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# Weight Stigma Perceived Body Shape and Psychological Distress in University Students with Different Weight Groups

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## ABSTRACT

**Aim of the Study:** This study sought to investigate the relationships among weight stigma, perceived body shape, and psychological distress in university students in different weight groups. It was hypothesized that there is likely to be a relationship between weight stigma, perceived body shape, and psychological distress. Perceived body shape and weight stigma are likely to positively predict psychological distress.

**Methodology:** This research adopted a cross-sectional research methodology. The sample included n=289 participants (n=128 male and n=161 female students) from two government universities in Pakistan. The consent form, demographic information sheet, Weight Self Stigma Questionnaire (WSSQ) (Wong et al., 2018), Body Shape Questionnaire (BSQ) (Cooper et al., 2006), and Kessler Psychological Distress Scale (K10) (Kessler, 2002) were used to collect information.

**Findings:** The research findings demonstrate that weight stigma and perceived body shape are positively correlated with psychological distress in university students in different weight groups. There was a mean difference in weight stigma, perceived body shape, and psychological distress among university students of varying weight groups. Perceived body shape is a perfect mediator between weight stigma and psychological distress. There was no gender difference in weight stigma, perceived body shape, or psychological distress.

**Conclusion:** The findings significantly impact the development of awareness campaigns that teach obese students healthy coping mechanisms and self-esteem-enhancing techniques. These campaigns additionally promote the sense of pride that overweight people experience using social support-based programs.

**Keywords:** Weight Stigma, Perceived Body Shape, Psychological Distress, University Students, Weight Groups.

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## Introduction

The term "weight stigma" refers to unfavorable opinions about people's weight that are often expressed as discrimination based on behavioral patterns (e.g., socially isolating or harassing obese people), adverse

emotional reactions (e.g., subsistence frustrated or hating someone who is overweight), and stereotypes (e.g., individuals who have been overweight are fainéant) (Puhl et al., 2007).

Weight stigma refers to unlawful discrimination and ideologies aimed at people based on their mass and volume. Weight stigma is caused by negative body image. Obesity-related opposing ideologies are regarded as weight bias. Weight stigma refers to any stereotypical image or stigmatization of a person who is overweight or obese solely due to their body weight. Body image, defined as the social depreciation of people with a greater mass index across weight-based discrimination, stigmatization, and discrimination, is ubiquitous. Weight-related teasing has been linked to poor self, dissatisfaction with one's body image, and symptoms of depression (Greenleaf et al., 2006).

Body shape concern, in particular, captures whether such an individual perceives his or her modern shape as unacceptable and findings self-devaluation (e.g., guilt, perceptions of low level of self-control) (Cooper et al., 2006). Body shape is thought to be steadier and associated with much more critical biopsychosocial outcomes than body image dissatisfaction (Grilo, 2013; Mond & Hay, 2011), which includes smoking (Copeland et al., 2016), internalized weight discrimination (Durso et al., 2016), unhealthy eating attitudes (Juarascio et al., 2011), emotional problems such as anxiety and depression, poorer self-reported sleep and nutritious food, and lower enjoyment of food (Austin et al., 2017).

Body image is a vital structure that encapsulates what people perceive, assume, believe, and behave forward into our bodies and ranges from healthy (i.e., precise and reliable and mostly optimistic) to unhealthy body image (i.e., factually incorrect and primarily false) (Grogan, 2010). Both obesity and physical inactivity are linked to poor body image, according to previous research (Harriger & Thompson, 2012). A study of 5,255 Australian women revealed that higher levels of body dissatisfaction were linked to lower physical and mental health-related quality of life, as well as lower psychosocial functioning. Body dissatisfaction was found to have a weaker correlation with physical health-related QoL than with mental health-related QoL, indicating that the underlying causes may be psychological rather than physical (Mond et al., 2013).

Psychological distress is an uncomfortable objective condition of depression and anxiety that manifests physically and psychologically. Psychological discomfort is a condition of emotional anguish marked by depressive symptoms (such as diminished curiosity, depression, and pessimism) and anxiety (such as tenseness, and restlessness) (Mirowsky & Ross, 2002). The psychological issues arise not only as a result of disease mortality and morbidity but also as a result of the social and economic effects of the disease.

