

Research Article

## Obesity Linked with the Unavailability of Resources and Psychosocial Factors - A Cross-Sectional Questionnaire-Based Study

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### Abstract

**Background:** Obesity has reached a global epidemic. More people are overweight in this era than ever before, yet it seems that society lags behind in accepting it as a significant change, thus it has so far failed to address the needs of obese people. This study aims to investigate factors that contribute to the differences in the frequency of obesity. People often don't have resources

or find it difficult to use the available resources in the society either because they are not suited for them or they are expected not to use them.

**Methods:** This study was conducted as an observational cross-sectional survey, including three study groups, at Dow University Hospital, Karachi, Pakistan. The

responses of the study participants were compared amongst the normal weight, over-weight, and obese population groups. Out of the 130 study subjects, 53.84% (n=70) were obese, 26.15% (n=34) being over-weight, and 20% (n=26) were having normal weight. The responses were coded into Statistical Package for the Social Sciences and analyzed. A sample size of 130 was calculated via raosoft digital calculator.

**Results:** A particular group lacked education regarding do and don'ts of obesity like what to eat and what not to eat, duration of physical activities, behaviors favoring obesity like daily activities, gym, family history, sports, snoring, depression, and disturbed sleep, thus making them prone to weight gain ( $p < 0.01$ ).

**Conclusions:** Many of the psychosocial factors were found as a contributing impaction on the lifestyles of the obese population.

**Keywords:** Obesity; Lifestyle; Public Health Education; Body mass index; Overweight

## 1. Introduction

Obesity is traditionally stated as extra body weight for height, due to extraordinary or massive fat reservoirs in the body resulting in deterioration of health leading to mortality and morbidity [1, 2, 3]. Obesity is a heterogeneous, multifaceted and substantially avoidable disease impacting along with overweight, over a third of worldwide inhabitants [1]. Most extensively sighted criteria for discerning obesity is body mass index (BMI; body weight in kilograms (kg), divided by height in meters squared) [2, 3, 4]. In adults (>20), the scale of BMI between 18.5 and 25 is categorized as normal while the scale of BMI > 30 or equal points towards obesity [1, 3, 5]. In children (2 years-19 years), BMI

percentile >5th or equal to <85 is categorized as normal while >95 or equal is demarcated towards obesity [1, 6]. In the present circumstances, predicted 205 million men and 297 million women had obesity constituting greater than half of the adults globally [7]. If this predisposition towards obesity prevails, it is predicted that by 2025-2030, 38% population would be overweight while 20% would suffer obesity [1, 8]. It is speculated that 3.4 million inhabitants are subjected to death due to obesity-associated factors per year [3, 9, 10]. Miscellaneous factors accountable for obesity are segregated into a defective diet, genetic predilection, physical immobility, personal behaviors, environmental, and socioeconomic [2, 10, 11]. Personal behaviors predisposing to obesity are energy consumption in a greater amount than required energy, consumption of carbonated drinks, short or long duration of sleep, pre and perinatal exposures, specific hormonal disorders (Cushing disease), psychological conditions (depression), and specific drugs such as steroids [2, 12]. Socioeconomic aspects responsible for obesity are inadequate education and financial distress [7, 13]. Environmental etiologies predisposing towards obesity are inadequate gain of physical mobility resources, geographic areas of the world lacking production of healthy food, viruses, microbes, and obese social gatherings [10, 14]. Obesity is causative factor of fatal complications such as cardiovascular diseases (hypertension, dyslipidemia, coronary heart disease, heart failure, stroke), neurological diseases (dementia and/or Alzheimer's), cancers (colon, breast, kidney, esophagus, and endometrium), respiratory diseases (obstructive sleep apnea and asthma), immune system diseases, gastrointestinal diseases (Non-alcoholic fatty liver disease, gallstones, and pancreatitis), kidney diseases (end-stage renal disease, kidney stones, obesity-associated glomerulopathy, and urinary incontinence)

fertility disorders (infertility, Polycystic ovarian syndrome, and pregnancy loss), musculoskeletal disorders (osteoarthritis, lower back pain, and gout), and psychological disorders (depression, substance misuse, inappropriate sexual behavior, and violence) [3, 13, 15, 16].

