Anxiety, stress, and self-esteem across genders in a university sample

Exploring the role of body avoidance

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Abstract

The present study aimed to investigate whether university students' body avoidance behaviours could be predicted by their level of self-esteem, anxiety, and stress, as well as their BMI and gender. University students (N = 113) completed a self-report package and results indicated that anxiety was the most important predictor of body avoidance for university students. Gender was also predictive of avoidance for university students. Post Hoc analyses indicated that body avoidance, anxiety, stress, and BMI, were higher for female university students, yet no difference was found for self-esteem between genders. These results suggest preliminary evidence for the importance of elevated body avoidance behaviours and anxiety among university students as well as the influence of gender on body avoidance and psychosocial variables among university students.

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Anxiety, Stress, and Self-Esteem across Genders in a University Sample: Exploring the Role of

Body Avoidance

Many people in Western cultures experience considerable dissatisfaction with their body

size and shape, and have a desire to be thinner. Over two decades ago Rodin, Silberstein, and

Striegel-Moore (1985) characterised weight concerns as 'normative' for females in modern

society, and evidently this is still the case today (Tiggemann & McGill, 2004). It is suggested

that nonclinical (without a diagnosable eating disorder) females tend to have a 'steady' level of

dissatisfaction with their bodily aspect (Sassaroli & Ruggiero, 2004). Negative body image is

associated with depression, social introversion, and anxiety, and negative self-esteem in

community samples of women (Noles, Cash, & Winstead, 1985).

Typically, body image referred to the mental image that an individual has of their

physical appearance of his or her body (Meermann & Vandereycken, 1988). Studies of women

with severe body avoidance, in both clinical and nonclinical samples, have shown that these

subjects have a distorted size perception and often overestimate their size (Rosen, 1990). Along

with this distorted body image, body avoidance is characterised by a cognitive disturbance

involving extreme criticism and irrational exaggeration of the body (Garner & Garfinkel, 1981).

Research also suggests that negative body image is often accompanied by a lifestyle that

accommodates the person's negative appraisals of their appearance and involves body avoidance

behaviours (Garner & Garfinkel, 1981). For instance, avoiding situations or social outings where

scrutinization is possible, wearing baggy clothes, eating less, and avoiding physical intimacy

(Rosen, Srebnik, Saltzberg, & Wendt, 1991).

Research has revealed that variables such as Body Mass Index (BMI) and gender are

significant predictors of body dissatisfaction and avoidance in samples of adolescents (Paxton et

al., 1991) and university students (Hausenblas, 2002; Neighbors & Sobal, 2007). Specifically,

females report higher avoidance behaviours than males and individuals with higher BMI's tend to have negative body image.

Studies have consistently shown that self-esteem plays a crucial role and has a strong relationship in the development and maintenance of adolescent body dissatisfaction and avoidance (Murray, Byrne, & Rieger, 2011; van den Berg, Mond, Eisenberg, Ackard, & Neumark-Sztainer, 2010; Wojtowicz & Von Ranson, 2012). Rosenberg (1965) first conceptualized self-esteem as a global construct concerning an individual's judgment of one's own worth. Research also suggests that the most significant life event that could impact students' self-esteem is considered to be the transition to a new level of formal education (Negovan & Bagana, 2011). Recent studies of stress and self-esteem in students have focused on the transition from high school to university. The exposure to new environments and new responsibilities along with the loss of important relationships from secondary school, can lead to low self-esteem, an increase in stress, and an increase in anxiety for university students (Negovan & Bagana, 2011).

More recent research suggests that self-reported anxious mood is correlated with high actual and ought discrepancy scores in college students (Lane & Hara, 1993; Strauman & Higgins, 1988); the actual self being the perception of the attributes the individual actually possesses and the ought self being the attributes the person believes that he or she has a moral obligation or duty to possess (Lane & O'Hara, 1993). Essentially, students often set standards for themselves and are motivated to meet these standards; however, when students' actual behaviour falls below their self-standards they are likely to feel a negative effect (Lane & Hara, 1993). Thus, it is not surprising that high test anxiety is also associated with low self-esteem and feelings of nervousness and dread that stem from an intense fear of failure (Bryan, Sonnefeld, & Grabowski, 1983). Evidently, the development of anxiety and self-esteem is common among university students and can be explained by negative self-evaluations and self-discrepancies. For

that reason, it is important for psychological research to address these factors in conjunction with other existing problems in university settings, such as body avoidance and dissatisfaction behaviours.

