

# Prevalence and Beliefs Regarding Eating Disorders among General Population of Pakistan

<sup>1</sup>Madeeha Malik, <sup>2</sup>Azhar Hussain, <sup>3</sup>Rana Hassaan Bin Tariq and <sup>1</sup>Ayisha Hashmi

<sup>1</sup>Cyntax Health Projects, Contract Research Organization and Corporate Firm, Islamabad, Pakistan

<sup>2</sup>Department of Pharmaceutical Sciences, Pak-Austria Fachhochschule, Institute of Applied Sciences and Technology, Haripur, Pakistan

<sup>3</sup>Hamdard Institute of Pharmaceutical Sciences, Hamdard University Islamabad, Islamabad, Pakistan

## ABSTRACT

**Background and Objective:** Eating disorders are common mental conditions affecting the psychosocial and physical functioning of individuals. The main aim of the present study was to assess the prevalence and beliefs of eating disorders among the general population regarding eating disorders in Pakistan. **Materials and Methods:** A cross-sectional study design was used to screen and assess beliefs regarding eating disorders. A prevalidated questionnaire Eating Disorders Diagnostic Scale was used for screening eating disorders. The beliefs of respondents were assessed using the Eating Disorder Belief Questionnaire. Three hundred and 82 respondents were selected using the convenience sampling technique. After data collection, data was analyzed statistically in SPSS version 22. **Results:** The results of the study showed that out of 200 respondents, 17% (n = 34) had the probability of having an eating disorder. The 12% (n = 24) of respondents were afraid that they might gain weight and 6.5% (n = 13) believed that their weight influenced how they thought about themselves. The 1.5% (n = 3) of the respondents faced severe issues in mobility, 1% (n = 2) had issues with self-care, 2% (n = 4) had issues in usual activity, 1% (n = 2) faced pain/discomfort and 4.5% (n = 9) had anxiety/depression. **Conclusion:** A moderate prevalence of eating disorders and obesity in the Pakistani population. Perceptions of the community about their weight and shape were negative.

## KEYWORDS

Eating disorders, eating behaviors, screening, quality of life, perceptions, beliefs

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## INTRODUCTION

Eating disorders are relatively common mental disorders affecting the psychosocial and physical functioning of individuals. These disorders not only compromise the quality of life but also contribute towards the increased mortality rate due to mental illnesses in the community<sup>1</sup>. These disorders create a significant impact on the physical, psychological and social health of individuals. Globally approximately 70 million people suffer from an eating disorder. Severe forms of eating disorders not only lead to physical, psychological and social distress but also result in depression. Studies have shown that individuals are prone towards developing eating disorders regardless of their age, gender or ethnicity<sup>2</sup>.



Eating disorders can cause major complications in the cardiovascular system, Endocrine system, gastrointestinal system and neurological system causing issues like sleep disturbances, menstrual irregularities and sleep apnea, decreased bone density, electrolyte imbalance and cardiac irregularities. Complications of eating disorders have been reported as potentially irreversible and life-threatening at times<sup>3</sup>.

Individuals with eating disorders usually present with disordered eating habits. Sociocultural and family factors, low self-esteem and body dissatisfaction along with cognitive and biological factors lead towards the development of eating disorders. Therefore, early detection and screening of eating disorders can contribute towards the reduction of the burden of disease due to eating disorders. A study from Iran reported a high prevalence of eating disorders among boys<sup>4</sup>. Moreover, females were found at a higher risk of developing eating disorders than male medical students in Karachi, Pakistan<sup>5</sup>. Higher lifetime prevalence was found among females as compared to males with a prevalence of Anorexia estimated to be 0.9% and Bulimia Nervosa to be 0.5%<sup>6</sup>. Eating disorders are associated with impaired quality of life than other mental health conditions. A study from Spain concluded that quality of life of patients suffering from anorexia nervosa was affected the most. Disease-specific QoL in patients with eating disorders improved after 1 year of treatment, though it was not like the general population<sup>7</sup>.

