Eating Disorders and Associated Risk Factors among Healthcare Providers at Al-Qassim Region Saudi Arabia

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Abstract

Background: Eating Disorders are deleterious mental illnesses that manifest through harmful behaviours and patterns. Objective: The existing study was premeditated to assess the prevalence of eating disorders and identify potential risk factors among healthcare providers in Al Qassim, Saudi Arabia. Design: The research is a cross-sectional design that integrates descriptive and analytical methods. Sample: A convenience sample of 354 healthcare providers who worked in the Ministry of Health (MOH) hospitals in the Qassim region of Saudi Arabia. Measurement: An online survey encompassed through using the following tools for data collection 1) the Eating Attitudes Test (EAT-26), 2) the Perceived Stress Scale (10 questions), 3) lifestyle, 4) body mass index (BMI), and 5) the nutrition-related variables. Results: The total prevalence risk of eating disorders was almost one-third (33.1%). By contrast, 66.9% of them were not. The study's healthcare providers who were at the uppermost jeopardy of developing an eating disorder (33.2%) and those who were not at risk (68.8%) had the highest levels of moderate stress. Conclusion: There were statistically significant correlations between the likelihood of eating disorders and the health care providers who had a poor appetite, difficulty falling asleep, getting less than six hours of sleep each day, and eating meals that were not prepared at home. Healthcare providers require specialized programs to prevent eating disorders and promote their lifestyle and mental health.

Keywords: Prevalence, Eating Disorders, Risk Factors, HealthCare, Saudi Arabia

Introduction

Long-term disturbances in eating or eating-related behaviours that result substantial impairments in physical or social functioning and cause alterations in food intake or absorption were delineated as Feeding and Eating Disorders (FEDs) in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition. (APA, 2013). Additionally, EDs are deleterious mental illnesses that manifest through harmful behaviours and patterns, such as obsessive-compulsive disorder (OCD)-like patterns of eating, exercise, and weight control. Adolescence and adulthood represent peak onset years for three serious eating disorders: bulimia nervosa, binge-eating disorder, and anorexia nervosa, the mental illness with the highest rate of long-term death. Among almost 300 physical and mental diseases affecting young teenage girls in industrialized nations, erectile dysfunction ranks as the twelfth biggest cause of disability-adjusted life years (APA, 2013).

The West and industrialized nations had long been the primary locations of eating problem reports. Nevertheless, there had been reports of eating disorders and behavioural eating difficulties among non-Western societies, such as Arab countries. Recently. as a result of media portrayals of Western beauty standards, urbanization, modernization, cultural shifts, and globalization, eating disorders' pervasiveness in non-Western societies has been on rise (Smink et al., 2012; Pike et al., 2014).

Disordered eating (DE) refers to a collection of eating patterns that deviate from the clinical diagnostic standards for anorexia nervosa, bulimia nervosa, or binge eating

disorder. Disordered eating (DE) could be observed through various unhealthy weight control methods, including excessive exercise, binge eating, relentless dieting, compulsive eating, fasting, self-induced vomiting, laxative use, skipping meals, and reliance on weight loss supplements (Wells, 2020; Joy et al., 2016; Sundgot-Borgen & Torstveit, 2010).

Obligations such as long witnessing or experiencing trauma, and meeting patients' emotional needs could potentially put healthcare providers, such as nurses and doctors, at hazard of developing an eating disorder (Adam & Epel, 2007). Evidence has shown that social constraints to maintain a ideal body weight, personality traits, and long-term stress could all play a role (Rantala et al., 2019). On top of that, according to Linnaranta et al. (2020), there is a correlation between work schedules. sleep disruptions, irregular meal timings, and body weight. An amplified prospect of healthcare workers developing an eating disorder is associated with societal expectations on body type, physical fitness, and beauty (Mallaram et al., 2023). According to Cleland et al. (2023), healthcare providers are influenced by these expectations, which further put pressure on their behaviour and perception regarding eating habits and dietary choices. An additional study was undertaken to assess the prevalence of compulsive eating disorder and its accompanying issues among physicians. Conferring to the verdicts of the earlier mentioned study, seventeen percent of the participants battled with dietary disorders. So due to the effect of personal lifestyle factors, melancholy, and other contributing factors, 9% of the physicians diagnosed with eating disorders (Tfifha et al., 2021).

