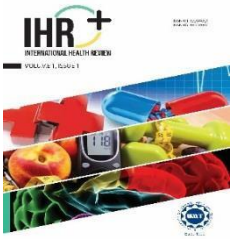

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Article: **Perceptions and practices regarding snack consumption among women with varying weight statuses**

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Perceptions and Practices Regarding Snack Consumption Among Women with Varying Weight Statuses

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Abstract

The changing nature of working environment and lifestyle across the globe is creating a need for people to eat inexpensive meals outside their homes. Snacking is becoming more popular among women, resulting in several health problems. The aim of this study was to compare normal-weight, overweight, and obese women's perceptions and practices regarding snacking patterns and serving size of such meals. For this purpose, a cross-sectional survey using convenience sampling was conducted on 150 healthy adult (>18 years) females residing in Lahore. A self-designed questionnaire containing the sections anthropometric measurements (BMI), perceptions about snacking (9 items on 5 point Likert scale of agreement) and practices about snack consumption (11 items- closed ended questions about frequency and portion size) was used and distributed among the respondents using Google forms. After segregating data for various BMI statuses, statistical analysis was conducted using Microsoft Excel and the results were presented as frequencies and percentages. The findings revealed that majority the participants gave neutral response, with the least of them agreeing that snacking is an unhealthy dietary activity. It was observed that 50% of the underweight women were unaware of the consequences of snacking. It was concluded that individuals with lower BMI showed weaker perceptions and practices regarding snack consumption as compared to those that belonged to other weight categories. It is recommended that individual behavior should be diverted in favour of healthy snacking and developing healthy eating strategies that can be adopted at home, in school and on community level to overcome obesity.

Keywords: nutrition, perceptions, practices, snacking

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Introduction

Nutrition is one of the essential seven characteristics of living organisms. It is required for the growth, energy, and proper functioning of an organism [1]. Human beings have categorized a healthy diet into five food groups that provide all the micro and macro nutrients. A healthy diet can keep a person mentally and physically healthy [2]. The busy people of the present technological age, have left with little time to cook food for themselves. To cope with this phenomenon, they have switched over to multiple packed ready-to-eat and ready-to-cook food. But the problem is that such food contains additives and preservatives which can cause multiple health concerns such as cancer [3].

Three basic meals a day are considered important for fulfilling the daily caloric needs of an individual. But snacks, especially the packed potato chips, chocolates, and biscuits, have calories more than the ones required normally by a person, generating, therefore, extra weight and hormonal issues, especially in women. The frequency of snack consumption depends on many factors like skipping breakfast. Those who do this are expected to take unhealthy snacks [4]. Snacks are also consumed, often unregulated, during friendly and professional rendezvous. The serving size of the packaged food also affects the amount of consumption. A cross-sectional study was conducted during which selected males and females were given a huge package of a snack containing more than one portion of serving, to check which of the two groups consumed more and added extra calories to their body.

The increasing trend of snacking in Lahore, Pakistan, is causing multiple health problems. Extra calories consumed through snacking can lead to overweight and obesity. Many studies have found a link between childhood obesity and snack consumption. But, no direct study has been conducted in this region to assess the role of snacking in the weight status of women.

Nutrition education programs based on the health belief model are investigated to lower the consumption of unhealthy food. Results showed that the training sessions decreased unhealthy snack consumption by lowering the perceived barrier and increasing the HBM constructs score [2].

The current study is intended to study the snack consumption pattern of underweight, normal weight, overweight and obese women. This study has been conducted to help compare normal weight, overweight and obese women's perceptions and practices about the pattern and portion size of snacking.

Methodology

This study was conducted using a cross-sectional survey design. Data was collected from 150 healthy adult (>18 years) females selected using convenience sampling technique. All the participants were the residents of Lahore, Pakistan, and had access to internet. Data was collected using a self-designed questionnaire containing the following sections: Anthropometric information, perceptions about snacking and practices about snack consumption. There were 9 items in the perception-based questions about snacks (5 point Likert scale of agreement) and 11 items in practices about snack consumption (close ended questions about frequency and portion size). The portion sizes were elicited using images of the snacks. The questionnaire was distributed among the respondents using electronic survey through Google forms.

