Original Article :

# Understanding the Link between Weight Self-Stigma and Eating Disorders in Young Women: A Study at Shaqra University

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**Abstract**

**Background and Aims:**
Weight stigma is on the rise in Saudi Arabia and has been found in various research studies to be associated with multiple psychological issues among Saudis. However, the association between weight stigma and eating disorders remains largely unexplored. This study aimed to examine the association between weight stigma and eating behaviors among young women in Saudi Arabia, with a focus on differences in weight stigma between individuals at risk of developing eating disorders. It explores how weight stigma is connected to various disordered eating behaviors.

**Methods:**
A cross-sectional descriptive study was conducted with a sample of 417 young women who were selected through simple random sampling. Data were collected using self-administered online questionnaires from January to June 2024.

**Result:**
The study found that young women at risk for eating disorders reported significantly higher weight stigma, with obese participants experiencing greater self-stigma than other weight groups. Dieting behaviors were positively correlated with self-stigma, indicating that those who diet may have more negative self-assessments. Bulimic behaviors were associated with fear of enacted stigma, linking disordered eating to perceived external judgment. In contrast, oral control behaviors showed a negative correlation with self-devaluation, suggesting that individuals with higher oral control may experience less weight-related self-stigma.

**Conclusion:**
These findings underscore the critical role of stigma in exacerbating eating disorders among young Saudi women. Addressing weight stigma through targeted interventions is essential for improving mental health outcomes and fostering healthier eating behaviors within this population.

**Key words:**
Weight stigma, eating disorders, Self-stigma, Saudi women

## Introduction:

Weight stigma refers to the negative judgments and devaluation individuals face based on their body weight, leading to prejudice and discrimination, particularly against those perceived as overweight or obese[1]. This stigma can be internalized, causing individuals to adopt negative stereotypes about themselves, fostering feelings of shame and low self-esteem[2]. A recent study in Saudi Arabia found that 46.4% of survey participants reported experiencing high levels of weight stigma, highlighting its significant prevalence in society[3].

Cultural and societal standards in Saudi Arabia often idealize specific body types, with various factors influencing perceptions of body weight and shape. These include societal norms, familial expectations, and traditional beliefs regarding femininity and beauty[4]. Studies suggest that the internalization of Western media ideals, particularly the "thin ideal," is linked to body dissatisfaction and disordered eating behaviors among young Saudi women[5]. This rigid adherence to beauty standards not only fosters stigmatization but also complicates the issue, given the country's high obesity rate, estimated at approximately 27%[6].

Studies from Western countries suggest that weight stigma—whether internalized, anticipated, or encountered—consistently correlates with disordered eating patterns, such as binge eating, food restriction, and body image issues[7-9]. This stigma extends beyond individuals with higher body weight, impacting those with normal weight, demonstrating its widespread influence across various settings[10].

Similar findings in Saudi Arabia have shown a strong link between weight stigma and higher rates of depression, anxiety, reduced self-esteem, and lower quality of life[11-15]. While the influence of weight self-stigma on mental well-being in Saudi society is well-documented, its impact on eating patterns remains largely unexplored. Furthermore, despite the Arabic version of the Weight Self-Stigma Questionnaire (WSSQ) demonstrating sound reliability and internal consistency in Saudi populations[16], previous studies have predominantly focused on psychological distress rather than its links to eating behaviors.

Given the established impact of weight self-stigma on mental health and the limited research on its relationship with eating behaviors in Saudi Arabia, this study aimed to assess the relationship between weight stigma and the risk of eating disorders among young Saudi women, to investigate the association between weight stigma and various disordered eating behaviors in this population, and to compare

weight stigma experiences across different BMI categories (underweight, normal weight, overweight, and obese) in young Saudi women.