## 2. Study Design, Materials and Methodology

This is an observational cross-sectional study, conducted in Dow university hospital, Karachi, Pakistan. All the people who consider themselves normal weight, overweight, and obese were included in the study. While underweight individuals were excluded from the study population. A sample size of 130 was calculated by using a Rao-soft digital sample size calculator (<http://www.raosoft.com/samplesize.html>) in which we used 5% as a margin of error, 95% as confidence interval (CI), 195 as population size and response distribution as 50%. This study aims to investigate factors that contribute to the differences in the frequency of obesity. People often either don't have resources or find it difficult to use the available resources in the society either because they are not suited for them or they are expected not to use them. Hence, we listed various psychosocial factors contributing to obesity, and evaluated the study population for appropriate responses. The study population was divided into three groups. Those who had a body mass index (BMI) between 20 to 25 were included in the normal weight group, those having BMI between 25 to 30 were included in the overweight group, and above 30 BMI were considered an obese group. The responses of the study participants were compared amongst the three groups. All the analysis was conducted by using the Statistical Package for Social Science (SPSS) version 25. A *p*-value of <0.05 was considered statistically significant. Chi-square and

Fisher exact tests were used to calculate qualitative measures, and an independent t-test was used to estimate quantitative measures amongst the study groups.

## 3. Results

Out of the 130 included subjects in our study, 53.84% (n=70) were obese with BMI above 30, 26.15% (n=34) being over-weight with BMI between 25 to 30, and 20% (n=26) were normal weight having BMI between 20 to 25. All those with BMI <20 were excluded from the study population. The mean age of the study population was  $34.58 \pm 12.71$  (*p*=0.640), with 40% of them being males and 60% females. The mean age of the obese population was significantly higher as compared to overweight and normal study subjects (*p*=0.351). The socioeconomic status of the study population was evaluated, with 49.23% earning below 50000 Pakistani rupees per month, while the rest of 51.76% were earning above 50000 Pakistani rupees per month (*p*=0.036). According to Pakistan economic survey 2018-19, the per capita income has reached 1,497.3 US dollars per month (1 US dollar = 156 Pakistani Rupee). The demographic data of the study population are stated in Table 1.

Various psychosocial factors were found associated with the obese group. Only 34.28% (n=24) of obese are visiting parks as they think that parks are mostly unavailable around their home, while 47.05% (n=16) of over-weight visit parks and 53.83% (n=14) of normal goes to park (*p*=0.168). 31.42% (n=22) of obese people feel embarrassed about being overweight (*p*=0.726). 39.99% (n=28) of obese people find difficulty in building a new relationship as they don't feel comfortable in engaging conversations (*p*=0.043). 51.42% (n=36) of obese people believe that despite

eating less they end up being obese ( $p=0.109$ ), while 35.28% ( $n=12$ ) of over-weight and 30.76% ( $n=8$ ) of normal believe the same. 51.42% ( $n=36$ ) of obese do not have sufficient space to move in and out ( $p<0.001$ ), while 82.35% ( $n=28$ ) of over-weight and 92.29% ( $n=24$ ) of normal do have the same problem. 28.56% ( $n=20$ ) of obese people suffer from over-crowding ( $p=0.007$ ). Only 17.14% ( $n=12$ ) obese people participate in sports, while 29.40% ( $n=10$ ) of over-weight and 46.15% ( $n=12$ ) normal also participate in sports ( $p=0.014$ ). 8.56% ( $n=6$ ) of obese use gym, 17.64% ( $n=6$ ) of over-weight goes to gym and 38.46% ( $n=10$ ) of normal goes to gym ( $p=0.003$ ). 42.85% ( $n=30$ ) obese people participate in weight loss programs and exercises ( $p=0.002$ ), while 47.05% ( $n=16$ ) of over-weight and 23.07% ( $n=6$ ) normal also participate. 77.14% ( $n=54$ ) of obese people think that health departments are of limited access ( $p<0.001$ ). 77.14% ( $n=54$ ) of obese people think that there are few opportunities for them to reduce weight ( $p<0.001$ ), while 52.93% ( $n=18$ ) and 23.07% ( $n=6$ ) of overweight and normal person respectively thinks the same. 45.70%

