



Original Article

Knowledge, Attitude, and Practices Regarding Body Weight Management Among Overweight and Obese Female Participants in Tertiary Care Hospitals, Peshawar

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ABSTRACT

The primary health problem in the world is overweight and obesity. It contributes to morbidity and mortality and hurts health, such as increasing the risk of type 2 diabetes, cardiovascular diseases, and other non-communicable diseases. **Objectives:** To explore the Knowledge, Attitude, and Practice (KAP) of overweight and obese women about Body Weight Management. **Methods:** The study design was a quantitative, analytical, cross-sectional study conducted in September-November 2025 at two tertiary care hospitals in Peshawar. The sample size was calculated through public health voice cross sectional sample size calculator, which was 312. Data were collected from female participants, including both OPD and admitted, through a pre-designed, structured questionnaire via convenient sampling techniques. Data were analysed by using SPSS version 27.0. **Results:** The study revealed positive knowledge, neutral attitudes, and moderate practices in managing body weight. The study showed a significant association between knowledge categories and education, income, and BMI, with p-values of 0.009, 0.003, and 0.048, respectively. There were significant associations between attitudes and income (p-value of <0.001), as well as obesity related diseases and a p-value of 0.008, respectively. **Conclusion:** Overweight and obese female participants have good knowledge regarding body weight management; however, they have neutral attitudes and moderate practices. The findings showed that socioeconomic factors influence weight management behaviors. To improve attitudes and encourage healthy behaviors, health education initiatives should be reinforced.

INTRODUCTION

Overweight and obesity are major global public health challenges. Excessive body weight is widely recognized as a leading risk factor for numerous chronic conditions and is closely associated with higher disease burden and early mortality [1]. It significantly increases the risk of developing chronic non-communicable diseases, including type 2 diabetes, cardiovascular disorders and certain cancers, thereby increasing the overall burden on healthcare systems. Improving understanding of effective

weight management strategies is therefore essential to reduce these adverse health outcomes [2-4]. 72.3% of the people in Pakistan are overweight, and 58.1% are obese [5-7]. Over the last few decades, the number of overweight and obese people has increased by more than double since 1990. In the world, over 2.8 million people die annually due to overweight or obesity, and 2.3 % of DALYs (disability adjusted life years) are attributable to being overweight or obese [8]. The prevalence of obesity in females (18%) was



higher than in males (14%). All over the world, there are differences related to gender [9]. Women were selected for this study because obesity among women is influenced by unique physiological, hormonal, and sociocultural factors that may affect body weight management differently from men. Hormonal changes during pregnancy, perimenopause and menopause can contribute to weight gain and altered fat distribution, while social and lifestyle barriers may influence women's weight control practices [10]. Therefore, demographic groups that are more likely to be overweight or obese should be the focus of public health initiatives that promote healthy lifestyle choices [11]. Additionally, research from Europe supports the significance of social determinants in the development of obesity by confirming that socioeconomic characteristics including work, income, and education, have a significant impact on body mass index [12, 13].

There is a need for targeted educational interventions to increase knowledge of weight management and to promote positive attitudes to improve health practices in this population. Not much is known about the knowledge, attitudes, and practices (KAP) of overweight and obese female participants in such a context. To evaluate the level of knowledge, attitude, and practices of overweight and obese female participants on body weight management. To determine if there is any significant relationship between body weight management knowledge, attitudes, and practices with demographic variables.

METHODS

The study was a quantitative, analytical cross sectional conducted at two tertiary care hospitals in Peshawar from September to November 2025 to evaluate the knowledge, attitude, and practice of body weight management among the overweight and obese female participants. Before data collection, ethical approval was given by the Research and Ethics Committee of Rehman College of Nursing (REC/RCN/0163/2025). All participants provided written informed consent after receiving informed consent. The anonymity and confidentiality of the study were maintained throughout. The study population included overweight and obese female participants in OPD and admitted to the selected tertiary care hospitals. Female participants aged 18 years and above who were overweight or obese were included in the study, while pregnant women and critically ill female patients were excluded. A convenience sampling technique was used to select participants due to feasibility and time constraints. The sample size was calculated using the standard single-proportion formula for large populations: $n_0 = (Z^2 \times p \times (1-p)) / d^2$. Based on a 26% obesity prevalence among Pakistani females, 95% confidence ($Z=1.96$), and 5% margin of error ($d=0.05$), the initial sample was $n_0 = (1.96^2 \times 0.26 \times$

