

# Eating Disorders in Medical and Nursing Students of a Private University: Relationship with Depression, Anxiety, and Stress

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## ABSTRACT

The study aimed to identify the relationship between Avoidant/Restrictive Food Intake Disorder (ARFID), Anorexia and Bulimia nervosa with stress, depression, and anxiety, among undergraduate students at Aga Khan University (AKU) in Pakistan. The data collection was done online using Eating Attitude Test-26 (EAT-26), Nine Item ARFID Screen (NIAS), and Depression Anxiety Stress Scale (DASS-21). A total of 79 responses were received. Among them, 83.5% (n=66) were females and 16.5% (n=13) were males. On the NIAS screen, 16.5% participants tested positive and 15.2% indicated high risk of eating disorders on EAT-26. There were 26% participants who were underweight while 20% were overweight. Anxiety was significantly associated with all eating disorders while depression and stress were significantly associated with positive EAT-26 results too. Females and early-year students were at higher risk. We recommend regular monitoring for eating changes which may improve psychological and physical wellbeing of medical and nursing students.

**Key Words:** Eating disorders, Stress, Dysfunctional eating behaviours, Students, Pakistan.

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Eating disorders (EDs) are a group of conditions that cause significant impairment in physical, psychosocial, and cognitive functioning due to persistent problems in food intake. Globally, 70 million people suffer from EDs.<sup>1</sup> They are characterised by disturbed eating patterns due to concerns about body weight and shape or maladaptive coping mechanisms.

Anorexia Nervosa (AN) is characterised by a distorted body image, leading to low body weight. In contrast, patients with Bulimia Nervosa (BN) are not underweight but are trapped in a vicious cycle of binge eating followed by restrictive or purging behaviour. Avoidant/Restrictive Food Intake Disorder (ARFID) causes weight loss due to food restriction and has multiple aetiologies which include a lack of interest in food, heightened sensitivity to textures of food, and fear of the consequences of eating, such as choking.<sup>2</sup>

Environmental, social, psychological, biological, genetic, and cultural factors have been implicated as aetiologies for EDs. According to a systematic review conducted between the years 2000 to 2018, the prevalence of EDs globally was 5.7% in women and 2.2% in men.<sup>3</sup> The Multi-Service Eating Disorders Association reported that nearly 15% of women aged 17 to 24 have an ED, and it was found that 75% of eating difficulties began during adolescence.<sup>4</sup> A wide range of ED prevalence has been noted among young people from countries like Pakistan, India, and Bangladesh, ranging between 4 to 38%.<sup>5</sup> Memon *et al.* found that according to EAT-26, 22.75% of medical students in Karachi were at high-risk of developing EDs, however, according to the SCOFF questionnaire 17% of the students were at risk.<sup>5</sup>

Due to the nature of medical and nursing schools, these students are constantly exposed to stressful situations and competitive environments which can be a trigger for developing psychiatric disorders. Thus, medical and nursing schools can create a ripe environment for developing EDs in the vulnerable. Furthermore, EDs are highly comorbid with other psychiatric disorders such as depression, anxiety, substance abuse, and suicide.<sup>6</sup> Therefore it is important to prevent and treat EDs among students.

This study aimed to identify and highlight the association between stress, depression, and anxiety with developing EDs (specifically AN, BN and ARFID) in undergraduate students at AKU.

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**Table I: Association of demographics and DASS with NIAS and EAT-26 (n=79).**

Variable	NIAS		P-value	EAT-26		p-value
	Negative ARFID Screen n (%)	Positive ARFID Screen n (%)		Less Risk n (%)	At Risk n (%)	
Age						
17-22 years	41 (62.1)	09 (69.2)	0.627	42 (62.7)	08 (66.7)	0.792
23 & above	25 (37.9)	04 (30.8)		25 (37.3)	04 (33.3)	
Gender						
Male	11 (16.7)	02 (15.4)	0.909	11 (16.4)	02 (16.7)	0.983
Female	55 (83.3)	11 (84.6)		56 (83.6)	10 (83.3)	
Program						
MBBS	20 (30.3)	01 (7.7)	0.092	18 (26.9)	03 (25)	0.893
Nursing	46 (69.7)	12 (92.3)		49 (73.1)	09 (75)	
Class						
1 <sup>st</sup> & 2 <sup>nd</sup> year	19 (28.8)	08 (61.5)	0.056	20 (29.9)	07 (58.3)	0.116
3 <sup>rd</sup> year	27 (40.9)	04 (30.8)		27 (40.3)	04 (33.3)	
4 <sup>th</sup> & 5 <sup>th</sup> year	20 (30.3)	01 (7.7)		20 (29.9)	01 (8.3)	
Past psychiatric illness						
Yes	07 (10.6)	01 (7.7)	0.750	07 (10.4)	01 (8.3)	0.823
No	59 (89.4)	12 (92.3)		60 (89.6)	11 (91.7)	
Family psychiatric illness						
Yes	10 (15.2)	02 (15.4)	0.983	09 (13.4)	03 (25)	0.304
No / Don't know	56 (84.8)	11 (84.6)		58 (86.6)	09 (75)	
Medical history						
Yes	13 (19.7)	04 (30.8)	0.375	12 (17.9)	05 (41.7)	0.065
No	53 (80.3)	09 (69.2)		55 (82.1)	07 (58.3)	
BMI						
Underweight (<18.5)	15 (22.7)	06 (46.2)	0.165	19 (28.4)	02 (16.7)	0.130
Normal weight (18.5-<25)	36 (54.5)	06 (46.2)		37 (55.2)	05 (41.7)	
Overweight / Obesity (25 or >)	15 (22.7)	01 (7.7)		11 (16.4)	05 (41.7)	
Stress						
Normal	61 (92.4)	13 (100)	0.591	63 (94)	11 (91.7)	0.043*
Mild	04 (6.1)	-		04 (4)	-	
Moderate	01 (1.5)	-		-	01 (8.3)	
Anxiety						
Normal	53 (80.3)	06 (46.2)	0.002*	54 (80.6)	05 (41.7)	0.002*
Mild	01 (1.5)	03 (23.1)		04 (4)	-	
Moderate / severe	12 (18.2)	04 (30.8)		09 (13.4)	07 (58.3)	
Depression						
Normal	58 (87.9)	10 (76.9)	0.487	62 (92.5)	06 (50)	<0.001*
Mild	04 (6.1)	01 (7.7)		03 (4.5)	02 (16.7)	
Moderate / severe	04 (6.1)	03 (15.4)		02 (3)	04 (33.3)	