The prevalence and incidence of eating disorders are increasing day by day and millions of individuals are suffering from this disease. Poor eating habits, socio-cultural variables, economic status and common misconceptions are leading risk factors for these disorders<sup>8</sup>. These disorders are further linked with the development of mental disorders like depression and anxiety which leads to life-threatening consequences. Some of the eating disorders lead to obesity which is itself a global epidemic<sup>9</sup>. Lack of screening programs, inadequate standard practices and poor awareness of eating disorders are not only delaying the diagnosis but are also compromising the quality of life of the people. Pakistan ranks 9th out of 188 countries in terms of obesity, so this shows an increased risk of development of eating disorders in the Pakistani population. Eating disorders are linked with social taboos which need to be addressed in Pakistan. There is a dire need to screen the community and assess the beliefs of the community regarding eating disorders. Therefore, the current research was conducted to assess the prevalence and beliefs of eating disorders among the general population in Pakistan.

## **MATERIALS AND METHODS**

**Study area:** The study was conducted from January, 2021-April, 2021. The study was conducted in Islamabad and Rawalpindi, Pakistan.

**Ethics:** Approval to conduct the current research was obtained from the Ethical Committee of Hamdard University (Ref. No. HU/DRA/2021/354). Besides this approval, consent was also taken from the respondents and their confidentiality of information was also assured.

**Study design:** A descriptive cross-sectional study design was used to screen for eating disorders and assess beliefs of eating disorders among the general population. Three hundred and eighty-two respondents were selected using convenience sampling technique.

**Data collection tools:** A pre-validated tool Eating Disorders Diagnostic Scale questionnaire<sup>10</sup> was used for screening eating disorders. The questionnaire is comprised of twenty-two questions designed to screen eating disorders like binge eating disorder, anorexia nervosa and bulimia nervosa. The belief of respondents was checked using eating disorder belief questionnaire<sup>11</sup>. The tool consists of 32 questions which were divided into four categories to evaluate the negative self-belief, acceptance by others, self-acceptance and belief regarding control over eating. A scoring range of 0 to 100 was provided to the

respondent where 100 means the strongest belief one can imagine. Pilot testing was conducted on 10% of the sample to check the reliability of all tools. The cronbach alpha was found to be 0.72 for the eating disorder diagnostic scale and 0.73 for the eating disorder belief questionnaire.

**Statistical analysis:** After data collection, data was cleaned, coded and entered in SPSS version 22 and analyzed. Descriptive statistics comprising frequency and percentages were calculated. The significance level was  $p < 0.05$ .

## RESULTS

**Demographic characteristics of respondents:** Out of 382 respondents, 64% (n = 245) were males and 36% (n = 137) were females. Most of the respondents were in the age group 26 to 35 years 50% (n = 191). Regarding qualification, 43% (n = 164) had bachelor's degree while 19% (n = 73) had a master's degree. Out of 382 respondents, 28% (n = 107) were pharmacists, 9% (n = 34) were teachers, 2% (n = 7) were engineers and 2% (n = 7) were doctors. Among the total respondents 13% (n = 50) belonged to rural areas and 87% (n = 332) were residents of urban area (Table 1).

Table 1: Demographic characteristics of respondents

Indicator	n (%)
<b>Gender</b>	
Male	245 (64.0)
Female	137 (36.0)
<b>Age</b>	
18-25	141 (37.0)
26-35	191 (50.0)
36-45	23 (6.0)
46-55	12 (3.0)
56-65	15 (4.0)
<b>Marital status</b>	
Single	241 (63.0)
Married	138 (36.0)
Others (divorced, widowed)	3 (1.0)
<b>Education</b>	
Primary	27 (7.0)
Matric	15 (4.0)
Higher secondary school	27 (7.0)
Bachelor's degree	164 (43.0)
Masters	73 (19.0)
M. phil	69 (18.0)
Ph.D.	7 (2.0)
<b>Occupational status</b>	
Employed	256 (67.0)
Unemployed	38 (10.0)
Retired	12 (3.0)
Student	76 (20.0)
<b>Income</b>	
≤18,000	126 (33.0)
18,000 to 50,000	130 (34.0)
50,000 to 100,000	99 (26.0)
above 100,000	27 (7.0)
<b>Residency</b>	
Urban	332 (87.0)
Rural	50 (13.0)
<b>Profession</b>	
Doctor	7 (2.0)
HR Manager	7 (2.0)
Pharmacist	107 (28.0)
Psychologist	15 (4.0)
Teacher	34 (9.0)
Auditor	7 (2.0)
Marketing	15 (4.0)
Engineer	7 (2.0)
Nurse	7 (2.0)
Supervisor	7 (2.0)
Graphic Designer	4 (1.0)