**Materials and Methods:**

This cross-sectional study aimed to assess the association between weight stigma (independent variable) and disordered eating behavior (dependent variable) among young female students at Shaqra University. A total of 417 participants were selected through simple random sampling from the original population of 12,500 female students enrolled at the university. The sample size was calculated using Stephen Thompson's formula for estimating the sample size[17], based on an assumed population proportion of 50%, a confidence level of 95%, and a margin of error of ±5%. The sample size was calculated as 373 students, and the final sample size of 417 students exceeded this requirement, ensuring robust data for analysis.

The inclusion criteria were as follows: Saudi women aged 18 to 30 years who were university students. The exclusion criteria were non-Saudis, individuals younger than 18 or older than 30, and pregnant women.

Data collection was conducted using online, self-administered questionnaires distributed through the university email portal and various social media platforms. The data collection period spanned from January 2024 to June 2024, allowing sufficient time for participant recruitment and response collection. This research was conducted at Shaqra University.

The survey gathered demographic information including age, marital status, and Body Mass Index (BMI). BMI was calculated based on participants' self-reported height and weight and categorized according to World Health Organization standards: underweight (BMI <18.5 $kg/m^2$), normal weight (18.5–24.9 $kg/m^2$), overweight (25–29.9 $kg/m^2$), and obese (≥30 $kg/m^2$). These data allowed us to analyze the relationship between weight categories, weight stigma experiences, and eating behaviors.

The EAT-26 is a standardized self-report questionnaire used to assess symptoms and concerns related to eating disorders[18]. Participants responded to 26 items on a 6-point Likert scale (ranging from "Never" to "Always"), which cover three main subscales: Dieting, Bulimia and Food Preoccupation, and Oral Control. The subscale scores were calculated by summing the items assigned to each scale as follows: Dieting (13 items), Bulimia and Food Preoccupation (five items), and Oral Control (seven items). Higher scores on the EAT-26 indicated more severely disordered eating behaviors.

This tool is widely used for screening

purposes and has demonstrated strong reliability and validity across diverse populations. In this study, a total score of ≥ 20 was considered indicative of a high level of concern for eating disorders. The Arabic version of the EAT-26, which has been validated and shown to be reliable in the Saudi population, was used[19, 20].

The Weight Self-Stigma Questionnaire (WSSQ) is a validated instrument designed to assess internalized weight stigma through two subscales: Self-Devaluation and Fear of Enacted Stigma. The Self-Devaluation subscale captures negative self-assessments and feelings of inadequacy due to body weight, while the Fear of Enacted Stigma subscale measures concerns about being judged, rejected, or discriminated against based on weight.

Participants rated their agreement with statements on a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree," with higher scores indicating greater internalized weight stigma. This measure reflects heightened feelings of shame, fear, and vulnerability toward discrimination. For this study, the Arabic version of the WSSQ, validated for use in Saudi Arabia, was used, demonstrating high reliability and cultural relevance in the Saudi population[16].

Data analysis was conducted using the IBM SPSS Statistics software. The statistical analysis began with descriptive statistics to examine participant demographics including age, BMI, and marital status. Independent samples t-tests were performed to compare the dimensions of weight stigma—self-devaluation, fear of enacted stigma, and total weight self-stigma—between individuals with eating disorders (ED) and those without (NED), revealing significant group differences. The effect sizes (Cohen's d) were calculated to determine the magnitude of these differences. Additionally, Pearson correlation analyses were used to explore the relationships between specific eating disorder behaviors (dieting, bulimia, oral control, and eating attitudes) and stigma dimensions, separately for the ED and NED groups, as well as for the total sample. These analyses highlight the influence of eating behaviors on self-perception and stigma-related fear.

The study was conducted in accordance with the research ethics guidelines on living organisms and executive regulations issued by King Abdulaziz City for Science and Technology (KACST). Approval was obtained from the Research Ethics Committee of Shaqra University (reference no. ERC_SU_S_202300033). Informed consent was obtained from all the participants.

