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Factors Affecting Obesity Among Adults Attending the University of Lahore Teaching Hospital, Pakistan

Rabia Shah[1], Amir Iqbal[1], Sana Farooq[1*], Sidra Khalid[1], Shaista Jabeen[1], Zarmina Mehmood[1] and Nadeem Ahmad[2]

[1]University Institute of Diet and Nutritional Sciences, The University of Lahore, Lahore, Pakistan
[2]University of Sydney, New South Wales, Australia

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***Corresponding Author:**

Sana Farooq
University Institute of Diet and Nutritional Sciences, The University of Lahore, Lahore, Pakistan
sana.farooq240@gmail.com

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ABSTRACT

Obesity is one of the major problems these days, and it is the root cause of many fatal health conditions, including hypertension, diabetes, and cardiovascular diseases. **Objective:** To find out the factors affecting obesity among Adults aged between 20-60 years attending the University of Lahore Teaching Hospital, Pakistan. **Methods:** A cross-sectional study based on a sample size of 100 participants was conducted. Non-probability convenience sampling was used. Adults of both genders aged 20-60 years attending the University of Lahore Teaching Hospital, Pakistan, were selected. SPSS version 21.0 was used to analyze the data. **Results:** In a sample of 100, 78% of them were found to be obese, and 22% of them were overweight. Female were more inclined to obesity (53%) in comparison to male (47%); married people (57%) were more predisposed to obesity in comparison to those who were single (43%). Obesity was statistically linked with psychological determinants (Stress, emotional eating), fast food consumption, consumption of sugary foods, high levels of cholesterol, and physical inactivity ($p<0.05$), and junk food preference, cholesterol levels, and daily exercise, as the p-value was <0.05. **Conclusions:** The study observed obesity as a major issue among the adult population and identified major correlations of obesity with marital status, BMI, physical inactivity, stress, and diet.

INTRODUCTION

An irregular and extreme fat buildup that harms the body and health is defined as 'Obesity' and Overweight. Body mass index (BMI) is a weight-for-height ratio calculated to get an idea of whether an individual is overweight/or obese. To calculate BMI (in kg/m2), a person's weight (kilograms) is divided by the square of his/her height (meters)1. For adults, the World Health Organization (WHO) describes overweight and obesity as: 'BMI more than or equal to 25 signifies overweight, whereas BMI more than or equal to 30 signifies a condition known as obesity [1]. Researchers declared obesity and overweight as contributing factors in increasing mortality rates, posing a risk to life. For example, being overweight can result in gestational diabetes during pregnancy, which can lead to high birth weight. Excessive birth weight is also an indicator of overweight and obesity in adulthood [2, 3]. It has psychological, economic, social, and medical health concerns, such as respiratory issues, cerebrovascular and cardiovascular diseases, digestive disorders, cancer, as well as type 2 diabetes [4]. Dyslipidemia development, type 2 diabetes, and hypertension in adults are primary risk factors of obesity [5]. Obesity has been increasing swiftly all over the world throughout recent decades [6]. In 2014, over 1.9 billion people, aged 18 years or above, were noted as obese worldwide [7]. Even in economically developing nations like Pakistan, the incidence rate of overweight and obesity has

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been gradually increasing. According to the Pakistan Demographic and Health Survey (PDHS), the prevalence of overweight and obesity among adults has shown a steady upward trend in recent years [8]. In urban areas such as Lahore, this rise is particularly concerning due to lifestyle factors and dietary transitions [9]. The World Health Organization (WHO) also reports that obesity-related health burdens are increasing in low- and middle-income countries, including Pakistan [10]. Lahore, one of Pakistan's most populous cities, has experienced rapid urbanization and socioeconomic change. Increased access to energy-dense fast food, reduced physical activity, and more sedentary occupations have significantly altered lifestyle patterns [2]. Cultural norms, especially those affecting women's mobility and outdoor engagement, limit opportunities for physical activity, increasing their risk of obesity [11]. As economic conditions have improved in urban areas, lifestyle-related health challenges have emerged alongside improved access to healthcare and infrastructure. Households with better economic means often outsource physical chores and consume high-calorie processed foods, contributing to metabolic conditions such as obesity, type 2 diabetes, and hypertension. These patterns mirror global urban trends, but they also highlight the unique intersection of culture, economy, and health behaviour in Pakistani cities like Lahore. Furthermore, obesity is considered to be a major factor behind the onset of different diseases, and it is increasing significantly among the population of Pakistan [12]. The data on obesity among adults is scarce in Lahore, although the urban population is increasing and the number of obese people is on the rise. There is little research on the level of local adult populations since the majority of research features either children or national trends. The present study fills that gap by finding out some of the major factors that are associated with obesity among adults attending a ubiversity in Lahore.

