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The Influence of Self-Perceptions of Attractiveness on Substance Use: Sex Differences in Predictors of Alcohol Consumption in College Students

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ABSTRACT

Prior research demonstrates the negative relationship between self-esteem and alcohol use (Emery, 1993; Page, 1995; Winter, 2017), and prior research demonstrates how self-perceptions of attractiveness are fundamentally important (Barkow 1978; Wade, 2000, 2003). However, there is a paucity of research regarding exactly how self-perceptions of attractiveness, and mate value, which are related to self-esteem (Wade, Thompson, Tashakkori, Thompson, & Valente 1989; Tashakkori, Thompson, Wade, & Valente, 1990; Wade, 2000, 2003), influence alcohol consumption habits in college men and women. Using undergraduates, (66.4% female, 83.4% Caucasian), the present study examined how self-perceived attractiveness, self-esteem, mate value, sociosexuality, and sex of participant affect alcohol consumption. Lower self-perceptions of attractiveness, and mate value were hypothesized to be associated with increased alcohol use, particularly among women. The results were partially consistent with the hypothesis. A sex difference occurred such that self-perceived mate value was a significant positive predictor of alcohol consumption for women only. Additionally, self-perceived physical attractiveness was a significant negative predictor of alcohol consumption for men, while self-perceived sexual attractiveness was a significant positive predictor for men. Sociosexuality was a significant positive predictor for both sexes. These findings are discussed in terms of prior research.

KEYWORDS

Alcohol, Sex Differences, Self-Perceived Attractiveness, Mate Value, Sociosexuality

Identifying and developing concepts of the self, specifically related to perceptions of attractiveness and mate value, is incredibly important for young adults. Exposure to new relationship experiences, sexual encounters, and peer interaction influence the way in which young adults are developing their sexual and social identities (Armstrong, 2012). One significant life event that can alter concepts

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of the self in young adults is the transition to college (Armstrong, 2012). However, it is important to acknowledge that the transition to college is not equally as influential over self-concept in men and women. In fact, men and women differ in how the adjustment to college affects their sexual self-concept, and, inversely, how their sexual self-concept affects their adjustment to college. The relationship between sexual self-concept, relationship self-esteem, and college adjustment is much clearer in women, with women who are able to successfully navigate romantic and sexual endeavors having an easier transition to college life. In contrast, male students' sexual self-concept is not significantly related to their college adjustment (Armstrong, 2012). While developing concepts of the self, specifically related to attractiveness and sociosexuality in a collegiate environment, students will often times be exposed to various recreational substances, which can exacerbate an already existing vulnerability to engagement in risk-taking behavior in this age demographic (Steinberg, 2004).

The relationship between alcohol use and self-esteem is vital to understanding the motive for and execution of student drinking behavior. Self-esteem is inversely related to the use of substances, but is also inversely related to the amount of substances consumed (Emery, 1993). Adolescents with more dissatisfaction with their physical appearance and weight consume alcohol to the point of intoxication more than their peers with higher satisfaction about their physical appearance and weight (Page, 1995). Body dissatisfaction, perception of body weight, and perceived physical attractiveness in adolescents are all related to the use of illicit drugs and alcohol (Page, 1995). More specifically, the perception of body image, specifically perceptions of size and attractiveness, are inversely related to substance use (Winter, 2017).

While self-esteem can often be a predictor of alcohol use, it is important to note that self-esteem is not equally influential over drinking habits across the board. Negative self-esteem can serve as a stronger predictor of alcohol use than positive self-esteem (Epstein, 2004). As well, previous research has demonstrated that negative self-concept is a greater influence on alcohol use for women than men, introducing a sex difference in alcohol use as an adverse consequence of poor self-esteem (Epstein, 2004). College women with negative self-esteem are at a particular risk for engaging in risk-taking behaviors, such as alcohol consumption, marijuana or other drug use, and risky sexual behavior (Briggs, 2014).