**Results:**

The demographic profile of participants in this study provides insights into the dis-

tribution of age, body mass index (BMI), marital status, and eating disorder status, which may have implications for understanding the contextual background of the results. As presented in Table 1, the age distribution skews heavily toward younger individuals, with 71.7% of participants between 20-24 years and 20.9% under 20 years. The prevalence of this age group aligns with research showing that young adults often experience heightened body image concerns and weight-related stigma, factors associated with the development of eating disorders and self-stigmatizing attitudes. The remaining participants were either 25-29 years (5.5%) or 30 years old or above (1.9%).

The BMI distribution revealed that the majority of participants were classified as having normal weight (55.4%), followed by underweight (18.0%), and overweight (19.4%). Only 7.2% of the participants fell into the obesity category. This distribution is important for interpreting the study's findings on weight stigma, as individuals with higher BMIs are often more vulnerable to weight-related stigmatization and its psychological consequences. In terms of marital status, the vast majority (88.7%) were single, with fewer married (7.4%) and divorced (3.8%) participants. Regarding the presence of eating disorders, 45.8% of the participants were classified as having an eating disorder (ED), while 54.2% did not (NED).

**Table1: Participant Demographics and Characteristics:**

| Variables | Groups | Frequency | Percent |
|---|---|---|---|
| **Age** | Less than 20 years | 87 | 20.9% |
| | 20 - 24 years | 299 | 71.7% |
| | 25 - 29 years | 23 | 5.5% |
| | 30 years and above | 8 | 1.9% |
| **Body Mass Index** | Underweight | 75 | 18.0% |
| | Normal weight | 231 | 55.4% |
| | Overweight | 81 | 19.4% |
| | Obesity | 30 | 7.2% |
| **Marital Status** | Single | 370 | 88.7% |
| | Married | 31 | 7.4% |
| | Divorced | 16 | 3.8% |
| **Eating Disorder** | With Eating Disorder | 191 | 45.8% |
| | Without Eating Disorder | 226 | 54.2% |

The independent sample t-tests (Table 2) revealed significant differences in self-devaluation, fear of enacted stigma, and overall weight self-stigma between participants with eating disorders (ED group) and those without (NED group). These results suggest that the experience of having an eating disorder is associated with higher levels of weight self-stigma and related dimensions such as self-evaluation and fear of enacted stigma.

The ED group exhibited significantly higher levels of self-evaluation (M = 16.717) than the NED group (M =

13.969) (t = 4.108 and p < 0.001). This result, which corresponds to an effect size of Cohen's d = 0.404, indicates a moderate effect, implying that the experience of an eating disorder substantially increases feelings of self-devaluation related to weight. Self-evaluation is a critical component of weight self-stigma, representing internalized negative beliefs about one's body and weight. The high levels of self-devaluation among the ED group suggest that individuals with eating disorders internalize weight stigma more intensely, which can negatively affect self-esteem and contribute to a cycle of maladaptive eating behaviors.

Similarly, the ED group reported higher levels of fear of enacted stigma (M = 14.393) than the NED group (M = 12.394) (t = 2.717 and p = 0.007). This difference, with an effect size of d = 0.267, indicates a small-to-moderate effect, suggesting that individuals with eating disorders anticipate greater stigma from others due to their weight. The fear of enacted stigma reflects the anticipation of negative judgment and discrimination, which can lead to social withdrawal and increased secrecy regarding eating behaviors. For those with eating disorders, this fear may exacerbate the condition by increasing isolation and discouraging help-seeking behavior.

Overall weight self-stigma scores were also significantly higher in the ED group (M = 31.110) than in the NED group (M = 26.363) (t = 3.677 and p < 0.001). The effect size of d = 0.361 suggested a moderate effect, underscoring the impact of eating disorder status on the general experience of weight-related stigma. High levels of weight self-stigma in individuals with eating disorders may drive a cycle of negative self-assessment and unhealthy coping strategies, further entrenching eating disorder behaviors and potentially worsening mental health outcomes.