A wide definition of psychological distress is an emotional state marked by depressive symptoms, such as interest loss, hopelessness, and feelings of worthlessness, and anxiety symptoms, such as restlessness and anxiety (Mirowsky & Ross, 2002). All of these factors could be related to physical manifestations (such headaches, insomnia, and low energy) that vary by culture (Kleinman, 1991; Kirmayer, 1989). The association between a higher BMI and poorer psychological wellness appears to be mostly explained by perceived weight stigma (Hunger & Major, 2015; Robinson et al., 2017). Furthermore, Goldsmith et al. (1992) reported that 55.6% of their weight loss participants had present or previous psychiatric disorders, particularly significant depression and dysthymia.

## Theoretical Framework

Rejection-identification framework and the social identity method for well-being were used to explore the correlations between weight stigma, social identification, and psychological distress. Social identification and emotional stress were both favorably related to perceived stigma. A simple mediation assessment revealed that perceived stigma had a significant positive effect on mental distress via identity construction. Even so, moderated mediation findings show that the mediating role is impacted by internalized bias (Curll & Brown, 2020).

According to the rejection-identification model (RIM), members of a stigmatized minority may be less likely to experience negative impacts of stigma, such as low self-esteem, if they choose to identify with each other instead of the greater community (Bogart et al., 2018).

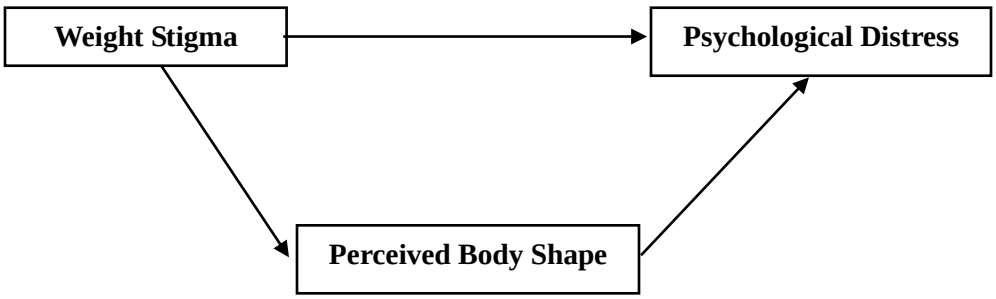


**Figure 1:** *Theoretical Framework*

## Literature Review

A study was conducted on women's body weight, perceived weight shame, and psychological health. The findings show that the psychological impact of weight-based differences is dependent mainly on social standing. These findings show that a more significant social standing buffers the psychological effects of weight stigma (Ciciurkaite & Perry, 2017).

Curll and Brown (2020) investigated the factors determining the association among weight stigma and psychological distress. Social identification and psychological discomfort were both positively associated with perceived stigma. A simple mediation study revealed that stigmatization has a favorable implicit impact on psychological suffering via social identification.

Wu and Berry (2017) proposed a connection between weight stigma and psychological well-being in obese or overweight people through a systematic review. The inclusion criteria were quantifiable studies that investigated the connections between stigmatization and physiological and mental clinical outcomes in people who were overweight or obese. The finding shows that stigmatization is favorably connected with metabolic syndrome, mellitus risk, stress hormone levels, peroxidation levels, C-reactive protein levels, and eating problems; overweight and obese people have poorer health, anxiety, negative body image, and poor self.

A study examined the relationship between perceived weight stigma and psychological distress, focusing on the role of binge eating. It involved 400 university students in Hong Kong and 307 in Taiwan. The findings showed that perceived weight stigma was linked to unhealthy eating habits, depression, anxiety, and eating disorders (Lin et al., 2019).

A study conducted in Pakistan explored the connections between body-related shame, guilt, dissatisfaction, and depression among obese university students. The findings indicate that body shame related to weight had a significant association with guilt, depression, and BMI. Significant positive predictors of depression among obese university students included weight-related body shame, weight-related body guilt, general dissatisfaction, head dissatisfaction, and body dissatisfaction. Moreover, female obese students reported higher levels of body shame, general dissatisfaction, and head and body dissatisfaction (Naveed et al., 2023). Additionally, the prevalence of obesity, overweight, normal weight, and underweight in Pakistani school-aged children and adolescents was 21.9%, 66.9%, 5.8%, and 5.4%, respectively (Tanveer et al., 2022).