Self-esteem is also heavily tied to the perception of one's own mate value (Brase, 2004). This is not surprising since mate value plays a role in one's ability to attract mates (Buss, 1989), and mate value can index overall health and reproductive fitness (see Wade, 2000, 2003 for example). There are many elements that influence one's mate value and their perception of their own mate value, including sex, age, and marital status (Brase, 2004). Men typically select their partners based on characteristics that are uncontrollable on the part of the partner (attractiveness, youth, etc.), whereas women typically place more emphasis on their partner's lifestyle than their physicality (such as wealth, status, etc.) (Hamida, 1998). Women's inability to achieve the characteristics that contribute to their mate value, such as physical attractiveness, can be more intricately linked to self-esteem, depression, and body dissatisfaction (Hamida, 1999). Consumption of alcohol as a result of feeling inadequate as a partner introduces the possible role of alcohol use

as a coping mechanism, and investigating coping as a motivator for alcohol consumption is imperative in understanding college student drinking behavior.

One mechanism by which self-esteem may influence alcohol and substance use is through the mediational effect of maladaptive coping (Tomaka, 2013). Substances are often used as a coping strategy (Leonard et al, 2015), particularly in adolescents (Low et al, 2012) and the stress of college may exacerbate a tendency to use substances (Pedrelli et al, 2014). Students with lower self-esteem may use alcohol to cope with their own feelings of inadequacy.

While alcohol use could be a manifestation of maladaptive coping, it is also important to recognize how the use of various recreational substances (such as alcohol and nicotine) can subsequently influence the perceived attractiveness of certain social and environmental stimuli (such as faces and landscapes), which in turn, could lead to the continuation of use (Attwood, 2012). However, the power of alcohol to influence the perceived attractiveness of these stimuli is dependent upon their initial attractiveness. Alcohol is more influential over increasing the perceived attractiveness of faces compared to landscapes, and may be more influential over increasing the perceived attractiveness of moderate- and low-attractiveness faces, compared to high-attractiveness faces (Chen, 2014).

While previous research has established the link between self-esteem and alcohol use, as well as the link between alcohol use and the perception of attractiveness of certain stimuli, the present study aims to explore a possible inverse relationship between perceived self-attractiveness, perceived mate value, and sexual self-esteem and alcohol use in college students. Consistent with the previous literature demonstrating the inverse relationship between self-esteem and alcohol use (Emery, 1993; Page, 1995; Winter, 2017), we hypothesize that there will be a similar inverse relationship between our variables of interest (self-perceived physical attractiveness, self-perceived sexual attractiveness, self-perceived mate value) and alcohol use in both college men and women, but that this relationship may be stronger in college women. Physical attractiveness and sexual attractiveness are each examined because prior research shows that men and women each rate themselves on these types of attractiveness (Wade, 2000, 2003), and these two types of attractiveness differ (Udry & Billy, 1987; Wade, 2000, 2003). Sexual attractiveness is based largely on secondary sexual characteristics while physical attractiveness is more general with less emphasis on biological factors (Udry & Billy, 1987; Wade, 2000, 2003).

METHOD

Participants

The sample consisted of undergraduate students primarily from a Northeastern United States University. The sample contained 185 women and 91 men between the ages of 18 and 22, and had 90.9% of students identifying as Caucasian, 9.4% of students identifying as Asian, 3.6% of students identifying as Hispanic/Latino, 3.3% of students identifying as Black/African-American, and 1.8%

of students identifying as Other/Prefer not to answer. The sample consisted of a relatively even breakdown of students of different class years, with 20.3% of students being in their first year, 24.3% of students being in their second year, 25% of students being in their third year, and 30.1% of students being in their fourth year of college.

Procedure

All participants were administered an anonymous survey through Qualtrics. The survey was sent to the entire student body, and participation was completely voluntary. Students who were enrolled in PSYC 100 were eligible to receive course credit as compensation. No other compensation was rewarded for participation. Institutional Review Board review and approval was attained prior to the collection of any data. Informed consent was obtained from the study participants electronically. The questions on the survey included the Mate Value Scale (Edlund & Sagarin, 2014) to best assess students' perceptions of their own mate value, questions from the Alcohol Use Disorder Identification Test (Saunders, 1987) to assess students' alcohol consumption (including how often they consume alcohol and how much alcohol they are consuming), questions from the Social Context of Drinking Scale (Beck et al., 1993) to assess the contexts in which students are most frequently consuming alcohol to better understand the habits of college student drinking, the Rosenberg Self-Esteem Scale (Rosenberg, 1965) to best understand students' self-esteem, and questions from the Sociosexual Orientation Inventory (Penke & Asendorpf, 2008) to understand students' sexual activity and mating habits. Additionally, we asked students to rate their self-perceived physical and sexual attractiveness on a scale of 1-7 (with 1 being the least physically/sexually attractive). The order of the question categories (i.e. mate value, alcohol use, self-esteem, etc.) was randomized to avoid order effects.

