditional medical school education focused solely on the “70 kilogram male” (Tschida, 1995). However, in the past 15 years, there has been growing interest and activism devoted to women’s health issues (American Medical Student Association, 2006). Unfortunately, it takes time for activism to trickle down to the educational realm. As recently as 2003, less than half of medical schools offered curriculum specializing in women’s health (Intelihealth, 2003). The number of classes containing health curricular issues at the high school and college level may be even fewer than those in medical schools, especially those concerning primarily women’s issues. In fact, internet searches of these issues reveal few hits. As education is a valuable tool for promoting health (American Cancer Society, 2006), we wondered whether college students have received education about general health issues—breast cancer and eating disorders.

It is estimated that each day over 1,500 people will die from cancer (American Cancer Society, 2006). Not only does cancer affect the individual who has it, but it also affects the lives of those who love and care about the cancer patient. Breast cancer is one of the leading types of cancer. It is estimated that there will be 212,930 new cases of breast cancer per year; 211,240 of these individuals are women and 1,690 are men (American Cancer Society). Equally alarming is that of these 212,930 new cases, almost a fourth of these breast cancer victims will die (Imaginis, 1997-2006). Breast cancer is the second leading cause of cancer death in women (American Cancer Society; Imaginis, 2006). Although the exact cause of breast cancer is unknown, several risk factors have been identified (American Cancer Society, 2006) including genetics, being female, the consumption of alcohol, lack of exercise, poor eating habits, aging, and when menarche (menstruation) first begins and when it ends (menopause; American Cancer Society; National Breast Cancer Foundation, 2005b; Straub, 2002). However, it is unclear whether individuals know about the risk factors that they can control (e.g., exercise, diet) in order to minimize their chance of developing breast cancer.

In today’s society, the media plays an important role in breast cancer awareness. It is through the media that the general public hears the stories of breast can-

What College Students Know About Breast Cancer and Eating Disorders

This study documents what undergraduate students know about the primarily women’s health issues of breast cancer and eating disorders. It was hypothesized that women would know more than men about breast cancer and eating disorders. It was also hypothesized that participants would know more about eating disorders than they would about breast cancer. An independent samples t test revealed that women did in fact know more about eating disorders and breast cancer than did men, and that participants did know more about eating disorders than about breast cancer. Results suggest that although high school students have some knowledge about eating disorders and breast cancer, health teachers might want to focus more on these topics to improve student knowledge even further.

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What College Students Know About Breast Cancer and Eating Disorders

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cer survivors and learns the different methods that can be used to help prevent developing the disease. According to Petersen and Matuschka (2004), as recently as 1991, the media did not educate the public about breast cancer. Breast cancer was viewed as a private topic, not a public one. But due to social change, breast cancer changed from a stigmatized disease to a hot public and political issue (Amaya & Petersen, 2004; King, 2004; Petersen, 2004). One reason the breast cancer portrayal changed was partly due to the publicity of celebrities who had developed and survived breast cancer. McKay and Bonner (2004) commented that the survivors of breast cancer who are publicly known are usually celebrities; average people who are surviving breast cancer usually do not get to tell their story. McKay and Bonner also note that when the media does discuss breast cancer, it focuses on the stories of survival, not on the disease itself. Although it is encouraging that these stories are shared with the public at large, more information about the disease needs to be provided. People need to know what breast cancer is, what causes breast cancer, and what treatments are available. Unless people search for this information, they may not receive it.

Another women’s health issue that has recently garnered much media attention is that of eating disorders. Approximately 11 million people are currently suffering from an eating disorder in the United States (National Eating Disorders Association, 2002). Knight (2004) found that more than 75% of the college female population had binged at some point in their lives. Of these 75%, almost 10% reported that they had attempted to purge their bodies of the ingested food. Katz (2005) found that 91% of college women reported they had dieted to control their weight, and almost a fifth of the women were “always dieting.” The sooner an eating disorder is caught, the easier it is to treat and the success rates are higher (National Eating Disorders Association, 2002). As eating disorders often manifest themselves in college-aged individuals, it is important for college students to acquaint themselves with the warning signs that individuals display when they are on the path to developing an eating disorder.

The best predictor for the development of an eating disorder is continually trying new diets (Martinez-Gonzalez, et al., 2003; White, 2000). An individual who is obsessed with losing weight is likely to have low self-esteem and probably believes that he or she must look like celebrities portrayed in the media in order to look good. A second fairly accurate predictor is eating alone (Martinez-Gonzalez et al., 2003), which also may be a sign of depression. It has been suggested that one risk factor for bulimia is when a vicious cycle forms in which food becomes a source of comfort and relief from depression, but then later the individual feels shame and guilt for consuming so much food, so he or she then purges to make up for binging. Finally, having a maladaptive family structure during childhood may also contribute to the development of an eating disorder (MacMullen & Brucker, 1987). Once again, however, it is unclear how much individuals know about these risk factors.

