Body Image Dissatisfaction, Depression and Anxiety in a Sample of College Students

Wuman Hong¹* and Nor Shafrin Ahmad¹

¹School Of Educational Studies, Universiti Sains Malaysia, USM Penang 11800, Malaysia

Abstract:

Background: Body dissatisfaction is a common and important issue, especially for college students. It can lead to a number of negative outcomes. However, existing researches still lack attention to cultural background differences, gender differences and grade differences in body image dissatisfaction and related depression and anxiety among college students.

Aim: This study aimed to examine cultural, gender, and grade level differences in body dissatisfaction with depression and anxiety in a population of college students in China.

Methods: This study was conducted with students from a college in southern China. Three hundred twenty-nine questionnaires were administered through a random sampling method, and 150 students (67 male and 83 female) with body image dissatisfaction were finally screened. Data were analyzed using Spearman's correlation coefficient, regression analysis, Mann-Whitney U test, and homogeneity of variance test.

Results: Findings showed that body satisfaction was negatively correlated with depression and anxiety, and predictive of depression and anxiety, with no gender differences among Chinese college students. However, regarding grade level differences, body image dissatisfaction showed a significant difference in freshman and senior years.

Conclusion: The relationship between body image dissatisfaction and depression and anxiety is universal in the Chinese cultural context. Future research and college mental health education are recommended to focus on gender and grade level differences in body image dissatisfaction.

Keywords: Body image dissatisfaction, Depression, Anxiety, Gender, Grade, Education.

1. INTRODUCTION

Body image dissatisfaction refers to the negative perception and attitude individuals have towards their own bodies [1], including their size, shape, and appearance. It is an important issue [2] that affects individuals across various age groups and both genders [1]. Meanwhile, it has been a public health issue [3] that has been found to have a negative impact on mental health [2]. For example, it can lead to excessive dieting, eating disorders, and other health risk behaviors [4].

At present, most of the research on body image dissatisfaction has been focused on females, and a small number of studies on males and gender differences [5]. It may be due to the fact that most of the factors affecting body image dissatisfaction point to females. For instance, the socio-culturally constructed standard of “thin ideal” for females has become a global issue [6], forcing many of
them to strive for thinness [7]. In addition, social metaphors or symbols often infiltrate people's lives through the media, and scholars found a positive correlation between length of exposure to media and body image dissatisfaction among women of multiple races [8]. But it does not mean that there is no need to focus on male body image dissatisfaction. In fact, research on male body image has been largely ignored [5]. Gender is one of the themes in body image research [9]. It has been proven that male body image dissatisfaction is also on the rise [10]. In addition, although the concept of body dissatisfaction originated in the West, the phenomenon is no longer limited to Western countries [11]. Therefore, scholars calling attention to male body image dissatisfaction, Primus argued that it is not a women-only issue [12]. Barnes et al. believed that prospective research should focus on the types of male body image dissatisfaction [4].

Although body image dissatisfaction exists in all age groups, it is particularly prevalent among youth. Body image dissatisfaction is most pronounced during adolescence through early adulthood, increases with age [13], and is most prevalent in the college population [14]. Tripartite Influence Model in sociocultural theory is commonly used to explain the causes of body image dissatisfaction [1], but the college student population has their special characteristics. Purton et al. suggested that intrinsic weight bias plays a more pronounced role in college students' body image dissatisfaction [15]. Media exposure increases body shame and body surveillance behaviors among college students in both genders [16].

Within the college student population, the same phenomenon exists where there is more concern about female body image dissatisfaction than male. Green and Pritchard believed body image dissatisfaction is usually considered a female-related issue [17], and although the average body satisfaction of boys is lower than that of girls, boys are also dissatisfied with their bodies, mainly in terms of their pursuit of muscle mass. Thus, it is necessary to examine body image dissatisfaction among college males.

Most of the current research on college students has explored based on the whole group, but it is also worth exploring whether body image dissatisfaction varies among students of different grades. For freshmen, Howard et al. believed that gender stress due to transitional adjustment could lead to increased body image dissatisfaction [18]. For seniors, Zabinski et al. believed that intervening in body image dissatisfaction would help college seniors make the transition to working adults [19]. There has been little discussion about the intermediate grades, perhaps due to the fact that they do not have to deal with life-shocking events such as environmental adaptation or employment. Still, body image dissatisfaction is just as prevalent and noteworthy in this group.