This study aims to find the factors affecting obesity among Adults aged between 20 and 60 years attending the University of Lahore Teaching Hospital, Pakistan.

METHODS

A cross-sectional study was conducted at the University of Lahore Teaching Hospital, Pakistan. The study duration was 4 months from May 2019 to August 2019, and the sample size included 100 overweight adults. A non-probability convenience sampling technique was used. The sample selection was based on inclusion criteria, which included adult male and female attending or admitted to the University of Lahore Teaching Hospital, who reside in Lahore, Pakistan. BMI was calculated using directly measured height and weight recorded at the time of data collection. After obtaining written informed consent, data were collected using a pre-tested data collection tool. (questionnaire/proforma). The questionnaire was reviewed by field experts for face validity and pre-tested for clarity and relevance on a small pilot sample (n=100). The data were then tabulated and analyzed using SPSS version 21.0.

RESULTS

Among 100 subjects, 47 were male and 53 were female. 22 subjects were overweight, 78 subjects were obese. 43 were single while 57 were married. Furthermore, 77 participants were stressed/depressed, 75 were feeling frustrated, 77 were feeling lonely, and 81 were eating food due to emotional factors. 49 were consuming sugary foods over healthy foods, and 82 were preferring fast/junk foods over natural foods. 65 participants used to eat out rather than eat food at home. Moreover, 58 subjects were eating snacks while using a computer or watching television. 49 subjects used to sleep for less than 6 hours. 71 were doing regular exercise, and 29 subjects were not doing any kind of exercise. Additionally, 13 subjects were non-diabetic and 87 subjects were diabetic. Moreover, 64 participants had high cholesterol levels out of 100 participants (Table 1).

Table 1: Frequency Distribution of Different Attributes (n=100)

Attributes	Subgroups		Frequency
BMI (Weight Status)	Overweight	–	22
	Obese	–	78
Gender	Male	–	47
	Female	–	53
Marital Status	Single	–	41
	Married	–	57
Psychological Factor	Stress/Anxiety /Depression	Yes	77
		No	23
	Frustration	Yes	75
		No	25
	Loneliness	Yes	77
		No	23
	Emotional Eating	Yes	81
		No	19
Types of Food Intake	Sugary food	Yes	49
		No	51
	Junk food/Fast food	Yes	82
		No	18
Lifestyle Factors	Eating Practices	Eat Out	65
		Eat at Home	35
	Snack Eating While Watching Television /Computer	Yes	58
		No	42
	Sleeping Time	Sleep Less Than 6 Hours	49
		Sleep More Than 6 Hours	51
	Exercise	Yes	71
		No	29

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The BMI of the participants was significantly associated with the psychological factors like stress/ anxiety /depression, frustration, loneliness and emotional eating, as the p-values were 0.000, 0.001, 0.001 and 0.000, respectively(Table 2).

Table 2: Association Between Psychological Factors

BMI	Yes	No	Total	p-value
Stress/Anxiety/Depression				
Over weight	9	13	22	0.000
Obese	68	10	78	
Total	77	23	100	
Frustration				
Over weight	10	12	22	0.001
Obese	65	13	78	
Total	75	25	100	
Loneliness				
Over weight	11	11	22	0.001
Obese	66	12	78	
Total	77	23	100	
Emotional Eating				
Over weight	8	14	22	0.000
Obese	73	5	78	
Total	81	19	100	

BMI of the participants was significantly associated with the intake of sugary foods and preference for fast/junk foods over healthy foods, as the p-values were 0.001 and 0.004, respectively(Table 3).

Table 3: Association Between BMI And Types of Food Intake

BMI	Yes	No	Total	p-value
Sugary Food Intake				
Over weight	4	18	22	0.001
Obese	45	33	78	
Total	49	51	100	
Fast/Junk Food Preference				
Over weight	13	9	22	0.004
Obese	69	9	78	
Total	82	18	100	

