Research Article

Prevalence of Eating Disorders in University Going Students of Islamabad/ Rawalpindi

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Abstract | The current data and researches show a greater increase in eating disorders all around the world from the past fifty years specifically in the adolescents'age group including psychological health i.e., excessive dieting, stress from educational and academic pressure which makes them susceptible to extreme malnourishment. The sample consisted of 450 university students aged 20 to 25 years. It was observed that majority of the students were day-scholars (59.8%) due to which their daily eating routine was normal i.e. three meals per day andBMI ranges were found to be normal (18.5 to 25 kg/m^2) in most of subjects which showno prominent presence of any eating disorder. But some minor eating abnormalities were detected in their eating behaviors. The tradition of only one snack consumption per day was found (42.9%) and food cravings were also more prevalent with apercentage of about 78.4%. Their anxiety about body weight and shape was also foundto be higher (56.9%). Overall, the ratio of smoking in students was less but it predominated in male students. And majority of students (40.7%) were having a sedentary lifestyle while 40.4% with moderate physical activity. SCOFF questionnaire results showed 90% of positive results while the 10% of the population need further examination. The collected data results were mostly positive for example normal BMI ranges were found with a percentage of 57.3,the rate of binge eating in shorter periods was found to be rare and also no prominent binge eating was noticed during exam days which means no notable presence of any Eating Disorder was found but some factors like cravings for food, negative influence of peer pressure on eating habits (54.9%) and less physical activity etc. need further tobe investigated for better understanding.

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1. Introduction

Food is the main source on which our lives are dependent. There are different kinds of food all around the world and many ways to cook a particular dish. Food preparation methods vary from region to region depending on the culture and beliefs of a region. Timings of eating food also vary from region to region. Every region uses different medium and tools for eating food for example some people prefer eating with hands, some with spoons and forks (Rasmusson *et al.*, 2019). But the most important thing which actually affects the human health is his eating behaviour. If a person has a healthy eating habit he will be nourished and if not then he will be malnourished. Eating behaviour develops from early childhood but it might change later in adolescent or older age due to many reasons that includes social environment, peer pressure, personal taste and health issues. Some people start eating more than a regular while some people eat less than a regular. So, such kind of eating that is different than a regular is not a healthy way to adopt and is considered as eating disorder (Pfeiler and Egloff, 2020).

Feeding and eating disorders are a persistent disturbance in eating or eating related behaviour that lead to significantly impaired physical health and psychosocial functioning (Krause, 14th edition). It includes excessive concerns about irregular eating habits and body shape or image (Miyake *et al.*, 2015). There are many types of eating disorders e.g., anorexia nervosa, bulimia nervosa, binge eating disorder, other specific is feeding and eating disorder, unspecific eating disorder, avoidant/ restrictive food intake disorder, pica and rumination disorder for which each has its own specific diagnostic criteria. It can affect in any age but is more common in adolescence especially anorexia nervosa, bulimia nervosa and binge eating disorder (Marzilli et al., 2018).

Bulimia nervosa include recurrent episodes of binge eating followed by unsuitable compensatory behaviors in an attempt to prevent weight gain; and self- evaluation that is unnecessarily influenced by body shape and weight (Levinson *et al.*, 2017). Binge consumption means episode of uncontrolled eating of an excessive amount of food (Rasmusson *et al.*, 2019). Unsuitable compensatory mechanisms involve self-induced vomiting, misuse of diuretics, laxatives and other medications (e.g. thyroid hormone), fasting and excessive exercise (Egan *et al.*, 2021). Its lifetime prevalence is 1.1% in women and 0.1% in men (Rosten and Newton, 2017). BN occurs at similar frequencies in industrialized countries. Its risk and prognostic factors are same as those of AN. BN is associated with a significantly high risk for mortality (all-cause and suicide) with a crude mortality rate of approximately 2% per decade (APA, 2013). Clinical signs and symptoms of BN are more difficult to detect because such patients are usually of normalweight and introvert in behavior (Hilbert, 2019). When vomiting is present, there may be clinical evidence such as Russell's sign, parotid gland enlargement and erosion of dental enamel with increased dental caries due to frequent presence of gastric acid in the mouth. GI issues are also present because of vomiting with mild symptoms like dysphagia, GI reflux to severe ones like Mallory-Weiss oesophageal tear, rare occurrence of oesophageal rupture etc. Laxative misuse results in different symptoms depending on type, dose, and duration of use.

Binge eating disorder includes recurrent episodes of binge eating without inappropriate compensatory measures such as purging intended to prevent weight gain (Hilbert, 2019). Its lifetime prevalence is approximately 3.5% in women and 2% in men (Guerdjikova *et al.*, 2017). This disorder occurs in same frequencies in most industrialized countries. BED is most prevalent in those individuals who are seeking weight loss treatment than in the general population (Marzilli *et al.*, 2018). It seems to run in families, which may reflect addictive genetic influences less is known about temperamental and environmental risk and prognostic factors (Babbs, 2018). In many cases but not all, overweight and obesity may be the result of this binge eating which causes greater functional impairment, decreased quality of life, and higher levels of psychiatric co-morbidity than obesity without BED (Hilbert, 2019). Consumption of large amount of food results in upper and lower GI distress including the symptoms of abdominal pain, fullness, delayed gastric emptying, bloating heartburn, dysphagia, diarrhea, constipation etc. (Watts *et al.*, 2019).

