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The Impact of Overweight and Obesity on Self-Esteem: A Critical Analysis of Employed Versus Unemployed Women of Reproductive Age of the Pathan Ethnicity at Khyber Pakhtunkhwa

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ABSTRACT

Background: Overweight and obesity are reaching to a major public health challenge not only to serious physical health consequences but has significant psychological effects including self-esteem which can further impact quality of life, general well-being and social interactions. **Methodology**: A consent-based consecutive overweight and obese sample of 200 pathan women of child-bearing age (≥25 and ≤45) were assessed for selected socio-demographic characteristics, anthropometric measurements were carried out as per WHO procedure, and self-esteem was analyzed through Rosenberg's Self-Esteem scale comprising 10 items with a 4 option Likert scale. Percent responses and each item were determined through descriptive statistics along with mean RSE scores within the group significance (p≤005) based on age in each group. Regression statistics was performed for education, age, income, BMI and parity. Female body scales were used for preferred body figures. Data was analyzed on IBM SPSS version 23. **Results:** Results of the current study showed that 89% of unemployed and 80% of the employed women were married, mainly living in an extended family system (73% & 53%) and having a rural background (85% & 67%). The mean BMI of the unemployed women was 32.4± 12.4 and unemployed was 30.8±11.8. The distribution of the sample on a BMI basis showed majority of the females were in the overweight and class I obesity categories. The percent responses on the Rosenberg's Self-Esteem Scale showed varying patterns with some non-significant differences between the two groups. The mean scores between both the groups and categories were quite low, specifically among the employed women, indicating a mass low self-esteem within this population subgroup. Education, income, BMI, age, and parity were strongly associated with low self-esteem scores in both groups. The body figure preferences showed majority of the women preferred "skinny" or healthier BMI rather than larger muscular bodies. **Conclusions:** The current study concludes that low self-esteem is highly prevalent among overweight and obese working and non-working women, evidenced by notably even low Self-esteem scores. These findings highlight significant psychological challenges faced by women, necessitating the implementation of multidimensional approaches and interventions to enhance their health outcomes and improve their overall quality of life. Additionally, it is suggested to broaden the scope of the current study to help in the generalization of these results to other population subgroups across various parameters.

INTRODUCTION

The timeless quote by Ralph Waldo Emerson, "Health is the greatest possession", is reflected not only in the general well-being but also in the intertwining of physical and emotional and psychological health (1). Obesity is a multidimensional health condition that not only impacts health but also has significant psychological and emotional consequences (2). Being overweight or obese is characterized by the accumulation of excess body fat due to an imbalance of energy intake and expenditure. Many factors, such as genetics, environmental, biological, and behavioral factors, contribute to obesity. Globally, it is considered a significant health concern as it is a major risk factor for noncommunicable diseases like diabetes, hypertension, cardiovascular diseases, and cancers (3).

Obesity has reached pandemic proportions, i.e., 1 in 8 people worldwide are living with this Condition. In 2022, an estimated 2.5 billion adults aged 18 and above were reported to be Overweight, with 890 million of them living with obesity, constituting 43 % of adults

being overweight and 16% being obese (4-6). Despite the rising global prevalence of obesity, overweight and obese individuals often face pervasive stigma and discrimination from society, making them prone to a cascade of psychological challenges. Diminished self-worth, distorted body image and perception, dissatisfaction with physical appearance, negative self-concept, feelings of seclusion, and anxiety heighten their vulnerability to depression and anxiety disorders (7, 8). Consequently, this distress arises from these conditions of maladaptive eating behaviours, ranging from compulsive overeating to severe dietary restrictions (9). Therefore, obesity can serve as both a catalyst and a consequence of stress, as these individuals grapple with the complexities of managing health-related issues, societal norms, personal challenges, and ongoing psychological and emotional turmoil that impact their mental well-being and overall quality of life (10).

Obesity can impact self-esteem and may make it difficult for a person to recognise and appreciate his/her talents and abilities. Many individuals are content with their homes and work, except for the weight where they have not been successful. For many, obesity has been shown to negatively impact quality of life (11-15). Body image is an important aspect of quality of life, and body image dissatisfaction in quite common in overweight and obese people, especially women. The dissatisfaction is directly proportional to the amount of excess weight a person has, either with their entire body or some specific body features (12, 14, 16-17).

