

Nutritional Deficiencies among Adolescents: Challenges for Healthcare System

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Abstract

The individual's behavior, education and knowledge about nutrition are important factors to be considered in healthy living. The study aimed to explore gender differences in awareness about nutritional deficiencies among university students. Six public and private universities of twin cities (Rawalpindi and Islamabad) were selected to collect data through a formal questionnaire survey. The research covered issues related to the awareness of well-being and health risks, perception and attitude towards health and nutrition, prevalence and knowledge about nutritional food and healthy lifestyle. The data was analyzed by using different statistical tests and the results of the study demonstrated a significant difference between male and female students regarding the awareness and knowledge of well-being and health risks behavior. The findings of the study indicated that female students have more awareness of health-related matters like nutritional value of food, perception of their physical social health status, avoiding health risk behavior and adopting healthy lifestyle for enhanced wellbeing. Although female students do not have breakfast and generally go to university with empty stomachs, which adversely affects their health as well as diminish their activities, they are more aware of the foods which are more nutritious and better for health. On the other hand, male students are involved in some risky health behaviors such as smoking and dietary irregularities. The male students were more frequently involved in health risk behavior like smoking, drinking, eating out etc. It has been recommended from the study that comprehensive health educational programs should be incorporated into educational institutions to promote optimistic health seeking behavior among students.

Introduction

Nutrition is defined as the way the body processes and uses the essence of nutrients that the body needs for growth, repair and preservation of cells. Carbohydrates, vitamins, minerals and fats are the essential nutrients for a healthy body (Alters & Schiff, 2011). One of the simplest and most effective ways of improving health is to follow an adequate diet that satisfies the nutritional needs and a good supply of fresh clean water. Proper food high in nutrients is important for physically and mentally healthy living.

Health and nutrition problems are the effect of unsatisfactory food intake, severe and repeated infections or the combination of the two, and are closely connected with inadequate health service and unhealthy environment. In Pakistan, there is a significant difference in the economic status, lifestyle and nutrition between urban and rural populations, and between male and female children. The study conducted by Anwar & Awan (2003) comparing the nutritional status of rural and urban school children in Faisalabad District indicated that girls are often neglected by their families regarding health status as food of higher quality is given to male children. The reason for malnourishment of female family members in both urban and rural areas is illiteracy and poverty: girls are given less food than boys and families spend less money on girls' healthcare. Hospital records show that more boys than girls are brought in for treatment, while girls are usually admitted only when an illness has become critical.

Gender differences exist in the preferences of eating places. The study by Driskell, Meckna & Scales (2006) indicates that male students show a decided preference for eating lunch at fast food places as compared to female students. At fast food places mostly males prefer to take burgers and carbonated drinks, which do not have such nutritional values that are required for their health.

The research by Tirodimos et al (2009) conducted on nutritional and health habits of university students in Thessaloniki, the second largest city in Greece, provides further insights into the differences. The purpose of the study was to assess the eating habits and some health-related behaviors. The analysis of the data collected from 300 students indicates that the percentage of female students' awareness of health practices and nutritional eating habits was higher than the percentage of male students: 66.7% and 61.8%, respectively. Another research, conducted by Yahia et al (2008) on eating habits of Lebanese university students, indicates that female students show better and healthier eating habits than male students. 53.3 % of female students have a proper breakfast daily as compared to 52.1% of male students.

Boys consume significantly more products from the grain and meat groups than girls. While the average daily intake of fiber and micronutrients is significantly low for both boys and girls, there are significant gender differences in nutrient intake, with boys consuming greater energy, protein, carbohydrate, calcium, iron, phosphorus, and sodium than girls (Galloway, 2007). The research conducted by Liebman et al (2003) into gender differences in selected dietary intakes and eating behaviors in rural communities of Wyoming, Montana, and Idaho indicates that women report higher intakes of fruits, vegetables (except for potatoes), and high-fiber cereals, but lower intakes of milk and sweetened beverages such as soft drinks in comparison with d men. The result of the study showed that the diets of female respondents were more nutrient and likely to be higher in dietary fiber. Women were generally seen to prefer food

prepared at home, with low fat and sufficient protein level. The overall gender differences in dietary intakes and eating behaviors were consistent among both male and female respondents of the study.

Another research conducted by Deshpande et al (2009) highlighted poor eating habits young generation because of taking more independent eating decisions. By doing so they do not focus on the timing, quality and type of food they are choosing, ignoring the nutritional requirements of the body.

Method

Objectives of the study:

- To find out gender differences in nutritional awareness and eating habits among university students.
- To explore the choices of nutritional food among students.