Despite a few studies focused on healthcare providers, even though they may be particularly susceptible to eating problems. In creating preventive and intervention plans for the healthcare industry, it requires focusing on and addressing this gap. The purpose of the research is to investigate the prevalence and contributing factors of eating disorders among medical providers at Al-Qassim University in Saudi Arabia. Gaining insight into these dynamics could guide evidence-based

interventions to enhance healthcare providers' mental health and well-being.

Research aim

This study aims to assess the prevalence of eating disorders and identify potential risk factors among healthcare providers in Al Qassim, Saudi Arabia.

Research questions

The study's core questions were:

- How eating disorders are prevalent among healthcare providers in al-Qassim, Saudi Arabia?
- What are the possible risk factors associated with eating disorders among healthcare providers of al-Qassim, Saudi Arabia?

Methodology

Study design: The research deployed a cross-sectional design that integrated the descriptive and analytical methods.

Study setting: Following ethical clearance from the local research ethical council (REC), the current study was conducted on healthcare providers working in Ministry of Health hospitals at the Al Qassim region.

Sample size:

The total number of physicians, dentists, nurses, and pharmacists make up 8887 medical professionals employed in the Al-Qassim region (MOH, 2021). An eating disorder risk was estimated to be 32% in a previous Saudi study done by (Ghamri et al., 2022), with a 95% confidence level, 80% test power, and a 10% dropout rate. So according to EpiInfo version 7.2.5.0 which determined the sample size to be 354 healthcare providers.

I. Information on sociodemographic traits, lifestyle, and nutrition-related factors:

After reviewing the recent related literature, the researchers gathered sociodemographic and lifestyle information about the study's participants. The survey consisted of inquiries regarding sex, age, monthly earnings, marital status, height, weight, body mass index, frequency of exercise, presence of chronic illnesses, smoking habits, appetite patterns, sleep patterns, work schedule,

and frequency of consuming meals prepared outside of the home per week. Also, the 5 questions investigate if the participant using any new medicine that affects their weight or eating habits were scored on a six-point Likert scale (0 = never; 1 = every two to three months; 2 = once per month; 3 = once per week; 4=; 2-6 times weekly; 5= daily).

II. Measure of Body Mass Index (BMI):

By implementing the classifications stipulated by the Centres of Disease Control and Prevention (CDC, 2022), the researchers computed the participants' body mass index (BMI) using their self-reported weight and height (measured in squared meters).

Scoring System:

Based on their BMI, all subjects were assembled over four diverse groups: underweight (< 18.5 kg/m2), typical weight (18.5-24.9 kg/m2), overweight (25.0-29.9 kg/m2), and obese (≥ 30.0 kg/m2). The sorts established based universally on recognized BMI cut-offs widely acknowledged worldwide.

III. Eating Attitudes Test - 26 Item (EAT-26)

Garner and Garfinkel (1979).

It was designed in a form of a standardised 26-item self-report questionnaire. The Arabic form was utilized for this study without departing from the previous one (Haddad et al., 2021). The EAT-26 comprises 26 items divided into three subscales: dieting (Sub-D, with 13 items about body image distortion); bulimia (Sub-B, which includes six items about body image and the tendency to bulimic behaviour); and oral control (Sub-O, which include seven items about self-control and high-risk behaviours corresponding to anorexia nervosa).

Scoring System:

Each EAT-26 item is scored on a fourpoint Likert scale (0 = occasionally, rarely, or never; 1 = frequently; 2 = generally; 3 = always). Besides the 26 self-report inquiries that assess typical eating behaviour, five additional items address risky habits.

cutoff:

The EAT-26 items had a total score range from 0 to 78. Possible anorexia nervosa or bulimia nervosa are indicated by an EAT-26 score of ≥ 20 , whereas a score of ≥ 11 indicates possible binge-eating disorder. Even though there are no cut-off points for any EAT-26 subscales, Garfinkel and Newman (2001) contend that scores surpassing 20 on Sub-D and exceeding 10 on the other two subscales signify a higher risk of exhibiting to an eating disorder. According to Khan et al. (2021) the EAT-26 obtained a noteworthy Cronbach alpha value (= 0.863). It showed cases its ability to recognize and diagnose eating ailments such as anorexia nervosa, and bulimia nervosa. Furthermore, the current study's tool gets Cronbach's $\alpha = 0.91$ which indicates that the scale is reliable.

