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Abstract

This study examined the role of social expressiveness expectancies in the relationship between body image and alcohol use and explored possible gender differences. Body image, social expressiveness expectancies, alcohol use and consequences from alcohol use were examined using a moderation model. Based on the responses of 265 college students (160 women and 88 men) to self-report questionnaires the findings showed that women with poor body image and high social expressiveness expectancies used alcohol significantly more than women who did not have a poor body image. For men, no such relationship was observed. Contrary to hypotheses, negative consequences from alcohol use did not play a role for either gender. These findings have implications for understanding the established gender differences in body image and alcohol use disorders, as well as directions for future research are discussed.

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The study of alcohol use among college students is an important topic due to the high

rates of consumption and abuse within the population. Researchers have estimated that

approximately 65% of college students drank alcohol in the past month, while 44% took part in

heavy episodic drinking (Zeigler-Hill, Madson, & Ricedorf, 2012). In one study, nearly 32% of

college students met DSM-IV criteria for alcohol abuse (Labbe & Maisto, 2011). It is important

to understand why these statistics are so high because drinking can have many negative

consequences and affect multiple aspects of college students' lives. Past research has shown that

there are many important motives that may account for these excessive drinking habits. They

include using alcohol to cope with stress or distress, for social enhancement, in the context of

positive emotions, and to show conformity with peers (Norberg, Norton, Olivier, & Zvolensky,

2010). Gender differences in the motivation to use alcohol have also been demonstrated. For

instance, women are more likely to drink in anxiety-provoking situations whereas men are more

likely to consume alcohol in a positive reinforcement context (Norberg et al., 2010). Going to

college is a new experience for all individuals and unfamiliar situations are often stressful. It is

therefore not surprising when college students, and maybe women in particular, seem to turn to

alcohol to be able to feel more relaxed and confident in these situations (Norberg et al., 2010).

Self-esteem and alcohol use have been shown in past research to be inversely correlated.

Self-esteem is the extent to which individuals like, respect, accept, and value themselves

(Rosenberg, 1965). Low self-esteem has been shown to increase risky behaviors, including risky

alcohol use (Wild, Flisher, Bhana, & Lombard, 2004). For example, individuals with alcohol use

disorders tend to score lower on self-esteem than normal drinkers (Pekala, Kumar, Maurer,

Elliott-Carter, & Moon, 2009), and students with low self-esteem seem to be at particular risk for drinking excessive amounts (Fonseca, Matos, Guerra, & Pedro, 2009). Adolescents that have higher self-esteem show a greater avoidance of alcohol and drug use than adolescents with lower self-esteem (Zeigler-Hill, 2011). Furthermore, women with low self-esteem were found to be heavier drinkers than women with higher self-esteem (Corbin Mcnair, & Carter, 2001).

Self-esteem is a very complex and multifaceted construct. There may be certain aspects of self-esteem that are specifically associated with different risk behaviors, but this possibility has not yet been fully elucidated. For instance, body image (i.e., how one views one's physical self) is one such component of self-esteem that has been shown to be related to alcohol use, but to date has garnered less scientific attention than the broader construct (Franko et al., 2005). One study showed that over-concern with body weight increased the chances of developing an alcohol use disorder (Franko et al., 2005). Although this study focused on individuals with a clinical diagnosis of anorexia or bulimia, it established a relationship between poor body image and alcohol use. Furthermore, dieting itself has been shown to increase the prevalence of alcohol use in adolescents, and body image was much lower for adolescents who were frequent dieters or expressed unhappiness with their bodies (French, Story, Downes, Resnick, & Blum, 1995). This research emphasizes the importance of understanding how to help people who have low body image because the risky behaviors that go along with it can be detrimental (Zeigler-Hill, 2011). Fronseca (2009) conducted a study of obese and overweight women and found that Body Mass Index (BMI) is associated with greater body dissatisfaction. Obese women felt that they had a harder time making friends and being in social situations, and both obese and overweight women drank more excessively, with some getting intoxicated up to ten times a month. Thus, body

image has taken on an increasingly important role in the study adolescents' and adults' physical and psychological health.