$0.74) / 0.05^2 = 296$. Accounting for a 5% non-response rate, the final sample was inflated to $*296 / 0.95 = 312*$ participants. Data were collected using a structured questionnaire after obtaining written informed consent from participants. The KAP questionnaire was adapted from previous studies conducted in India for the knowledge section [15] and in China for the attitude and practice sections [2]. The attitude and practice scoring cut-offs (negative/neutral/positive and poor/moderate/good) were adopted directly from the original validated KAP questionnaires used for adaptation [2,15] and have been reported elsewhere with established reliability.. The first section comprised questions related to demographic data. The knowledge section included 14 items assessing participants' understanding of obesity-related risk factors, health consequences, body mass index (BMI), dietary factors, physical activity, and evidence-based weight management strategies, and the score was given as 1 or 0. The attitude section consisted of 8 items evaluating participants' beliefs and perceptions regarding the importance of weight management, the impact of obesity on health, and their willingness to adopt or accept weight-management interventions, including dietary modification, exercise, medication, surgery, and telemedicine, and the score was 1 for strongly disagree to 5 for strongly agree. Re-label the practice items sequentially from P1 to P9. Merge the content of the current P9 and P10 into a single, coherent item: "I am on a regular check-up with my doctor and am losing weight under his/her supervision. Before conducting the actual survey, the questionnaire was adapted from a previously published and validated questionnaire. Before data collection, the questionnaire underwent content and face validity assessment through expert review by the research supervisor and the institutional research panel. The experts evaluated the relevance, clarity, comprehensiveness, and appropriateness of the questionnaire items for the study objectives and target population. Face validity was further confirmed during pilot testing, where participants reported that the questionnaire was clear and easy to understand. Before conducting the actual survey, the tool's reliability was checked through pilot testing, and it was adjusted according to the items. The reliability and internal consistency of the knowledge section were indicated by Cronbach's alpha of 0.809 and 0.799 for attitude and practices, and the overall questionnaire demonstrated good internal consistency, with an overall Cronbach's alpha of 0.812 for the 31-item questionnaire.

IBM SPSS Statistics 27.0 was used to analyze the data. Frequencies and percentages were used for categorical variables, and the mean $\pm$ SD and median values were reported for continuous variables, where appropriate.

Association of socio-demographic characteristics with KAP categories was tested using the chi-square test. The Mann-Whitney U and Kruskal-Wallis tests were used to compare median scores. A significance level of $p < 0.050$ was set for significance.

RESULTS

Half of the participants (50.0%) were between 31 and 50 years of age. The majority (61.1%) of the participants had no formal education. Most of the participants (65.4%) were from rural areas. Most of the participants (47.1%) noticed an increase in their body weight after marriage. Furthermore, the majority (92.31%) of the participants were housewives. Among these, a large population (82.4%) reported rice as their most consumed food. In terms of lifestyle, 51.6% of the participants indicated that they maintained an active lifestyle. Nearly half of the participants (49.4%) were overweight. The most participants (59.09%) reported an income range of 200000-500000. 0-4 was poor knowledge, 5-9 was moderate knowledge, and 10-14 was good knowledge. Most of the participants (59.3%) had good knowledge. 1-23 was a negative attitude, 24-31 was a neutral attitude, and 32-40 was a positive attitude. 1-15 being poor practice, 16-30 being moderate practice, and 31-45 being good practice. The study found that most of the participants showed moderate practice (51.28%) (Table 1).