Table 1: Continue

Indicator	n (%)
Consultant	4 (1.0)
Technician	15 (4.0)
Lawyer	4 (1.0)
Lab Assistant	15 (2.0)
Pathologist	4 (1.0)
Makeup artist	7 (2.0)
Businessman	4 (1.0)
Property dealer	4 (1.0)
Administration	4 (1.0)
Student	75 (20.0)
Academia professional	7 (2.0)
Lab technologist	7 (2.0)
Govt. Employee	4 (1.0)
Retired	11 (3.0)

Table 2: Screening of eating disorders among community of Pakistan

Screening	n (%)
No eating disorder	317 (83.0)
Probability of eating disorder	65 (17.0)
<b>Types of eating disorder</b>	
Probability of anorexia nervosa	51 (78)
Probability of bulimia nervosa	5 (8)
Probability of binge eating disorder	5 (8)
Probability of both anorexia nervosa and bulimia nervosa	4 (6)

Table 3: Assessment of eating patterns among community of Pakistan

Indicator	No	Yes
	n (%)	n (%)
Have there been instances in the last six months where you felt you consumed what other people might consider an unusually big amount of food (for example, a quart of ice cream) considering the circumstances?	241 (63.0)	141 (37.0)
During these episodes of overeating and loss of control did you eat much more rapidly than normal?	264 (69.0)	118 (31.0)
During the times when you ate an unusually large amount of food, did you experience a loss of control? (feel you couldn't stop eating or control what or how much you were eating)	260 (68.0)	122 (32.0)
During these episodes of overeating and loss of control did you eat until you felt uncomfortably full?	244 (64.0)	138 (36.0)
Did you eat a lot of food during these bouts of binge eating and losing control even though you weren't physically hungry?	288 (75.5)	94 (24.5)
Did you eat by yourself during these bouts of binge eating and losing control because you were ashamed of how much you were consuming?	321 (84.0)	61 (16.0)
Did you ever feel ashamed of your overeating, depressed, or incredibly guilty after overeating during these bouts of losing control and overeating?	290 (76.0)	92 (24.0)
Did you feel really disturbed about your excessive overeating or the subsequent weight increase during these periods of overeating and losing control?	279 (73.0)	103 (27.0)

**Screening of eating disorders among community of Pakistan:** Out of 382 respondents, 17% (n = 65) people had the probability of having an eating disorder. The probability was highest for anorexia nervosa (78%, n = 51) followed by bulimia (8%, n = 5) and binge eating disorder (8%, n = 5). A detailed description is given (Table 2).

**Assessment of eating patterns among community of Pakistan:** The results showed that 37% (n = 141) of the people had unusually large amounts of the food in the last six months, 36.0% (n = 138) felt uncomfortably full during episodes of overeating, 32.0% (n = 122) experienced loss of control and 31.0% (n = 118) ate much more rapidly than normal (Table 3).

**Frequency of feeling over eating episodes among community of Pakistan:** The results showed that 7.5% (n = 29) respondents were eating a large amount of food 5 days per week in the last 6 months 3.0%

Table 4: Frequency of feeling over eating episodes among community

Indicator	Days	n (%)
How many days per week on average over the past 6 months have you eaten an unusually large amount of food and experienced a loss of control? Enter a number between 0 to 7	0	134 (35.0)
	1	50 (13.0)
	2	89 (23.0)
	3	44 (11.5)
	4	12 (03.0)
	5	29 (7.5)
	6	12 (3.0)
How many times per week on average over the past 3 months have an unusually large amount of food and experienced a loss of control? Enter a number between 0 to 14 you	7	12 (03.0)
	0	130 (34.0)
	1	148 (12.5)
	2	63 (16.5)
	3	27 (7.0)
	4	34 (9.0)
	5	33 (8.50)
	6	19 (05.0)
	7	6 (1.50)
	8	6 (1.50)
	9	8 (02.0)
	10	4 (01.0)
	11	4 (01.0)
	12	0
13	0	
14	0	