People with AN and BN have some specific eating behavior. Like food aversions are common in this population which includes red meat, baked goods, desserts, full-fat dairy products, added fats, fried foods and caloric beverages. Patients with ED often

incorrectly consider specific food or groups of food as absolutely 'good' or absolutely 'bad'. The patients may practice unusual or ritualistic behaviors such as ingestion of food in an, often playing with their food and cutting it into small pieces which depicts the tactics of avoiding food intake but it may also be an effect of starvation. While on the other hand, BN patients eat quickly, reflecting their difficulties with satiety cues (Troscianko and Leon, 2020). The aim of this study was to determine whether the eating disorders in Pakistan are prevalent among university students or not and if yes then what are the different factors that make them susceptible to different types of eating disorders and to what extent they are being affected, as there is very less research conducted on this topic here in Pakistan but checking its spread rate is important in order to analyses the nutritional status of young population to overcome it or prevent development of complications or any increase in number of malnutrition in our country because the health sector budget is also low and tackling it in its peak point would be difficult. So, this study would also help other researchers and policy makers to determine the need of conducting seminarsand other nutritional awareness campaigns in young population about eating disordersin order to prevent its further spread or severity. It would also result in improving the perception about food in young generation and will improve their awareness about it and health status.

2. Materials and Methods

2.1 Proposed study plan

The research was carried out in three different universities i.e. The University of Lahore (UOL), Pir Mehr Ali Shah (PMAS) Arid Agriculture University and National University of Modern Languages (NUML) in Islamabad and Rawalpindi. The data was gathered in 3 months i.e. from 1st February to 30th April 2021.

The study design for our research was cross sectional which is a type of observational study designs. A cross sectional study is the one that analyses the exposure and outcome of a sample collected at one given point in time. This type of study is also known as cross sectional analyses, prevalence study or transverse study. Itgives a free hand for researchers to look at numerous characteristics at once (age, gender, income etc.) but it does not involve manipulating variables. Usually, it is used tolook at the prevailing characteristics in a given population and it can provide information about what is happening in a current population. This type of study is fastas it usually allows researchers to collect a great number of information quite quickly and data collection is inexpensive using self-report surveys or questionnaires (Yang et al., 2018).

2.2 Ethical approval

Ethical approval was taken from ethical review committee of University Institute of Diet and Nutritional Sciences (UIDNS), University of Lahore, Islamabad Campus. It was also obtained from concerned institutions prior to collecting data from them. Anthropometric data, demographic data, dietary habits and SCOFF questionnaire was also included in it. Strict SOPs were followed while collecting the data in person from the students at the universities while remaining were filled online with the help of Google forms.

2.3 Demographic and anthropometric data

Demographic data helps better understanding of certain background characteristics of an audience including their age, ethnicity or origin, education status, gender, contact details and number of family members, their income and expenses etc. Demographic data was mentioned in questionnaire because through this a researcher can have a greater understanding of the target population i.e. which group is more vulnerable to eating disorders. For example, which department (medical, engineering etc.), ethnic group, hostel students or day scholars, and those with more family members or with less family members. In anthropometric data, height and weight were taken in accordance with BMI.

2.4 Dietary data

This type of data helps in monitoring the eating patterns. For example, how many meals they skip in a day, how many times they order food from food delivery services, what meal they prefer most when outside home during weekends etc. This part also recorded the data which showed a relationship between psychological health and eating habit, like any binge eating during exam days, influence of peer pressure on eating, trying to avoid specific foods of which they think bad for body weight and shapeetc.

2.5 SCOFF questionnaire

SCOFF questionnaire is a standard simple screening tool for eating disorders in which such questions are

designed to raise suspicion that an eating disorder might exist before rigorous clinical assessment, consisting of five questions addressing core features of anorexia nervosa and bulimia nervosa. The acronym SCOFF was actually developed from the main terms of the questions i.e., Sick, Control, One stone, Fat and Food. Threshold set at two or more yes answers to all five questions provide 100% sensitivity for anorexia and bulimia, separately and combined and 87.5% specificity. So, the questionnaire was designed keeping in view what types of data were to be collected, with the help of which we were able to identify any presence of eating disorder in the students.

2.6 Data analysis

Data was entered, cleaned and anaylzed using SPSS version 23.0 and excel sheet. Frequencies and percentages of variables were determined. For the purpose of association between eating disorders and lifestyle factors, chi-square test was used.

3. Results and Discussion

Eating disorders are life threatening condition and can affect the physical, social and psychological function of young generation. Mostly it develops in adolescents and young adulthood and affect up to 5% of population worldwide. In Pakistan about 22.75% individuals were found to be at high risk for eating disorders with 87.9% females and 12.1% males. We considered three common types of eating disorders and our research such as anorexia nervosa, bulimia nervosa and binge e eating disorder.

3.1 Demographic information

The first and foremost section of the present study's questionnaire was about demographic information. This section involves the information regarding gender, age, number of family members, ethnicity/ origin and accommodation or place of their current residence either as day scholar or hostel lite. Table 1 below is indicating all the demographic information of the students with their sub classifications, frequencies andpercentages.

Both males and females participated in the research. However, the females participated more actively with a percentage of 53.6% (241) than the male participants with 46.4% (209) percentage. Figure 1 is showing the age of the participants in years. They are categorized in four different age groups. The age group of 22-23 years has the highest percentage of 35.6% and other groups as 12%, 33.3%, and 19.1% in the order of 18-19, 20-21 and 24-25 years, respectively.

Figure 2 is expressing the frequencies and percentages of number of family members of each participant. Majority of the participants have 6-10 family members with a percentage of 63.6% (286). Participants also answered that they have number of family members lying between 1-5 and 11-15 with a percentage of 31.1% (140) and 5.3% (24), respectively.

Table 1: Demographic information of university students.