Table 1: Demographic Characteristics

Variables	Category	n (%)
Age	18-30	30 (9.6%)
	31-50	156 (50%)
	>50	126 (40.4%)
Education	No Formal Education	197 (63.1%)
	Primary	28 (9.0%)
	Matric	51 (16.3%)
	Graduates	18 (5.8%)
	Master	18 (5.8%)
Residence	Rural	204 (65.4%)
	Urban	108 (34.6%)
Notice an Increase in Body Weight	After Getting Married	147 (47.1%)
	Job	1 (0.3%)

Occupational Status	Surgery/Medical	141 (45.2%)
	Condition Any other	23 (7.4%)
	Office Work	12 (3.8%)
	Housewife	288 (92.3%)
	Student	2 (0.6%)
Frequently Eaten Foods	Other	10 (3.2%)
	Rice	257 (82.4%)
	Junk food	4 (1.3%)
	Processed food	17 (5.4%)
	Sweets	14 (4.5%)
Comorbidity	Beverages	5 (1.6%)
	All	15 (4.8%)
	Yes	207 (66.3%)
Lifestyle	No	105 (33.7%)
	Active	161 (51.6%)
Current Body Mass Index	Sedentary	151 (48.4%)
	Overweight (25-29.9)	154 (49.4%)
	Low Risk Obese (30-34.9)	111 (35.6%)
	Moderate Risk Obesity (35-39.9)	39 (12.5%)
	High Risk Obesity (>40)	8 (2.6%)
Average Monthly Income	Total	312 (100%)
	<50000	86 (27.6%)
	50000-200000	182 (58.3%)
	200000-500000	34 (10.9%)
	>500000	6 (1.9%)
	Total	308 (98.7%)
	Missing (999)	4 (1.3%)
Knowledge	Total	312 (100.0%)
	Poor	25 (8.0%)
	Moderate	102 (32.7%)
	Good	185 (59.3%)
Attitude	Total	312 (100.0%)
	Negative	43 (13.8%)
	Neutral	241 (77.2%)
	Positive	28 (9.0%)
Practice	Total	312 (100.0%)
	Poor	69 (22.1%)
	Moderate	160 (51.3%)
	Good	83 (26.6%)
	Total	312 (100.0%)

The knowledge section had 14 questions, and the responses were categorized into two parts: correct and the other is incorrect. Most of the participants (96.2%) had incorrect knowledge about K1, and most of the participants (93.9%) had correct knowledge about K12 (Table 2).

Table 2: Distribution of Responses in Knowledge, Attitude, and Practices

Questions	Incorrect, n (%)	Correct, n (%)
1. Obesity can be assessed by an entity called BMI.	300 (96.2%)	12 (3.8%)
2. Fat around the waistline is a risk factor for cardiovascular disease and is more harmful than fat around the body.	142 (45.5%)	170 (54.5%)
3. Heart diseases, including heart attack, high blood pressure, high cholesterol, etc is associated with obesity.	48 (15.4%)	264 (84.6%)
4. Diabetes is a common condition that is related to obesity.	61 (19.6%)	251 (80.4%)
5. Obesity can lead to joint problems (osteoarthritis)	64 (20.5%)	248 (79.5%)
6. Fasting/skipping meals is a good method to lose weight.	84 (26.9%)	228 (73.1%)

7.High intake of added sugars, such as sweets and sugar added to tea, coffee, or milk, is a major risk factor for overweight and obesity.	30 (9.6%)	282 (90.4%)
8.Regular intake of sugar-sweetened drinks increases body weight.	44 (14.1%)	268 (85.9%)
9.Eating fried foods regularly (like samosas, fries, wafers, etc) causes weight gain.	44 (14.1%)	268 (85.9%)
10.Too much refined food (bread/biscuits/momos etc) causes weight gain.	47 (15.1%)	265 (84.9%)
11.Chronic stress can contribute to weight gain.	171 (54.8%)	141 (45.2%)
12.Aerobic exercises like running, jogging, swimming, playing outdoor sports, etc., regularly, are an important method of reducing weight.	19 (6.1%)	293 (93.9%)
13.Anti-obesity medications are an effective option for weight reduction.	186 (59.6%)	126 (40.4%)
14.Meal replacers/supplements: They are a healthy way to lose weight.	192 (61.5%)	120 (38.5%)

The attitude section had 8 questions, and responses were divided into five options. Most of the participants (66.7%) were neutral about A6. Most of the participants (55.4%) strongly agreed with A1. The practice section had 9 questions, and responses were divided into five options: 1: Always, 2: Often, 3: Sometimes, 4: Occasionally, 5: Never. Most of the participants (59.3%) were always about P1, and Most of the participants (58.3%) were never about P6 (Table 3).