### *Rationale*

The study aims to better understand the relationship between psychological distress, weight stigma, and perceived body shape among university students of different weight categories (male and female). Previous research has shown that weight stigma can lead to negative psychological effects, such as a negative body image and increased risk of anxiety and depression. The study also investigates the impact of weight stigma on both males and females in Lahore, Pakistan. This research is essential for developing interventions and support systems for students dealing with weight stigma, and for creating a more compassionate and welcoming atmosphere in universities.

## Methodology

### *Research Design*

This study employed a cross-sectional correlational research design to investigate the connection between weight stigma, perceived body shaping, and psychological distress among university students, considering various weight groups.

### *Data Collection*

Data were collected from two government universities in Lahore, Pakistan; the research study commenced data collection in December 2021, utilizing hard-copy questionnaires distributed among university students.

### *Sample*

The sample data were collected using the nonprobability sampling technique. The study included 289 university students, 128 males and 161 females. The participants ranged in age from 18 to 24 years. This diverse group of university students was chosen to investigate and analyze various aspects within the specified age range, providing valuable insights into the research objectives. The criteria for inclusion in the study involved university students without a history of physical or psychological issues. In contrast, exclusion criteria applied to students currently undergoing exams.

**Table 1:** *Descriptive statistics of the demographic variables*

| **Demographic Characteristics** | **Range Min. – Max.** | ***M (SD)*** | ***f* (%)** |
|---|---|---|---|
| Age (in years) | 18 - 26 | 20.9 (1.26) | |
| **Gender** | | | |
| Male | | | 128 (44.3) |
| Female | | | 161 (55.7) |
| **BMI (Weight Categories)** | | | |
| Underweight | | | 80 (27.7) |
| Normal Weight | | | 99 (34.3) |
| Over Weight | | | 110 (38.1) |
| **Education** | | | |
| University 1 | | | 157 (54.3) |
| University 2 | | | 131 (45.3) |
| **Birth order** | | | |
| Firstborn | | | 85 (29.4) |
| Middle born | | | 116 (40.1) |
| Last born | | | 68 (23.5) |
| Only Child | | | 20 (6.9) |
| **Family system** | | | |
| Nuclear | | | 152 (52.6) |

| | |
|---|---|
| Joint | 137 (47.4) |
| **University** | |
| MSc | 90 (31.1) |
| BS | 199 (68.9) |
| **Hostilities** | |
| Yes | 151 (52.2) |
| No | 138 (47.8) |
| **Drinks in a week** | |
| Tea | 91 (31.5) |
| Coffee | 34 (11.8) |
| Milk | 34 (11.8) |
| Shakes | 62 (21.5) |
| Packet juices | 29 (10.0) |
| Carbonate drink | 37 (12.8) |
| Any other | 2 (.7) |
| **Meat in a week** | |
| 1 Day | 79 (27.3) |
| 3 Days | 120 (41.5) |
| 7 Days | 90 (31.1) |
| **Fast food in a week** | |
| 1 Day | 95 (32.9) |
| 3 Days | 115 (39.8) |
| 7 Days | 79 (27.3) |
| **Junk food in a week** | |
| 1 Day | 78 (27.0) |
| 3 Days | 95 (32.9) |
| 7 Days | 116 (40.1) |
| **Vegetables in a week** | |
| 1 Day | 136 (47.1) |
| 3 Days | 92 (31.8) |
| 7 Days | 61 (21.1) |
| **Sweets in a week** | |
| 1 Day | 116 (40.1) |
| 3 Days | 95 (32.9) |
| 7 Days | 78 (27.0) |

### *Assessment Measure*

Demographic information questionnaires were used to gather information about the participants, such as name, age, sex, education, birth order, occupation, family status, body height, body weight, and meal choices.

The WSSQ, a 12-item scale created by Jason et al. (2012), assesses fear of judgment and self-perception regarding weight and body shape. It contains a 5-point Likert scale from completely disagree to agree. The measure has high reliability and validity, with two subscales: self-devaluation (items 1–6) and fear of enacted stigma (items 7–12).

The Body Shape Questionnaire (BSQ) is an effective tool for measuring weight and shape, with a particular emphasis on the sense of "feeling fat" (Cooper et al., 1993). The BSQ, which has 16 items with scores ranging from 1 to 6, was created in 1993 and is based on an earlier version from 1987. This validated questionnaire with high reliability ($\alpha = 0.95$) investigated the relationship among body image

and mental health, including sadness and low self-esteem. Scores under 38 indicate no shape worries, Scores between 38 and 51 imply a slight concern about shape, 52 to 66 denote a vital concern, and scores beyond 66 denote a severe concern.