Self-esteem, as defined, is the value that individuals attach to themselves as a result of their lifestyle perceptions and life experiences. Simply, if an individual is satisfied with his/her body, it is associated with good self-esteem (18). Researchers in the past have focused on the association between self-esteem and obesity in many previous studies. However, these studies were more focused on pediatric and adolescent populations [19]. In this current study, we aimed to explore the relationship of overweight and obesity with self-esteem among women of childbearing age.

METHODOLGY

Study Design and Sample

This prospective analytical cross-sectional study was carried out at household levels, maternity clinics, gymnasiums, schools, hospitals, and some administrative offices at district Peshawar. The purposive sample consisted of 200 (100 employed and 100 unemployed) overweight and obese women of childbearing age from October 2023 to June 2024. The sample was recruited through convenient random sampling after procuring written consent. The study was approved by the Institutional Ethical Approval Committee of the College of Home Economics, University of Peshawar (No. 489/H.ECO).

Inclusion criteria:

i. Women of reproductive age ≥25 and ≤45.
ii. Overweight and obese women who were employed and unemployed
iii. Women with no comorbidities and a recent history of infections
iv. Women with no psychological problems, generalized anxiety and delirium

Data Collection

The data were collected through a self-constructed questionnaire for the baseline sociodemographic information and anthropometric measurements. The following data was collected through self-administering and face-to-face interview-based techniques for both the questionnaire and the standardized tests. The following data was collected

Demographic Data

Demographic data such as marital status, occupation of the respondent or spouse or parents, no. of children, residential area, family income, family system, source of income, and medical history were recorded.

Anthropometric Measurement

Age: The age of all the respondents was recorded in years.

Height: Height was measured by the height board stadiometer. The respondents were asked to stand straight without shoes against the height board, touching their heels to the board.

Weight: The weights of all the respondents were taken in kilograms through a weighing machine. The respondents were asked to remove any heavy clothing and were asked to stand barefoot with their weights distributed evenly on both feet.

Body Mass Index (BMI): It was calculated through the formula

$$BMI = \text{weight (kg)} / [\text{height (m)}]^2$$

Body Fat Percentage

The body fat percentage was calculated through the Biochemical Impedance Analyzer (Omron Body Composition Monitor)

Self esteem

The self-esteem of the respondents was measured through Rosenberg's Self-esteem scale (RSE) (20). The RSE was developed by Morris Rosenberg, and the latest version is a 10-item scale. This 10-item scale measures global self-worth by measuring both positive and negative feelings about the self. The scale is believed to be uni-dimensional. All items were answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree.

Scoring of the Test:

As per the standard procedure of the test, Items 2, 5, 6, 8, and 9 were reverse scored by giving "Strongly Disagree" 1 point, "Disagree" 2 points, "Agree" 3 points, and "Strongly Agree" 4 points. For each respondent, the scores for all ten items were summed and kept on a continuous scale as per the test procedure (20).

Assessment of the Scores

The sum of the scores on the scale ranges from 0-30. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem. Higher scores indicate higher self-esteem, and lower scores were depictive of low self-esteem as per the protocol of the test

Body Dissatisfaction Assessment

The Female Body Scale (FBS; adiposity dimension) and Female Fit Body Scale (FFITBS; muscularity dimension) of Ralph-Nearman and Filik (21) were used to analyze the distinct dimensions of body dissatisfaction and preferences of specific body shapes among the sample.

Statistical Analysis

Data was analyzed by using Statistical Package for Social Sciences (SPSS), version 23, for both the categorical and continuous data.

