

Research letter

## It's not just a "female issue": eating attitudes and behaviors of Pakistani male and female pharmacy students

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**Abstract:** *Aim* — Early identification of people with eating disorders can result in better treatment and complete recovery. Therefore, we aimed to assess the prevalence of pharmacy students at high-risk of eating disorders.

*Material and Methods* — A cross-sectional study was undertaken in pharmacy departments of two renowned academic institutes of Lahore, Pakistan. Eating attitudes and behaviors of the students were assessed by eating attitudes test (EAT-26).

*Results* — A total of 600 questionnaires were distributed and 566 were received, with the response rate of 93.3%. The mean age of the study cohort was 21.78±2.44 years, with a predominance of women (69.6%). The mean EAT-26 score was found out to be 16.99±11.18. The prevalence of university students at high risk of eating disorders was found out to be 36.7%, with no significant difference between gender, age and body mass index.

*Conclusion* — The findings of the present study suggest that a high proportion of Pakistani pharmacy students are at risk of eating disorders; with no significant difference between men and women. Our study highlights the need of awareness programs to promote healthy eating attitudes among students.

**Keywords:** eating disorders, EAT-26, nutrition, gender differences.

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### Introduction

Excessive or inadequate intake of food is harmful to physical and emotional health of an individual. The most common diseases that originate due to abnormal eating habits are binge eating disorder (frequently eat unusually large amounts of food and feel unable to stop eating), anorexia nervosa (low weight, fear of gaining weight, a strong desire to be thin, and food restriction) and bulimia nervosa (binge eating followed by purging) [1].

Estimated lifetime prevalence of Diagnostic and Statistical Manual of Mental Disorders-IV anorexia nervosa, bulimia nervosa, and binge eating disorder are 0.9%, 1.5%, and 3.5% among females, and 0.3% 0.5%, and 2.0% among males [1]. Striegel-Moore et al. [2] reported that the prevalence of bulimia in male and female college students was 3.8% and 0.2%, respectively. Another study conducted on freshmen college students revealed that 4.7% students had eating disorders [3]. The prevalence of Pakistani medical and nursing students at high risk of eating

disorders was reported to be 21.7% [4] and 22.6%, respectively [5]. The exact etiology of eating disorders is uncertain. However, several factors such as stress [6-8], culture [9], mood [10], parental modelling [11], media [12, 13] and health concerns [15] are known to be associated with eating disorders.

The transition from adolescence to adulthood is a period where people are more prone to develop unhealthy eating habits, substance abuse, and sedentary lifestyle [15]. University students are potentially important targets for the promotion of healthy lifestyles as this may decrease the risks of lifestyle-related disorders later in their life [16]. University students experience stresses in their university life that may negatively affect their diet [17]. Early Identification of individuals with eating disorders can result in better treatment and complete recovery.

Therefore, we aimed to assess the prevalence of male and female Pakistani Pharm-D students at high-risk of eating disorders.

**Table 1. Demographics of the study population**

Characteristics	Overall (n=566)	EAT-26 result		p-value
		Positive (n=208)	Negative (n=358)	
Age, years, M±SD	21.8±2.4	21.6±2.3	21.9±2.5	0.131*
18-21 years, no. (%)	277 (48.9)	111 (40.1)	166 (46.4)	0.064**
≥22 years, no. (%)	289 (51.1)	97 (59.9)	192 (66.4)	
Gender				
- Male, no. (%)	172 (30.4)	64 (37.2)	108 (33.6)	0.477**
- Female, no. (%)	394 (69.6)	144 (62.8)	250 (63.5)	
BMI, kg/m <sup>2</sup> , M±SD	21.31±4.69	21.64±4.39	21.13±4.85	0.209*
EAT Score, c.u., M±SD	16.99±11.18	28.75±8.49	10.16±5.32	<0.001**

M±SD, mean with standard deviation; no. (%), numbers and percentages; BMI, body mass index; EAT, eating attitude test; c.u., conventional units.

\* – Chi-square test; \*\* – t-test.