Table 5: Assessment of eating disorder belief questionnaire scores

Indicator	Mean	SD ( $\pm$ )
Negative self belief	12.3930	17.86152
Acceptance by others	16.5236	20.10461
Self-acceptance	32.0650	28.16164
Control over eating	17.4450	20.50721

SD: Standard Deviation

(n = 12) were having a large amount of food 6 days per week and 3% (n = 12) were having food 7 days per week in last 6 months. Similarly, 34% (n = 130) respondents experienced no loss of control in the last 3 months along with 1% (n = 4) experienced loss of control 11 times per week in the last 3 months (Table 4).

**Assessment of beliefs of eating disorders among community of Pakistan:** The mean score for the eating belief questionnaire were: Negative self-belief ( $12.39 \pm 17.86$ ), regarding acceptance by others ( $16.52 \pm 20.10$ ), belief regarding self-acceptance ( $32.06 \pm 28.16$ ), and belief about control over eating ( $17.44 \pm 20.50$ ) as shown in (Table 5).

## DISCUSSION

Eating disorders have remained the most neglected public health issue in developing countries. With the increased prevalence of obesity and eating disorders, the risks of associated comorbidities have also increased. These health conditions are not only responsible for impaired quality of life but also lead to high socio-economic costs. Lack of awareness and limited screening services are one of the major reasons for the increasing prevalence of eating disorders and reduced quality of life among such individuals. The results of the current study reported that the prevalence of eating disorders among the Pakistani population was moderate with anorexia nervosa being higher as compared to bulimia nervosa and binge eating disorder. These results were consistent with a study done on Dutch respondents where the eating disorder diagnostic scale was considered to be a useful tool and reported a higher prevalence of anorexia nervosa<sup>5</sup>. Similar results were observed in a study conducted in USA where women had a higher prevalence of anorexia nervosa<sup>12</sup>.

The results of the study showed that few of the respondents consumed unusually large amounts of food in the last six months, felt uncomfortably full during episodes of overeating and experienced loss of control and ate much more rapidly than normal. Similar results were observed in a study conducted in Iran where respondents consumed a large amount of food due to their eating disorders<sup>13</sup>. Another study conducted in US reported binge eating episodes among a few women from minority communities<sup>14</sup>.

Eating disorder belief questionnaire was used to check the belief of respondents regarding eating disorders using subscales containing questions about negative self-belief, acceptance by others, self-acceptance and control over eating. The present study showed that patients with eating disorders had poor beliefs with higher scores. The results of the present study were consistent with a study conducted in the UK where participants had significantly higher scores than those with normal dieters and depressive patients<sup>15</sup>. Another study conducted in Canada also found that respondents had poor beliefs about eating disorders and body satisfaction which improved after treatment<sup>16</sup>.

Few limitations were observed during the conduction of the study. Financial constraints, lack of time and availability of limited literature on the topic were major limitations of the study. Along with this, self-administered questionnaires were used which increases the chances of respondent's related errors depending upon their social and behavioral attributes.

## **CONCLUSION**

The result of the present study concluded that the prevalence of eating disorders was moderate with the risk of developing Anorexia Nervosa being the highest. The perceptions of the community about their weight and shape were negative and associated with societal taboos. Most of the respondents complained about having slight to moderate anxiety/depression along with pain/discomfort and had poor beliefs regarding eating disorders. An eating disorder is a social taboo which is least discussed in our society. Therefore, massive awareness campaigns must be launched for awareness of the community about the importance of early diagnosis and screening. Key opinion leaders and stake holders should contribute to effective screening methods and management of eating disorders in Pakistan.

## **SIGNIFICANCE STATEMENT**

Pakistan ranks 9th for obesity out of 188 countries in the world. The screening of eating disorders is the biggest social taboo that needs to be addressed in Pakistan. The results of the present study concluded that moderate prevalence of eating disorders and obesity in the Pakistani population. Perceptions of the community about their weight and shape were negative and associated with societal taboos. The awareness regarding eating disorders was found to be low among the community. Screening apps should be used for early diagnosis of disease in order to decrease the burden of disease among the community.