Characteristics		Frequency	Percentage
Gender	Male	209	46.4
	Female	241	53.6
Age in years	18-19	54	12
	20-21	150	33.3
	22-23	160	35.6
	24-25	86	19.1
Number of family members	1-5	140	31.1
	6-10	286	63.6
	11-15	24	5.3
Ethnicity/ origin	Punjab	300	66.7
	KPK	122	27.1
	Sindh	24	5.3
	Balochistan	4	0.9
Accommodation	Day scholar	269	59.8
	Hostellite	181	40.2

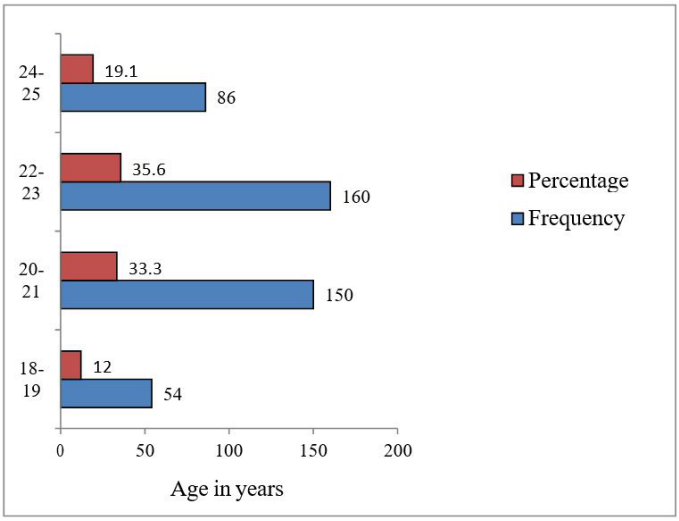


Figure 1: Frequency and percentage of age in years.

Participants belong to different regions of Pakistan. 49.2%, 20.2%, 4% and 0.7% have the origin from Punjab, KPK, Sindh and Balochistan respectively.

Their frequency distribution is shown in the Figure 3. However, participants with ethnicity of Punjab took active part in the research.

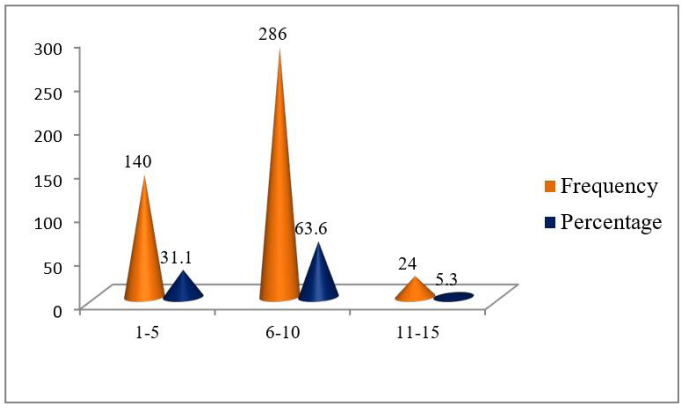


Figure 2: Frequency and percentage of family members.

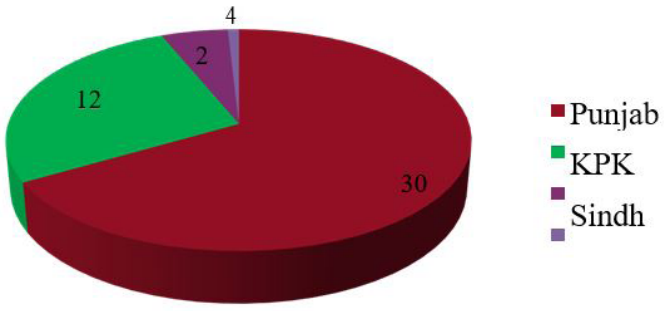


Figure 3: Frequency of ethnicity/origin of university students.

Participants of the study were asked either they are living in homes with their families or they are living in hostels without their families. Most of the students were day scholars with 59.8% (269) and 40.2% (180) of them were hostellites as shown inthe Figure 4.

3.2 Anthropometric data

The second section of the present study was based upon the anthropometric information. Anthropometric data involves the weight, height, Body Mass Index (BMI) and Ideal Body Weight (IBW) of the individuals. All the data was sub categorized into three or four different sub groups depending on the standards and the nature of data collected. Table 2 is showing all the factors, classification, frequencies and their percentages in a most suitable manner.

The heights of all the participants were categorized into three different groups. The higher percentage lies between59-67 inches approximately. 7.3%, 75.6% and 16.9% of the participants fall in the groups of 130-150, 150-170,170-190 centimeters respectively as shown in the Figure 5.

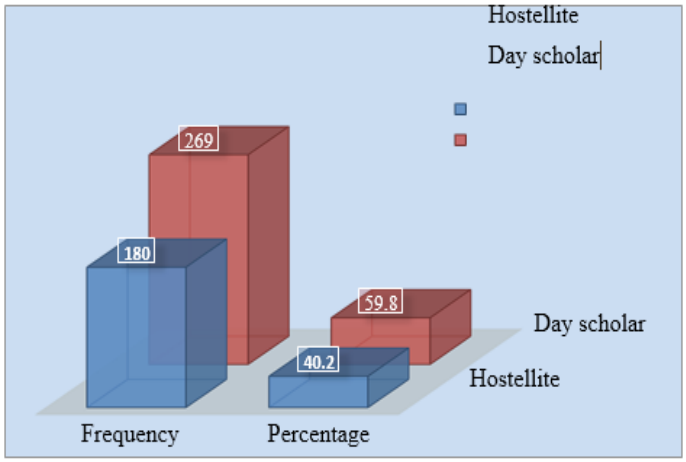


Figure 4: Frequency and percentage of accommodation.

Table 2: Anthropometric data of university students.