IV. Perceived Stress Scale

It is a 10-item scale developed by **Cohen et al. (1983)** which evaluates how much a person feels their life has been stressful, unpredictable, and uncontrollable among the last 30 days.

Scoring System:

The replies on the items of the scale were by using a Likert scale with 5 scores. AS 1 (Indicating the absence of occurrence), 5 (indicating a high frequency of occurrence). The cumulative score was computed by adding all values following the reversal of favourably phrased items (ranging from 0 to 40 marks). A greater cumulative score indicated an elevation of stress level. Stress levels ranging from 0 to 13 are classified as low stress, while levels ranging from 14 to 26 are classified as moderate stress. A perceived stress level ranging from 27 to 40 is considered a high-stress level. The scale's convergent and discriminant validity were confirmed, and it exhibited a satisfactory Cronbach's α coefficient of 0.82 (Lee, 2012). The Arabic iteration of the scale employed in the prior investigation in Saudi Arabia similarly exhibited a commendable internal consistency reliability, measuring at 0.74 (Hammad et al., 2023). Measure steadiness was acceptable in the current analysis, with a Cronbach's α of 0.72.

Ethical considerations

Before beginning the study and data collection operations, the local research ethics commission (REC) at the Qassim region authorized the research proposal (NO.H-04-O-001). The study participants' information was kept confidential throughout the investigation by keeping them anonymous and assigning codes to the questionnaires. The study participants were asked to provide truthful responses. Before beginning the questionnaire, participants were given a clear explanation about the study, including all required information about the study objectives, procedures, incentives, and potential risks. Each participant's approval to be involved in the study (informed consent) was gotten before their participation. Participants were prompted to answer a simple yes-or-no question to prove their consent to participate in this study. After confirming their preparedness and interest, the subject was directed to complete the self-report form. The Declaration of Helsinki serves as the basis for all ethical guidelines about human participants in medical research.

Pilot study

Before starting the data collection of the main study, four experts in psychiatric nursing, mental health nursing, medicine, and statistician fields assessed the study instruments' regarding cultural relevance. content validity, completeness, and item clarity; no changes were required. The pilot study involved 10% of the study population to examine the study tools for clarity, feasibility, and stability of the data collection tools as well to estimate the time needed to fill in the study tools. The outcome of the preliminary investigation showed that, depending on the study subjects' level of understanding and engagement, they took an average respondent between 15 and 20 minutes to finish answers to the whole questionnaire. The pilot study participants were involved in the entire study sample, and no amendments were made to the questionnaire on the light of the pilot study results.

Procedure

Employing the social networks, friends, and colleagues of the researchers, to request electronically a possible responder for the pilot

and primary studies. The researchers used Google Forms to develop the online poll and distributed it to respondents via Facebook, Instagram, WhatsApp, and Messenger, among other social media platforms. Our data handling procedures adhered to all relevant national data protection requirements. Participants received a debriefing regarding the questionnaire; no deception was used in the study; only anonymous data were collected. The data was collected from April 2023 to August 2023.

Statistically analysis

Utilizing IBM The SPSS (Statistical Software for the Social Sciences) data analysis for Windows, version 23.0 IBM Corp., Armonk, NY: USA, all information was gathered, tabulated, and scrutinized statistically. The mean ± standard deviation and median (range) were utilized to represent quantitative data, whereas utter frequencies (number) and frequencies (percentage) relative employed to represent qualitative data. The Chisquare test has been utilized to evaluate the proportions of categorical variables. Logistic regression is an explanatory technique utilized to describe data and elucidate the association between one or more independent categorical or perpetual variables and a dependent variable. Each exam consisted of two sides. Statistical significance was ascribed to a p-value less than 0.05, while p-values greater than or equal to 0.05 were deemed statistically insignificant (NS).

Result

The following tables and graphs show the findings of our current study. The study's participants consisted of 354 individuals from various sociodemographic backgrounds.