The Kessler Psychological Distress Scale (K10) is a straightforward measure for assessing psychological distress that involves asking ten questions about emotional states, each with a five-point answer scale. Scores range from 10 to 50, with lower scores suggesting less distress and higher levels indicating more significant distress. The likelihood of having a mental disorder is classified as follows. 10-19 indicate good health, 20-24 indicate mild disorders, 25-29 indicate moderate disorders, and 30-50 indicate severe disorders. The K10 is a reliable instrument used for quick screenings to detect various degrees of distress.

### *Procedure*

Consent was obtained from the authors of the scales. The tools used by the researcher were the Weight Self-Stigma Questionnaire (WSSQ), Body Shape Questionnaire (BSQ), and Kessler Psychological Scale (K10). Permission was sought from the heads of the respective universities. Participants were assured that the information would be kept private and that their identities would remain anonymous. Participation was entirely voluntary. Participants were instructed to complete the questionnaire after introducing and briefly discussing the study's goal. It took approximately five to eight minutes to complete the survey. The data were then evaluated and discussed using statistical procedures.

### *Ethical Considerations*

Consent was obtained from the authors of the tools. The relevant authorities granted permission for data collection from the sample. The significance of the research and the nature of the measures used in this research study were thoroughly explained, and consent was obtained from the participants. The participants were guaranteed that the information they acquired would be kept confidential and would not be utilized for any reason other than this research. The study participants gave their informed consent and were free to stop participating at any time during the research.

## Results

The present research explored the relationships between weight stigma, perceived body shape, and psychological distress in university students with different weight groups. This section will present the research findings following the hypotheses. The data were analyzed using SPSS in the following key steps: (i) The descriptive statistics and reliabilities of weight stigma, perceived body shape, and psychological distress. (ii) Descriptive statistics and Pearson-product moment correlation coefficient analysis were used to assess the relationships among weight stigma, perceived body shape, and psychological distress. (iii) Mediation regression analysis was used to determine the role of perceived body shape as a mediator between weight stigma and psychological distress. (iv) ANOVA was performed to determine the differences in BMI according to weight stigma, perceived body shape, and psychological distress. (v) Independent sample t test showing the differences between males and females in weight stigma, perceived body shape, and psychological distress.

### *Descriptive Statistics and Reliabilities of Study Variables*

Descriptive statistics and reliability analysis were run to examine the study variables' means, standard deviations, range scores, and reliability.

Table 2: *Descriptive Statistics of the Study Variables*

| **Variables** | ***M*** | ***SD*** | ***Range*** | ***Cronbach is a*** |
|---|---|---|---|---|
| Weight Stigma | 34.18 | 11.95 | 47 | .902 |
| Body Shape | 46.48 | 26.07 | 140 | .950 |
| Psychological Distress | 34.78 | 10.56 | 40 | .916 |

**Note:** M= Mean, SD = Standard deviation, *a* = Cronbach's alpha

The alpha reliability of the three scales was calculated using SPSS software. These include the weight stigma scale, perceived body shape, and psychological distress scale (K-10). The weight stigma scale, which has 12 items, has a high Cronbach's alpha reliability of .902. The Body Shape Questionnaire comprises 16 items with a Cronbach's alpha reliability of .950. The psychological distress scale (K-10) has a noteworthy Cronbach's alpha reliability of .916. Overall, the dependability statistics show that all scales are internally consistent.

### *Pearson Product Moment Correlation Analysis of Study Variable*

The pearson product-moment correlation analysis was performed to examine the relationships between the study variables.

Table 3: *Descriptive Statistics and Pearson Product Moment Correlations for Study Variables*

| **Variables** | **M** | **SD** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|---|---|
| Psychological Distress | 34.78 | 10.56 | --- | | | | |
| Perceived Body Shape | 46.39 | 26.04 | .683** | --- | | | |
| Weight Stigma | 34.11 | 11.91 | .539** | .701** | --- | | |
| Self-devaluation | 17.31 | 6.81 | .452** | .616** | .892** | --- | |
| Fear of enacted stigma | 16.81 | 6.04 | .511** | .637** | .897** | .600** | --- |

**. The correlation is significant at the 0.01 level (2-tailed). p<.001

The Pearson-product moment correlation coefficient was calculated to determine the relationships among weight stigma, self-devaluation, fear of enacted stigma, perceived body shaping, and psychological distress. The results showed a significant positive correlation between weight stigma, self-devaluation, fear of enacted stigma, perceived body shaping, and psychological distress.