## **REFERENCES**

1. Rieger, E., D.E. Wilfley, R.I. Stein, V. Marino and S.J. Crow, 2005. A comparison of quality of life in obese individuals with and without binge eating disorder. *Int. J. Eating Disorders*, 37: 234-240.
2. Pratt, H.D., E.L. Phillips, D.E. Greydanus and D.R. Patel, 2003. Eating disorders in the adolescent population: Future directions. *J. Adolesc. Res.*, 18: 297-317.
3. Rome, E.S. and M.P.H.S. Ammerman, 2003. Medical complications of eating disorders: An update. *J. Adolesc. Health*, 33: 418-426.
4. Rauof, M., H. Ebrahimi, M.A. Jafarabadi, A. Malek and J.B. Kheiroddin, 2015. Prevalence of eating disorders among adolescents in the Northwest of Iran. *Iran. Red Crescent Med. J.*, Vol. 17. 10.5812/ircmj.19331.

5. Memon, A.A., S.E.E.R. Adil, E.U. Siddiqui, S.S. Naeem, S.A. Ali and K. Mehmood, 2012. Eating disorders in medical students of Karachi, Pakistan-A cross-sectional study. BMC Res. Notes, Vol. 5. 10.1186/1756-0500-5-84.
6. Hudson, J.I., E. Hiripi, H.G. Pope and R.C. Kessler, 2007. The prevalence and correlates of eating disorders in the national comorbidity survey replication. *Biol. Psychiatry*, 61: 348-358.
7. Muñoz, P., J.M. Quintana, C.L. Hayas, U. Aguirre, A. Padierna and M.A. González-Torres, 2009. Assessment of the impact of eating disorders on quality of life using the disease-specific, health-related quality of life for eating disorders (HeRQoLED) questionnaire. *Qual. Life Res.*, 18: 1137-1146.
8. Striegel-Moore, R.H., N. Perrin, L. DeBar, G.T. Wilson, F. Rosselli and H.C. Kraemer, 2010. Screening for binge eating disorders using the patient health questionnaire in a community sample. *Int. J. Eating Disord.*, 43: 337-343.
9. Walcott, D.D., H.D. Pratt and D.R. Patel, 2003. Adolescents and eating disorders:: Gender, racial, ethnic, sociocultural, and socioeconomic issues. *J. Adolesc. Res.*, 18: 223-243.
10. Stice, E., C.F. Telch and S.L. Rizvi, 2000. Development and validation of the eating disorder diagnostic scale: A brief self-report measure of anorexia, bulimia, and binge-eating disorder. *Psychol. Assess.*, 12: 123-131.
11. Cooper, M., E. Cohen-Tovée, G. Todd, A. Wells and M. Tovée, 1997. The eating disorder belief questionnaire: Preliminary development. *Behav. Res. Ther.*, 35: 381-388.
12. Munn-Chernoff, M.A., L.R. Few, C.E. Matherne, J.H. Baker and V.Y. Men *et al.*, 2020. Eating disorders in a community-based sample of women with alcohol use disorder and nicotine dependence. *Drug Alcohol Depend.*, Vol. 212. 10.1016/j.drugalcdep.2020.107981.
13. Iorga, M., L. Pop, I.D. Muraru and B.G. Ioan, 2019. Screening the risk for eating disorders among medical dentistry students-A cross-sectional study. *Rom. J. Oral Rehabil.*, 11: 101-110.
14. Shepherd, B.F., P.M. Brochu and C. Rodriguez-Seijas, 2022. A critical examination of disparities in eating disorder symptoms by sexual orientation among US adults in the NESARC-III. *Int. J. Eating Disord.*, 55: 790-800.
15. Bradford, R. and D. Rutherford, 2001. The eating disorder belief questionnaire: In-patient adolescent scores. *Clin. Child Psychol. Psychiatry*, 6: 513-518.
16. Pullmer, R., S. Potter and M. Laliberte, 2023. Enhancing eating disorder recovery: Weight control beliefs predict body dissatisfaction in group cognitive behavioural therapy for body image. *Eating Behav.*, Vol. 50. 10.1016/j.eatbeh.2023.101774.