Anthropometric information (height and weight) was self-reported by the respondents. BMI was calculated and categorized based on the South Asian BMI cutoff points. Data was analyzed using Microsoft Excel and was represented through frequencies and percentages after splitting the data for various BMI statuses.

The participants were conveyed details of the research purpose prior to the distribution of questionnaire. They were independent to decide if they wanted to fill the form, or not. Their personal data was kept confidential.

Results

Table 1. Body Mass Index Categories of the Participants (n=120)

Categories	f (%)
Underweight (below 18.5 kg/m2)	21(17.5%)
Normal (18.6 to 22.9 kg/m2)	42(35%)
Overweight (23 to 24.9 kg/m2)	22(18.3%)
Obese (above 25 kg/m2)	35(29.2%)

Table 1 shows that the proportion of women falling in normal weight category according to their BMI was 35% of the total sample. It was 29.2% for those in the obese category. Almost an equal number of participants was underweight (17.5%) and overweight (18.3%).

Table 2. Agreement of Participants on Questions Regarding Knowledge about Snacks Categorized According to Varying Weight Statuses

Weight category	F(%)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Survey Item 1: Snacks are healthy					
Obese	1(3%)	7(20%)	13(37%)	10(29%)	4(11%)
Overweight	1(5%)	7(32%)	4(18%)	5(23%)	5(23%)
Normal	4(10%)	8(19%)	14(33%)	15(36%)	1(2%)
Underweight	3(14%)	4(19%)	8(38%)	4(19%)	2(10%)
Survey Item 2: Food label reading is important					
Obese	7(20%)	18(51%)	8(23%)	1(3%)	1(3%)
Overweight	3(14%)	11(50%)	3(14%)	4(18%)	1(5%)
Normal	5(12%)	17(40%)	10(24%)	9(21%)	1(2%)
Underweight	2(10%)	2(10%)	12(56%)	3(14%)	2(10%)
Survey Item 3: Late night snacking is unhealthy					
Obese	7(20%)	18(51%)	8(23%)	1(3%)	1(3%)
Overweight	3(14%)	11(50%)	3(14%)	4(18%)	1(5%)
Normal	5(12%)	17(40%)	10(24%)	9(21%)	1(2%)
Underweight	2(10%)	2(10%)	12(56%)	3(14%)	2(10%)
Survey Item 4: Buying should be based on nutrient content of food					
Obese	5(14%)	8(23%)	10(28%)	10(28%)	2(6%)
Overweight	2(9%)	4(18%)	8(36%)	6(27%)	2(9%)
Normal	7(17%)	11(26%)	11(26%)	11(26%)	2(5%)
Underweight	0	4(19%)	4(19%)	10(48%)	3(14%)
Survey Item 5: Calories from snacks should be included in daily calorie consumption count					
Obese	3(9%)	8(23%)	6(17%)	13(37%)	5(14%)
Overweight	5(23%)	1(5%)	5(23%)	9(40%)	2(9%)
Normal	5(12%)	6(14%)	8(19%)	18(43%)	5(12%)
Underweight	2(10%)	1(5%)	3(14%)	9(43%)	6(28%)