The reasons why students with low self-esteem and poor body image drink excessively is not quite understood though. A missing component that might explain the relationship between poor body image and alcohol use might be the expectancies that students have about the effects of their drinking. Such outcome expectancies tend to change over time and vary great between individuals (Nicolai, Moshagen, & Demmel, 2012). Expectancies are defined as the "beliefs that an individual holds regarding the positive and negative effects of consuming alcohol in a particular manner" (Labbe & Maisto, 2011). A positive expectancy is the belief that the outcomes from a particular behavior will be pleasurable and desirable while a negative expectancy refers to the belief that there will be a non-pleasurable or undesirable consequence from the behavior (Labbe & Maisto, 2011). Children at young ages have predominately negative beliefs about the effects of alcohol, but during adolescence these beliefs become increasingly positive; the age group with the strongest positive expectancies are individuals between the ages of 18-35 (Nicolai et al., 2012). Most college students fall within that age group. Positive alcohol expectancies have been shown to increase consumption (Wardell, Read, Curtin, & Merrill, 2012). Social expressiveness (e.g., "drinking gives me more confidence in myself"), in particular, is a popular positive alcohol expectancy many people hold (Read, Wood, Lejuez, Palfai, & Slack, 2004) and individuals who hold this belief tend to drink more. Women especially seem to hold this expectancy (Read et al., 2004), and the relationship between comfort in social situations, body image, and alcohol consumption has been supported in the literature. Therefore, women college students with poor body image and the resulting discomfort in social

situations may be drinking more when they hold expectancies that alcohol facilitates social interactions.

Given the relationship between poor body image and excessive alcohol use, expectancies about how alcohol use may improve self-confidence and comfort level in social situations may act as a moderating variable. The current study sought to examine whether the relationship between poor body and alcohol use is moderated by social expressiveness expectancy. Specifically, individuals with a negative body image who expect alcohol to increase their self-confidence in social situations were assumed to use alcohol more frequently compared to individuals with a more positive body image and/or lower positive expectancies about alcohol use. Individuals with a positive body image and/or low social expressiveness expectancies were hypothesized to use alcohol less frequently and consume less and subsequently experience fewer negative consequences from alcohol use.

Methods

Procedure

The study was approved by the university's institutional review board. Participants were undergraduate students recruited from introductory psychology classes and received partial course credit. Small groups of approximately 14 students completed an anonymous web-based survey and one paper-based questionnaire about body image in hour-long sessions in a computer lab under the supervision of a research assistant.

Measures

Demographics. This study asked about age, gender, classification, and race/ethnicity. Demographic information is provided in Table 1.

Body Mass Index Silhouette Matching Test (Peterson, Ellenberg, & Crossan, 2003; BMI-SMT). The BMI-SMT is used to examine individuals' body-image perceptions. It consists of a 27-item interval scale with 4 gender-specific BMI-based silhouettes. Each box in the range of the scale coincides with a BMI ranging from 14 to 40. The 4 gender-specific silhouettes represent 18, 24, 30, and 36 on the BMI scale. Participants are asked to mark the shape that reflects their current appearance and then to mark the shape they would consider ideal. The absolute difference in the BMI scores between the current and the ideal shape provides a measure of body-image perception.

Alcohol Expectancy Questionnaire–3 (George et al. 1995; AEQ-3). The AEQ is a well-supported measure of alcohol outcome expectancies. It contains forty questions that comprise eight subscales. Of particular interest in the current study were the five items for social expressiveness subscale (e.g., "A few drinks make me feel less shy", "Drinking adds a certain warmth and friendliness to social occasions for me", "A few drinks make it easier for me to talk to people"). Students rated each item on a 6-point Likert scale ranging from 1 (agree strongly) to 6 (disagree strongly) with higher scores indicating lower positive social expressiveness. For ease of interpretation, in the analyses these scores were reversed so that higher scores indicated higher social expectancies.