In sum, the rates of body avoidance and dissatisfaction in university students are alarming. Heatherton, Nichols, Mahamedi, and Keel (1995) report that as high as 80% of university students are dissatisfied with their bodies. University students are particularly vulnerable to social pressure associated with physical appearance, as these developmental periods are critical for the formation of one's identity and self-worth across a number of domains, including physical self-evaluation (Crocker & Wolfe, 2001). Individuals who report lower self-esteem are more likely to compare themselves negatively to others and experience more negative emotional reactions than do those who report higher self-esteem. Anxiety has been associated with low self-esteem among adolescent girls (Kostanski & Gullone, 1998; Paxton, Wertheim, & Muir, 1999) and young adults (Reed, Thompson, Brannick, & Sacco, 1991).

While certain studies have found a relationship between elevated stress and body avoidance, and elevated anxiety and body avoidance (Rogers, Sales, & Chabrol, 2010), research in the area is lacking. Most studies have assessed samples of adolescents rather than university students and the few studies that have investigated university samples are limited in the measures they use to assess. Because body dissatisfaction and avoidance is one of the most empirically validated etiological and maintenance factors of eating disorder pathology (Stice, 2002), and given anxiety, poor self-esteem and poor stress coping skills are key predictors of disordered eating and full eating disorders, addressing these areas in prevention and treatment is vital. The prevalence of eating disorders in university settings is alarming; with between 4% and 9% or more of college women suffering from diagnosable eating disorders (Fitzsimmons-Craft,

et al., 2012; Hesse-Biber et al., 1999). Therefore, there is a pressing need for more research into the precursors related to the development of disordered eating in student populations.

The Current Study

Research in the area of the causes and consequences of body avoidance has focused primarily on adolescents and few prospective studies have examined the influence of body avoidance, stress and anxiety and self-esteem in university students. Therefore, the current study aimed to determine the link between these psychosocial variables and body avoidance as well as the effects of gender. The specific hypotheses included:

1. Participants who reported greater body avoidance would also report lower self-esteem, elevated anxiety, and elevated stress.

2. Gender differences would occur for reported body avoidance behaviours, self-esteem, stress, and anxiety: females would indicate higher scores for body avoidance, anxiety, and stress, as well as lower scores for self-esteem, than their male counterparts.

3. BMI would be related to body avoidance: the higher participants' BMIs, the higher their body avoidance would be.

Method

Participants

Participants were 113 undergraduate psychology students recruited from a local university who received course credit for participating. Students were aged 18 to 45 years with a mean age of 23.7 ($SD = 6.02$). Females comprised 76.1% of the sample ($n = 86$), whilst males comprised 23.9% ($n = 27$). The total sample of 113 participants was reduced to 86 participants due to missing cases.

Measures

Body Image Avoidance Questionnaire. The Body Image Avoidance Questionnaire (BIA-Q; Rosen et al., 1991) was used to assess the behavioural tendencies that frequently accompany body-image disturbance. It is a 19-item questionnaire with items assessing degree of body avoidance and body attitudes on a six-point Likert scale (e.g., *I wear baggy clothes*). Scores for each item are added to form a total score which can range from 0 to 95. High scores indicate a higher degree of body dissatisfaction. The BIA-Q has been found to have adequate internal consistency ($\alpha = 0.89$) and test–retest reliability (r=0.87, p<0.0001; Rosen et al., 1991). The measure is highly correlated with negative attitudes about weight and shape and with perceptual distortion of size (Rosen et al., 1991).

Rosen et al., 1991).