Weight category	F(%)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Survey Item 6: Individual commonly used snack category 1 – Biscuits contribute to daily caloric consumption					
Obese	5(14%)	20(57%)	5(14%)	3(9%)	2(6%)
Overweight	9(41%)	8(36%)	3(14%)	2(9%)	0
Normal	7(17%)	22(53%)	10(24%)	3(7%)	0
Underweight	2(10%)	4(19%)	11(52%)	1(5%)	3(14%)
Survey Item 7: Individual commonly used snack category 2 – Crisps contribute to daily caloric consumption					
Obese	6(17%)	16(46%)	6(17%)	7(20%)	0
Overweight	6(27%)	9(41%)	2(9%)	5(22%)	0
Normal	6(14%)	20(48%)	10(24%)	5(12%)	1(2%)
Underweight	2(10%)	2(10%)	11(52%)	4(19%)	2(10%)
Survey Item 8: Individual commonly used snack category 3 – Sweets contribute to daily caloric consumption					
Obese	11(31%)	16(46%)	3(9%)	2(6%)	3(9%)
Overweight	11(50%)	7(32%)	2(9%)	2(9%)	0
Normal	17(40%)	19(45%)	4(10%)	1(2%)	1(2%)
Underweight	6(29%)	8(38%)	3(14%)	1(5%)	3(14%)
Survey Item 9: Individual commonly used snack category 4 – Cold drinks contribute to daily caloric consumption					
Obese	15(43%)	6(17%)	6(17%)	5(14%)	3(9%)
Overweight	12(55%)	7(32%)	0	3(14%)	0
Normal	17(40%)	14(33%)	5(12%)	5(12%)	1(2%)
Underweight	6(29%)	4(19%)	3(14%)	2(10%)	6(29%)
Overall agreement on perception based questionnaire*					
Obese	54(17%)	106(34%)	67(21%)	63(20%)	25(8%)
Overweight	51(26%)	56(28%)	32(16%)	41(21%)	18(9%)
Normal	75(19%)	126(33%)	76(20%)	83(22%)	18(5%)
Underweight	26(14%)	34(18%)	57(30%)	39(21%)	33(17%)

*Average of 9 items

Table 2 depicts knowledge about consumption of snacks categorized according to varying weight statuses among participants. Most of the

participants gave neutral responses. The least number of individuals agreed that snacking is unhealthy. The comparison of the four weight status categories showed that 29%, 33%, 37% and 23% of the participants belonging to the normal, underweight, overweight and obese categories regarded snacking as an unhealthy practice. Majority participants, 71%, agreed that they had knowledge of the food labels and were in the habit of reading them. Whereas, the underweight individuals responded that they did not think it important to consider the labels. , Therefore, only 20% of them agreed to it. Majority participants termed late night snacking an unhealthy habit. Of all the four groups, 39% of the normal weight category agreed that this habit can damage one's health. A majority of the overweight group did not agreed with the concept. Only 18% of them agreed. In all, 43% of the normal weight and 37% of the obese categories individuals agreed that it is important to read the contents and labels of the snacks before eating them. Only 19% underweight individuals said it was not important to do so. Most of the participants said extra calories of snacks should not be added to the daily calorie requirements of a person. Only obese individuals showed comparatively better results as 32% of them agreed to adding these calories which shows they were better informed. Only 15% of the underweight agreed to it. Most of the samples under study agreed that biscuits do add calories to one's diet. But the underweight participants shared neutral responses. Only 29% of them agreed that biscuits contained unnecessary additional calories. In all, 63% of the obese, 68% of the overweight and 62% of the normal weight participants agreed that crisps do add extra calories in diet. But the underweight group showed neutral responses or they disagreed with the concept. Mere 20% of them agreed with the query. Majority of the participants from all the sub groups agreed that one gains extra calories through sweets, candies, and chocolates. In all 77% of the obese, 82% of the overweight, 85% of the normal weight and 67% of the underweight category agreed that such food gives unnecessary calories. The responses from all the sub-groups were in affirmative when asked whether calories of the cold drinks should be counted. A few of them however disagreed. s As many as 51% of the obese individuals agreed and strongly agreed with the questions, which shows they were better informed. In all, 54% of the overweight samples agreed and strongly agreed. Only 29% of them disagreed or strongly disagreed which means majority of the

category were knowledgeable. 52% of the normal individuals strongly agreed and agreed, and 27% of them did not agree. The results were different in the underweight category. Only 32 % of them agreed and strongly agreed. 38% of them disagreed which means the underweight group had little knowledge of the issue.