The Young Adult Alcohol Consequences Questionnaire (Read, J.P., Kahler, C.W., Strong, D., & Colder, C.R., 2006; YAACQ). The YAACQ is a valid and reliable 48-item measure that looks at eight domains of alcohol-related consequences. The eight domains are social/ interpersonal (e.g., "I have become very rude, obnoxious or insulting after drinking"), academic/occupational (e.g., "I have neglected my obligations to family, work, or school because of my drinking"), risky behaviors (e.g., "I have taken foolish risks when I have been drinking"),

impaired control (e.g., "I often drank more than I originally had planned"), poor self-care (e.g., "I have been less physically active because of drinking"), diminished self-perception (e.g., "I have felt badly about myself because of my drinking"), blackout drinking (e.g., "I have awakened the day after drinking and found that I could not remember a part of the evening before"), and physiological dependence (e.g., "I have felt anxious, agitated, or restless after stopping or cutting down on drinking"). Participants ranked their experiences from 0 (it never happened) to 3 (it happened more than 5 times over the past year).

Core Alcohol and Drug Survey 7th edition (CORE Institute, 2004; CORE**).** The CORE Alcohol and Drug Survey has been specifically designed for college populations and measures substance use habits (quantity and frequency), consequences of use, and social norms. Specific questions to assess alcohol use were utilized in the current study. Students were asked "During the past 30 days, how often have you drunk alcohol?" and responded on a 7-point Likert scale from "0 days" (no use) to "all 30 days". Higher scores indicated more frequent use.

Analytic Approach: Moderation Models

A moderation model was used to test the hypothesis of the study. A moderation model indicates that the level of the third variable, the moderator, affects the relationship between the independent variable and dependent variable (Howell, 2010). One moderation model was used to examine the effect of social expressiveness expectancies on the relationship between body image and frequency of alcohol use over the past 30 days. The other model tested the effect of social expressiveness on the relationship between body image and alcohol-related consequences. It was hypothesized that college students who have low body image (measured with the BMS-SMT) would exhibit higher levels of alcohol use, but also that students with high social expressiveness

expectancies (measured with the AEQ-3) along with low body image would consume alcohol at even higher levels.

The first step in testing a moderation model is to look at relationship between the three variables. We first centered the data and then tested for an interaction between body image and social expressiveness expectancies. To center the data, we subtracted each variable's mean from the individual level to generate the deviation scores. Any score that was zero on the variable of interest indicated someone who had the mean level of body image. This greatly reduces the problem of multicollinearity (a high level of correlation between main effects and the interactions effects). Centering variables allows for the generation of an interaction term without violating assumptions of high multicollinearity. The next step was to examine the interaction of body image and social expressiveness expectancies, and how the product regressed onto the outcome variables of either alcohol use or alcohol-related consequences. From the regression coefficients it was apparent which variables significantly predicted the dependent variable. We then examined the relationship between the centered data of body image and alcohol use for high and low levels of social expressiveness expectancies.

Results

The correlations for the variables of interest can be found in Table 2. To test the hypothesis whether social expressiveness expectancies moderate the relationship between poor body image and alcohol use over the past 30 days, a hierarchical multiple regression analysis was conducted. Body image and expectancy measures were entered in Step 1 of the regression and the interaction of the two predictor variables in Step 2. The overall model for men and women combined was significant, $R^2=.14$, $F(3,244)= 13.24$, $p=.000$, however the interaction coefficient was not, $b = .04$, $t(247) = .72$, $p=.48$.

To test the hypothesis whether social expressiveness expectancies moderate the relationship between poor body image and alcohol-related consequences (as measured by the YAACQ total score), a hierarchical multiple regression analysis was conducted. Body image and expectancy measures were entered in Step 1 of the regression and the interaction of the two predictor variables in Step 2. As before, the overall model was significant, $R^2=.21$, $F(3,244)= 21.91$, $p=.000$; however the interaction coefficient was not, $b = .23$, $t(247) = .84$, $p=.400$.