Characteristics		Frequency	Percentage
Height (cm)	130-150	33	7.3
	150-170	340	75.6
	170-190	76	16.9
Weight (kg)	25-40	5	1.1
	40-55	178	39.6
	55-70	167	37.1
	70-90	100	22.2
BMI (kg/m^2)	16-18.5	118	26.2
	18.5-25	258	57.3
	25-30	61	13.6
	30-35	13	2.9
IBW (kg)	50-60	100	22.2
	60-70	274	60.9
	70-80	73	16.2
	80-90	3	0.7

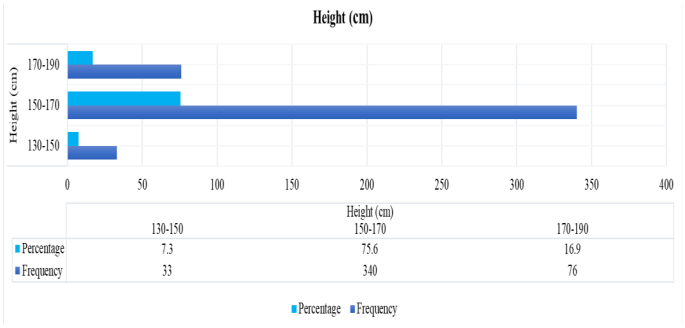


Figure 5: Frequency and percentage of height of university students.

3.3 Eating behaviour and attitudes

The next section of questionnaire was based on the information of the individuals regarding their eating behaviour and attitudes. Table 3 is showing the

Table 3: Information regarding eating behaviour and attitudes.

Characteristics		Frequency	Percentage
Main meals per day	1	19	4.2
	2	157	34.9
	3	235	52.2
	>3	39	8.7
Snacks per day	1	193	42.9
	2	173	38.4
	3	59	13.1
	>3	25	5.6
Cravings for foods	Yes	353	78.4
	No	97	21.6
Ordering food from food delivery services	Daily basis	44	9.8
	Weekly basis	151	33.6
	Monthly basis	255	56.7
Meals eaten mostly when away from home	Breakfast	41	9.1
	Brunch	38	8.4
	Lunch	162	36
	Snack	88	19.6
	Dinner	121	26.9
Food avoidance being weight conscious	Sweets	34	7.6
	Salty	31.2	69.3
	Junk	48	10.7
	Others (food taboos etc.)	56	12.4
Anxiety about body weight and shape	Yes	256	56.9
	No	194	43.1
Over eating in brief period of time	Yes	113	25.1
	No	227	50.4
	May be	110	24.4
Binge eating duringexams	Yes	184	40.9
	No	266	59.1
Influence of peer pressure	Yes	247	54.9
	No	203	45.1
Smokers	Yes	175	38.9
	No	275	61.1
Physical Active	Sedentary*	183	40.7
	Moderate*	182	40.4
	Active*	85	18.9

*Sedentary: Mostly sitting, watching TV, routine daily activities; *Moderate: Walking, 30 mints at least; *Active: Swimming, running, athletes, playing football, gym.

characteristics, frequencies and their percentages. Different factors were involved in this section including the main meals, snacks per day, cravings for food items, schedule of orderingfoods from food delivery services either on daily, weekly or monthly basis, particular foods eaten when away from home, food avoidance if weight conscious, anxiety aboutthe weight and shape of the body, habit of over eating in a brief period of time, binge eating like during exams, peer influence on eating behaviours, smoking status and physical activity patterns.

All the participants were asked about the meal frequency taken by them per day. Figure 9 is showing that majority of the students (52.2%) took three meals on daily basis. Remaining 4.2%, 34.9% and 8.7% took 1, 2 and >3 meals per day.

Figure 6 is indicating the percentages and frequencies of ordering food from food delivery services. They were categorized into daily, weekly and monthly basis with a percentage of 9.8%, 33.6% and 56.7%, respectively.

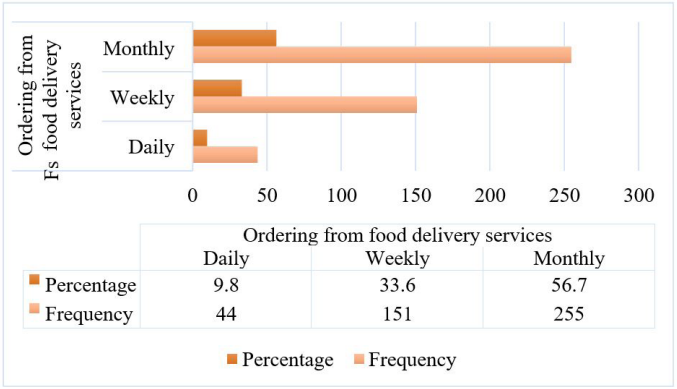


Figure 6: Frequency and percentage of ordering food from food deliveryservices.

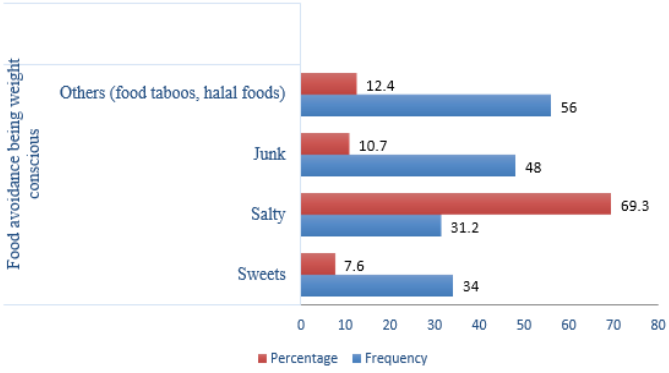


Figure 7: Frequency and percentage of food avoidance being weight conscious.

Most of the participants experience over eating in

brief period of time. The participants in the present study were asked this question and they replied positive, negative or in may be statement with the percentages of 25.1%, 50.4% and 24.4%, respectively as shown in the Figure 8.

Participants of our research study were also asked whether they experience binge eating in brief period of time particularly during exams or not. The participants replied either positive or negative in the percentages of 40.9% and 59.1%, respectively as shown in Figure 8.