Previous studies have discussed warning signs, risk factors, prevalence, media influence, and treatment options for breast cancer and eating disorders, but currently there is no research on what college students know about eating disorders and breast cancer. This study is designed to reveal the quantity and quality of knowledge college students have about eating disorders and breast cancer. It is important to know what college students know about eating disorders and breast cancer, because without this information, health promoters and policy makers will not know where to focus their attention in future health decisions. Due in part to media influence, we hypothesized that women will know more than men about eating disorders and breast cancer. We also hypothesized that participants will know more about eating disorders than breast cancer because there has been more media coverage about eating disorders.

Method

Participants

Participants were 148 women and 82 men enrolled in an introductory psychology course at a metropolitan university in the northwest. Students received partial course credit for participation in the experiment. Eighty-three percent of participants were Caucasian, 1% were African-American, 9% were Hispanic, 3.5% were Asian, and 3.5% were Other. Seventy-two percent of participants were freshmen, 21% were sophomores, 5% were juniors, and 2% were seniors.

Materials

Participants were given a health survey that included demographic information (gender, race, classification), as well as 31 questions about breast cancer and 36 questions about eating disorders. Questions were of a true/false nature and were based on common myths about breast cancer (e.g., “breast cancer is contagious,” “all breast lumps are cancerous”) and eating disorders (e.g., “only skinny people can get an eating disorder, people who really need to lose weight never get them”). Participants’ correct responses were summed and a percentage correct for eating disorders and breast cancer was tabulated. The survey was a compilation of questions that came from

Procedure

The participants were tested in a large group in a classroom setting. The participants were given 50 min to complete the survey. When the study was completed, the participants were debriefed and excused to leave.

Results

A 2 (gender—between-subjects factor) × 2 (% correct eating disorders, % correct breast cancer—within-subjects factor) repeated measures ANOVA was conducted to determine whether there was a significant difference between men and women in their knowledge about eating disorders and breast cancer. As predicted, college students knew more about eating disorders (M = 75.62%, SD = 16.30%) than they did about breast cancer (M = 73.09%, SD = 14.59%); F(1, 226) = 4.64, p < .05, η² = .02. Women knew more about both eating disorders (M = 77.18%, SD = 15.90%) and breast cancer (M = 74.41%, SD = 12.98%) than men did (MWD = 72.74%, SD = 16.75%; MWD = 70.65%, SD = 17.00%); F(1, 226) = 5.13, p < .05, η² = .02. There was no interaction between gender and knowledge scores, F(1, 226) = .77.

Discussion

The purpose of this study was to ascertain what college students knew about the women’s health issues—breast cancer and eating disorders. Although much is known about the risk factors linked to the development of breast cancer (National Breast Cancer Foundation, 2005b, Straub, 2002) and eating disorders (Martinez-Gonzalez et al., 2003; White, 2000), less information exists about whether college students were aware of these risk factors. We found that only about 50% of the participants were aware of the risk factors related to the development of breast cancer. One explanation for why people are not aware of the risk factors linked to breast cancer is that the media covers survival stories more than it covers prevention techniques (McKay & Bonner, 2004). In focusing on celebrity survival stories, educators neglect to keep the public informed on how to prevent breast cancer from developing and from recognizing the warning signs when it has developed. In fact, in our study, participants struggled with these topics. In addition, only 22% of the participants knew that eating disorders are caused by something other than the desire to lose weight that has gone to an extreme. Participants did not know who was vulnerable to developing an eating disorder, what binge-eating consists of, how to recover from eating disorders, and what the long term consequences are for having an eating disorder.

As predicted, women knew significantly more about breast cancer and eating disorders than men did (although the mean differences were on the order of 5%, which is relatively small). This may be because women may have more firsthand knowledge or personal experience with these issues as they are women’s health issues. Women also might be more likely to discuss these topics with peers or family and obtain more information from those sources. It might also be that the media may tend to target the female population more when covering these topics (e.g., more coverage in traditional women’s magazines than in men’s magazines; Reed, 1990).

As predicted, this study also revealed that the participants knew more about eating disorders than they did about breast cancer. This may be due to media exposure, as individuals are surrounded by advertisements to lose weight, information about celebrity eating habits, and the portrayal of unrealistic body images (Reed, 1990). Breast cancer, on the other hand, has a limited amount of media coverage, and the information that is covered is very select. Thus, it makes sense that college students would know more about eating disorders than they would about breast cancer.

Limitations

One limitation to this study is that the findings cannot be generalized to the general public because the majority of the participants were female, White, freshmen, and from a single university. Future research should focus on obtaining information from a variety of age groups and ethnic groups. It would also be beneficial to have approximately the same number of female participants as there are male participants. Finally, it would also be helpful to know where participants get their information and then compare their information source to the accuracy of their responses.

Conclusion

Although a substantial number of studies have discussed the risk factors, prevalence, treatment, and media influence on eating disorders and breast cancer, no research had been conducted on what college students know about eating disorders and breast cancer. If students do not know what increases their risk for developing breast cancer, they are not able to take the steps to protect themselves. Also, if students do not know what the warning signs of an eating disorder are, then it is unlikely that they will be able to recognize the symptoms in a friend or loved one. Without recognizing eating disorder symptoms, an individual cannot get a loved one the help he or she may need.
Public awareness is key to improving health. Health educators in high schools and college need to discuss issues surrounding women’s and men’s health, including the risk factors for breast cancer and eating disorders.

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