( $n=32$ ) of obese people blame others for their obesity ( $p=0.563$ ). 50% ( $n=35$ ) of obese people believes that obesity has triggered depression in their life, while 15.37% ( $n=4$ ) of the normal person feels the same ( $p=0.008$ ). 25.71% ( $n=18$ ) of obese people have limited romantic relationships with their partner ( $p=0.031$ ), while 5.88% ( $n=2$ ) of over-weight and 11.53% ( $n=3$ ) of normal people respectively experienced the same. 54.28% ( $n=38$ ) of obese people and 29.41% ( $n=10$ ) of overweight have disturbed sleep ( $p=0.006$ ). 60% ( $n=42$ ) of obese people admit that their daily life routines are affected due to obesity, while 35.29% ( $n=12$ ) of over-weight and 30.76% ( $n=8$ ) of normal admits to daily routines being affected because of their weight ( $p<0.001$ ). 57.14% ( $n=40$ ) of obese people snore while sleeping ( $p<0.001$ ). Lastly, 17.14% ( $n=12$ ) of obese people dance, while 35.28% ( $n=12$ ) and 38.45% of overweight and normal person respectively dance occasionally ( $p=0.040$ ). The correlation of various psychosocial factors associated with obesity to BMI and gender of the study population amongst the study groups are listed in Table 2.

1	<b>Mean age in years (n=130)</b>	<b>34.58 ± 12.71</b>		<b>p-value</b> <b>0.640</b>	
	Females (n=78)	34.15 ± 12.59			
	Males (n=52)	35.23 ± 12.97			
2	<b>Body Mass Index</b>	<b>Male</b>	<b>Female</b>	<b>0.351</b>	
	20-25 (n=26)	9	17		
	25-30 (n=34)	11	23		
	>30 (n=70)	32	38		
3	<b>Correlation of BMI with mean age</b>	<b>34.58 ± 12.71</b>			
	20-25	22.92 ± 2.09			
	25-30	31.24 ± 11.98			
	>30	40.54 ± 11.78			
4	<b>Correlation of mean age with BMI and gender</b>	<b>BMI</b>			
		<b>20-25</b>	<b>25-30</b>	<b>&gt;30</b>	

	Male (mean age)	23	30	40	
	Female (mean age)	23	32	41	
5	<b>Monthly income in Pakistani Rupee</b> (1 US dollar = 156 Pakistani Rupee)				<b>0.036</b>
	<50000 Rupee	64 (49.23%)			
	50000-100000 Rupee	44 (33.84%)			
	>100000 Rupee	22 (16.92%)			