**Table 2:Differences in Weight Self-Stigma by Eating Disorder Status:**

| Variable | Group | N | Mean | Std. Deviation | t | Sig. (2-tailed) | Effect Size |
|---|---|---|---|---|---|---|---|
| Self-Devaluation | With Eating Disorder | 191 | 16.717 | 6.313 | 4.108 | 0.000 | 0.404 |
| | Without Eating Disorder | 226 | 13.969 | 7.198 | | | |
| Fear of Enacted Stigma | With Eating Disorder | 191 | 14.393 | 6.547 | 2.717 | 0.007 | 0.267 |
| | Without Eating Disorder | 226 | 12.394 | 8.194 | | | |
| Total Weight Self-Stigma | With Eating Disorder | 191 | 31.110 | 11.373 | 3.677 | 0.000 | 0.361 |
| | Without Eating Disorder | 226 | 26.363 | 14.457 | | | |

Analysis of the weight stigma dimensions revealed distinct patterns across various body mass index (BMI) categories. [Their fear of acted stigma was 11.040, corresponding to a relative weight of 37%. Additionally, the Total Weight Self-Stigma for this group was 23.813, with a relative weight of 40%. These findings indicate a minimal experience of self-stigmatization and fear of external judgment among underweight individuals, whereas normal-weight individuals (n = 231) demonstrated moderate levels of stigma. Their self-evaluation mean score was 15.191 (51%), and they reported a Fear of Enacted Stigma of 13.567 (45%). The Total Weight Self-Stigma in this group was 28.758, resulting in a relative weight of 48%. These scores reflect a more pronounced awareness of weight-related stigma among those with normal weight.

Overweight participants (n = 81) had higher stigma scores than those in the previous groups. Their Self-Devaluation was measured at 16.840 (56%), and their Fear of Enacted Stigma was 13.938 (46%). The Total Weight Self-Stigma for this group was 30.778, with a relative weight of 51%. This indicates significant self-criticism and a notable fear of judgment among overweight individuals. Finally, obese individuals (n= 30) showed the highest levels of stigma across all dimensions. Their self-evaluation score was 17.300 (58%), with a Fear of Enacted Stigma of 15.300 (51%). The Total Weight Self-Stigma for this group was 32.600, corresponding to a relative weight of 54%. These findings highlight a pronounced experience of self-stigmatization and fear of stigma among obese individuals, emphasizing the psychological impact of weight stigma as BMI increases.

**Table3: Weight Stigma Dimensions by Body Mass Index (BMI) Categories:**

| Dimension | N | Mean | .Std. Dev | Relative Weight |
|---|---|---|---|---|
| **Underweight** | | | | |
| Self-Devaluation | 75 | 12.773 | 6.128 | 43% |
| Fear of Enacted Stigma | 75 | 11.040 | 6.231 | 37% |
| Total Weight Self-Stigma | 75 | 23.813 | 11.400 | 40% |
| **Normal Weight** | | | | |
| Self-Devaluation | 231 | 15.191 | 7.107 | 51% |
| Fear of Enacted Stigma | 231 | 13.567 | 8.031 | 45% |
| Total Weight Self-Stigma | 231 | 28.758 | 14.122 | 48% |
| **Overweight** | | | | |
| Self-Devaluation | 81 | 16.840 | 6.644 | 56% |
| Fear of Enacted Stigma | 81 | 13.938 | 7.200 | 46% |
| Total Weight Self-Stigma | 81 | 30.778 | 11.998 | 51% |

| Dimension | N | Mean | .Std. Dev | Relative Weight |
|---|---|---|---|---|
| **Obesity** | | | | |
| Self-Devaluation | 30 | 17.300 | 6.681 | 58% |
| Fear of Enacted Stigma | 30 | 15.300 | 6.587 | 51% |
| Total Weight Self-Stigma | 30 | 32.600 | 12.241 | 54% |

Table 4 presents the results of the correlation analysis, showing the relationships between various eating disorder-related behaviors (dieting, bulimia, oral control, and eating attitudes) and the components of weight self-stigma: self-devaluation, fear o enacted stigma, and total weight self-stigma. These correlations provide insights into how specific eating disorder symptoms relate to weight self-stigma across different groups.