Table 3. Practices of Participants Regarding Snack Consumption Categorized According to Varying Weight Statuses

Weight category	f (%)			
	1-3	4-6	>6	Never
Frequency of snack 1: Weekly snack consumption frequency				
Obese	21(60%)	5(14%)	3(9%)	6(17%)
Overweight	16(73%)	1(5%)	1(5%)	4(18%)
Normal	29(69%)	8(19%)	0	5(12%)
Underweight	13(62%)	2(10%)	3(14%)	3(14%)
Frequency of snack 2: Packs of crisps consumed weekly				
Obese	9(25%)	6(17%)	3(9%)	17(49%)
Overweight	11(50%)	2(9%)	6(27%)	3(14%)
Normal	22(52%)	11(26%)	5(12%)	4(10%)
Underweight	13(62%)	3(14%)	5(24%)	0
Frequency of snack 3: Packs of biscuits consumed weekly				
Obese	18(51%)	4(36%)	2(6%)	11(31%)
Overweight	12(55%)	5(23%)	0	5(23%)
Normal	26(62%)	7(17%)	1(2%)	8(19%)
Underweight	8(38%)	5(23%)	1(5%)	2(10%)
Frequency of snack 4: Chocolate bars consumed weekly				
Obese	13(37%)	10(29%)	8(23%)	4(11%)
Overweight	11(50%)	4(18%)	3(14%)	4(18%)
Normal	25(60%)	3(7%)	2(5%)	12(29%)
Underweight	10(47%)	4(19%)	2(10%)	5(24%)
Frequency of snack 5: Candies consumed weekly				
Obese	12(34%)	8(23%)	2(6%)	13(37%)
Overweight	5(23%)	4(18%)	4(18%)	9(41%)
Normal	17(40%)	1(2%)	4(10%)	20(48%)
Underweight	7(33%)	5(24%)	3(14%)	6(29%)

Weight category	f (%)			
	1-3	4-6	>6	Never
Frequency of snack 6: Soft drinks consumed weekly (1.5liters)				
Obese	22(63%)	4(11%)	6(17%)	3(9%)
Overweight	14(59%)	2(9%)	1(5%)	5(23%)
Normal	29(69%)	3(7%)	2(5%)	8(19%)
Underweight	10(48%)	4(19%)	4(19%)	3(14%)
Portion size of snack 1: A pack of crisps bought for PKR 50*				
Obese	8(23%)	6(17%)	4(11%)	17(49%)
Overweight	3(14%)	6(27%)	2(9%)	11(50%)
Normal	10(24%)	10(24%)	7(17%)	15(15%)
Underweight	5(24%)	7(33%)	3(14%)	6(29%)
Portion size of snack 2: A pack of biscuits bought for PKR 20*				
Obese	21 (60%)	6(17%)	3(9%)	4(11%)
Overweight	5(23%)	3(14%)	2(9%)	12(55%)
Normal	10(24%)	5(12%)	6(14%)	21(50%)
Underweight	9(43%)	1(5%)	3(14%)	8(38%)
Portion size of snack 3: Number of candies at one time				
Obese	17(49%)	4(11%)	2(6%)	12(34%)
Overweight	13(59%)	3(14%)	1(5%)	5(23%)
Normal	22(52%)	4(10%)	1(2%)	15(36%)
Underweight	11(52%)	5(23%)	4(19%)	1(5%)
Portion size of snack 4: Number of chocolate cubes at one time				
Obese	16(46%)	3(9%)	6(17%)	10(29%)
Overweight	8(36%)	3(14%)	7(32%)	4(18%)
Normal	25(60%)	5(12%)	7(17%)	5(12%)
Underweight	10(48%)	4(19%)	4(19%)	3(14%)
Portion size of snack 5: Glasses of soft drink (1.5 liter)**				
Obese	25(71%)	2(6%)	2(6%)	6(17%)
Overweight	15(68%)	1(5%)	1(5%)	5(23%)
Normal	34(81%)	1(2%)	0	7(17%)
Underweight	15(71%)	2(10%)	1(5%)	3(14%)

*portion size categorized as: ¼ , ½, ¾, whole pack; **1-2 glasses, 3-4 glasses, whole bottle, never