Table (1), there were 175 (49.4%) female participants and 179 (50.6%) male participants. Nearly fifty percent of the participants were married and under 40 (54.2% and 54.5%, respectively). Additionally, nurses (55.1%) and pharmacists (22.3%) comprised the largest percentage of healthcare practitioners participating in this current survey. Nonetheless, just 17.5% of the study participants were obese, compared to more than two-fifths (47.7%) of overweight adults. Additionally, the highest percentages of the research sample (63% and

87%, respectively) reside with their family and have no chronic medical conditions.

Figure (1) showed that the highest percentages exhibited eating disorder attitudes (33.1%) and dieting (10.3%), which resulted in a distorted body image. Less than 9% of those surveyed were at risk of developing anorexia nervosa, and 1.1% of people were at risk of developing bulimia.

Figure (2) revealed that the overall prevalence risk of eating disorders among examined healthcare providers were approximately one-third (33.1%). In comparison, 66.9% of them were not.

Table (2) illustrated a statistically significant relation between the risk of eating disorders and those who had a poor appetite, experienced trouble sleeping, slept less than six hours per day, and ate meals not made at home with (p=<0.05). Nevertheless, there was no association between the probability of eating disorders and weekly exercise performance or smoking with (p=<0.05).

Table (3) exhibited a statistically substantial association between the jeopardy of

eating disorders and binge eating, consuming laxatives, diet pills, or diuretics (water pills), and exercising for more than 60 minutes per day to lose or regulate weight with (**p=<0.05**).

Table (4) compares the stress levels among the risk and no-risk groups. The study's healthcare providers with and without the jeopardy of emerging an eating disorder had the highest levels of moderate stress (33.2% and 66.8%, respectively), and with a statistically significant association, which was also observed between the two groups when exposed to moderate stress. with (p=<0.05).

Table (5) displayed. Multivariate logistic regression, which detects the significant predictors for eating disorder attitude, regarding who found with monthly income (SR)5000-10000, obesity, low appetite pattern, disturbed sleep, Person eating food not prepared at home (daily), and higher stress level which were the positive predictors for eating disorders with (P=<0.05).

Table (1): The allocation of the frequencies and percentages of the examined healthcare providers by demographic qualities (n.354).

Items	No.	100%
Age per years	•	
<40 years	192	54.2
>40 years	162	45.8
Gender		
Males	179	50.6
Females	175	49.4
Nationality		
Saudi	169	47.7
Non-Saudi	185	52.3
Profession		
Physician	56	15.8
Pharmacist	79	22.3
Dentist	24	6.8
Nurses	195	55.1
Marital status		
Single	140	39.5
Married	193	54.5
Divorced	12	3.4
Widow	9	2.5
Monthly Income (SR)		•
< 5000	66	18.6
5000-10000	228	64.4
>10000	60	16.9
BMI		
Underweight	15	4.2
Normal weight	108	30.5
Overweight	169	47.7
Obese	62	17.5
Comorbidity with chronic diseases	<u> </u>	•
Yes	46	13.0
No	308	87.0
Live With	,	•
Alone	131	37.0
Within family	223	63.0

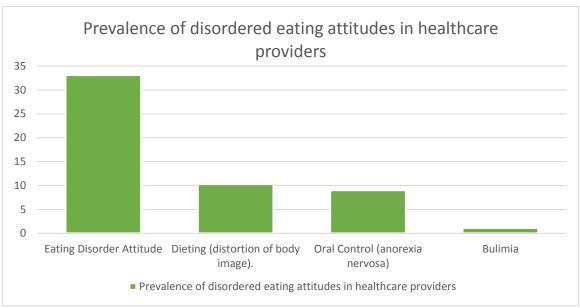


Figure (1) Pervasiveness of disordered eating attitudes in healthcare providers.

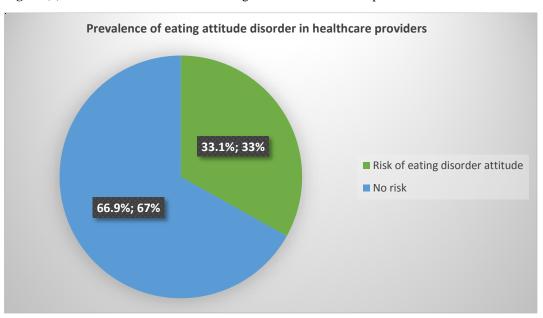


Figure (2) Prevalence of eating attitude disorder among healthcare providers

Table (2): Relation between eating disorder and lifestyle of health care providers