**Table 1:** Demographic data of the study population (n=130).

Psychosocial factors	Gender	BMI			p-value
	Male (n=52)	20-25 (n=26)	25-30 (n=34)	>30 (n=70)	
	Female (n=78)				
1. Feeling of being uncomfortable in dressing up.	Male	3.84% (n=1)	8.82% (n=3)	12.85% (n=9)	0.071*
	Female	3.84% (n=1)	8.82% (n=3)	15.71% (n=11)	
2. Unavailability of sufficient space to move in and out.	Male	30.76% (n=8)	29.41% (n=10)	24.28% (n=17)	<0.001*
	Female	61.53% (n=16)	52.94% (n=18)	27.14% (n=19)	
3. Overcrowded home.	Male	0% (n=0)	5.88% (n=2)	11.42% (n=8)	0.007*
	Female	0% (n=0)	11.76% (n=4)	17.14% (n=12)	
4. Being overweight affecting daily life routines.	Male	7.69% (n=2)	8.82% (n=3)	27.14% (n=19)	<0.001*
	Female	23.07% (n=6)	26.47% (n=9)	32.85% (n=23)	
5. Feel embarrassed about being overweight.	Male	7.69% (n=2)	8.82% (n=3)	15.71% (n=11)	0.726*
	Female	15.38% (n=4)	20.58% (n=7)	15.71% (n=11)	
6. Visit parks for regular walk.	Male	23.07% (n=6)	17.64% (n=6)	17.14% (n=12)	0.168*
	Female	30.76% (n=8)	29.41% (n=10)	17.14% (n=12)	
7. Finds difficulty in building new relationships.	Male	15.8% (n=4)	8.82% (n=3)	12.85% (n=9)	0.043*
	Female	30.76% (n=8)	18.57% (n=13)	27.14% (n=19)	
8. Believe that despite eating less, they are overweight.	Male	11.53% (n=3)	14.70% (n=5)	24.28% (n=17)	0.109*
	Female	19.23% (n=5)	20.58% (n=7)	27.14% (n=19)	
9. Participate in weight loss programs and exercises.	Male	3.84% (n=1)	20.58% (n=7)	20.00% (n=14)	0.002*
	Female	19.23% (n=5)	26.47% (n=9)	22.85% (n=16)	
10. Participate in any form of sports.	Male	19.23% (n=5)	11.76% (n=4)	8.57% (n=6)	0.014*
	Female	26.92% (n=7)	17.64% (n=6)	8.57% (n=6)	
11. Use elevators more frequently instead of stairs.	Male	11.53% (n=3)	17.64% (n=6)	32.85% (n=23)	0.004*
	Female	19.23% (n=5)	41.17% (n=14)	35.71% (n=25)	

12. Use gym.	Male	19.23% (n=5)	11.76% (n=4)	4.28% (n=3)	0.003**
	Female	19.23% (n=5)	5.88% (n=2)	4.28% (n=3)	
13. Family history of obesity.	Male	3.84% (n=1)	5.88% (n=2)	32.85% (n=23)	<0.001*
	Female	11.53% (n=3)	14.70% (n=5)	35.71% (n=25)	
14. Think that there are few opportunities to reduce weight.	Male	7.69% (n=2)	17.64% (n=6)	37.14% (n=26)	<0.001*
	Female	15.38% (n=4)	35.29% (n=12)	40.00% (n=28)	
15. Limited access to health departments.	Male	15.38% (n=4)	5.88% (n=2)	34.28% (n=24)	<0.001*
	Female	23.07% (n=6)	35.29% (n=12)	42.85% (n=30)	
16. Think obesity triggered depression in their lives.	Male	3.84% (n=1)	0% (n=0)	14.28% (n=10)	0.008*
	Female	11.53% (n=3)	5.88% (n=2)	35.71% (n=25)	
17. Limited romantic relation with their partner.	Male	3.84% (n=1)	0% (n=0)	12.85% (n=9)	0.031*
	Female	7.69% (n=2)	5.88% (n=2)	12.85% (n=9)	
18. Blame others for their overweight.	Male	19.23% (n=5)	11.76% (n=4)	21.42% (n=15)	0.563*
	Female	19.23% (n=5)	23.52% (n=8)	24.28% (n=17)	
19. Disturbed sleep.	Male	7.69% (n=2)	2.94% (n=1)	24.28% (n=17)	
	Female	15.38% (n=4)	26.47% (n=9)	30.00% (n=21)	
20. Snore while sleeping.	Male	7.69% (n=2)	8.82% (n=3)	27.14% (n=19)	
	Female	7.69% (n=2)	20.58% (n=7)	30.00% (n=21)	
21. Dance occasionally.	Male	15.38% (n=4)	14.70% (n=5)	8.57% (n=6)	
	Female	23.07% (n=6)	20.58% (n=7)	8.57% (n=6)	
22. Fit in Car	Male	34.61% (n=9)	29.41% (n=10)	40.00% (n=28)	<0.001*
	Female	65.38% (n=17)	64.70% (n=22)	48.57% (n=34)	0.040*
<i>*denotes chi-square test used to calculate p-value.</i>					0.177**
<i>** denotes fisher exact test used to calculate p-value.</i>					

**Table 2:** Correlation of various psychosocial factors associated with obesity with BMI and gender of the study population (n=130).