Body image dissatisfaction and mental health are closely linked [3]. Regarding the negative outcomes of body image dissatisfaction, studies often focus on depression and anxiety in individuals. These negative effects have been shown to be present in the college population as well [20]. Depression and anxiety are common mental health problems among college students and have a significant impact on their academic performance, personal growth, and career development [21]. However, research on the relationship between these two has focused mainly on Western countries [4, 22], with little attention to other regions, such as Southeast Asia [23], Arabian region [24], and so on. It is evident that there is a lack of research on the relationship between body image dissatisfaction and depression and anxiety in the Chinese cultural context, and in order to understand whether these relationships are generalizable, the present study was proposed to be conducted in the Chinese context.

1.1. Aims of the Study

Based on the above, research on body image dissatisfaction has lacked attention to the male population, grade level differences and cultural differences among college student populations. Its relationship with depression and anxiety was also not yet clarified in the Chinese college population. Thus, the aim of this study was to examine the relationship between body image dissatisfaction with depression and anxiety. It also explores gender differences in body image dissatisfaction as well as depression and anxiety among college students in the context of Chinese culture. In addition, most of the research on body image in college students has examined entire groups of students [16, 25, 26]. Thus, this study also discussed participants categorized by grade level, with the purpose of exploring whether there were grade-level differences in college students' body image dissatisfaction, depression and anxiety, furthermore providing targeted data for other intervention studies on reducing college students' body image dissatisfaction.

1.2. Body Image Dissatisfaction and Depression and Anxiety

According to the APA dictionary of Psychology [27], depression refers to two meanings, one being an emotional state that manifests itself as unhappiness or even extreme sadness and frustration, which interferes with normal daily life, and the other being a depressive disorder. In this study, depression refers to depressive disorder. Anxiety refers to the emotional state of worry and nervousness and additionally to anxiety disorders [27].

Depression and anxiety are usually discussed together in studies of the relationship with body image dissatisfaction. Scholars have supported the idea that body image satisfaction and depression and anxiety are negatively correlated [28-30]. Based on the above, the sociocultural definition of the “thin ideal” as an aesthetic standard for females, Sides-Moore and Tochkov's study found that when females saw pictures of slim, beautiful women, their satisfaction with their own body image became lower, and was associated with depression [31]. Body image dissatisfaction is considered to be a detrimental factor leading to depression, which can easily
arise when the ideal state of appearance is not achieved by altering or modifying one’s appearance, and body image dissatisfaction and depression also lead to the probability of other mental health issues [32]. Body image dissatisfaction is also a predictor of anxiety [33]. Depression, anxiety, and perception of body image are correlated and support the idea that depression and anxiety accompany each other [34].

In order to test whether the relationship between body image dissatisfaction, depression and anxiety is generalizable in the Chinese cultural context, the present study hypothesized (H1) that body image satisfaction and depression, body image satisfaction and anxiety are negatively and linearly correlated.

1.3. Gender Differences in Body Image Dissatisfaction

In its manifestations, gender differences in body image dissatisfaction are largely due to differences in socio-cultural standards that demand slimness for females [6] and body shaping focused on muscle building for males [35]. For college students, societal culture is influenced primarily through peers and the media [36]. Media spin can cause girls to constantly strive for slimness [37], even though most of them are not obese. This also leads them to pay more attention to external information related to being “fat” or “thin” [38]. As girls become more dissatisfied with their bodies, they increase their weight control behaviors, such as dieting [11]. Females invest more time in the pursuit of the perfect body image than males [5]. Compared to girls, boys' weight control behaviors are manifested in a focus on body shape and muscle mass.

On the outcome variable, body satisfaction is negatively correlated with depression and anxiety [39, 40]; it is reflected to varying degrees in both genders. Females have higher levels of body dissatisfaction than males, and this difference is also reflected in the depression triggered by body image dissatisfaction [41]. Barnes et al. [4] found that body image dissatisfaction in males was positively associated with depression and anxiety and pointed to muscularity and thinness, and called for future research to focus on the relationship between body image dissatisfaction and depression and anxiety in males.