1. Dieting: In the overall sample, dieting was positively correlated with self-devaluation ($r = 0.161$, $p < 0.01$), fear of enacted stigma ($r = 0.123$, $p < 0.05$), and total weight self-stigma ($r = 0.153$, $p < 0.01$). This indicates that individuals with stronger dieting tendencies tended to experience higher levels of self-devaluation, fear of stigma, and weight-related self-stigma.
2. Bulimia: Among participants with eating disorders, bulimia showed a significant positive correlation with fear of enacted stigma ($r = 0.214$, $p < 0.01$), whereas in the overall sample, bulimia correlated with self-devaluation ($r = 0.147$, $p < 0.01$), fear of enacted stigma ($r = 0.177$, $p < 0.01$), and total weight self-stigma ($r = 0.177$, $p < 0.01$). These results suggest that bulimic symptoms were associated with heightened stigma-related fear and self-evaluation across all groups.
3. Oral Control: Oral control was negatively correlated with self-evaluation and total weight self-stigma, particularly within the ED ($r = 0.292$-, $p < 0.01$; $r = 0.193$-, $p < 0.01$) and NED groups ($r = 0.143$-, $p < 0.05$; $r = 0.150$-, $p < 0.05$). This finding implies that higher levels of oral control are associated with lower levels of self-evaluation and weight-related self-stigma, suggesting a potentially protective factor in both groups.

**Table 4: Correlation Analysis of Eating Disorder Variables and Weight:**

| Eating Disorder Variable | Weight Self-Stigma Component | Correlation Coefficient (r) | Significance (p) |
|---|---|---|---|
| Dieting | Self-Devaluation | 0.161 | < 0.01* |
| | Fear of Enacted Stigma | 0.123 | < 0.05 |
| | Total Weight Self-Stigma | 0.153 | < 0.01* |
| Bulimia | Self-Devaluation | 0.147 | < 0.01* |

| | | | |
|---|---|---|---|
| | Fear of Enacted Stigma | 0.177 | < 0.01* |
| | Total Weight Self-Stigma | 0.177 | < 0.01* |
| | | | |
| Oral Control | Self-Devaluation (ED Group) | -0.292 | < 0.01* |
| | Total Weight Self-Stigma (ED Group) | -0.193 | < 0.01* |
| | Self-Devaluation (NED Group) | -0.143 | 0.05 > |
| | Total Weight Self-Stigma (NED Group) | -0.150 | 0.05 > |

## Discussion:

The findings of this study highlight that weight stigma is closely associated with eating disorders in young Saudi women. Weight stigma, comprising self-stigma, self-devaluation, and fear of enacted stigma, was notably higher among individuals with eating disorders, suggesting that stigma may exacerbate their condition. Specifically, individuals with eating disorders exhibited significantly higher levels of weight-related self-stigma than those without these conditions. These results align with prior research across various populations[8,21], which found a strong correlation between weight stigma and disordered eating behaviors.

Furthermore, these results align with those of studies conducted in Saudi Arabia, which have previously established links between stigma and various mental health concerns, including anxiety, depression, diminished self-esteem, and reduced quality of life[11-15]. This research expands upon the current theoretical framework by emphasizing the impact of weight stigma, not only on mental health conditions, such as depression and anxiety, but also on eating disorders.

Building on these findings, this study further examines how weight stigma manifests among young Saudi women across different weight groups, highlighting distinct experiences of self-stigma and social judgment among those in the overweight and obesity categories.