Depression Anxiety Stress Scale (DASS-21). The DASS-21 is a 21-item self-report instrument with items designed to measure the three related negative emotional states of depression, anxiety and tension/stress. Participants were provided with a series of statements and asked to respond in terms of how much each statement applied to them over the past week. Item responses were given on a four-point Likert rating scale (Lovibond, & Lovibond, 1995). Scores were summed for each of the negative emotional states and multiplied by two, as the previous version of the DASS was a 42-item measure. Scores can range from 0 to 42 on each scale and are given a severity rating for each of the emotional categories (e.g., normal, mild, moderate, severe, and extremely severe). The DASS-21 is consistently reported as a reliable and valid measure, with a recent study reporting that the DASS had excellent reliability, and posed adequate convergent and discriminate validity (Crawford & Henry, 2010). In a study of convergent validity, the DASS was found highly correlated with the Beck Depression and Beck Anxiety Inventories (.74 and .81). . The total internal consistencies of the depression, anxiety,

and stress scales were found fairly high (.96, .89, and .93 respectively). Test-retest reliability

score of the scale was .48 (Lovibond, & Lovibond, 1995).

The reliabilities (internal consistencies) of the Stress and Anxiety scale on the DASS-21

have been demonstrated using Chronbach's coefficient alphas in general population samples of

adults (α was .90 for the Stress scale and .82 for Anxiety scale; Henry & Crawford, 2005) and

adolescents (α was .79 for Anxiety and .83 for Stress; Szabo´, 2010).

Rosenberg Self-Esteem Scale. The Rosenberg Self-Esteem Scale (RSE; Rosenberg,

1965) was used in this study to measure a student's self-esteem. The RSE is a ten-item Likert

scale with items related to general feelings about the self. Items are answered on a four-point

Likert scale and the scores range from 0 to 40; scores below 12 indicating low self-esteem, 12 to

25 indicating normal self-esteem and scores above 25 indicating high self-esteem.The

multidimensionality of the RSE has been reported in the literature (Goldsmith, 1986) and the

scale has showed excellent test-retest reliability (correlations range from .82 to .88; Rosenberg,

1979); internal consistency (Cronbach's alpha range from .77 to .88) as well as strong

convergent validity for men and women, for different ethnic groups, and for both college

students and community members (Robins, Hendin, & Trzesniewski, 2001).

Design

The current study was a correlational between-subjects design. The independent

variables were anxiety, stress, self-esteem, gender, and BMI and were continuous according to

scores on corresponding measures, except for gender, which was dichotomous. The dependent

variable of the study was participant's level of body avoidance.

Procedure

Ethical clearance was obtained from the lead institution and eligible participants who

volunteered for participation were emailed a link for the survey package, to be completed in their

own time. Enrolled students received course credit for participating and in choosing to do so, were not anonymous. Participants who did not need course credit complete the survey anonymously.

Results

All analyses were conducted using SPSS for Windows (Version 19.0) and an alpha level of .05 was utilised to determine the statistical significance of all results. Descriptive analyses were conducted to ensure data quality. The means and standard deviations for BMI, anxiety, stress, self-esteem, and body avoidance are displayed in Table 1.

Insert Table 1 here

A healthy BMI for females is generally considered to be between 19.1 and 25.8, with 19.1 being underweight. For males, a healthy BMI is said to sit between 20.7 and 26.4, with 26.4 classified as being overweight (Centre for Disease Control, 1998; World Health Organistaion, 1997). Therefore, the BMI average for this sample indicates a healthy BMI as it falls between these ranges (Neighbors & Sobal, 2006). For the stress and anxiety subscales of the DASS-21 the range of scores that are classified as normal are 0 to 14 for Stress, and 0 to 7 for anxiety. Therefore, the mean scores for stress and anxiety are low, indicating low levels of stress or anxiety. The self-esteem score is also in the normal range for the RSE (12 to 25), indicating that the sample does not demonstrate significantly high or low self-esteem. Total scores for the BIA-Q are determined by the degree of body avoidance ranging from 0 to 95, with higher scores indicating greater body avoidance. Therefore, the average score for the sample indicates that

body avoidance is present among the sample; however it is not extremely high, based on the norms.

The raw data was checked for data entry errors and missing values. Initially the data set consisted of 133 participants; however, 12 participants failed to complete the survey questions that were presented after the demographics questionnaire. Therefore, the data obtained for these participants was not useful for analysis purposes and as a result, these participants were deleted from the data set. Preliminary data analysis was conducted by running a series of one-way ANOVA's to investigate whether any demographic variables (Gender, BMI) covaried with the predictor variables or criterion variables. These analyses indicated that none of the demographic variables were related to the criterion or predictor variables.