While the moderation models did not yield significant interactions when the samples were combined for men and women, our next hypotheses examined the possibility of a gender difference. Therefore, we tested these moderation models in men and women separately. For men, in Model 1 body image and social expressiveness expectancies were included in the first step of the regression analysis. These variables accounted for a significant amount of the variance in alcohol-related consequences; $R^2 = .21$, $F(2, 84) = 11.33$, $p=.000$. Body image and social expressiveness expectancies differentially predicted alcohol use. In model 1, body image scores showed, $b = -1.41$, $t(86) = -1.86$, $p =.06$ and social expressiveness expectancies scores showed, $b = 7.05$, $t(86) = 4.14$, $p=.000$. Model 2 was also significant, $R^2=.21$, $F(3,83) = 7.47$, $p=.000$. However, the interaction was not significant, $b = -.01$, $t (86) = -.08$, $p=.93$.

The next analysis for men was conducted with alcohol use in the past 30 days as the dependent variable. Again, the two predictor variables were body image and social expressiveness expectancies, and they accounted for a significant amount of the variance in alcohol use for Model 1, $R^2 = .10$, $F(2, 84) = 4.53$, $p=.01$. Body image and social expressiveness expectancies differentially predicted alcohol use. In Model 1, body image scores showed, $b = -.05$, $t(86) = -.91$, $p =.37$ and social expressiveness expectancies scores showed, $b = .31$, $t(86) = 2.75$, $p=.01$. Model 2 was also significant, $R^2=.13$, $F(3,83) = 4.05$, $p=.01$. However, the

interaction was not significant, $b = -.07$, $t (86) = -1.70$, $p=.09$.

We then proceeded to examine the applicability of this model in women. Body image and social expressiveness expectancies accounted for a significant amount of variance in alcohol-related problems for Model 1, $R^2 = .22$, $F(2, 157) = 21.82$, $p=.000$. Body image and social expressiveness expectancies differentially predicted alcohol problems. In Model 1, body image scores showed, $b = -.07$, $t(159) = -.16$, $p=.87$ and social expressiveness expectancies scores showed, $b = .47$, $t(159) = 6.52$, $p=.000$. In Model 2, for alcohol-related consequences, $R^2=.22$, $F(3,156) = 15.01$, $p=.000$. The interaction between body image and social expressiveness expectancies was not significant, $b = .35$, $t (159) = 1.15$, $p=.25$.

We then looked at the model with alcohol use in the past 30 days as the dependent variable for women. The two predictor variables (expectancies and body image) accounted for a significant amount of the variance in alcohol use in the past 30 days for Model 1, $R^2 = .16$, $F(2, 157) = 15.19$, $p=.000$. Body image and social expressiveness expectancies were significant predictors of alcohol use. In Model 1, body image scores showed, $b = -.08$, $t(159) = -3.01$, $p=.003$ and social expressiveness expectancies scores showed, $b = .33$, $t(159) = 5.09$, $p=.000$. In Model 2, $R^2=.19$, $F(3,156) = 12.45$, $p=.000$. Additionally, the interaction between body image and social expressiveness expectancies was a significant predictor for Model 2, $b = .05$, $t (159) = 2.45$, $p=.02$. Therefore, these results indicated that in women alcohol expectancies moderated the relationship between body image and frequency of alcohol use.

Having found a significant interaction, we then explored the simple slopes of the relationship to better understand the interaction effect. To do so, we calculated the predicted values for alcohol use in the past 30 days for both high and low levels of body image with high levels of social expressiveness expectancies. The predicted y variables (days spent drinking)

were 1.73 for high (positive) body image and 3.06 for low (poor) body image at high levels of alcohol outcome expectancies. These reflect students' scores on the CORE (1=0 days; 2=1-2 days; 3=3-5 days; 4=6-9 days of the past 30). Additionally, we found the predicted values of students' alcohol use in the past 30 days for high and low levels of body image with low level of social expressiveness expectancies. The predicted y variables were 2.72 for high (positive) body image and 3.17 for low (poor) body image and low levels of expectancies. The graph of this interaction is shown in Figure 1.