Research Design

In order to find out gender differences in health seeking behavior among university students in the twin cities, the present research applies quantitative approach.

Tool

The semi structured questionnaire was developed for the purpose of this research. The questionnaire was based on open-ended, close-ended, matrix as well as contingency questions. The questionnaire was filled by the students of different public and private universities in Rawalpindi and Islamabad.

Language of Instrument Instruction

The questionnaire was prepared in the English language because the students can understand English very well.

Research Locale

The study area for this research was public and private universities in Rawalpindi and Islamabad.

Sample Size

Four hundred students were selected as respondents of the study. The overall sample consisted of 175 males and 225 females.

Sampling Technique

This research was based on a probability as well as non-probability sampling technique. The universities were selected randomly and then sampled proportionately. The desired number of students was established using a convenient sampling technique, the study was conducted on the specified sample group.

Results

Table 1: Demographics characteristics of the respondents

Sex	Age Group	Frequency	Percentage
Male	18-20	52	30
	21-23	88	50
	24-26	31	18
	27-30	4	2
Female	18-20	55	25
	21-23	132	59
	24-26	33	14
	27-30	5	2
	Education		
Male	Bachelors	72	41
	Masters	103	59
	Above Masters	0	0
Female	Bachelors	148	66
	Masters	66	29
	Above Masters	11	6
	Marital Status		
Male	Single	164	94
	Married	11	6
Female	Single	215	96
	Married	10	4
	Family system		
Male	Nuclear	145	64
	Joint	74	33
	Extended	6	3
Female	Nuclear	73	42
	Joint	92	53
	Extended	10	5

The above table indicates that 30% of the males belong to the 18to-20-age group as compared to 25% of the females, while 50% of the male are between 21-23 years old as compared to 59% of the females. It further indicated that 18% of the males are aged 24-26 and 14% of the females belong to this age category, while 2% of both males and females are aged 27-30.

The table also indicates that 41% of the male respondents have education up to the bachelor level as compared to 66% of the females, while 59% of male respondent have a master degree as compared to 29% of the females. Only 5% of the female respondents have higher degrees than master. Regarding the marital status of the respondents, it is indicated that 94% of the male respondents were unmarried as compared to 96% of the females. 64% of the males belong to nuclear families as compared to 42% of female respondents belonging to the same type of family.

Table 2: Eating timing of the respondents by gender with relation to their level of education

Sex	Education Level	Hungry % (f)	When free % (f)	Any time % (f)	Proper time % (f)	Total % (f)
Male	Bachelor	35(25)	30(22)	19(14)	15(11)	(72)
	Master	34(35)	14(15)	24(25)	27(28)	(103)
	Above Master	0	0	0	0	0
	Total					
Female	Bachelor	42(62)	15(22)	24(36)	19(28)	(148)
	Master	62(41)	7(5)	15(10)	15(10)	(66)
	Above Master	9(1)	37(5)		54(6)	(11)
	Total					
Chi-Square: 8.72 (M), 25.348 (F) DF: 3 (M), 6(F) Significance Level (SL): 0.041 (M), 0.000(F) Lambda:0.099 Standard error: .026 t value: .3.959 SL: .000						

The above table indicates that 35% of the males having education up to the bachelor level take their food when they are hungry while the rest of the male students take food when they have free time or at any time. Whereas 62% of the female students having master education take food when hungry and the rest of the female students take food at proper times, in their free time or at any time. The chi-square value indicates an insignificant difference between eating times of both male and female respondents.

Table 3: Level of education and eating timings among students.

Sex	Education Level	Hungry % (f)	When free % (f)	Any time % (f)	Proper time % (f)	Total % (f)
Male	Bachelor	35(25)	30(22)	19(14)	15(11)	(72)
	Masters	34(35)	14(15)	24(25)	27(28)	(103)
	Above Masters	0	0	0	0	0
Female	Bachelor	42(62)	15(22)	24(36)	19(28)	(148)
	Masters	62(41)	7(5)	15(10)	15(10)	(66)
	Above Masters	9(1)	37(5)		54(6)	(11)
Chi-Square: 8.72 (M), 25.348 (F) DF: 3 (M), 6(F) Significance Level (SL): 0.041 (M), 0.000(F) Lambda:0.099 Standard error: .026 t value: .3.959 SL: .000						

Table 4: Gender differences in prevalence of overeating among students (n=400)

Respondents	Overeating		
	Yes	No	Total
Male	56(99)	43(76)	44(175)
Female	51 (122)	45(103)	56(225)
Total	55 (221)	45(179)	100(400)
Chi-Square: .220 DF: 1 Significance Level (SL): 0.063 Lambda:0.000 Standard error: .009 t value: .633 SL:.527			

The table indicates gender differences in the habit of overeating among university students. The chi-square value shows an insignificant difference among male and female students regarding overeating, with both male and female respondents having the habit of overeating.