Since current researches focus more on females, in order to test whether there is a gender difference in body image dissatisfaction, this study hypothesized (H2) that there are gender differences in body image dissatisfaction, depression and anxiety and that females have a higher level of dissatisfaction than males.

1.4. Grade Differences in Body Image Dissatisfaction

Research on differences in body image dissatisfaction among students in different grades of college is limited. For example, Gao et al. [42] found a more significant relationship between body image dissatisfaction and anxiety in freshman girls. Cruz-Bojórquez et al. found that body image dissatisfaction affects the career choices of freshmen nutrition majors [43]. Zabinski et al. examined the impact of physical activity on seniors' adjustment to the workplace after graduation [19]. These studies illustrate that there are grade-level differences in body image dissatisfaction, and it is worth exploring whether there are also grade-level differences in the effects of body image dissatisfaction on depression and anxiety. In addition, current research is predominantly focusing on freshmen and seniors, and it is worth exploring the status of intermediate grades.

For the purpose of detecting grade-level differences in body image dissatisfaction, this study hypothesized (H3) that there are grade level differences in body image dissatisfaction, depression and anxiety and that freshmen and seniors have higher levels than intermediate grades.

2. METHODS

2.1. Participants

The participants were from a college in Southern China. The scales were distributed to students through random sampling, and 329 scales were eventually collected, with 318 valid scales and a valid collection rate of 96.657%. Participants were aged 18-24. Among all valid questionnaires, 117 are males (36.792%) and 201 are females (63.208%). Regarding grades, 70 were freshmen (22.013%), 76 were in second year (23.899%), 122 were in third year (38.365%), and 50 were in fourth year (15.723%).

In the division of extreme groups, 27% of the high and low score ends were taken as the high and low groups [44], and this approach was also used in Chen’s [45] study on body image of college students, i.e., those with a mean score of less than 3 were defined as having body image dissatisfaction or very dissatisfied. According to this approach, students with body image dissatisfaction were screened from the validated questionnaires (Table 1). Out of 318 scales, 150 participants with varying degrees of body image dissatisfaction were screened. Although the fourth-grade students screened 2 more males than females for the presence of body image dissatisfaction, overall, 67 males and 83 females had body image dissatisfaction, representing 44.667% and 55.333% of the participants. Overall body image dissatisfaction rate of 47.170%.

<table>
<thead>
<tr>
<th>Table 1. Subject information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Grade</td>
</tr>
<tr>
<td>Grade 1</td>
</tr>
<tr>
<td>Grade 2</td>
</tr>
<tr>
<td>Grade 3</td>
</tr>
<tr>
<td>Grade 4</td>
</tr>
</tbody>
</table>

2.2. Measurements Body image dissatisfaction

The Multidimensional Body-Self Relations Questionnaire (MBRSQ) is a self-report questionnaire with 69 items designed to assess body image attitude [46]. It contains seven factor subscales and three additional subscales, namely, Appearance Evaluation, Appearance Orientation,
Fitness Evaluation, Fitness Orientation, Health Evaluation, Health Orientation, Illness Orientation, Body Areas Satisfaction Scale, Overweight Preoccupation and Self-classified Weight. Three of the subscales related to the appearance factor (i.e., Appearance Evaluation, Appearance Orientation and Body Areas Satisfaction Scale) measure an individual's body image satisfaction [46]. The Chinese version of the Multidimensional Body-Self Relations Questionnaire (MBSRQ) developed by Wang and Wang [47] was selected for this study and only the three subscales related to the assessment of body satisfaction were used. Wang and Wang [47] reported that the translated questionnaire was normally distributed and internally consistent with a Cronbach's alpha of .72, supporting the validity of the questionnaire. The Cronbach's alpha of the three subscales used in this study are .72 (Appearance Evaluation), .84 (Appearance Orientation) and .75 (Body Areas Satisfaction Scale). The subscales are scored on a five-point Likert scale from 1 (strongly disagree or strongly dissatisfied) to 5 (strongly agree or strongly satisfied), after reverse scoring, where necessary, and calculate the total score.