RESULTS

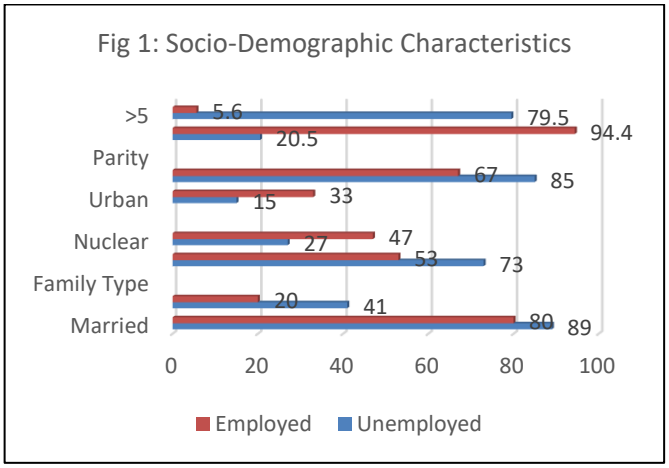


Figure 1: Socio-demographic Characteristics of the respondents

Socio-Demographic Characteristics

The socio-demographic backgrounds of the respondents (Figure 1) showed that the majority of the females were married (89% unemployed and 80% employed) and were living in an extended family system (73% unemployed and 53% employed). The sample consisted of females who were living in the urban or peri-urban Peshawar but had rural backgrounds (85% unemployed and 67% working). The parity status showed that 94.4% of the working women had 2-4 children and 79.5% had more than five children.

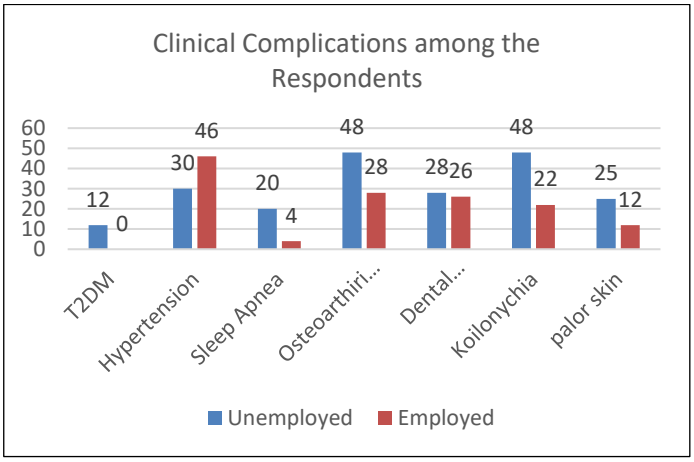


Figure 2: The Prevalence of Clinical Complications among the respondents

The prevalence of weight-related complications

The subclinical (complications without regular medications) conditions in the sample (Figure 2) showed 12% of the unemployed women had Type 2 diabetes, 46% of the employed women had non-established hypertension (no regular medications), 48% complained about arthritic pains in the weight-bearing joints (knees, ankles, lower back). About 48% of the unemployed women had koilonychia (spoon-shaped nails), and 25% had pallor skins, indicating poor dietary intakes and the prevalence of micronutrient deficiencies.

Assessment of the Anthropometry

Table 1: Anthropometric Assessment of the sample

Parameters	UNEMPLOYED		EMPLOYED		P- Value
	INTER QUARTILE RANGE	MEAN± SD	INTER QUARTILE RANGE	MEAN± SD	
Age (Years)	28 - 45	34.6 ± 9.17	28 - 45	35.2 ± 13.8	0.20
Height (Cm)	150.3-157.6	155.8±11.3	151.4-158.1	156.2± 11.9	0.316
Weight (Kg)	82.5-109.6	88.54± 23.9	81.9-97.5	85.8±7.3	0.411
BMI	26.7-38.2	32.4± 12.4	25.79-35.7	30.8±11.8	0.032
Total Body fat (%)	20.0 - 55.00	37.01 ± 11.3	22.6 - 51.00	36.61 ± 17.4	0.019
Sample Percent Distribution Based on BMI Category					
Overweight	41		43		
Obesity Class I	38		42		
Obesity Class II	13		10		
Obesity Class III	8		5		

Results of the anthropometric profiles (Table 1) of the respondents showed insignificant differences in the age of the unemployed (34.6 ± 9.17) and employed (35.2 ± 13.8) women. The mean heights (155.8±11.3 and 156.2± 11.9 respectively) were also non- significantly different. The differences in the mean weights (88.54± 23.9 and 85.8±7.3 respectively) although was insignificant, but the mean BMIs (37.01 ± 11.3 and 36.61 ± 17.4 respectively) were significantly different (p= 0.032). These differences might be due to more grade III obese women in the unemployed category. Similar patterns were also observed in the total body fat percent (37.01 ± 11.3 and 36.61 ± 17.4 with P= 0.019). The distribution of the sample of the basis of BMI category showed majority of the women belonged to over-weight and grade I obesity. However, the distribution of the sample in obesity grades II and III were comparatively higher in the unemployed group as compared to the employed females.