**Table 2. Comparison of the responses of dieting, bulimia and food preoccupation, and oral control subscales of EAT-26**

Questions of EAT-26	Responses, no. (%)		p-value*
	High-risk individuals	Normal individuals	
<b>Dieting scale items</b>			
Am terrified about being overweight	155 (74.5)	125 (34.9)	<0.001
Aware of the calorie content of foods that I eat	111 (53.4)	92 (25.7)	<0.001
Particularly avoid food with a high carbohydrate content	106 (51.0)	34 (9.5)	<0.001
Feel extremely guilty after eating	66 (31.7)	21 (5.9)	<0.001
Am preoccupied with a desire to be thinner	123 (59.1)	84 (23.5)	<0.001
Think about burning up calories when I exercise	133 (63.9)	136 (38.0)	<0.001
Am preoccupied with the thought of having fat on my body	141 (67.8)	96 (26.8)	<0.001
Avoid foods with sugar in them	110 (52.9)	62 (17.3)	<0.001
Eat diet foods	110 (52.9)	41 (11.5)	<0.001
Feel uncomfortable after eating sweets	121 (58.2)	55 (15.4)	<0.001
Engage in dieting behavior	110 (52.9)	7 (10.3)	<0.001
Like my stomach to be empty	103 (49.5)	52 (14.5)	<0.001
Enjoy trying new rich foods	58 (27.6)	116 (32.4)	0.152
<b>Bulimia and food preoccupation scale</b>			
Find myself preoccupied with food	98 (47.1)	70 (19.6)	<0.001
Have gone on eating binges where I feel that I may not be able to stop	101 (48.6)	75 (20.9)	<0.001
Vomit after I have eaten	50 (24.0)	14 (3.9)	<0.001
Feel that food controls my life	131 (63.0)	129 (36.0)	<0.001
Give too much time and thought to food	105 (50.5)	67 (18.7)	<0.001
<b>Oral control scale</b>			
Avoid eating when I am hungry	81 (38.9)	36 (10.1)	<0.001
Cut my food into small pieces	147 (70.7)	146 (40.8)	<0.001
Feel that others would prefer if I ate more	111 (53.4)	66 (18.4)	<0.001
Other people think that I am too thin	108 (51.9)	126 (35.2)	<0.001
Take longer than others to eat my meal	125 (60.1)	114 (31.8)	<0.001
Display self-control around food	129 (62.0)	117 (32.7)	<0.001
Feel that others pressure me to eat	109 (52.4)	85 (23.7)	<0.001

EAT, eating attitude test; \* – Chi-square test.

## Material and Methods

### Study participants and setting

A cross-sectional study design was used to undertake the present study at pharmacy departments of two renowned universities in the capital of Punjab (University of the Punjab and University of Lahore) during a period of 3 months (February-April, 2016). A convenient sampling method was used and 600 pharmacy students were approached directly by the research assistants within the university office hours.

### Ethical approval

The permission to conduct this study was obtained from the Research Ethics Committee of the above-mentioned study settings and research was conducted in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments. A written informed consent was obtained from every student prior to enrollment in the study.

## Measures

The eating attitudes of the students were assessed by the Eating Attitude Test (EAT-26) which was a validated self-administered questionnaire to screen people at high risk of eating disorders [18]. This questionnaire contained three sections; Section-A (6 questions related to demographics), Section-B (26 questions to evaluate eating attitudes) and Section-C (5 questions to assess the eating behaviors of respondents over the past six months). English version of EAT-26 was used in the current study. Body mass index (BMI) was computed and categorized as per criterion of the World Health Organization (WHO) [19].

### Statistical analysis

Continuous and categorical variables were presented as mean with standard deviation (M±SD) and numbers or percentages, respectively. Comparisons between continuous variables were made by the Independent t-test whereas Chi-square test was used to compare categorical variables. A p-value of less than 0.05 was

considered statistically significant. All statistical analysis were performed using SPSS version 21.0 (SPSS Inc., Chicago, IL) for Windows.