2.2.1. Depression

The Self-Rating Depression Scale (SDS) is a 20-item scale designed to measure levels of depression [48]. The Chinese version developed by Wang and Chi [49] was used in this study. Scored on a four-point scale ranging from 1 (a little of the time) to 4 (most of the time). Wang and Chi [49] measured participants using both the Hamilton Depression Scale (HAMD) and the Self-Rating Depression Scale (SDS), which reported a Spearman's $\rho$ of .783 and is suitable for adults.

2.2.1. Anxiety

The Self-Rating Anxiety Scale (SAS) is a 20-item scale designed to measure levels of anxiety [50]. The Chinese version developed by Wang and Chi [51] was used in this study. Scored on a four-point scale ranging from 1 (a little of the time) to 4 (most of the time). Wang and Chi [52] measured participants using both the Hamilton Anxiety Scale (HAMA) and the Self-Rating Anxiety Scale (SDS), which reported a Spearman's $\rho$ of 768 and is suitable for adults.

2.3. Procedure

This study first received permission from the college administration and a participant recruitment notice was issued through their Mental Health Education and Counseling Center. Students were informed of the purpose of this study and volunteered to participate in completing the questionnaire. Using WenJuanXing (a Chinese online survey software) as a data collection tool, participants completed and submitted the scale online by scanning a QR code.

3. RESULTS

3.1. Subject Information

Table 2 reports the descriptive statistics of the variables in this study. Since the data on body image dissatisfaction, depression and anxiety did not fit a normal distribution, the Spearman coefficient was chosen for analysis. The results (Table 3) showed $\rho$=-.560, $p$<.001 between body image satisfaction and depression; and $\rho$=-.658, $p$<.001 between body image satisfaction and anxiety, illustrating a negative correlation between body image satisfaction and depression, and a negative correlation between body image satisfaction and anxiety. To explore whether body image dissatisfaction was predictive of depression and anxiety (Table 4 and 5), it was found through regression analysis that body image dissatisfaction predicted 10.400% of depression ($\beta$=-.322, $t$=-4.139, $p$<.001) and predicted 16.600% of anxiety ($\beta$=-.407, $t$=-5.424, $p$<.001).

Table 2. Descriptive statistics of the variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBSRQ</td>
<td>150</td>
<td>2.436</td>
<td>.480</td>
<td>.230</td>
</tr>
<tr>
<td>SDS</td>
<td>150</td>
<td>57.087</td>
<td>10.117</td>
<td>102.362</td>
</tr>
<tr>
<td>SAS</td>
<td>150</td>
<td>50.060</td>
<td>11.342</td>
<td>128.647</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>150</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 3. Correlations between body image dissatisfaction and depression and anxiety.

<table>
<thead>
<tr>
<th>Spearman's rho</th>
<th>MBSRQ</th>
<th>SDS</th>
<th>SAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBSRQ</td>
<td>1.00</td>
<td>-560**</td>
<td>-658**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>N</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
</tbody>
</table>

Table 4. Regression analysis of body satisfaction on depression.

<table>
<thead>
<tr>
<th>Constant</th>
<th>$\beta$</th>
<th>$R^2$</th>
<th>$t$</th>
<th>$p$</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBSRQ</td>
<td>-.322</td>
<td>.104</td>
<td>-4.139</td>
<td>&lt;.001</td>
<td>17.132</td>
</tr>
</tbody>
</table>

Furthermore, the number of “very dissatisfied” and “mostly dissatisfied” for each item on Body Areas Satisfaction Scale (subscales of the MBSRQ) were: Face (facial features, complexion) 132, Hair (color, thickness, texture) 151, Lower torso (buttocks, hips, thighs, legs) 192, Mid torso (waist, stomach) 162, Upper torso (chest or breasts, shoulders, arms) 168, Muscle tone 166, Weight 179, Height 190, Overall appearance 120.

Table 5. Regression analysis of body satisfaction on anxiety.