Table 2: Percent Distribution of Responses on Rosenberg's Self- Esteem Scale in the sample

S#	Test Items	Strongly Agree (UE)	Strongly Agree (E)	Agree (UE)	Agree (E)	Disagree (UE)	Disagree (E)	Strongly Disagree (UE)	Strongly Disagree (E)	F-value	P-value
1	On the whole, I am satisfied with myself.	43	6	36	10	5	89	0	11	49	.000
2	At times I think I am no good at all.	21	20	32	35	48	39	2	5	17	.052
3	I feel that I have a number of good qualities.	42	59	38	32	20	10	6	3	6.9	.032
4	I am able to do things as well as most other people	51	65	11	11	38	22	0	0	39	.037
5	I feel I do not have much to be proud of.	8	12	41	21	40	51	9	18	2	.364
6	I certainly feel useless at times	6	30	54	30	20	38	10	12	33	.000
7	I feel that I'm a person of worth, at least on an equal plane with others.	17	35	65	25	18	40	0	0	2.4	.229
8	I wish I could have more respect for myself	2	6	57	46	41	48	0	0	3.7	.155

9	All in all, I am inclined to feel that I am a failure.	6	30	72	30	20	38	2	2	41	.000
10	I take a positive attitude toward myself.	4	7	17	31	57	27	17	40	33	.047

The per cent responses of both the unemployed (UE) and employed (E) on the test items of Rosenberg's Self-esteem scale (Table 2) showed varied responses by both groups. Based on the null hypothesis of significant differences among the test scores for employment status on Pearson's Chi-square test of association (independence) the values were varied for various test items. "On the whole, I am satisfied with myself" was significantly different since 89% of the employed women's response was "disagreed". Similar varied responses were recorded in test items two and three, at times I thought I am no good at all. And "I feel I have several good qualities" were significantly different with P values of 0.052 and 0.032. Overall, the responses of the employed women were more towards disagreement on many test items. As per the scoring procedure, item numbers 2, 5, 6, 8, and 9 were reverse scored, and the overall differences were insignificant in these items among both groups. However, as is evident from the present response, the employed women were more in the negative self-esteem states.

Table 3: Rosenberg Self Esteem Scores and Regression statistics for selected parameters

	RSE Scores	P	Regression Model for Predictors with RSE scores				
Parameters	MEAN± SD	Values*	Education	Income	BMI	Age	Parity
UNEMPLOYED							
Overweight	15.35 ±9.41	0.089	Beta= -0.29 t= 6.89 P= 0.051	Beta= -0.153 t= 3.456 P=0.045	Beta= 0.54 t=2.578 P=0.002	Beta= -0.431 t=2.95 P=0.003	Beta= -0.025 t=0.003 P=0.056
Obese	14.2[a] ±4.16	0.19	Beta=-.055 t=3.659 P=0.004	Beta= -0.132 t=3.866 P=0.003	Beta= -0.81 t= 4.89 P= 0.004	Beta=0.841 t=0.167 P=0.079	Beta= -0.248 t=0.173 P=0.062
EMPLOYED							
Overweight	13.63[ab] ±9.41	0.031	Beta= -0.72 t= 4.482 P=0.022	Beta= -0.110 t= 0.596 P=0.000	Beta= 0.042 t=2.791 P=0.001	Beta=-0.32 t=6.37 P=0.000	Beta= 0.40 t= 2.871 P=0.004
Obese	11.8[abc] ±4.16	0.095	Beta= -0.81 t= 3.76 P=0.013	Beta= 0.56 t=0.658 P=0.107	Beta= 0.84 t=2.810 P=0.000	Beta= -.055 t=2.671 P=0.000	Beta= -0.188 t=2.384 P=0.059