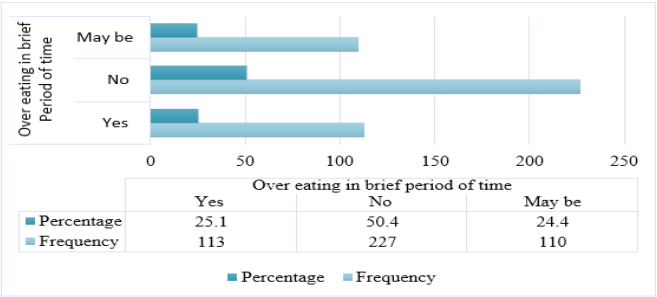


Figure 8: Frequency and percentage of over eating in brief period of time.

Peer influence has a deep impact on eating behaviours. When the participants were asked about this question, 54.9% (247) of them responded positively and remaining 45.1% (203) of them nodded negatively as shown in the Figure 9.

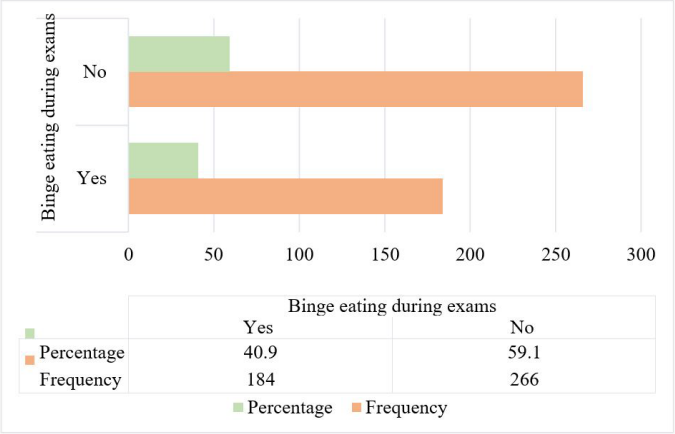


Figure 9: Frequency and percentage of binge eating during exams.

3.4 SCOFF questionnaire

Table 4 is showing the parameters of SCOFF questionnaire with two options either as yes or no with their frequency and percentage distribution. The different questions involved in the scoff questionnaire were: Individuals who pretends to be sickbefore eating, anxious about loss of control over eating, lost 1 stone of weight in last 3 months of time period, assuming to be fat but not actually and food dominance in life.

The participants of study were allowed to answer all the five questions of SCOFF questionnaire. The percentage distribution of first question whether they pretend any type of sickness before eating was 30% and 69.6% with positive and negative responses respectively. Similarly, the participants were allowed to answer the second SCOFF question whether they were anxious about the loss of control over eating or not. 36.7% gave a positive response that they all were greatly anxious about loss of their self-control over eating while the remaining 63.3% responded negatively that they do not feel any type of such anxiousness. In the same context, they were also questionedwhether they have lost their weight of six kilograms in a brief period of three months or not. 20.9% and 79.1% of them answered with yes and no, respectively.

Table 4: SCOFF questionnaire.

Characteristics		Frequency	Percentage
Pretends to be sick before eating	Yes	137	30.4
	No	313	69.6
Anxious about lost control over eating	Yes	165	36.7
	No	285	63.3
Lost 6.3 kg weight in 3 months period	Yes	94	20.9
	No	356	79.1
Assuming to be fat but actually not	Yes	142	31.6
	No	308	68.4
Food dominance in life	Yes	259	57.6
	No	191	42.4

Table 5: Association of gender with ethnicity.

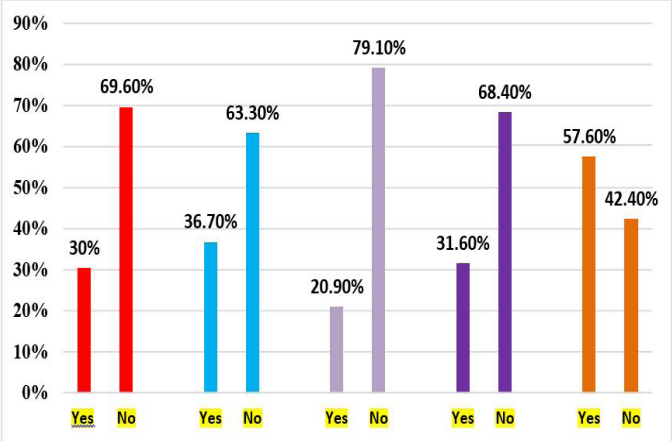
	Value	df	Asymptotic significance (2-sided)
Pearson chi-square	6.502[a]	3	.090
Likelihood ratio	6.794	3	.079
Linear by linear association	.948	1	.330
N of valid cases	450		

In the same way, they answered to the fourth and final question of SCOFF questionnaire i.e. assume themselves to be fat but actually they are not and food dominance in their lives. The percentage distribution of positive responses was 31.6% and 57.6% and negative responses as 68.4% and 42.4%, respectively. The higher percentage of positive responses is an

indication of the fact that students mostly face some type of dominance with respect to foods in their lives.

3.5 Association of gender with different variables

Table 6 is showing the p value of association of gender with the ethnicity. This value is observed as 0.090 which means that gender is non-significantly associated with the ethnicity of the participants. A cross cultural and historical review identified as culture beliefs, ethnicity and attitudes were significant factors contributing towards eating disorders. Similarly, historical and cross cultural experiences suggest that cultural change itself may be associated with increased vulnerability to eating disorder (Marzilli et al., 2018). However, in our current study, there is no significant association observed with the ethnicity of the individuals.



Red= Q1, Blue= Q2, Light purple= Q3, Dark Purple= Q4, Orange= Q5

Figure 10: Overall result of SCOFF questionnaire.

Table 6: Association of gender with meals per day.