DISCUSSION

The study was directed to assess the factors causing obesity among participants of Lahore aged 20-60. Non-probability convenience sampling technique was used. The results revealed that out of 100 subjects, 22 were overweight, while 78 were obese. Moreover, 87 of them were suffering from diabetes mellitus, and 64 were suffering from high cholesterol levels due to higher BMI. The results indicated that female were at increased risk of being obese compared to males. The results are similar to a research study that was performed to observe the frequency of obesity by gender. Then a study established that women are at increased risk of being obese because women involve themselves less in physical activities as compared to male. Males mostly do physical activities; therefore have less chance of being obese, while female prefer fewer physical activities, and physical activity is directly proportional to obesity. People who do more physical activities, such as playing physical games, e.g., cricket, or do physical activity, have less frequency of being obese. On the other hand, females reported prolonged television viewing and prefer to do such less physically demanding activities; as a result, they are at higher risk of being obese [15]. In this study, the results concluded that marital status also plays a significant role in obesity. According to the results, 57 obese people were married, while only 43 people were not married. The results were almost similar to a study that was conducted to find the frequency of obesity among married single people. The study showed that men and women who live in a relationship tend to gain more weight compared to singles. The results concluded that 52 people spend more than 2 hours working on a laptop or computer in a day, while 34 people spend 2 hours on the computer. It was concluded that people who spend more time on the laptop/computer are at a higher risk of being obese [16]. A higher stress rate was observed in obese participants. A similar work was conducted in order to measure the association between continued financial tension and ensuing obesity. The survey was based on questionnaire completion and person-to-person interviews regarding their fitness, well-being, earnings, and services. The study was conducted over three years. The results of this Australian study showed a positive correlation between prolonged financial stress and resulting obesity [10]. The results showed that 54 people eat sugary food, while only 46 eat sugar-containing food. The present study supports the finding of cross-sectional analysis of 396 Chilean adults, among whom increased sugar consumption was significantly related to BMI and total body weight, despite confounding factors [17]. 51 people revealed that they eat fast food in their daily routine, while 49 do not. A similar finding was made when a study was conducted that examined study if perspective, viewpoint, and nutritional awareness were associated with obesity amongst low-earning women of Hispanic and African-American backgrounds. The results concluded that African American people have more nutritional knowledge; therefore at a lower risk of obesity, while other people who do not have nutritional knowledge are at a higher risk of obesity. Fast food contains a high rate of fats and calories; therefore, people who mostly eat fast food are at increased risk of obesity compared to people who eat home-made food [18]. Out of all the participants, 65 preferred to eat out, while 35 participants liked to eat at home. A similar result was observed by a survey-based

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study, which observed whether there was any correlation concerning exposure to take-away food options, body mass, and take-away food consumption. This study was conducted in the United Kingdom (UK) and looked at working adults' home and workplace environments. The results indicated a positive association between consumption of takeaway food and BMI in different fields covered, including home, workplace, and travelling environments, with a greater probability of obesity [19]. The study differs from current work as the researchers narrow down eating out to take-away food options. According to the results, 58 people have snacks while watching TV, and only 42 people indicated that they do not eat snacks while watching TV. Similarly, a study was conducted on American adults from 1988 to 2010. The study found that people who consume high-calorie foods and spend most of their time on computers or watching TV are at a higher risk of obesity as compared to other people. The results showed that 68 participants reported that they spend four to five hours a day watching TV or playing games on the computer [20]. The present study associated less sleep time as a determinant of obesity. Results showed that 60 subjects were sleeping less than 6 hours, and 40 subjects were sleeping more than 6 hours. Another work also presented similar results. A study was conducted to determine whether sleep duration is linked to obesity among adults. It was established that shorter sleep time was considerably linked with the possibility of obesity in the future. However, of all the reviewed literature, around four articles signified distinct outcomes with respect to both genders (men and women). One of the studies had only involved female participants, while one study was conducted on male gender merely [21]. Our results depicted that a lifestyle without exercise and physical activity is related to higher BMI (obesity). Similar results were observed in a study conducted on American adults, which tended to look into the association involving obesity, physical activity and caloric consumption [22]. Results showed that adults with no reported physical exercise and activity in their free time were declared to have 1.7% more fluctuations (among men) in their ideal BMI and 8.3% more fluctuations in women, compared to their counterparts who have a scheduled ideal level of physical activity in their free time [22]. The results of this study also manifested that obese people are at a higher risk of getting ailments. The results were the same with the study that was conducted by the NHS that people who are obese are at a higher risk of getting diseases. Obesity was the basic cause of many diseases, especially diabetes, hypertension, and heart problems. Therefore, people who are diagnosed with hypertension or diabetes are advised to exercise to reduce weight by a doctor [23].

CONCLUSIONS

It was concluded that the overweight condition in adults has been linked with modifiable factors of the lifestyle like poor food habits, physical inactivity, disrupted sleeping patterns, and stress. Awareness creation programs and behaviour change interventions would be useful in curbing the prevalence of obesity, as they address these issues. There is a need to conduct more research with even bigger and more representative samples to establish these findings. Future studies should include a formal power analysis and larger samples to enhance precision and generalizability.

Authors Contribution

Conceptualization: RS, AI, SF
Methodology: RS, AI, SF
Formal analysis: RS, AI, SF
Writing review and editing: RS, AI, SF, SK, SJ, ZM, NA
All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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