The results indicate that Saudi individuals in the overweight and obesity categories experience heightened weight self-stigma, with increased levels of self-devaluation and fear of social judgment compared to those with normal weight. Specifically, obese individuals report higher levels of self-evaluation and anticipated stigma, suggesting that higher body weight may correlate with greater social and psychological pressures. Given the high obesity rates in Saudi Arabia [6], these findings raise concerns about the widespread impact of weight self-stigma on mental health and

well-being.

These findings align with other studies showing that a higher BMI significantly increases the likelihood of experiencing weight stigma globally[23], with individuals of higher weight reporting more frequent encounters with stigmatizing situations. For instance, research indicates that individuals classified as obese (BMI ≥ 30) are nearly nine times more likely to experience weight-based discrimination than those with normal BMI, highlighting a pervasive trend of weight stigma across diverse populations[22].

Addressing weight stigma is essential to enhance both mental and physical health outcomes. Public awareness and health education efforts should promote self-acceptance and a holistic approach to health, regardless of body size, to help reduce the impact of weight stigma on mental health in young Saudi women.

In the overall sample, dieting behaviors showed significant positive correlations with self-devaluation, fear of enacted stigma, and total weight self-stigma, particularly among individuals with eating disorders (ED). Specifically, the ED group exhibited positive associations, indicating that dieting may reinforce negative self-perception and stigma-related distress. Research indicates that individuals who experience weight stigma are more prone to restrictive and maladaptive eating behaviors. For instance, a recent study found that weight stigma is a unique predictor of restrictive dieting behaviors, underscoring its pervasive influence on disordered eating patterns[24].

These results align with research suggesting that dieting often correlates with increased stigma and self-blame, particularly for those already vulnerable to eating disorders[25-27]. Furthermore, dieting can perpetuate a cycle of shame and fear, ultimately exacerbating disordered eating patterns[28,29]. This highlights the importance of addressing societal pressures and internalized beliefs regarding weight management in therapeutic settings.

In the case of bulimia, a notable positive correlation emerged, particularly concerning fear of enacted stigma, indicating that Saudi women with bulimia are likely to experience higher levels of perceived weight stigma, highlighting a specific vulnerability within this population. Research suggests that individuals with bulimia are often blamed for their condition, with stigma tied to perceptions of personal responsibility and unreliability[25, 26]. Furthermore, knowledge about bulimia is inversely related to stigma, as increased awareness can reduce negative attitudes and promote treatment-seeking behaviors [25].

In contrast, oral control did not show

a significant link to weight stigma in the overall sample but revealed a notable negative association with self-evaluation and total weight self-stigma within the eating disorder (ED) group. This result is consistent with a study that suggested that for individuals with eating disorders, exercising dietary control may serve as a coping mechanism for individuals with eating disorders, potentially reducing stigma-related distress[30]. Consequently, while bulimic behaviors appear to be linked to higher perceived stigma, the case of oral control among individuals with ED suggests an alternative relationship, where control may lower self-stigma, though possibly reinforcing disordered patterns over time[27,28].

**Study limitations:**

This study has several limitations. First, it focused exclusively on young women, limiting the generalizability of the findings to male or older populations. Future research should include male participants to explore sex differences in the experience of weight stigma and its effects. Second, reliance on self-reported data introduces potential bias, as participants might underreport or misrepresent their experiences due to social desirability. Third, the cross-sectional design restricts the ability to draw causal conclusions regarding the relationship between weight stigma and eating behaviors. Another limitation is that the study did not assess participants' current psychological status, which could have influenced the results. Future research should incorporate psychological assessments to provide a more comprehensive understanding of factors at play.

**Conclusion:**

This study may be the first to examine the role of weight stigma and its association with eating behaviors in Saudi Arabia. The findings demonstrated a significant association between weight stigma and eating disorders among young women. This research establishes a foundation for further investigation into the long-term effects of weight stigma on the development and progression of eating disorders. Furthermore, it emphasizes the necessity of implementing programs aimed at reducing weight stigma given its substantial impact on promoting mental and physical health.

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**Conflicts of Interest:**

"The author declares no conflicts of interest."

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