Table 5: Gender differences in causes of overeating among students

Respondents	Reasons of Overeating						Total
	Passions	Excitement	Stress	Anxiety	Lack of time management	Study pressure	
Male	21(37)	22 (39)	6(11)	7(12)	4(8)	7(13)	44(120)
Female	14 (31)	30 (67)	7(16)	4(10)	2(6)	9(20)	56(150)
Total	25(68)	39(106)	10(27)	8(22)	6(14)	12(33)	100(270)
Chi-Square: .220 DF: 1 Significance Level (SL): 0.053							

The results indicate that the majority of both male and female students overeat due to excitement in terms of their activities, achievements or other event. The chi-square

values indicate significant differences between the male and female reasons for overeating.

Table 6: Habit of intake of proper breakfast among students by gender

Respondents	Take proper breakfast		
	Yes	No	Total
Male	66(115)	34(60)	44(175)
Female	47 (106)	53(119)	56(225)
Total	55 (221)	45(179)	100(400)
Chi-Square: 13.77 DF: 1 Significance Level (SL): 0.000			
Lambda:			

The table indicates that 66% of the male respondents have a proper breakfast, whereas 53 % of the female do not have a proper breakfast. The chi-square value indicates a significant difference between male and female breakfast intakes.

Table 7: Food choices of the respondents by gender

Food group	Sex	N	Mean	SD
Fruit & vegetables	Male	175	5.06	1.61
	Female	225	5.29	1.86
Dairy products	Male	175	16.58	5.27
	Female	225	16.22	4.55
T value -1.35 DF: 398 Significance Level (SL): 0.005				

The mean of male and female students choosing the food groups points at some differences between their foods choices. The test value also indicates differences at 0.005 level of significance.

Discussion

The findings of the study indicate that a difference exists between health seeking behavior of male and female university students. The results of the study point out that the majority of the students belong to the age group of 21-23 and are unmarried. Most of the students are at their master level of education having different socioeconomic backgrounds. The results of the study indicate that 60% of the female students prefer to take their food at home while a smaller number of the male students take their food at home. The remaining proportion of male and female respondents sometimes take their food at the university café, fast food places or other restaurant.

After gaining information about the nutritional value of the food, the researcher asked questions related to sources of vitamins. The answers indicated that the majority of the female respondents fulfill their vitamin requirements by food, whereas some of the females and the majority of the males take vitamin tablets and/or supplements. The difference between the sources of vitamin intakes used by the two gender groups may be caused by the lack of nutritional awareness among male respondents, as females tend to be more conscious about their health issues and aware of the importance of proper nutrition practices. This observation can be supported by the research into gender differences in wellbeing conducted by Babu, Balakrishnan & Ramani (2007) in South India, which indicates that females are more nutrition conscious than males.

Another research by Stock et al. (2001) indicates that female students have more knowledge and better intake of nutritional foods than male students. The results of that study show that almost one-quarter of respondents (35.6% females and 19.8% males; $p < 0.001$) take a keen interest in healthy nutritional food and related programs.

Further the present study show that a higher percentage of males overeat due to some passion, excitement, physical hard work, depression and work pressure. Females may have better management skills to cope with these problems, which leads to less prevalent overeating among them.

The data also suggests that the female intake of a proper breakfast is lower than the male intake of breakfast. Females do not have breakfast due to their habits and sometimes a lack of time in the morning, which may exert a negative effect on their health. Their performance at university can be weak due to their empty stomachs since they had their last meal the previous night. This also leads to a nutritional deficiency among women.

Conclusion

The results of the investigation show that there is a difference between nutritional knowledge, nutritional deficiencies and eating habits of male and female university students. Although females do not eat a proper breakfast, they have more knowledge about nutritional food than male students. The findings of the study also suggest that despite their preferences for fulfilling nutritional requirements from natural sources, females show nutritional deficiencies resulting from not taking the required amount and quality of food on time. The deficiencies do not only affect their own health, but also increase the burden for the healthcare system, due to the accelerating number of diseases.

In order to reduce the burden that falls on the healthcare delivery system, it is recommended that health education programs should be incorporated into the curricula of educational institutions at all levels. Nutrition should be a long-term national goal and not a short-term political one.

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