*P is significant at ≤ 0.05 within the sample based on age

The mean Rosenberg Self-esteem (RSE) scores and five unstandardized regressions models for education, income, BMI, age, and parity are given in Table 3. The mean RSE scores for the unemployed overweight women was 15.35 ±9.41 (on borderline of positive self-esteem) with non-significant difference based on age. The mean RSE scores of the unemployed obese women was much lower, 14.2 ±4.16, and was significantly different from the overweight unemployed women, but an insignificant difference was found within the group (p=0.19). The similar but much lower mean RSE scores were recorded from the responses of the employed overweight (13.63 ±9.41) and obese (11.8 ±4.16). These scores were significantly lower than the unemployed women, and based on age as a factor, the differences within the group were only significant in the overweight women (p=0.031). The regression statistics at 95CI (ß= -0.29) affirmed that education is a predictor of the RSE scores for overweight unemployed women with a p value

to be 0.051,0.045 (ß= -0.153) for income, 0.002 (ß= -0.54) for BMI, 0.003 (ß= -0.431) for age, and 0.056 (ß= -0.25) for parity. The regression statistics P values for the obese unemployed women were 0.004 (-0.55) for education, 0.003 (ß= -0.132) for income, 0.004 (ß= -0.81) for BMI, 0.079 (ß= 0.841) for age, and 0.062 (ß= -0.24) for parity indicating that except for the BMI a one unit increase in the education, income, age and parity the RSE scores will further get lower. For the overweight employed women, the regression statistics showed almost similar patterns for education (ß= -0.72, p=0.022), income (ß= -0.110, p=0.000), age (ß= 0.042, p=0.000), and parity (ß= 0.40, p=0.004). The predictability of education for the RSE scores among the obese employed women was p= 0.013 (ß= -0.81) for education, <0.000 for BMI (ß= 0.84), 0.059 for parity (ß= -0.188), however in the group effect of income on the RSE was non-significant indicating that an increase in total family income may contribute better self-esteem. These results suggest that mean RSE scores were below the 15-25 recommended scores of positive self-esteems on Rosenberg's scale across the whole sample with some suggestive, probable socio-demographic indicators that need to be explored further.

Table 4: Desired Figure Preference of the Sample (Female Body Scale)

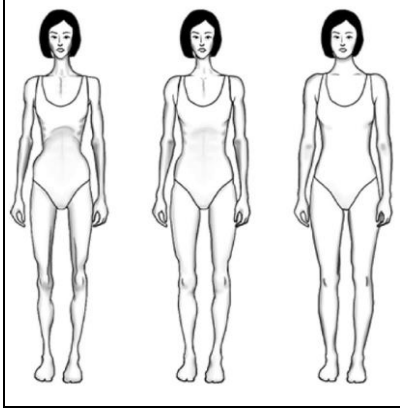
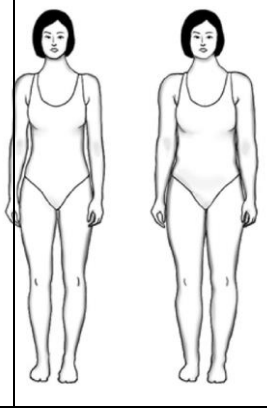
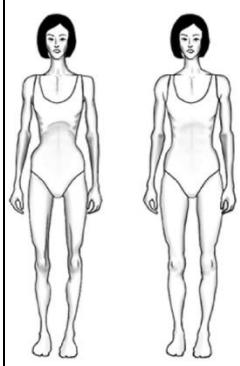
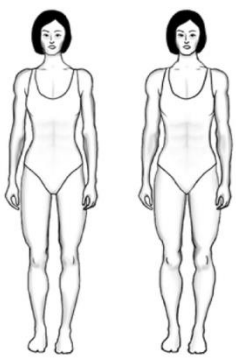
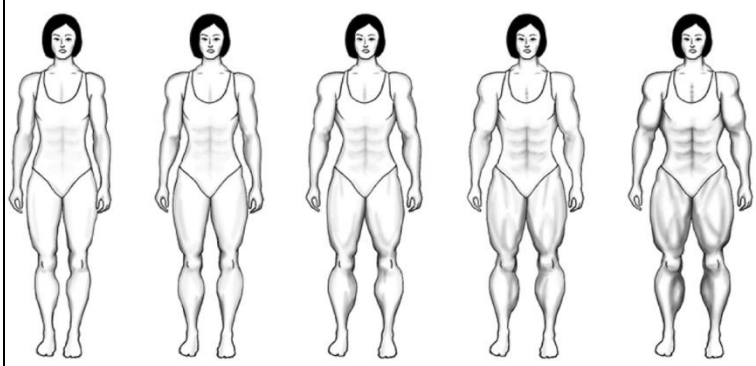
Under Weight	Normal Weight	Overweight & Obese
Employed 02% Unemployed 0%	Employed 88% Unemployed 77%	Employed 9% Unemployed 23%
		