	Value	df	Asymptotic significance (2-sided)
Pearson chi-square	11.951[a]	3	.008
Likelihood ratio	12.774	3	.005
Linear by linear association	1.048	1	.306
N of valid cases	450		

Gender when was associated with the body mass index (BMI) of the participants then the results of the chi square test reveals that it was not significantly associated withthe gender with the p-value of 0.914. Valentin *et al* conducted a study to check the eating disorder, body image and media exposure. 16% of respondents had a BMI below WHO age-standardized 5th percentile, while 4% were above the 85th percentile. Findings of this study suggested an increasing media exposure in resource-limited settings that may lead to increased body dissatisfaction, and potentially to increased future prevalence of the eating disorders. However, the results of our current study indicated a no such association of BMI with the gender.

Table 6 is showing the p value of association of gender with the meal intake per day. This value is observed as 0.008 which means that gender is significantly associatedwith meal intake per day by the participants.

This means that daily intake of the meals is a factor that is associated with the gender. Figure 10 is showing the relationship of both of these factors in graphical picture. Majority of the participants are having three times per day meals either belonging to any one of the gender group. Ghaderi (2004) conducted a study with randomly selected sample of 2,000 women aged 18-30 years was recruited. The random selection was made from a Swedish national register. The results of the analysis showedno significant differences between the groups concerning dieting, binge eating or fear of weight gain combined with self-induced starvation. On the other hand, the results of our present study showed a significant association of taking meals on per day basis.

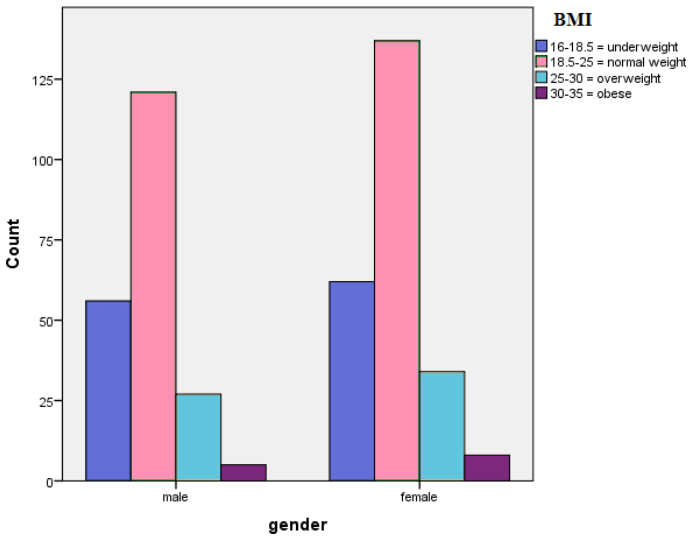


Figure 11: Association of gender with BMI.

Table 7 is showing the p value of association of gender with the snack intake per day. This value is observed as 0.940 which means that gender is not significantly associated with snack intake per day by the participants. This means that daily consumption of the snacks is not a factor that is associated with the gender.

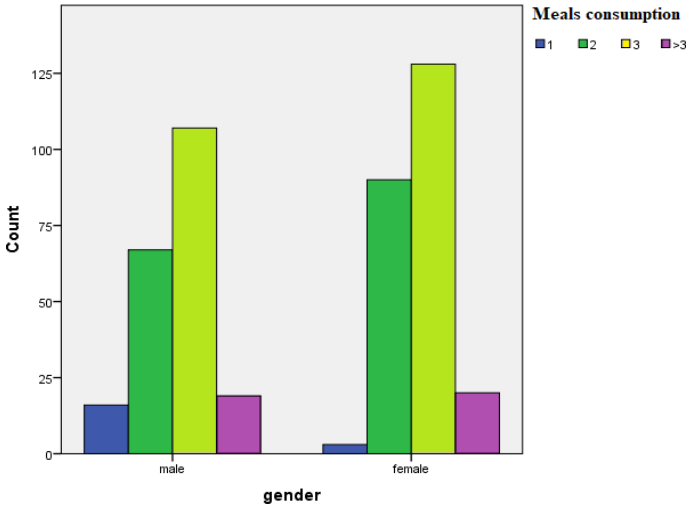


Figure 12: Association of gender with meals consumption.

Table 7: Association of gender with snacks each day.

	Value	df	Asymptotic significance (2-sided)
Pearson chi-square	.401[a]	3	.940
Likelihood ratio	.401	3	.940
Linear by linear association	.012	1	.914
N of valid cases	450		

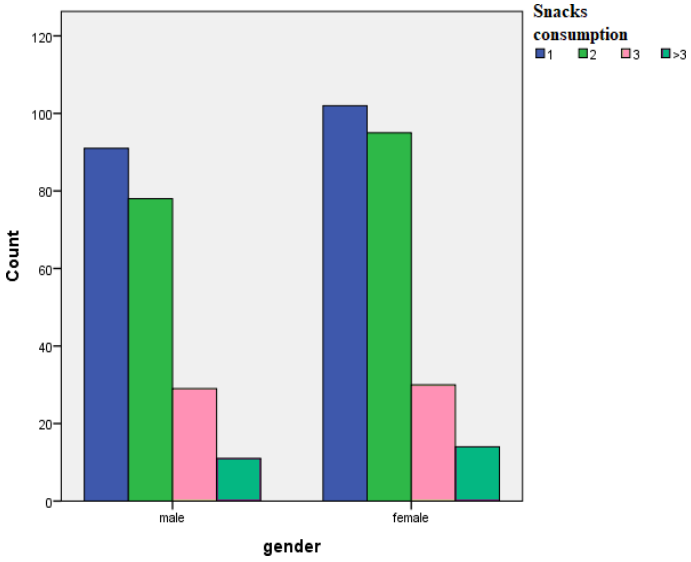


Figure 13: Association of gender with snacks each day.