Table 3: The Attitude Section and Responses

Questions	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly Agree %
1.I feel obesity/overweight has really taken a toll on my life.	0	1.0	6.4	37.2	55.4
2.I think that it is very interesting to have a weight management.	0	0.6	6.1	42.0	51.3
3.As long as I eat less, I think I will be able to lose weight.	1.3	1.0	14.4	42.0	41.3
4.I think if I do take the weight-loss pills, I don't need to change any patterns of my diet, exercise, or behavior.	9.9	34.0	44.6	9.0	2.6
5.I think weight loss in the medical sense is beneficial in preventing weight regain after weight is lost.	0.6	25.3	57.1	12.2	4.8
6.I am willing to attempt weight loss through medical nutrition by telemedicine.	9.3	17.0	66.7	5.1	1.9
7.I'm willing to have weight loss surgery.	25.3	39.4	17.9	11.5	5.8
8.I'm open to using weight loss pills.	9.3	19.6	21.8	29.2	20.2
Practice					
1.My consumption of carbohydrates and fats is under control.	Always %	Sometimes %	Occasionally %	Never %	Often %
2.Follow the advice of a doctor or professional to prepare weight-loss dinners	59.3	7.7	24.4	2.2	6.4
3.Once I have lost weight scientifically.	31.4	9.0	14.7	4.8	40.1
4.I keep exercising regularly.	12.2	5.1	25.0	8.0	49.7
5.Once I've lost the weight Through the scientific method, I'm still eating to serve the needs of my body, following medical guidelines for long-term lifestyle changes.	15.4	5.4	19.9	8.7	50.6
6.I actively ask friends, family, and others in my network for encouragement and support and, if needed, for education and guidance in the professional weight loss field.	23.7	4.5	33.0	8.0	30.8
7.I keep a daily record of my diet, exercise, and weight	2.2	2.9	10.9	25.6	58.3
8.I have a healthy and positive attitude towards medical weight loss, and I actively look for information on weight control.	35.3	5.8	26.3	5.1	27.6
9.I am on a regular check-up with my doctor,	34.0	10.3	25.0	6.1	24.7
10.I am losing weight under his supervision.	13.1	1.6	17.0	12.5	55.8

The normalcy was checked with Kolmogorov-Smirnov and Shapiro-Wilk tests. The data were not normally distributed ($p < 0.050$), and hence comparisons were made using the Mann-Whitney U test and Kruskal-Wallis test for two and more than two groups, respectively (Table 4).

Table 4: Association Between Knowledge, Attitudes, and Practices Score and Demographic Data

Variables	Knowledge, Median	p-value	Attitudes, Median	p-value	Practices, Median	p-value
Educational Status						
No formal	10.0000	<0.001	27.0000	0.201	23.0000	0.040
Primary	9.5000		27.0000		29.0000	
Matric	11.0000		27.0000		25.0000	
Graduates	12.0000		25.5000		29.5000	
Masters	12.0000		28.0000		29.0000	

Residence						
Rural	10.0000	0.019	27.0000	0.843	24.0000	0.418
Urban	11.0000		27.0000		25.0000	
Occupational Status						
Office work	13.0000	0.003	29.0000	0.771	28.0000	0.690
Housewife	10.0000		27.0000		25.0000	
Students	11.5000		28.5000		26.0000	
Other	11.0000		26.0000		23.5000	
Income						
Low income (<50000)	9.0000	<0.001	27.0000	0.982	19.0000	<0.001
Lower-middle income (50000-200000)	10.5000		27.0000		26.0000	
Upper middle (200000-500000)	10.5000		27.0000		28.0000	
High income (>500000)	9.5000		29.5000		32.0000	
BMI						
Overweight (25-29.9)	9.0000	0.034	26.0000	<0.001	22.0000	0.139
Low risk obesity (30-34.9)	10.0000		27.0000		25.0000	
Moderate risk obesity (35-39.9)	11.0000		28.5000		28.0000	
Morbid obesity (>40)	11.0000		30.0000		23.0000	
Food Eat Mostly						
Rice	10.0000	0.021	27.0000	0.048	24.0000	0.113
Junk food	13.0000		29.5000		34.5000	
Processed food	10.0000		29.0000		25.0000	
Sweets	10.0000		28.5000		29.0000	
Beverages	10.0000		26.5000		17.0000	
All	10.0000		26.0000		25.0000	

Association between the various categories of knowledge, attitude, and practice with the demographic variables was analyzed using the Chi-square test. Education ($p=0.009$), monthly income ($p=0.003$), and BMI ($p=0.048$) were significant factors related to knowledge. The results of practice were significantly correlated with monthly income ($p<0.001$) and obesity-related diseases ($p=0.008$). There were no significant differences found between the attitude categories and any of the demographic variables ($p>0.050$) (Table 5).