Discussion

This study examined the effect that alcohol-related social expressiveness expectancies has on the relationship between body image and alcohol use or alcohol-related negative consequences. Although there was no significant relationship for the total sample, when men and women were tested separately we found that women with poor body image and high social expressive expectancies drank significantly more over the past 30 days compared to women with better body image and/or different alcohol expectancies.

This finding is consistent with other research showing that women with low self-esteem, which typically includes body image, tend to be heavier drinkers than women with high self-esteem (Corbin, Mcnair, & Carter, 2001). The present study refined these findings by identifying a potential moderating variable that further clarifies the relationship between body image and alcohol use. Specifically, the alcohol-related expectancies women hold are another variable that accounts for the increased alcohol use. The moderation model indicated that women with poor body image *and* high social expressiveness expectancies drank on significantly more days over the past month. Alternatively, good body image (as indicated by a lower discrepancy between current and ideal body size) acted as a protective measure against alcohol use, even when women

had high positive alcohol expectancies. These findings suggest that poor body image paired with

high social expressiveness expectancies are potentially an important area for prevention efforts in

women college students. Prevention efforts could be aimed at challenging women's beliefs about

alcohol in social situations and the importance of their body image. Women college students

likely believe that alcohol will make them more comfortable in social situations, especially if

they have poor body image. When such women are in a social situation, such as a party or

gathering, the event itself could cause them stress or anxiety. Alcohol would then allow them to

be less concerned about their looks and to feel more comfortable and be more sociable. The

prevention efforts could target women college students' dysfunctional beliefs and help them

acquire greater acceptance of their own body and better understand the detrimental effects of

abusing alcohol.

Limitations

The current study had several limitations. Data were collected via self-report measures,

which can introduce deliberate or unintended distortions. Participants may not have been

completely honest with their answers due to the stereotypes that may go along with high alcohol

use. The presumed perceptions of body-image were also gleaned from self-report rather than

measures of actual BMI. However, as this study was looking at the difference between how

participants saw themselves and what they wanted to be, it is reasonable to assume that this

yielded a reasonably accurate measure of the perception of body image, which was the intended

target of this study, and how this perception can influence alcohol use. Additionally, research on

the validity of the BMI-SMT has indicated that students' answers on this measure were indeed

an accurate reflections of their actual BMI (Peterson, Ellenberg, & Crossan, 2003).

Another limitation of this study was its cross-sectional nature, precluding us from making

any casual statements. Further, we recruited a convenience sample, which suggests that the results can neither be extended to other college student populations nor may the results be generalizable to other populations. It would therefore be important to conduct further research and examine the variables tested her in other populations.

Conclusions

This study provided support for a moderation model of alcohol-related social expressiveness expectancies on the relationship between body image and alcohol use. As previously discussed, other research has found that over-concern with body weight is related to an increased likelihood of developing an alcohol use disorder (Franko et al., 2005). The current study adds to this literature regarding the relationship between body image and alcohol use by further suggesting that body image is an important element in female college students' drinking habits.

One contribution of the current study was to shed light on the interaction between alcohol-related social expressiveness expectancies and body image as it relates to alcohol consumption. The gender difference is an interesting finding. While other studies also have examined body image and expectancies, to date they have not been researched together to study their combined effect on alcohol use. Yet the present findings suggest that both variables can have an important influence on college women's drinking habits. These findings may therefore have implications for the development of potentially detrimental alcohol use and also identify points of prevention for alcohol abuse. As this study only looked at social expressiveness expectancies, future research may benefit from examining other alcohol-related outcome expectancies and how they interact with body image.