A study conducted in 2015 identified a significant association with a p-value of in terms of reduced snacking in patients with eating disorders (Miyake et al., 2015). Same goes with our study, there was a reduction observed in the intake of snacks in the participants. However, our results in terms of association of gender with snack consumption were non-significant. Table 8 is showing the p value of association of gender with the cravings of certain foods at certain times. This value is observed as 0.000 which means that gender is significantly associated with cravings of certain foods at certain times by theparticipants. This means that a craving for certain foods at specified time is a factor thatis associated with the gender. Majority of the females face the cravings for certain foodsthan the males.

Table 8: Association of gender with cravings for certain foods at certain times.

	Value	df	Asymptotic significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson chi-square	11.807[a]	1	.001		
Continuity correction[b]	11.031	1	.001		
Likelihood ratio	11.833	1	.001		
Fisher's test exact				.001	.000
Linear by linear association	11.781	1	.001		
N of valid cases	450				

Egan et al. (2021) conducted a research in order to study trait of food craving,which was assessed in 70 people with Bulimia Nervosa and 69 healthy controls using the food craving questionnaire. A significant association was found in people with bulimia nervosa. This study goes in hands with our present research where cravings forfood was observed to have a p value of 0.001. Thus we came to know that people who suffer from the eating disorders experience more food cravings and aversions rather than the individuals without having them.

Table 9 is showing the p value of association of gender with ordering food fromoutside home. This value was observed to be 0.093 which means that gender is non-significantly associated with ordering of food from outside home by the participants. This means that it is a factor that is not associated with the gender. Most of the males and females order their food from outside mainly on monthly basis. While significant results were found for the frequency of ordering food from outside home among students of Medan Area University, according to (Harahap *et al.*, 2020).

In order to check the association of gender with the meals eaten outside home on weekends, we compare both these factors. Table 10 is indicating

this association ofgender with meals eaten outside on weekends. The p value found to be 0.000 which means that both of these factors are significantly associated with each other.

Table 9: Association of gender with ordering food from outside home.

	Value	df	Asymptotic significance (2-sided)
Pearson chi-square	4.756[a]	2	.093
Likelihood ratio	4.759	2	.093
Linear by linear association	3.929	1	.047
N of valid cases	450		

Table 10: Association of gender with meals eaten outside home on weekends.

	Value	df	Asymptotic significance (2-sided)
Pearson chi-square	29.402[a]	4	.000
Likelihood ratio	30.345	4	.000
Linear by linear association	3.013	1	.083
N of valid cases	450		

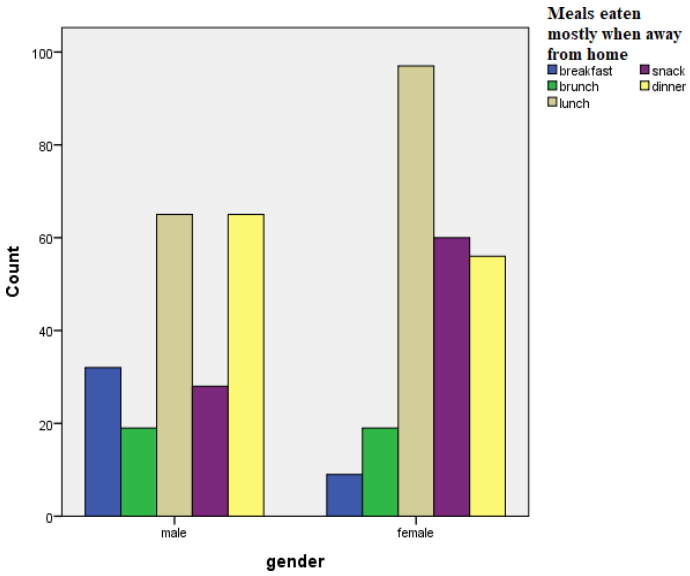


Figure 14: Association of gender with meals eaten away from home.

This indicates that meals eaten outside home mostly on weekends by the females was the lunch while the males eat both dinner and lunch at the same way as depicted in the Figure 14. A cross sectional study was conducted to check the daily consumptions of meals outside homes. It was observed that their consumption was increased then daily recommendations. It was concluded that college students led unhealthy lifestyles, mainly due to eating habits that do not conform to the establish recommendations. More than 17% are at risk of developing an atypical eating disorder. The results of our present study showed a positive association with an indication of more consumption outside homes according to the above-mentioned study.

In order to check the association of gender with avoiding certain foods for beingweight conscious, we compared both these factors. Table 10 is indicating this association of gender with the avoidance of foods as being conscious for weight. The pvalue found to be 0.320 which means that both of these factors are non-significantly associated with each other. Anorexia nervosa (AN) patients were extremely successful in restricting their food intake according to a research study. The results showed a positive avoidance in terms of high fat foods in anorexic subjects (Veenstra and Jong, 2012). On the other hand,the results of our present study were non-significant and subjects did not experience any kind of food avoidance.

Table 10 is showing the p value of association of gender with binge eating during exams. This value is observed as 0.917 which means that gender is non-significantly associated with binge eating particularly during exams. This means that it is a factor that is not associated with the gender. Figure 15 is showing the relationship of both of these factors in graphical picture. Both males and females do not face any type of bingeeating during exams.