An Alcohol Score variable was computed by combining the responses to 3 questions regarding the amount of alcohol students consumed ("How often do you have a drink containing alcohol"-5 point scale: 1 = never to 5 = 4+ times a week; "How many standard drinks containing alcohol do you have on a typical day when you are drinking"-5 point scale: 1 = 1 or 2 to 5 = 10 or more; "How often do you have six or more drinks on one occasion"-5 point scale: 1 = never to 5 = almost daily).

An Alcohol context measure was created by combining the response to questions asking "How often do you drink alcohol" across/in 14 different contexts on a 1 = never to 4 = frequently scale ("at a party", "to have a good time", "on weekend nights", "at a bar", "with a small group of friends", "with a large group of friends", "to get drunk", "before going out to a party or bar", "to maintain your image", "because it's cool", "to get someone's approval (i.e. a close friend, a boyfriend/girlfriend)", "to build up courage to talk to someone of the opposite sex", "to make it easier to go to bed with someone", and "to reduce sexual inhibitions".)

RESULTS

First, for descriptive purposes, means and standard deviations for the sample were calculated and a one-way MANOVA across Sex of participant was computed. A significant multivariate effect for sex of participant occurred, $F(7, 227) = 6.95, p < .0001, \eta^2 = .18$. Significant univariate effects occurred for sex of participant on: Alcohol score, $F(1, 233) = 12.78, p < .0001, \eta^2 = .05$; Self-esteem, $F(1,233) = 7.85, p < .006, \eta^2 = .03$; and Physical Attractiveness, $F(1,233) = 5.03, p < .026, \eta^2 = .02$. A marginally significant univariate effect for sex of participant occurred for Mate Value, $F(1,233) = 3.79, p < .053, \eta^2 = .02$, see Table 1. Table 1 shows that men consume more alcohol, and rate their mate value, and physical attractiveness higher than women do, while women rate their self-esteem higher than men do.

Table 1. Dependent Variables as a Function of Sex of Participant

Dependent Variable	Men	Women
Mate Value	19.68 (5.49)*	18.34 (4.67)*
Alcohol Score	9.36 (3.00)***	7.96 (2.75)***
Alcohol Context	32.79 (9.47)	33.33 (8.80)
Self-Esteem	26.47 (12.55)**	31.17 (11.85)**
SOI (sexual activity)	21.81 (6.71)	21.21 (6.67)
Sexual Attractiveness	4.72 (1.54)	4.46 (1.39)
Physical Attractiveness	4.88 (1.50)**	4.44 (1.37)**

Note: higher numbers mean more or better, standard deviations are in parentheses. Means in boldface were significantly different, * $p < .05$, ** $p < .006$, *** $p < .0001$.

Next, a series of separate multiple regressions, via SPSS, for men and women were computed to analyze the results. Significant sex differences regarding the predictors of alcohol score were found. For women, $F(5, 157) = 17.24, p < .0001$, both self-perceived mate value and sociosexual orientation inventory (SOI) score were positive predictors of alcohol score, $b = .25, t = 2.06, p < .04$, and $b = .60, t = 9.13, p < .0001$, respectively, see Table 2. For men, $F(5, 76) = 11.74, p < .0001$, self-perceived sexual attractiveness, $b = .53, t = 2.37, p < .02$, and SOI score, $b = .50, t = 5.12, p < .0001$ were positive predictors of alcohol score, while self-

Self-Perceptions of Attractiveness and Alcohol Use

perceived physical attractiveness, $b = -.54$, $t = -2.73$, $p < .008$ was a negative predictor of alcohol score, see Table 2.