Hierarchical Multiple Regression Analyses

A hierarchical multiple regression analysis was conducted to assess the predictive utility of the predictors in relation to body avoidance. Demographic variables were statistically controlled via first entry into the model, with the predictor variables for subsequent blocks being entered according to theoretical importance (Tabachnick & Fidell, 2007). BMI was entered on Step 1, Gender was entered on Step 2, Stress was entered on Step 3, Anxiety was entered on Step 4, and finally Self-esteem was entered on Step 5.

Hypothesis 1. Approximately 26.3% of the variance in body avoidance was accounted for once all variables were entered into the model, $R^2 = .26$, adjusted $R^2 = .22$, $F (5, 80) = 5.72$, $p < .001$. Self-esteem accounted for 0.6% of the variance in body avoidance on Step 5 of the hierarchical multiple regression analysis, R^2 change $= .006$, Fchange $(1, 80) = .69$, $p = .407$. Therefore, at its point of entry into the model self-esteem was not a significant predictor of body avoidance.

Approximately 24.5% of the variance in body avoidance was accounted for once anxiety was entered into the model, $R^2 = .25$, adjusted $R^2 = .22$, $F (3, 82) = 8.89$, $p < .001$. Anxiety accounted for a significant 11.3% of the variance in body avoidance on Step 3 of the hierarchical regression analysis, $R^2_{change} = .11$, $F_{change} (1, 82) = 12.22$, $p < .001$. Therefore, at this point of entry into the model, anxiety was a significant predictor of body avoidance.

Approximately 25.7% of the variance in body avoidance was accounted for once stress was entered into the model, $R^2 = .26$, adjusted $R^2 = .22$, $F (4, 81) = 7.00$, $p = <.001$. The addition of stress accounted for an additional 1.2% of variance in body avoidance, $R^2_{change} = .01$, $F_{change} (1, 81) = 1.27$, $p = .263$. Therefore, at its point of entry into the model, stress was not a significant predictor of body avoidance. Thus, only partial support was found for hypothesis 1 as although anxiety was found to significantly predict body avoidance, stress and self-esteem did not significantly predict body avoidance.

Hypothesis 2. Once gender was entered into the model, approximately 13.3% of the variance in body avoidance was accounted for, $R^2 = .13$, adjusted $R^2 = .11$, F $(2, 83) = 6.36$, $p = .003$. Gender accounted for a significant 10% of variance in body avoidance on Step 2 of the hierarchical multiple regression analysis, $R^2_{change} = .10$, $F_{change} (1, 83) = 9.57$, $p = .003$. Therefore, at its point of entry into the model, gender was a significant predictor of body avoidance. This supported hypothesis 2.

Hypothesis 3. Approximately 3.3% of the variance in body avoidance was accounted for once BMI was entered into the model, $R^2 = .03$, adjusted $R^2 = .02$, $F (1, 84) = 2.85$, $p = .095$. BMI accounted for 1.2% of variance in body avoidance on Step 1 of the hierarchical multiple regression analysis, $R^2_{change} = .03$, $F_{change} (1, 84) = 2.85$, $p = .095$. Therefore, hypothesis 3 was not supported as at its point of entry into the model, BMI was not a significant predictor of body avoidance.

Standardised beta coefficients were inspected to assess the unique influence of each of variable on the dependent measure, body avoidance. In the final model, two variables were found to be unique predictors of the criterion measure: gender and anxiety. Specifically, anxiety had a higher Beta value (Beta = 10.50, p = .003) than gender (Beta = -8.13, p = .004). Anxiety shared a positive relationship with body avoidance such that greater anxiety was related to greater body avoidance. The results for the hierarchical multiple regression analyses for the dependent variable body avoidance are shown in Table 2.

Insert Table 2 here

Post Hoc Analyses

An Independent samples T-test was conducted to determine if mean scores on body avoidance, anxiety, stress, and self-esteem differed significantly between males and females (Hypothesis 2). Initial examination of the data indicated that there were no significant violations of the assumptions of the t-tests for any of the dependent variables. However it is noteworthy that there were substantial differences in the number of males and females responses included in the data set. Levene's tests indicated no significant violations of the homogeneity of variance assumptions.