### *Mediation Regression Analysis*

We hypothesized that weight stigma and perceived body shape are likely to predict psychological distress. Perceived body shape responses are likely to mediate the relationship among weight stigma and perceived body shape.

Table 4: *Mediation Regression Analysis*

| **Variable** | ***B*** | **95% CI** | ***SE B*** | ***β*** | ***$R^2$*** | **Δ *$R^2$*** |
|---|---|---|---|---|---|---|
| Step 1 | | | | | .22 | .22*** |
| Constant | 39.56*** | [36.26, 42.85] | 1.67 | | | |
| Weight Stigma | -.41*** | [-.509, -.32] | .046 | -.47*** | | |
| Step 2 | | | | | .55 | .08*** |
| Constant | 36.33 | [33.04, 39.63] | 1.67 | | | |
| Weight Stigma | -.035 | [-.188, .118] | .078 | -.040 | | |
| Perceived Body Shape | -.212 | [-.283, -.142] | .036 | -.521*** | | |

**Note:** CI= Confidence interval, B= Beta, SE= Std. Error, ***p < .001

The above table indicates the impact of weight stigma and perceived body shape on psychological distress in university students in different weight groups. In the step 1, the R2 value of .22 revealed that weight stigma explained 22% of the variance in psychological distress, with F (1,287) = 81.69, p < .001. The study revealed that weight stigma negatively predicted psychological distress (β = -.47, p < .001). And in step 2, the R2 value of .55 indicate that weight stigma and perceived body shape explained 55% of the

variance in psychological distress, with F(2,286) =63.45, p < .001. The findings showed that weight stigma (β = .078, p > .001) negatively predicted psychological distress, while perceived body shape (β = .036, p < .001) positively predicted psychological distress. Models 1 and 2's variance changed by 8%, as indicated by the ΔR2 value of.08, with ΔF (1,286) = 35.42, p <.001. The regression weights for weight stigma eventually decreased from Model 1 to Model 2 (-.47 to .036) but were nonsignificant, which confirmed perfect mediation. More precisely, weight stigma has an indirect effect on psychological distress.

### *ANOVA Analysis*

Table 5: *Mean differences in BMI according to weight stigma, perceived body shape, and psychological distress*

| ***Variables*** | ***Underweight*** | | ***Normal Weight*** | | ***Overweight*** | | **F(3,284)** | $\eta^2$ |
|---|---|---|---|---|---|---|---|---|
| | **M** | **SD** | **M** | **SD** | **M** | **SD** | | |
| Weight Stigma | 27.63 | 5.68 | 27.28 | 9.24 | 45.16 | 9.01 | 154.70*** | .607 |
| Body Shape | 30.08 | 7.62 | 31.21 | 18.45 | 72.14 | 19.34 | 212.49*** | .728 |
| Psychological Distress | 39.34 | 7.85 | 25.51 | 8.37 | 39.90 | 8.16 | 97.99*** | .186 |

****p < .001*

One-way ANOVA was performed to determine whether there was a mean difference between weight stigma, body shape, and psychological distress. Weight stigma, body shaping, and psychological distress were significantly different among underweight, average, and overweight participants. The weight stigma two value is .607, the body shaping two value is .728, and the psychological distress two value is .186. A pairwise comparison of means using Tukey's HSD revealed significant differences in weight stigma, perceived body shape, and psychological distress (p< 0.05). Tukey's HSD revealed that for the weight stigma variable, there was a high mean difference (MD = 17.87) between the average weight group and the overweight group. In terms of perceived body shape, Tukey's HSD post hoc test revealed a significantly greater mean difference (MD = 42.05) in the average weight group than in the overweight comparison group. Tukey's HSD post hoc test indicated that in psychological distress, there was a high mean difference (MD = 14.40) between the average weight group and the overweight group. Therefore, the results indicated that the overweight group has greater psychological distress while facing weight problems.