Table 2. Multiple Regression for Predictors of Alcohol Score for Men and Women

Predictors	Alcohol Score Men		Alcohol Score Women	
	Beta	SE	Beta	SE
Physical Attractiveness	-.542**	.397	-.003	.258
Sexual Attractiveness	.531*	.439	-.206	.265
Mate Value	.145	.095	.253*	.072
Self-Esteem Score	.068	.029	-.017	.019
SOI Score	.500***	.032	.602***	.019
R ²	.45		.36	
Adjusted R ²	.41		.34	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Separate multiple regressions with alcohol context as the dependent variable and self-perceived physical attractiveness, self-perceived sexual attractiveness, self-perceived mate value, self-esteem score, and SOI score as the independent variables were computed for men and women. Significant sex differences for predictors of alcohol context were found. For women, $F(5, 157) = 13.82$, $p < .0001$, SOI score, $b = .54$, $t = 7.94$, $p < .0001$, and self-perceived mate value score, $b = .381$, $t = 2.99$, $p < .001$ were positive predictors of alcohol context, $b = .54$, $p < .0001$, See Table 2. For men, $F(5, 76) = 6.87$, $p < .0001$, SOI score, $b = .48$, $t = 4.42$, $p < .0001$ was the lone predictor of alcohol context, see Table 3.

Table 3. Multiple Regression for Predictors of Alcohol Context for Men and Women

Predictors	Alcohol Context Men		Alcohol Context Women	
	Beta	SE	Beta	SE
Physical Attractiveness	-.355	1.387	-.109	.859
Sexual Attractiveness	.260	1.533	-.185	.882
Mate Value	.201	.333	.381**	.240
Self-Esteem Score	.026	.102	-.072	.065
SOI Score	.479***	.111	.544***	.062
R ²	.33		.31	
Adjusted R ²	.28		.29	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

DISCUSSION

The results were partially consistent with the hypothesis. The results indicate a sex difference for predictors of alcohol context (how often alcohol is consumed in various contexts) as well as for alcohol score (habits of alcohol consumption, including both context of drinking episodes, frequency of drinking episodes, and typical amount of alcohol consumed during a drinking episode). For female students, self-perceived mate value and SOI score were significant positive predictors of alcohol score. The higher a college female perceived her own mate value to be, the more she tended to drink alcohol. Specifically, women who felt they would be a higher quality mate reported consuming higher amounts of alcohol. Additionally, the higher a college female's SOI score, the more she tended to drink. Specifically, women who reported a preference for short term mating reported

drinking more often. For male students, self-perceived sexual attractiveness and SOI score were positive predictors of alcohol score. The higher a college male perceived his sexual attractiveness to be, the more he tended to drink, and the higher his SOI score was, the more he tended to drink. Specifically, men who felt they were very sexually attractive, and men who preferred short term mating reported drinking more alcohol. Interestingly, self-perceived physical attractiveness was a significant negative predictor of alcohol score in college men, meaning that the lower a college male perceived his physical attractiveness to be, the more he tended to drink. Specifically, men who rated themselves as less physically attractive tended to drink more alcohol. Sociosexuality was the only significant predictor of alcohol score that was consistent between both men and women.

Low self-perceived physical attractiveness had a negative relationship with alcohol score in men, which was consistent with the hypothesis. However, high self-perceived sexual attractiveness had a positive relationship to alcohol score. This differential effect for men is interesting. Men who perceive themselves as less physically attractive are consuming more alcohol and men who perceive themselves as more sexually attractive are consuming more alcohol. For the less physically attractive men alcohol use may be functioning as a coping tool consistent with Tomaka (2013). Physical attractiveness plays less of a role in mate selection than sexual attractiveness (Buss, 1989; Symons, 1995; Udry & Billy, 1987; Wade, 2000, 2003). So, college aged men who are less physically attractive may feel they have less choice in mate selection and a lower ability to attract the highest quality college aged women, i.e., are very distressed/upset. Thus, they turn to alcohol as a coping mechanism. Alternatively, for very sexually attractive men alcohol use may be functioning as an intrasexual competition tool as Harris, Jones, and Brown (2019) report. Sexual attractiveness has a biological basis and mate selection is based heavily on biological factors (see Buss, 1989; Buss, & Schmitt, 1993; Wade, 2000, 2003). Since men compete with other men for access to mates (Buss & Dedden 1990) the sexually attractive men may use alcohol to try to “best” those other men and gain the opportunity for first choice of women to try to attract. If a man wins a direct or indirect drinking contest with other men it could be seen as an indication of dominance, and women rate dominant males higher for short term mating (Buss & Schmitt, 1993). Further research is needed to ascertain the validity of these explanations.