Applied chi-square test, \*significant p-values <0.05.

An analytical cross-sectional study was conducted among medical and nursing undergraduate students of AKU Pakistan. All students, studying in the Bachelor of Science in Nursing (BScN), Bachelor of Medicine, Bachelor of Surgery (MBBS) program, willing to participate, and provided consent, were included. All those students who were not studying in the stated program and had not provided consent were excluded. Before commencing the study, ethical approval was obtained from the Ethical Review Committee of Aga Khan University (Reference number: 2020-3620-11585). Using convenience sampling, an online survey on Google form was distributed to all students through their institutional email addresses. The data collection was done using Eating Attitude Test-26

(EAT-26), Nine Item ARFID Screen (NIAS) and Depression Anxiety Stress Scale (DASS-21), between September 2020 to April 2021. The data was analysed using Statistical Package for Social Sciences version 19.0. Mean and Standard Deviation (SD) were computed for continuous variables whereas frequency and percentage were used for categorical variables. Post-stratification Chi-square was used to assess associations between general characteristics and outcomes variables. A p-value of <0.05 was taken as significant.

A total of 79 responses were received. There were no incomplete forms. There were 83.5% (n=66) females and 16.5% (n=13) were males. About 53.2% (n=42) had normal BMI,

26.6% (n=21) had low BMI, and 20.3% (n=16) fell into the category of overweight and obesity. Mean BMI of male students was 23.92 (SD 4.98) and of the female students was 21.27 (SD 3.82).

Out of total 79 participants, 16.5% (n=13) participants screened positive on NIAS scale. Majority of students who screened positive were under the age of 23 years (69.2%, n=9). Most of the participants having positive ARFID screen were females (n=11), nursing students (n=12) and belonged to the initial years of the program (n=8). Moreover, ARFID was found to be positive among participants having a medical history (n=9) and family psychiatric illness (n= 11). When NIAS scores were computed against DASS-21, a significant association of NIAS with anxiety (p=0.002) was found but not with depression and stress, as illustrated in Table I.

EAT-26 results revealed that 15.2% (n=12) participants were at risk for possible eating disorders. Majority of positive screened participants were females (n=10), nursing students (n=9), and participants in the initial years of program (n=7). When EAT-26 was computed against DASS-21, significant association of EAT-26 with stress (p=0.043), anxiety (p=0.002), and depression (<0.001) was found.

On the DASS-21 scale, 11 participants had risk of depression, 20 had risk of anxiety while 5 participants had risk of stress of varying severity. This study data showed a higher risk of EDs in the initial years of training. Early years of medical and nursing education can be challenging. In Pakistan, students are transitioning from a school to a university environment. They must adjust to different learning methods, larger classrooms, and a greater focus on an individual's organisational skills. Therefore, interventions to help with this transition can help decrease the risk of EDs and improve overall wellness.

Overall, participants in this study reported more anxiety, followed by depression and negligible level of stress. This is an interesting dichotomy and might show a participant's denial of the stress they face though they can recognise the anxiety that comes as a result. Stress being a more subjective feeling while anxiety is a more concrete emotion. Therefore, wellness initiatives in medical and nursing colleges in Pakistan should also focus on increasing awareness in trainees in recognising their stress. A massive limitation of this study was the small number of participants and a single study setting. Also, data collection was done during the COVID pandemic which might have affected the results.

Nonetheless, this study shows that EDs are associated with higher levels of stress, depression, or anxiety. These risks are higher in women in earlier years of training in medical and nursing school. Thus, it is important that early-year medical and nursing students, especially ones with medical problems, past psychiatric histories, and family psychiatric histories, are

identified and enable programs to target wellness initiatives towards this high-risk group.

#### **ETHICAL APPROVAL:**

Ethical approval for this study was obtained from the Aga Khan University Ethical Review Committee (ERC #2020-3620-11585).

#### **PATIENTS' CONSENT:**

Online consent was taken from all the study participants.

#### **COMPETING INTEREST:**

The authors declared no competing interest.

#### **AUTHORS' CONTRIBUTION:**

FM, TN: Involved in conception mapping of the study.

BG, RC: Developed study survey and involved in data collection process.

BG: Conducted data analysis.

SP: Contributed to the interpretation of data and worked on the result section of the study.

RC, BG: Worked on the first draft of the manuscript.

SP: Revised the manuscript for important intellectual content.

NA, TN: Critically reviewed and edited the manuscript.

All the authors have approved the final version of the manuscript to be published.

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