In conclusion, this study expanded on research investigating the reasons why college

students often abuse alcohol and suggested how body image and positive alcohol-related outcome expectancies may fuel excessive drinking. This study also provided support for further investigating gender differences to better understand their origins. For example, it is likely that gender differences in alcohol use may develop partly from underlying gender-specific societal pressures to conform to a specific body shape. Further research should investigate the effects of such societal pressures, particularly on women and how best to mitigate them as this might be one means of effectively preventing alcohol abuse in college women.

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Total N		265	
Gender	Males:	88	33%
	Females:	160	60%
Ethnicity*	American Indian/ Alaskan Native:	1	0.3%
	Hispanic:	45	17%
	Asian/Pacific Islander:	42	16%
	White:	128	48%
	Black:	42	16%
	Other:	4	15%
Classification	Freshman:	112	42%
	Sophomore:	66	25%
	Junior:	54	20%
	Senior:	14	5%
	Other:	2	0.8%
Age	Mean:	19.3	
	Mode:	18	
	Range:	18-33	

Table 1. Demographics

*Greater than total N reflects multiple reports from participants

	1	2	3	4
Body Image		**0.18***	0.07	-0.15
AEQ	-0.11		0.47**	0.34**
YAACQ	-0.23*	0.42**		0.56**
alcohol use past 30 days	-0.13	0.30**	0.59**	

Table 2. Bivariate correlations between main variables of interest. Bolded values are coefficients for women.
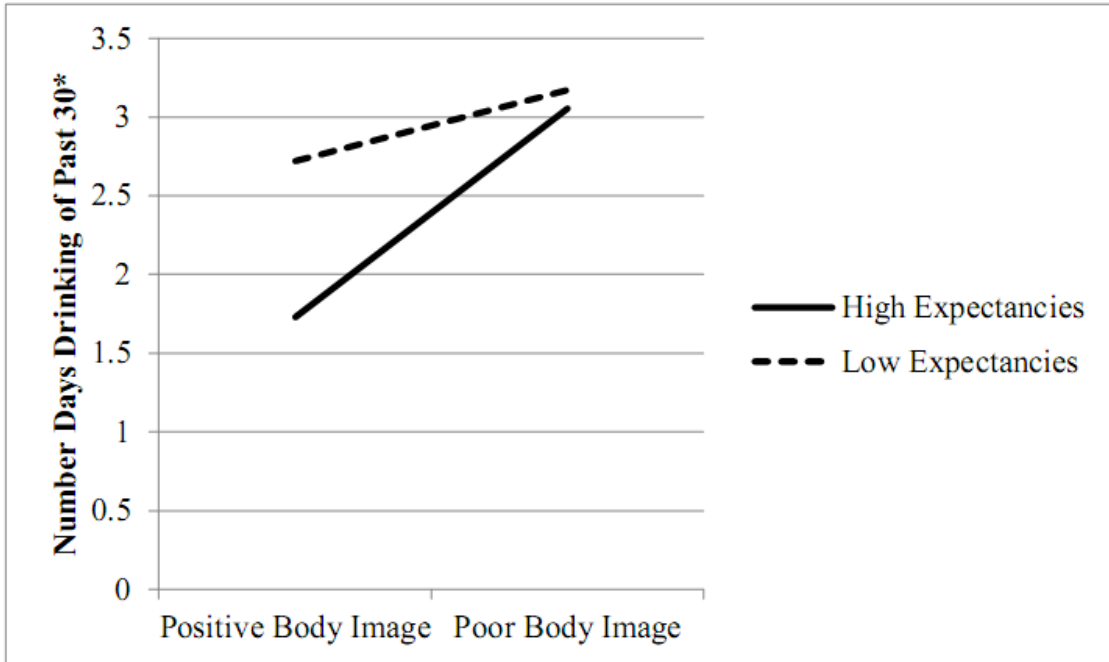
*p<.05; **p<.01

Figure 1. Moderating effect of social expressiveness expectancies on body image and alcohol use in the past 30 days.

*Numbers reflect score on the CORE: 1=0 days; 2=1-2 days; 3=3-5days; 4=6-9 days