For women, perceptions of mate value was a positive predictor of alcohol score, which was not consistent with the hypothesis that lower perceptions of mate value would be associated with an increase in alcohol use. One possible explanation for this result is that women may be less likely to use maladaptive coping strategies such as alcohol to deal with their perceived shortcomings (Zuckerman & Gagne, 2003; Hänninen & Aro, 1996; personal communication from JT Ptacek, Ph.D., September 25, 2019) since women tend to use more emotion focused coping than men do (Brougham et al., 2009). Alternatively, consuming a large amount of alcohol may be associated with mate value for women because it can facilitate mating. Prior research indicates that consuming large amounts of alcohol can be a mating strategy for young adults (Vincke, 2017). This may also be due to the additive effects of alcohol on perceived attractiveness. Attwood, Penton-Voak, Goodwin, and Munafò, (2012) and Parks and Scheidt, (2000) report that

being seen consuming alcohol can add to one's perceived attractiveness. Women who rate themselves as sexually attractive may face more intrasexual competition from other women since intrasexual competition for women centers around attractiveness (Buss, 1988; Buss & Dedden, 1990). With the aforementioned research in mind, these women who rate themselves as very sexually attractive may consume more alcohol as an attempt to gain an advantage over other sexually attractive women, and to gain an advantage in intersexual competition with high quality men since women's attractiveness is paramount for men's mate selection (Buss, 1989, Wade, 2000, 2003).

Self-perceived mate value may relate to alcohol context differently than just self-perceptions of physical and sexual attractiveness because mate value includes more characteristics about an individual than their attractiveness. It may be a significant predictor of alcohol use context to aid in intrasexual competition since women can compete with other women to become the drunkest (Harris, et al., 2019). More drinking may occur in some contexts over others because consumption of alcohol in those particular contexts aid in the competition for mates. High Mate value women may be the most competitive women with respect to alcohol consumption across various alcohol contexts since high alcohol context scores indicate drinking in more contexts. If one has to compete more fiercely in some contexts over others, one may drink more in those contexts.

In both sexes, SOI score had a positive relationship to both alcohol score and alcohol context. That is, greater promiscuity and engagement with more risky sexual behaviors was associated with greater alcohol consumption and drinking in more contexts (Coleman & Cater, 2005). The relationship between sociosexual orientation and alcohol use could be representative of the emphasis on both having sex and alcohol use that is prevalent in this age demographic. Certain contexts (i.e parties, bars) are conducive to both alcohol consumption, as well as the initiation of flirtatious or sexual encounters (Renninger, Wade, & Grammer, 2004). Additionally, prior research demonstrates that participants who consume alcohol had a higher intention of pursuing sex than their sober counterparts (LaBrie et al., 2014; Maisto et al., 2004; Cooper, 2002). That is consistent with the research on hooking-up among college students (Flack, Daubman, Caron, Asadorian, D'Aureli, Gigliotti, ... & Stine (2019), since high SOI scores indicate an unrestricted sociosexual orientation in the present research. SOI scores may have a positive relationship with amount of alcohol consumed and drinking alcohol in more contexts due to alcohol facilitating the intrasexual and intersexual competition that takes place. If alcohol use is associated with engaging in sexual behavior and with sociosexual orientation it should also be associated with intrasexual and intersexual competition for access to mates.

Limitations

One limitation of this study is the use of a sex binary. Future investigation should consider non-binary identified individuals to create a more holistic picture of the relationship between self-perceived attractiveness and mate value and alcohol use in college students.

Additionally, because our discussion includes conversation about heteronormative mating strategies, not accounting for sexual orientation is a limitation.

Another limitation in this study, as well as in prior research, has been that ratings of alcohol use has largely relied on measures of self-report. However, similar findings demonstrating an inverse relationship between self-esteem and alcohol consumption are found when using Blood Alcohol Content (BAC) to measure alcohol use, compared to self-report measurement (Glindemann, 1999).

In conclusion, self-perceived physical and sexual attractiveness are associated with alcohol use and alcohol consumption contexts in different ways for men and women. These differential relationships appear to be a product of the different mating acquisition pressures and adaptations men and women make. These findings add to our knowledge regarding alcohol consumption among college aged men and women, and further our understanding of how self-perception affects mating related actions. Acknowledgement of these sex differences in predictors of alcohol consumption is crucial to understanding the motives for college drinking behavior. The relationship between alcohol use and college student self-perceptions of attractiveness appears to be multi-faceted. Thus, additional future research is necessary to further understand this relationship.

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