Table 5: Desired Figure Preference of the Sample (Female Fit Body Scale)

E 2% UE 0.5%	Employed 95% Unemployed 99.5%	Employed 3% Unemployed 0 %
		

The desired figure preferences of the sample on the female body scale and female fit body scale (Tables 4 and 5) indicated that 88% of the employed and 77% of the unemployed females preferred normal-weight female body shapes. However, 23% of the unemployed women also preferred overweight to obese bodies. On a female fit body scale, 99.5 % of the non-working and 95% of the working women preferred smaller framed bodies as compared to 03% of working women who opted for a larger muscular body.

DISCUSSION

The current study examined a purposive sample of overweight and obese women, focusing on their socio-demographic characteristics. While this article does not address certain parameters and confounders, such as household wealth, husbands' occupations, and genetics, the findings are consistent with other studies. These studies have indicated that shifts in nutritional dynamics and transitions contribute to geographic differences, residential location, and limitations on physical activity. In Khyber Pakhtunkhwa, conservative cultural norms that restrict women's mobility have been identified as significant factors contributing to the high prevalence of obesity in this region reported to be contributing to the high prevalence of obesity in this region (22-24). Studies have suggested that living in urban settings is associated with overall higher food consumption. Factors such as the types of food consumed and the availability of household amenities, and assistance with the household work may contribute to overweight and obesity (25, 26). The increase in family income among employed women may lead to more frequent fast-food consumption. Additionally, factors such as a lack of parks and walkable spaces, pollution, safety concerns (both actual and perceived), and political instability can limit opportunities for physical activity and exercise among these women (27-30). The current data was collected from a subset of women with a smaller sample size; therefore, the interaction of rural-urban differences across the cultural transition spectrum could not be fully ascertained. In summary, the data of the current study suggest an overall increased prevalence of overweight and obesity among Pathan women of reproductive age, especially in urban areas.

Numerous studies have shown that rates of overweight and obesity-related diseases, such as type 2 diabetes, are six times higher in South Asian populations. This increase has been attributed to a lack of adherence to healthier diets and insufficient physical activity (31-33). Additionally, another study found that British Pakistani women experience higher rates of obesity, which has been linked to dietary habits, physical inactivity, language barriers, and interpersonal family challenges (34, 35). Studies have reported similar patterns of overweight and obesity-related diseases like type 2 diabetes has been reported to be six times higher in South Asian populations, and this has been attributed to the lack of following a healthier diet and engaging in exercise (36, 37).

The current study found no significant differences in the anthropometric measurements among the respondents. These findings contradict a study conducted in Karachi, Pakistan, which reported that working women tend to be healthier than housewives (38). The differences may be attributed to variations in study design; the Karachi study used a cross-sectional approach, while the current study employed a consecutive sampling method. Additionally, comparing the prevalence of overweight and obesity between the two groups of women falls outside the scope of this article.

Results of the percent responses on the test items (Table 2) indicated more employed women to be in a state of disagreement. Being overweight or obese can negatively impact the self-esteem of working women, potentially leading to distorted body images, social isolation, and psychological distress. The psychosocial burden associated with increased body weight may expose individuals to stigma and discrimination, further worsening their self-esteem. (9-11, 40). This diminished self-esteem has been linked to various workplace issues, including reduced work performance, lower productivity, absenteeism, and challenges in professional relationships (although these factors are beyond the scope of this article) (41, 42). Additionally, the related health issues are likely to have adversely affected the mental health, overall well-being, and self-esteem of these women.