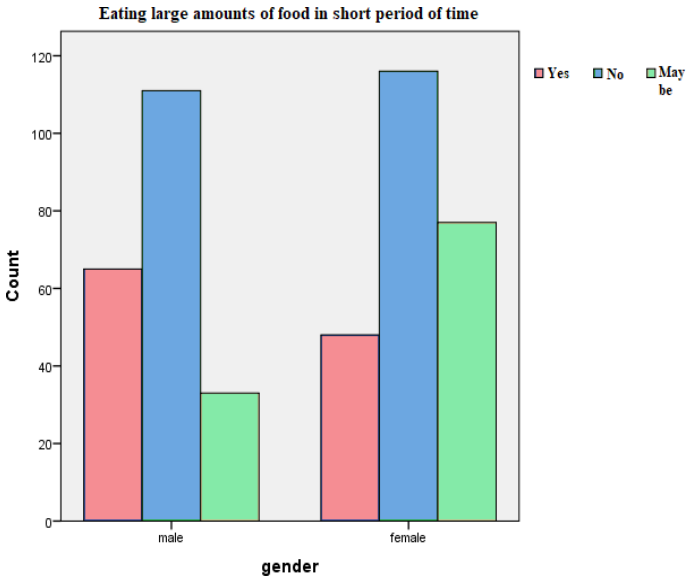


Figure 15: Binge eating in shorter period of time.

According to a comprehensive review of the literature regarding the relation of binge eating and anxiety, research supports expansion of investigations of

negative emotionality and binge eating. This was observed from various studies that stress and negative emotions lead towards binge eating (Rosenbaum and White, 2013). The results of our study although showed a non-significant association. However, there is a need to conduct such type of research with different parameters and sample size.

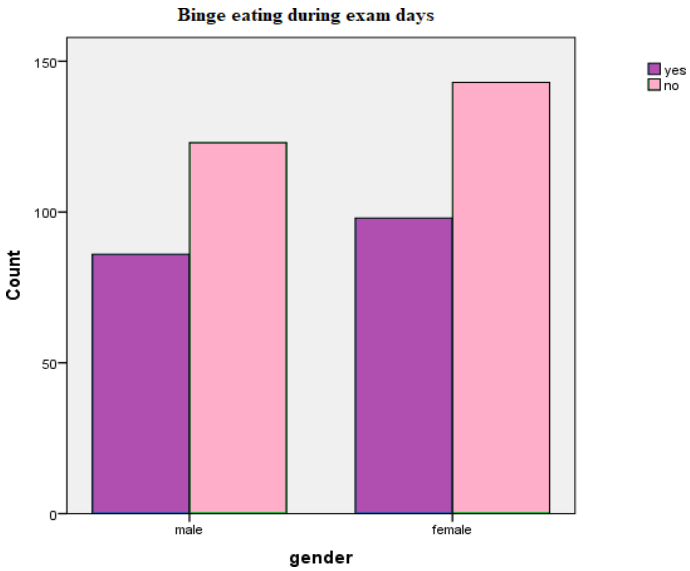


Figure 16: Association of gender with binge eating during exams.

Table 12 is indicating the p value of association of gender with the peer influence on eating. This value was observed as 0.098 which means that gender is not significantly associated with the peer influence on eating habits of the participants. Thismeans that peer influence is an independent factor of the gender that is not influenced by any of the gender either as males or females.

A meta-analysis was undertaken to assess the relationships between eating disorders, peer and family influence. The results highlighted how daily social interactions can influence unhealthy eating practices in adolescent girls and boys, and suggest that weight-related issues of parents and peers can be transmitted to their adolescents (Quiles *et al.*, 2013). The result of our present study was although non-significant but it was assumed earlier that it might be positively associated with the eating behaviours.

Table 13 is showing that gender is associated significantly with the smokers with the p-value of <0.001. This means that smoking status of the subjects is dependentupon their gender either male or female. (Yu and Tan, 2016) conducted a cross-sectional at Central Michigan University. Results showed that there were no significantdifferences between students complying with symptoms and behaviours in terms of smoking status. The result of this study and our present research goes against each other. The significant results of the underlying study oppose the non-significant results of the above-mentioned research study.

Table 12: Association of gender with binge eating during exams.

	Value	df	Asymptotic significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson chi-square	.011[a]	1	.917		
Continuity correction[b]	.000	1	.994		
Likelihood ratio	.011	1	.917		
Fisher's exact test				.924	.497
Linear by linear association	.011	1	.917		
N of valid cases	450				

Table 13: Association of gender with peer pressure influence on eating habits.

	Value	df	Asymptotic significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	2.742[a]	1	.098		
Continuity correction[b]	2.437	1	.119		
Likelihood ratio	2.743	1	.098		
Fisher's exact test				.107	.059
Linear-by-linear association	2.736	1	.098		
N of valid cases	450				

A cohort study was undertaken to examine the physical activity patterns among the 1494 subjects. Results indicated that there were gender differences observed in the physical activity patterns. Although the variance was found to be very small. Psychological and social/ environmental variables explained a larger proportion of the variance in eating disorders risk than the dietary and physical activity variables (French et al., 2017). The results of our present research also showed a non-significant value in accordance to the above-mentioned study.

Conclusions and Recommendations

The collected data results were mostly positive i.e. no evident aspects of eating disorders were found in these three universities but some of the negative characteristics were also highlighted. It was observed that students usually adopted their eating habits by the influence of their fellows and friends and majority of them were having sedentary lifestyle because of more academic pressure. So, the students need more awareness about diet regarding their weight and body shape consciousness.

Novelty Statement

The main objective of this paper is to find out the prevalence of eating disorders in University students. Even though many researchers worked on the same topic but very few researchers were reported from Pakistan. In Pakistan no such data is available specially among University students.

Author's Contribution

Juweria Abid: Supervisor.
Hooria Latif, Amir Sohail and Saroosh Fatima Tahir Syed: Done research, Conceptualization, Methodology, Formal Analysis, Writing-original draft.
Shakeel Ahmad: Helped in results analysis.
Tooba Asif: Helped in introduction section.
Muhammad Farooq: Conceptualization, Review the manuscript and amp; editing.

Conflict of interest

The authors have declared no conflict of interest.

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