Table 3 represents the practices of participants regarding snack consumption categorized according to varying weight statuses. Furthermore, all the four groups had the habit of snacking. But those in the overweight group were ahead of the others as 27% of them were taking 4-6 snacks per week. All in the underweight group said they were taking snacks once in a week. Half of the overweight participants said they eat full pack of snacks in a single go. Those in the obese section showed higher amount of consumption as 47% of them said they eat the entire pack of snacks. The highest frequency of crisps in a week was seen in the underweight group, according to the data collected. The highest tendency of consumption was seen in the overweight group as 55% of them recorded that they consume whole pack at once. Most of the people from all the groups said they eat 1-3 packs of biscuits. Only 6% of both the obese and underweight groups reported taking more than 6 packs. Most of the participants opted for 1-3 candies which they consumed on one occasion. But in comparison, the highest consumption patterns were seen in the underweight group. Data showed that the highest frequency of the candy consumption was seen in the overweight group as 18% of them were taking more than 6 candies in a week. In the case of chocolate bars, 32% of the overweight members responded that they will eat more than 6 of them at a time. This means that the highest consumption pattern was seen in this group. The highest frequency of chocolate bar consumption in a week was seen in the underweight group -- 25% of them opted for over 6 bars in a week and it was the highest trend seen in all the four groups. An overwhelming majority of the members of all the four groups chose 1-2 glasses of soft drinks. Nevertheless, the trend was the highest in the obese individuals. Majority consumed 1-2 glasses of soft drinks in a week. But the obese were more frequent than the others.

Discussion

The aim of this study was to observe the relation of snacking frequency, portion size, and the perception of people who fall in various weight categories. The number of obese people in Pakistan is increasing day by day. Statistics show that about 4.8% of the country's population falls in the obese category. include School-going children and women of the childbearing age are more at the risk [5]. The parameter generally used to

define overweight or obesity is known as BMI (Body Mass Index). It is calculated by using the formula of dividing body weight in kilograms to height in m^2. According to the Asian cut off, the person having 25 kg/m2 or above is categorized as obese [6].

The trend of obesity is found higher in women, leading to the cause of many health concerns related to even their reproductive health. A previous study concluded that both men and women consume large portions if given bigger snack packages. This leads to higher intake of energy. Many factors cause obesity, but high fat and processed diets are the fundamental reasons. [7].

It has been found that individuals with high snack and eating frequency showed enhanced rate of weight gain and obesity Higher snack frequency is linked to abdominal obesity [8, 9]. Increased workload and educational stress is enhancing the snacking habit in the Pakistani society. Females have less time to prepare food for themselves, so they prefer to buy packaged stuff that is handy and easily available. The growing influence of electronic media has also added fuel to the fire. The advertisements of snacks the media show are too luring to resist, prompting people to consume snacks shown to be the best food. Another factor is the ease of accessibility of the unhealthy snacks. Getting snacks even during the Corona lockdowns was easy. Therefore, excessive use of snacks can cause more harm if they are available easily and people are oblivious of their harmful effects.

This study observed that about 50% of underweight individuals had the slightest idea of the harms of snacking. They disagreed that snacking is harmful as they were not in the habit of reading labels of the snacks which show if the material within is safe or bad for human health.

It is not necessary that only knowledgeable persons adopt positive practices. Sometimes they may also indulge in destructive and unhealthy practices. The current study interlinked knowledge with practice to figure out this, and the results showed that knowledge has a positive correlation with practice. So providing knowledge to a person can help improve his practices too.

It is thought that the snacking habit is more common among overweight and obese individuals. In the current study, the data was collected in the form of an electronic survey. Women were asked about their knowledge about

snacking and consumption patterns. They were divided into four groups: Underweight, overweight, average, and obese. The frequency and percentage of the responses were calculated, and a different pattern was seen as expected.