#### 4. Discussion

Overweight and obesity influence different aspects of health involving psychological, social, emotional and physical health rendering it as major mass burden faced by society and making it crucial to opt for appropriate strategies and measurements to prevent it [16]. Physical activity is considered a vital constituent of lifestyle

modifications for reducing weight and prevention from obesity [17, 18]. Physically immobile lifestyles in adolescence potentiate the obesity resulting in decrease activity, decline in energy consumption, and increase adipose retention [18, 19]. Physical activity helps in promoting cardio-respiratory fitness and declines the incidence of chronic illnesses [17, 20]. Overweight and

obese people are stigmatized socially and suffer from iniquity. Obese people face a number of prejudicial norms like considered less physically appealing thus reducing their chances to enjoy good marital relations and hinder them to approach their partners. They are also antagonized by workplace prejudices resulting in a lack of employment and spiking poverty rates among them leading to poor socioeconomic status [13, 16, 21, 22]. Obesity being societal burden also plays its role in the deterioration of the emotional stability of sufferer resulting in low self-confidence, mood swings and body dissatisfaction, especially among girls, hence affecting the physical and mental well-being of adolescents and children resulting in a poor lifestyle [23, 24]. Psychological disturbances are also witnessed among sufferers more prominent in females as compared to males resulting in mood instabilities. Depression associated with obesity is more prevalent among individuals undergoing weight reduction therapy as compared to those not seeking any therapy. Weight reduction therapies themselves demand lifestyle modifications from obese individuals subjecting them to stress and depression [25]. Society denotes being fat is ugly, sick and those who suffer from obesity are lacking morals and are deficient and sexually incompetent [22, 25]. Obese people due to their weights deviating from standards set by society are laughed at, catcalled, and ridiculed to an extent that they start losing their confidence and label themselves a societal burden thus become a social outcast [22]. Obese people, especially females as compared to males suffer from body dissatisfaction losing her self-esteem and confidence about her looks and desire of bonding with her partner and if she is not acquainted she lacks will to approach suitable candidates for a marital relationship [13, 22]. Obese people suffer from embarrassment due to their weights and have negative impacts on their

personalities, to quench their inferiority they find binge eating as comfort and indulge in it thus keep on gaining weight. They become sluggish and refrain from physical activities along with being dishonest in opting for measures of weight reduction [11]. People who loved to be physically active in various aspects of life and enjoy their leisure activities due to obesity have lost their interest in sports, going to the gym and walking in parks in fear of being bullied [21]. Self-destructive behaviors are also witnessed among obese individuals like lack of hygiene, sleeping less than 6 hours a day, consuming large amounts of carbonated foods triggering weight gain [10]. Obese people due to their excessive weight refrain from traveling in public transports in fear of occupying more space and over-crowding thus they prefer being anti-social rather than indulging in activities of daily life [21]. Obesity sufferers face workplace prejudices with them being rejected in different fields of work as compared to those bearing normal weights [13, 21, 22].

## **5. Conclusion**

Our study investigated the factors present in the lifestyle of an individual resulting in the development of obesity and its impact on personality along with his/her daily life activities. Society has standardized normal weight as a virtue of being physically attractive and those who have their weight maintained according to norms enjoy acceptance and attention of society as compared to those who are overweight and obese. This social prejudice makes the life of the sufferers stressful and results in the decline of their various parameters of health. In the findings of our study, a particular group lacked education regarding do's and don'ts of obesity like what to eat and what not to eat, duration of physical activities, behaviors favoring obesity thus making them prone to weight gain.

### Declaration of Conflicting Interests

The authors declare no conflicts of interest with this article's content.

### Ethical Approval Statement

Ethical approval was obtained in this study from the relevant Head of department, faculty of Medicine, Dow University Hospital.

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