### Results

A total of 600 questionnaires were distributed and 566 questionnaires were received, with the response rate of 93.3%. The characteristics of the study sample are given in *Table 1*. The mean age was 21.8±2.4 years (range 18-35 years), with a predominance of women (69.6%). Majority of the respondents had normal weight whereas 7.2% were severely underweight and 6.2% were obese. The mean EAT-26 score was 16.99±11.18, with no significant difference of mean EAT-26 score among males and females (16.89±11.56 vs 17.05±11.02,  $p=0.854$ ). The prevalence of students at high risk of eating disorders (EAT-26 score  $\geq 20$ ) was 36.7%, with no significant difference between gender ( $p=0.477$ ), age ( $p=0.064$ ), BMI ( $p=0.290$ ) and study location (37.4% public university students' vs 33.3% private university students,  $p=0.482$ ).

Analysis of the responses of the EAT-26 questions regarding dieting, bulimia and food preoccupation, and oral control among positive and negative respondents are shown in *Table 2*. Of 208 students at high risk of eating disorders, 74.5% were terrified about being overweight whereas almost 68% of the students were preoccupied with the thought of having fat on their bodies. Around fifty nine percent were always preoccupied with desire to be thinner and approximately 53% were engaged in dieting. On the other hand, nearly half of the high risk students self-confessed of gone on eating binges where they felt that they may not be able to stop and 27.9% had the impulse to vomit after eating. Sixty two percent of high risk individuals were reported of displaying self-control around food.

### Discussion

This study sought to assess the prevalence of pharmacy students at high risk of eating disorders. Findings of the study revealed that the unhealthy eating attitudes were present in a significant number of pharmacy students of universities at Lahore, Pakistan with no significant difference regardless of the gender, age, BMI categories and study location.

In the current study, frequency of disordered eating and abnormal eating attitude and behavior were found in 36.7% of the students which was significantly higher than that reported in medical and nursing students [4, 5]. This indicates that there is a pressing need of educating the students regarding the importance of adequate food intake as eating disorders particularly anorexia nervosa has been reported to disturb several systems resulting in complications such as purpura, hepatic dysfunction, osteoporosis, diabetic complications and acrocyanosis [20]. More importantly, anorexic patients prematurely die due to one of the aforementioned complications.

We observed that unhealthy eating attitudes were not just a girls' problem as there was no significant difference in the prevalence of disturbed eating attitudes among both male and female. This finding is comparable to the findings of an earlier study conducted on Israeli-Arab adolescent boys and girls [21]. Tantleff-Dunn et al. [22] demonstrated that eating disorders and body image dissatisfaction are becoming normative and universal, not only in females but also in males. And this transition is mainly due to the desired "slenderness culture"; that is considered as the

idealized images of beauty and attractiveness that infiltrate modern society and effect the eating attitudes and behaviors of both male and female [22]. Contrary to our findings, earlier studies from Pakistani population showed that the prevalence of eating disorders were significantly high in females as compared to male [4, 5]. Similarly, Pope et al. [23] and Katzman et al. [24] also demonstrated predominance of female population suffering from eating disorders. Similar to our findings, earlier studies also reported that there was no association of EAT-26 scores with age [5, 21] and BMI [25].

Though, we achieved desirable objectives of our study but there were some limitations. Firstly, this study was conducted on pharmacy students at two universities of only one city therefore these findings may not generalized to the overall university students' population. Secondly, this is a self-reported questionnaire based survey so the information must be carefully evaluated otherwise it may harm the reliability of the survey. Thirdly, we did not use a probability sampling method so we had disadvantages such as selection bias and non-generalizability. Lastly, we did not perform the clinical assessment for the diagnosis of eating disorders as per criterion of Diagnostic and Statistical Manual of Mental Disorders, fifth edition. It was not possible to carry out interviews with all the respondents scored above the cut-off value of EAT-26. Therefore, our findings only demonstrate the students at high risk of eating disorders. Further investigation of the factors influencing the eating attitudes and behaviors of students is necessary and it may help to reduce the risk of eating disorders later in their life. Moreover, awareness programs need to be conducted to make society aware of these hidden enemies.

### Conclusion

The data suggest a high proportion Pharmacy students are at risk of eating disorders and emphasis that males are at risk as much as females. This study highlights the need of educational/awareness programs to increase the knowledge of not only students but also the general public regarding eating disorders.

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### Conflict of interest

No conflict of interest associated with this work.

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