### *Independent Sample T test*

Table 6: *Independent sample t test indicating the differences between males and females in weight stigma, perceived body shape, and psychological distress*

| **Variables** | **Male Students (N=128)** | | **Female Students (N=161)** | | **t(285)** | ***p*** | **Cohan's *d*** |
|---|---|---|---|---|---|---|---|
| | ***M*** | ***SD*** | ***M*** | ***SD*** | | | |
| Weight Stigma | 32.98 | 12.20 | 35.14 | 11.71 | -1.52 | .129 | 0.18 |
| Body Shape | 45.92 | 27.53 | 46.92 | 24.93 | -.321 | .749 | 0.03 |
| Psychological Distress | 34.23 | 11.03 | 35.21 | 10.18 | -.775 | .439 | 0.091 |

**Note:** *M= Mean, SD= Standard Deviation*

An independent sample t test was conducted to compare the gender differences among weight stigma, perceived body shape, and psychological distress. There was no significant gender difference in weight stigma, t (285) = -1.52, p = .129 (two-tailed), for males (M=32.98, SD =12.20) or females (M=35.14, SD =11.78). The results also indicated that there was no significant difference in perceived body shape, t (285) = -.321, p = .749 (two-tailed), between males (M=45.92, SD =27.53) and females (M=46.92, SD =24.93). Moreover, there was no significant gender difference in psychological distress, t (285) = -.775, p

= .439 (two-tailed), for males (M=34.23, SD =11.03) or females (M=35.21, SD =10.18). The effect sizes of the study variables were 0.18, 0.03, and 0.091, respectively.

## Discussion

The present research investigated the associations between weight stigma, perceived body shape, and psychological distress among university students of various weights. The findings demonstrate a substantial link between weight stigma, perceived body shape, and psychological distress. The study revealed that weight stigma is positively connected with emotional distress among university students. Montesinos et al. (2012) investigated the connection between weight stigma, depressive symptoms, and overall mental distress. Based on the positive relationships between stigma, depression, and overall psychological distress, the findings revealed that individuals who feel much greater depression and have greater levels of overall psychological discomfort perceive their circumstances as more stigmatizing.

Another research investigation examined the association between weight stigma and psychological suffering. The health rejection-identification model and sociocultural approach were utilized to investigate the links between variables. Both social identification and psychological distress were found to be positively linked with weight stigma (Curll et al., 2020).

A growing body of research indicates that overweight individuals may encounter mental harm not only because of their weight but also because of anxiety related to weight stigma and weight-based unequal treatment (Carr & Friedman, 2005; Muennig, 2008; Puhl & Brownell, 2001). For example, Aldossari et al.'s (2021) study revealed a strong association between depression and obesity among individuals in Al Kharj, Saudi Arabia. The findings show that expectations of cultural rejection may increase vulnerability to disapproval and impair one’s personality, perhaps leading to depression and other mental health problems (Link et al., 1989).

A study conducted in Pakistan looked at the relationships between body-related shame, guilt, dissatisfaction, and depression among obese university students. The results show a substantial correlation between body shame related to weight and sadness, guilt, and BMI. Among obese university students, overall discontent, head dissatisfaction, body dissatisfaction, weight-related body guilt, and body shame were significant positive predictors of depression. Additionally, according to Naveed et al. (2023), female obese students expressed higher degrees of body shame, general unhappiness, and head and body dissatisfaction (Naveed et al., 2023).

## Conclusion

To conclude, this study establishes a link between weight stigma, perceived body shape, and psychological distress, which impacts both overweight males and overweight females. Compared with their average-weight peers, both overweight and underweight university students encounter tremendous psychological suffering, highlighting a positive correlation between weight stigma, perceived body shape, and psychological distress. The study predicts psychological distress in university students across various weight categories, with weight stigma emerging as a significant predictor and perceived body shape as a mediator.

The strength of the present study lies in its comprehensive literature search, which provided a thorough understanding of the topic. Notably, overweight students demonstrated more significant mean differences in weight stigma, perceived body shape, and psychological distress. This finding aligns with a prior study in Pakistan that identified lower self-esteem among overweight students. A negative appraisal of one's body leads to depressive symptoms, including mood disorders. The suggested implication is to prevent overweight students from succumbing to psychological disorders.

## Future Implications

This study recommends implementing an awareness campaign to educate individuals who are confronting overweight difficulties on appropriate coping techniques for psychological distress and to increase their

self-esteem. It also advocates for developing pride in overweight people through social support efforts, focusing on environmental variables that promote a sense of pride among overweight students.

## Suggestions

- Data collection should not be limited to a single city.
- Qualitative methods were used to investigate weight stigma, perceived body shape, and psychological distress.


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### Conflict of Interest

Authors have no conflict of interest.

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