On average females scored higher than males on body avoidance, t (113) = 4.51, p < .001. For anxiety, females again scored higher than males, t (113) =2.28, p = .025. As expected, females also obtained an overall higher mean score for stress than males, t (113) =3.08, p = .003. However, while there was no significant difference between males and females' self-esteem, t (113) =-1.90, p = .06, this significance level does indicate that the trend was for females to have lower self esteem. The mean scores and standard error for male and female body avoidance, anxiety, stress, and self-esteem are shown in Table 3.

Insert Table 3 here

Discussion

Because university is a time of increased academic pressure and a transition into a new environment, it can be seen as a challenging time in an individual's life. Academic pressures of examinations and achieving high standards are associated with significant anxiety and stress among university students, as well as self-criticism and considerably low self-esteem as a result of not meeting standards. Given that the rates of other issues such as body avoidance are also alarmingly high in university populations, one would predict that there is a relationship between these psychosocial variables and students' dissatisfaction with their bodies.

Contrary to what was expected, self-esteem, stress and BMI were not found to significantly predict body avoidance. This is surprising considering the vast majority of research has found self-esteem to be the most important predictor of body avoidance. Most theoretical models of body avoidance and eating disorders attribute considerable responsibility to self-esteem in influencing body avoidance. Therefore, this result is surprising. As previously noted, poor body image, avoidance behaviours and dissatisfaction with appearance remains at a 'steady' rate for women and is quite normal among clinical and nonclinical samples. These results are surprising considering the measure used for self-esteem- the RSE- is a well validated and reliable measure. As mentioned previously, self-esteem can be conceptualized as having two basic forms or sources; one based on ability and the other on worth or 'goodness'. Essentially, this conceptual separation reflects the individual as both an autonomous agent and social being and can be measured in terms of self-liking and self-competence. While Rosenberg designed a measure of global self-esteem, his scale has been criticized for not measuring these two aspects independently. Rosenberg inadvertently tapped both of these elements without

distinguishing the two. Aforementioned research suggests increased academic pressures of university life are associated with low self-esteem; therefore, exploring the self-competence domain of self-esteem might result in a more accurate measure of self-esteem and its influence on body avoidance.

As previously mentioned, the current study anticipated that stress would significantly predict body dissatisfaction and consequent avoidance, in that higher scores on the stress subscale of the DASS-21 would be related to higher scores on the BIA-Q. Once again, this was not supported. While stress has been found to be related to body avoidance among samples of adolescents, little research has been conducted in university samples.

It was also anticipated that BMI would be a significant predictor of body avoidance. However, BMI was not found to significantly predict body avoidance in the current study. This is not consistent with previous work that suggests BMI is one of the strongest predictors of body avoidance among university students (Neighbors & Sobal, 2006). A possible limitation of measuring BMI is that measures are typically self-report and are therefore, subjective and open to the possibility of individuals falsifying their responses. Participants may have simply estimated their height and weight, thus subsequent BMIs may not be completely accurate. Future studies should aim to assess weight and height in person by an independent researcher.

As anticipated, elevated levels of anxiety were associated with high levels of body avoidance. In fact, anxiety was the most significant predictor of body avoidance among students out of all the predictors. It is not surprising, given the reports of high anxiety found in university students that there would be an association between reported levels of body avoidance and reported levels of anxiousness. Specifically, test anxiety has been found to be highly prevalent in university populations and is said to affect up to 30% of university students (Wachelka & Katz, 1999). The academic pressure involved with university obviously contributes to heightened anxiety.

As predicted, females also demonstrated higher levels of stress compared to males as well as higher anxiety. It was also predicted that self-esteem would be significantly different across genders; in that females would have lower self-esteem than males. Generally, research suggests that self-esteem is lower for women than for men. Contrary to what was predicted, females did not differ from males in their level of self-esteem. This is consistent with Erol and Orth (2011) who found that there was no significant difference between self-esteem between genders, despite the large sample size (7100 individuals; 49% female) and consequent considerable statistical power. While the current study is consistent with the findings of this recent study, a more consistent finding in relation to self-esteem is that females experience considerably lower self-esteem than males (Frost & McKelvie, 2004). In fact it is surprising that the current study did not find any significant results for self-esteem in relation to gender or body avoidance.