The lower RSE scores of both the employed and unemployed women of the current study were found to be quite low, indicating lower self-esteem of these women, which might affect their overall quality of life. The socio-demographic and cultural norms of Khyber Pakhtunkhwa with a rather boundary-filled environment with females having a conventional, predetermined role of being responsible for domestic affairs and the dietary transitions and shifts along with many other factors, is

making overweight and obesity turn into an epidemic among females of this region as is reported by the National Nutrition survey of Pakistan 2018 (43). This current limited scope study was carried out on 200 pathan ethnicity women (100 in gainful employment and 100 unemployed) overweight and obese women of child bearing age to determine their self-esteem and the major predictors that contribute to the challenge of low self-esteem. Some similar investigations have also studied the socio-economic determinants including unbalanced diets, income levels, urbanization, changes in the occupational structures, an increase in the sedentary lifestyles, cooking methods, and cultural norms for the ideal body shapes (44). The findings of the current study were in agreement with other such studies, which reported higher and increasing BMI to be associated with low self-esteem in the middle age (45). The highly significant regression values of the current study might be related to the suggested causal mechanism of self-esteem to be a source of resisting the temptations for bad diets and not doing exercise, leading to psychological distress and putting the individual into a vicious cycle of this distorted causal relationship (46). Some studies have also suggested that modern media confront individuals with a more sanitized and cultivated self-image, leading to stronger negative comparisons and low self-esteem. This fact may be more relatable to the educated working women of the current study who normally use more social networking (47). The low self-esteem among the housewives may be due to the daily life stresses, the lack of care about future health and hence have negative effects on weight gain. These results of self-esteem and weight can be taken on two tracts; one that assumes that body weight and self-esteem may increase the stresses of the normal life affecting life-satisfaction. The other tract of the connection between body weight and self-esteem has led to the hypothesis that speculate that low self-esteem may cause a deterministic world view causing less effort to lose and control weight (48, 49). This applies specifically to the obese working women of the current study who showed less gratification with their jobs simply because they were supporting their families financially and were in the habit of making poor food choices (mainly low-priced foods). This aspect is not covered in this article, but it was an attempt to identify "gaps" in the causal effect of the self-esteem weight gain.

The two-dimensional pictorial scales for the female body shape preferences among the study sample indicated that the majority of the pathan women preferred thinner bodies as compared to their perceived current bodies in both the adiposity dimension and muscularity dimension. Very few employed women preferred the fit/muscular body figures (03%) in comparison to 23% of the housewives who preferred the overweight/obese body on the scales. The current study suggests that the majority of the women preferred the merely "thinner" or "skinny" body if to lose weight. Between the two scales, many women preferred the larger adiposity-wise figure as compared to a larger muscular body. These findings are in contrast to a study which proposed that muscularity was not related to body dissatisfaction (21). Overall, we found that body dissatisfaction towards the thinner ideal without muscularity dimension was the most preferred shape by the pathan women. These may be related to the cultural differences along that many factors influence body image perception and dissatisfaction often change (21,49). These findings of the current study cannot be generalized due to the limited sample size and need to be explored further (future endeavor of the authors)

CONCLUSION

The current study examined the self-esteem levels among employed and unemployed women of Pathan ethnicity. It found a significant number of females with low self-esteem and body dissatisfaction linked to their preferences for body shapes. Factors such as education, age, income, BMI, and parity were identified as significant contributors to low self-esteem, particularly among working women. Understanding the relationship between low self-esteem and negative body image among overweight and obese women is crucial, as it can lead to various physical and psychological health issues. To improve health care outcomes for women in this region, a multidisciplinary and multidimensional approach is necessary. Providing nutrition education, along with knowledge and skills to understand the consequences of obesity, can empower women to adopt healthier lifestyle behaviors. This approach can play a critical role in preventing and managing the psychological effects associated with obesity, ultimately leading to improved health outcomes and a better quality of life.

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