<table>
<thead>
<tr>
<th>Constant</th>
<th>$\beta$</th>
<th>$R^2$</th>
<th>$t$</th>
<th>$p$</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBSRQ</td>
<td>-.407</td>
<td>.166</td>
<td>-5.424</td>
<td>&lt;.001</td>
<td>29.418</td>
</tr>
</tbody>
</table>

3.2. Body Image Dissatisfaction and Depression and Anxiety between Genders

According to descriptive statistics (Table 6), body image dissatisfaction, depression, and anxiety differed in
Body Image Dissatisfaction

mean and standard deviation according to gender grouping. The Mann-Whitney U test revealed that the p values of body image dissatisfaction and depression and anxiety were greater than .050 in both gender groups (Table 7), so there was no significant difference.

Table 6. Group statistics.

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>MBSRQ Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>67</td>
<td>2.457</td>
<td>.458</td>
<td>.056</td>
</tr>
<tr>
<td>Female</td>
<td>83</td>
<td>2.419</td>
<td>.499</td>
<td>.055</td>
</tr>
<tr>
<td>Male</td>
<td>67</td>
<td>55.224</td>
<td>10.675</td>
<td>1.304</td>
</tr>
<tr>
<td>Female</td>
<td>83</td>
<td>58.590</td>
<td>9.442</td>
<td>1.036</td>
</tr>
<tr>
<td>Male</td>
<td>67</td>
<td>48.851</td>
<td>11.381</td>
<td>1.390</td>
</tr>
<tr>
<td>Female</td>
<td>83</td>
<td>51.036</td>
<td>11.285</td>
<td>1.239</td>
</tr>
</tbody>
</table>

3.3. Body Image Dissatisfaction in Different Grades

Based on descriptive statistics (Table 8), there were differences in body image dissatisfaction across the four grades. The levels of dissatisfaction, in descending order, are Grade 4 (M=2.153), Grade 1 (M=2.252), Grade 3 (M=2.666) and Grade 2 (M=2.670). In order to test whether their differences were significant or not, a homogeneity of variance test was used. The results (Table 9) showed significant differences between Grade 1 and Grade 2, Grade 1 and Grade 3, Grade 4 and Grade 2, Grade 4 and Grade 3. However, there was no significant difference in depression and anxiety levels.

Table 8. Intergender group statistics.

<table>
<thead>
<tr>
<th>Grade</th>
<th>MBSRQ Mean</th>
<th>SDS Mean</th>
<th>SAS Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>2.252</td>
<td>58.477</td>
<td>52.659</td>
</tr>
<tr>
<td>Grade 2</td>
<td>2.670</td>
<td>58.788</td>
<td>48.727</td>
</tr>
<tr>
<td>Grade 3</td>
<td>2.666</td>
<td>55.146</td>
<td>48.000</td>
</tr>
<tr>
<td>Grade 4</td>
<td>2.153</td>
<td>55.906</td>
<td>50.500</td>
</tr>
<tr>
<td>Total</td>
<td>2.436</td>
<td>57.087</td>
<td>50.060</td>
</tr>
</tbody>
</table>

Table 9. Multiple comparisons.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>(I)Grade</th>
<th>(J)Grade</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBSRQ</td>
<td>Grade1</td>
<td>Grade2</td>
<td>-.418*</td>
<td>.098</td>
<td>.001</td>
<td>-.679 -.157</td>
</tr>
<tr>
<td></td>
<td>Grade3</td>
<td>Grade2</td>
<td>-.415*</td>
<td>.092</td>
<td>.001</td>
<td>-.661 -.168</td>
</tr>
<tr>
<td></td>
<td>Grade4</td>
<td>Grade2</td>
<td>.098</td>
<td>.099</td>
<td>1.000</td>
<td>-.165 .362</td>
</tr>
<tr>
<td></td>
<td>Grade3</td>
<td>Grade4</td>
<td>.004</td>
<td>.099</td>
<td>1.000</td>
<td>-.262 .269</td>
</tr>
<tr>
<td></td>
<td>Grade4</td>
<td>Grade4</td>
<td>.516*</td>
<td>.105</td>
<td>.001</td>
<td>.235 .798</td>
</tr>
<tr>
<td></td>
<td>Grade3</td>
<td>Grade2</td>
<td>.513*</td>
<td>.100</td>
<td>.001</td>
<td>.245 .780</td>
</tr>
<tr>
<td>SDS</td>
<td>Grade1</td>
<td>Grade2</td>
<td>-.311</td>
<td>2.324</td>
<td>1.000</td>
<td>-6.527 5.906</td>
</tr>
<tr>
<td></td>
<td>Grade3</td>
<td>Grade2</td>
<td>3.331</td>
<td>2.191</td>
<td>.783</td>
<td>.752 9.191</td>
</tr>
<tr>
<td></td>
<td>Grade4</td>
<td>Grade2</td>
<td>2.571</td>
<td>2.345</td>
<td>1.000</td>
<td>-.370 8.843</td>
</tr>
<tr>
<td></td>
<td>Grade3</td>
<td>Grade2</td>
<td>3.642</td>
<td>2.360</td>
<td>.750</td>
<td>-2.672 9.955</td>
</tr>
<tr>
<td></td>
<td>Grade4</td>
<td>Grade2</td>
<td>2.882</td>
<td>2.504</td>
<td>1.000</td>
<td>-.816 9.579</td>
</tr>
<tr>
<td></td>
<td>Grade3</td>
<td>Grade4</td>
<td>-.760</td>
<td>2.381</td>
<td>1.000</td>
<td>-.712 5.608</td>
</tr>
</tbody>
</table>