This study is not exempt from a number of limitations. Firstly, the use of self-report questionnaires may have induced social desirability biases in participants' responses, this is particularly limiting with regard to the self-report data from which BMI was calculated. Secondly, the rather limited sample-size may have reduced the statistical power of the study. Moreover, a considerably larger number of females participated in the study. This may have reduced the statistical power of the results obtained for differences between genders, and thus the results regarding gender need to be interpreted as preliminary and with caution.

The current study is one of the few studies that have explored the influence of stress, anxiety and self-esteem on body avoidance in university students. Overall, the results suggest that gender and anxiety are important predictors of body dissatisfaction. Specifically, students with higher anxiety also demonstrate greater dissatisfaction with their bodies. Moreover, female students display greater body avoidance, higher stress and higher anxiety than male students. Thus, the current findings add to the literature in relation to body avoidance and anxiety, and

gender differences between psychosocial variables and body avoidance among university students. Given that self-esteem and stress were not significant predictors of body avoidance, more research is needed in the area of academic pressures, stress, self-esteem and subsequent body avoidance. This can be accomplished with larger sample sizes and equal numbers of males and females.

Evidently, the added pressures of formal education can have serious implications on students' feelings about themselves and further research is needed to understand these issues. If future research aims to explore university populations further, potential directions for research could include measuring students' stress levels when academic pressure is at its peak around examination times and when assessments are due. By measuring the self-liking and self-competence domains of self-esteem, future studies could determine the link between feelings of self-worth and feelings of competence in relation to academic pressures and subsequent body avoidance. Evidently, the current study has added to the literature in relation to body avoidance among university students. The rates of body avoidance and eating disorders in university populations are alarming and more attention needs to be paid to the specific psychosocial variables associated with these issues in order to address them at a prevention level. The results of this study highlight the need to explore these issues in females in particular, in order to potentially identify at-risk students- with high anxiety and stress and subsequent body avoidance- prior to the development of an eating disorder.

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Table 1. The Means (M) and Standard Deviations (SD) for BMI, Anxiety, Stress, Self-Esteem and body avoidance (N=113)

Variable	M	SD
BMI	22.88	4.56
Anxiety	6.40	3.47
Stress	12.68	4.49
Self-Esteem	20.15	5.48
Body Dissatisfaction	30.20	9.96

Table 2. Hierarchical Multiple Regression Analyses Predicting body avoidance from BMI, Gender, Anxiety, Stress, and Self-Esteem

Predictor	ΔR^2	β	B	$SE\ B$	95% CI for B
Step 1					
BMI	.02	-.18	-.59	.35	[-1.29, - .106]
Constant			45.90	8.06	[29.87, 61.91]
Step 2					
Gender	.11	-.34*	-8.62	2.79	[-14.17, -3.08]
Constant			39.01	7.99	[23.12, 54.90]
Step 3					
Anxiety	.22	.347*	10.14	2.90	[4.37, 15.91]
Constant			28.95	8.03	[12.97, 44.93]
Step 4					
Stress	.22	-.13	-1.52	1.34	[-4.20, 1.16]
Constant			33.66	9.04	[15.70, 51.65]
Step 5					
Self-Esteem	.22	-.09	-.19	.23	[-.648, - .27]
Constant					[17.29, 56.66]

Total $R^2 = .26$

Note: $N = 113$, $*p < .05$, $**p < 0.01$, CI = 95% confidence intervals

Table 3. The Mean (M) and Standard Errors (SE) for Males and Females body avoidance,

Anxiety, Stress, and Self-Esteem

Variable	M	SE
Body Avoidance		
Females	32.31	1.03
Males	23.26	1.42
Anxiety		
Females	3.07	.31
Males	1.70	.43
Stress		
Females	6.41	.42
Males	3.85	.62
Self-Esteem		
Females	19.87	.54

Males	21.93	.89

Note: N = 113, body avoidance = 1 – 74, Anxiety = 0 – 40, Stress = 0 – 40, Self-Esteem = 0 – 30.