As per the previously collected data on the effects of snacking, more snacking is linked to more weight gain; obese individuals were found to be having a higher ratio of snacking habits. As a part of dietary obesity, snacks are thought to be the root cause of this human issue. However, according to the results of this study, the underweight group was the one lacking behind in knowledge. Their knowledge regarding the effect of snacking and calories of snacks that add to one's diet was lower than those of the remaining three groups. As the underweight individuals are not concerned about the fat buildup in the body, they are less concerned about the knowledge. As in section 3 of the questionnaire, it was seen that the highest snacking frequency was also linked to the underweight individuals. So it can be said that knowledge has a positive correlation with practice. Lack of knowledge means indulging in unhealthy dietary practices. On the contrary, the obese , seek more information about the causes of mass buildup. They have better knowledge, and their practices are even better [10]. However, in this study, it cannot be said if snacking has any relation to weight gain.

It is essential to create awareness in the society. Through it, people can be educated on the good and bad impact of snacking. They can be educated on the direct harmful effects of snacks on the human health. The study has established a direct relation of knowledge with practice. Therefore, it can safely be said that education can help people lower their snacking frequency for better health.

Data collecting during Covid-19 pandemic was a limitation of the study. Therefore, the researcher could not have a face-to-face interaction with the respondents. The anthropometric data that the subjects shared could have reporting bias associated with it.

It is suggested that a larger survey should be conducted to determine the snack consumption pattern of general public. It will help generate knowledge for the benefit of people.

Conclusion

It is concluded that the participants with less BMI had poorer perceptions and practices regarding snack consumption as compared to those in other weight categories. Hence, underweight population should also be educated regarding healthy practices about snacking.

References

[1] Maritain J. The Philosophy of the Organism: Notes on the Function of Nutrition. *Nova et Vetera*. 2021;19(2):633-51. https://doi.org/10.1353/nov.2021.0027

[2] Fathi A, Sharifirad G, Gharlipour Z, Hakimelahi J, Mohebi S. Effects of a nutrition education intervention designed based on the Health Belief Model (HBM) on reducing the consumption of unhealthy snacks in the sixth grade primary school girls. *Int J Pediat*. 2017;5(2):4361-70.

[3] Nabavi, Seyed Mohammad, et al., eds. *Food Additives and Human Health*. Bentham Science Publishers, 2020.

[4] Baum JI, Gaines BL, Kubas GC, Mitchell CF, Russell SL. Educational nutrition messaging at breakfast reduces snack intake and influences snack preferences in adult men and women. *Appetite*. 2017;117:67-73. https://doi.org/10.1016/j.appet.2017.06.009

[5] Hasan F, Hasan B. Is obesity endemic to Pakistan? [students corner letter to the editor]. 2017;67(10):1641. https://jpma.org.pk/PdfDownload/8419

[6] Jakimovski D, Gandhi S, Paunkoski I, et al. Hypertension and heart disease are associated with development of brain atrophy in multiple sclerosis: a 5-year longitudinal study. *Euro J Neuro*. 2019;26(1):87-e8. https://doi.org/10.1111/ene.13769

[7] Maxel T, Svendsen PF, Smidt K, et al. Expression patterns and correlations with metabolic markers of zinc transporters ZIP14 and ZNT1 in obesity and polycystic ovary syndrome. *Front Endocrinol*. 2017;8:38.https://doi.org/10.3389/fendo.2017.00038

[8] Murakami K, Livingstone MB. Associations between meal and snack frequency and overweight and abdominal obesity in US children and adolescents from National Health and Nutrition Examination Survey (NHANES) 2003–2012. *British J Nutrit*. 2016;115(10):1819-29. https://doi.org/10.1017/S0007114516000854

[9] Rodrigues PR, Luiz RR, Monteiro LS, Ferreira MG, Gonçalves-Silva RM, Pereira RA. Adolescents' unhealthy eating habits are associated with meal skipping. *Nutrit*. 2017;42:114-20. https://doi.org/10.1016/j.nut.2017.03.011

[10] Gam RT, Singh SK, Manar M, Kar SK, Gupta A. Body shaming among school-going adolescents: prevalence and predictors. *Int J Commun Med Public Health*. 2020;7(4):1324.