Note: a. The significance level is .050.
b. Asymptotic significance is displayed.
4. DISCUSSION

The present study was designed to determine body image dissatisfaction, depression and anxiety among youth in a Chinese cultural context. The current status and interrelationships of body image dissatisfaction, depression, and anxiety were examined in students at a college in southern China, and the current status of these variables in different groups was explored based on gender and grade level. It was also to verify whether the current research findings on body image dissatisfaction and, depression and anxiety are generalizable in the Chinese cultural context.

First, the overall body image dissatisfaction was investigated; the rate of body image dissatisfaction was 47.170%, and there was a negative correlation between body image satisfaction and depression and body image dissatisfaction and anxiety. This result is consistent with previous findings [28-30]. This may be due to the fact that the more exposure to Western culture, the lower the level of body image satisfaction [52], furthermore, the development of the media provides an effective means of disseminating culture. In addition, Chen and Jackson confirmed the similarity of cognitive biases triggered by body image dissatisfaction across cultures by taking American and Chinese college students as study subjects [53]. Body image dissatisfaction was predictive of depression and anxiety, and this finding was congruent with previous studies [32-34]. However, body image dissatisfaction only partially predicted depression and anxiety, which may be due to the larger number of factors contributing to depression and anxiety. For example, Bhujade believed that depression and anxiety in college students were related to academic stress [54], and Gao et al. believed that anxiety in college students was related to personality [42]. In sum, hypothesis 1 (H1) can be established.

Second, body image dissatisfaction was detected separately in both genders. Although body image dissatisfaction, depression and anxiety showed numerical inconsistencies between the genders, differences in the analysis of variance showed no significant differences between the genders in these variables. This result is consistent with existing studies and hypothesis 2 (H2) is rebutted. Existing research has demonstrated gender differences in the manifestation of body image dissatisfaction [6, 35, 11], but there are still differing findings regarding gender differences in levels of negative mental health outcomes that may need to be considered in conjunction with other correlates [55]. In addition, the insufficient sample size of this study, in which only students from one college were selected as subjects, may also have contributed to the absence of significant differences in body image dissatisfaction between the genders.

Third, differences in the “grade” dimension of body image dissatisfaction, depression and anxiety were examined. The results revealed that body image dissatisfaction was most significant in grades 1 and 4, and that dissatisfaction was higher in grade 4 than in grade 1. Overall, the levels of body image dissatisfaction in the middle two grades were close to each other, and the four grades showed a U-shaped structure of body image dissatisfaction. In addition, there were no significant differences in depression and anxiety across the four grades. Therefore, hypothesis 3 (H3) partially hold and it can be argued that there are grade-level differences in body image dissatisfaction. Due to the limited research on grade-level differences in body image dissatisfaction among college students, this study cannot be compared extensively with the results of other studies. However, the current study shows that scholars have focused on freshmen and grade 4 groups [19, 43], which may briefly indicate that body image dissatisfaction is more pronounced in these two grades.