Table 5: Association between the Various Categories of Knowledge, Attitude, and Practice

Variables	Knowledge, p-value	Attitudes, p-value	Practices, p-value
Educational Status	0.009	0.595	0.058
Income	0.003	0.650	<0.001
BMI	0.048	0.109	0.109
Related Disease	0.336	0.336	0.008

DISCUSSION

The present study examined knowledge, attitude, and practices of body weight management among overweight and obese female participants of two tertiary care hospitals in Peshawar. Significant associations were observed between knowledge and education, income, and BMI, while practice was significantly associated with income and obesity-related diseases. The findings showed that 59.3% of the participants had good knowledge regarding body weight management [16]. A study conducted in India concluded that middle monthly income participants had good knowledge as compared to other groups [17], which is comparable to the significant association of monthly income with good practice of

weight management (<0.001) of the current study. Similarly, the current study showed that older age, marital status, middle monthly income, and being a housewife were significantly associated with a higher rate of overweight and obesity, which is consistent with a study conducted in Lahore about the prevalence of overweight and obesity that most of the participants gained weight after marriage [18]. This may be due to lifestyle and gender-related factors, such as household responsibilities, limited time for physical activity, and weight gain related to pregnancy and the postpartum period. The most important thing for weight management is regular practice, as the current study found that 51.3% of participants had moderate practice regarding body weight management, which is inconsistent with the study conducted in China Saudia; they concluded that most of the participants had poor practices. This moderate level of practice and neutral attitude contribute to more obesity related diseases despite the availability of effective weight management techniques. It is evident that good knowledge and a neutral attitude are present, but the practice is poor; the poor practices can be related to socioeconomic, cultural, and environmental factors. Similarly, another study also

concluded that the participants showed a high level of knowledge and positive attitude, but they did not participate in physical activities at all [19], which is somewhat comparable with our study, and it also highlights that the ratio of females was higher than males. Similarly, a study conducted in India showed that although participants had good knowledge regarding overweight and obesity, their practices toward weight management were poor, pointing toward a persistent gap between what people know and what they do [20].

The study has several limitations. First, the cross-sectional design does not allow for the establishment of causal relationships between KAPs related to body weight management. Second, convenience sampling may have caused selection bias and may not have been representative. Third, this study took place in two tertiary care hospitals in Peshawar, and findings may not be generalizable to other settings and populations. These hospitals are located in both urban and rural settings for participants of different socioeconomic statuses, but care must be taken in applying the results in other similar settings. The results underscore the need to go beyond mere education to also tackle issues of underlying attitudinal obstacles and behavioral patterns. Longitudinal changes in KAP should be studied, and the psychosocial factors like motivation and self-efficacy should be investigated in future studies.

CONCLUSIONS

Overall, overweight or obese patients presented knowledge, attitudes, and practices at a good level in weight management. The results show the need to provide educational content as well as tackle the root causes of barriers in attitudes and behaviors. Finally, interventions based on gender, age, and residential context can enhance effectiveness, and a combination of psychological intervention and community-based health promotion can help to close the knowledge-to-practice gap. Future studies should explore and investigate the role of psychosocial determinants such as motivation and self-efficacy. The results of this study would also be strengthened by multiple centres and regional expansion of research to validate and generalize these findings among underrepresented or high-risk groups.

Authors' Contribution

Conceptualization: AZ

Methodology: KR, UF, IA, NR, SB

Formal analysis: AZ, YA, UU, KR,

Writing and Drafting: AZ, YA, UU, KR, UF, IA, NR, SB

Review and Editing: AZ, YA, UU, KR, UF, IA, NR, SB

All authors approved the final manuscript and take responsibility for the integrity of the work

Conflicts of Interest

All the authors declare no conflict of interest.

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