Furthermore, the results of the Body Areas Satisfaction Scale' survey on specific body part dissatisfaction, the level of dissatisfaction in descending order: lower torso (buttocks, hips, thighs, legs), height, weight, upper torso (chest or breasts, shoulders, arms, muscle tone, mid torso (waist, stomach), hair (color, thickness, texture), face (facial features, complexion), overall appearance. These results help to understand the specific manifestations of body image dissatisfaction among Chinese college students and inform the content focus of the intervention design.

The present study is an extension of existing theories in terms of their regional applicability, as well as a supplement to existing research findings. For example, the generalizability of the relationship between body image dissatisfaction and depression and anxiety in the Chinese cultural context was verified; specific data support was provided for grade-level differences in body image dissatisfaction.

There are also studies by Chinese scholars on body image dissatisfaction among college students. Wang et al. demonstrated that body image dissatisfaction was
Body Image Dissatisfaction

positively correlated with negative emotions and negatively correlated with self-esteem level and subjective well-being [56]. Wang et al. demonstrated a positive correlation between body image dissatisfaction and mental health by using depression level as a measure of mental health [57]. These studies have been conducted with the whole group of college students. It can be seen that although studies of college students’ body image dissatisfaction in the context of Chinese culture do exist, the types of negative outcomes focused on are few, and discussions from the grade level dimension are lacking, and this study is a supplement to the above-mentioned shortcomings.

It is worth noting that future research on gender differences in body image dissatisfaction could be combined with other factors [54], such as other negative consequences triggered by body image dissatisfaction. In terms of grade level differences, future research could focus on two groups, freshmen and seniors, due to the adaptive stress created by freshman year in facing a new environment would have an impact on body image [18] and seniors need to face pressures arising from employment issues. On this basis, the inspiration for future research is also reflected in whether there are professional differences in body image dissatisfaction within the college student population.

CONCLUSION

The prevalence of body image dissatisfaction has begun to attract the attention of Chinese scholars and has been verified to be positively correlated with many negative emotions [58]. At the same time, the prominence of body image dissatisfaction in the college population suggests that this issue cannot be ignored. In college mental health education, it is recommended that body appreciation, cognitive construction, and emotional regulation be included to help students reduce body image dissatisfaction as well as weaken its negative effects. Additionally, the grade level difference is also a worthy concern and can be especially considered to be guided in conjunction with important life events for the students. The absence of grade-level significant differences in depression and anxiety suggests that perhaps their levels are just on the high side, and is an issue that needs to be brought to the attention of school administrators.

LIMITATIONS

Although this study provides informative findings into the relationship between body image dissatisfaction and mental health outcomes among college students, it is important to recognize its limitations. The limitations include: (1) Sampling Bias: This study was conducted with students from one college, which may limit the generalizability of the findings to all Chinese college students. (2) Cross-Sectional Nature: This study only focused on the relationship between body image dissatisfaction and depression and anxiety at specific time points, a longitudinal study would be beneficial in establishing an understanding of causality or long-term effects. (3) Self-Report Measures: The use of self-report measures may introduce bias and subjectivity. For example, recall bias may affect the accuracy of participants' responses to their body image dissatisfaction and mental health symptoms.

CONCLUSION

This study explored the level of body image dissatisfaction and its relationship with depression and anxiety among college students, categorized and discussed according to gender and grade level, using a sample of students from a college in southern China. This study was based on the Chinese cultural context, and validates once again that body image satisfaction is negatively associated with depression and anxiety among college students and varies across grades. It both complements existing research and informs future research directions.

AUTHORS' CONTRIBUTIONS

It is hereby acknowledged that all authors have accepted responsibility for the manuscript's content and consented to its submission. They have meticulously reviewed all results and unanimously approved the final version of the manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study complied with ethical protocols obtained from Chaohzhou Teachers College Hanshan Normal University regarding the survey of their students.

HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committee and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

Prior to their participation, informed consent was obtained from all participants, ensuring their voluntary and informed agreement to take part in the study.

AVAILABILITY OF DATA AND MATERIALS

All data were obtained from students at Chaohzhou Teachers College Hanshan Normal University.

STANDARDS OF REPORTING

STROBE and SAGER guidelines were followed.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest financial or otherwise.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to the participants for their support of this study.
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