Variables	Risl	k of eati	ng disor	No.	χ^2	P-value	
	Yes n.117		No risk n.237				
	No.	%	No.	%			
How many times do you exercise p	er week?	•					
Never	52	36.9	89	63.1	141		
Sometimes	41	33.6	81	66.4	122	2.785	0.248
Frequent	24	26.4	67	73.6	91		
Do you currently smoke tobacco p	roducts?	•		•		•	
No	83	36.9	152	63.1	225	0.053	0.81
Yes	44	34.1	85	65.9	129		
If yes, rate your smoking pattern.							
Mild smokers	16	35.6	29	64.4	45	1.157	0.561
Moderate smokers	24	31.6	52	68.4	76		
Heavy smokers	4	50.0	4	50.0	8		
How do you describe your appetite	e pattern	?	1	- I			I.
Low	44	42.3	60	57.7	104	6.849	0.033
Moderate	65	28.3	165	71.7	230		
High	8	40.0	12	60.0	20		
Do you suffer from Sleeping Distu	rbance?						
No	12	17.9	55	82.1	67	45.309	.0001
Sometimes	61	27.5	161	72.5	222		
Usually,	44	67.7	21	32.3	65		
How long is the duration of your s							
< 6hors	34	33.7	67	66.3	101	6.533	0.038
6-9 hours	76	31.3	167	68.7	243		
>9 hours	7	70.0	3	30.0	10		
What is the weekly average number	er of mea					at home?	
None	4	25.0	12	75.0	16		
Rarely	4	9.8	37	90.2	41	19.089	0.001
>3/week	8	19.5	33	80.5	41		
Once/week	88	38.8	139	61.2	227		
Daily	13	44.8	16	55.2	29		

 $[\]chi^2$: Chi-square test, p>0.05: no significant, p<0.05: significant

Table (3): Relation between eating disorder and eating disorder behaviour of health care providers.

Variables	Risk of eating disorder			No.	χ²	p-value	
			no risk				
			n.237				
	No.	%	No.	%			
Gone on eating binges where you	u feel th		ay not	be able to	o stop		
Never	41	19.5	169	80.5	210		
2-3 month	16	100.0	0	.0	16	101.13	0.0001
Once / month	48	52.2	44	47.8	92		
Once / week	0	.0	24	100.0	24		
2-6 /weekly	8	100.0	0	.0	8		
Daily	4	100.0	0	.0	4		
Have you ever made yourself sic	k (vomi	ited) to co	ontrol v	veight or	shape?	•	•
Never	89	30.7	201	69.3	290		
2-3 month	12	50.0	12	50.0	24	5.064	0.167
Once/ month	12	42.9	16	57.1	28	İ	
Once/ week	4	33.3	8	66.7	12		
Have you ever utilized laxative	s, diet	pills, or	diureti	cs (wate	r pills) '	To rheostat	weight or
shape?		. /		•	• /		8
Never	81	27.6	213	72.4	294		
2-3 month	4	100.0	0	.0	4		
Once / month	24	60.0	16	40.0	40		
Once / week	8	66.7	4	33.3	12	33.353	0.0001
Daily	0	.0	4	100.0	4		
Have you exercised more than 6	0 minut	es daily t	to lose o	r contro	l weight:	?	
Never	36	18.2	162	81.8	198		
2-3 month	12	48.0	13	52.0	25		
Once / month	44	64.7	24	35.3	68	62.245	0.0001
Once / week	17	33.3	34	66.7	51	02.243	0.0001
2-6 weekly	4	100.0	0	.0	4		
Daily	4	50.0	4	50.0	8		
				30.0	0		
Lost 20 pounds or more in the p			212	60.1	212	1 402	10222
No Yes	100	31.9 41.5	213	68.1 58.5	313	1.483	0.223
		41.5	24		41		

 $[\]chi^2$: Chi-square test, **p>0.05**: no significant, **p<0.05**: significant

Table (4): Relation between eating disorder and stress of health care providers

Variables	Risk of	f eating dis	order	No.	χ²	p-value	
		At risk (no.117)		No risk (n.237)			
	No.	%	No.	%			
Stress Level							
Mild	12	22.6	41	77.4	53		
Moderate	96	33.2	193	66.8	289	12.14	0.002
High	9	75.0	3	25.0	12		

 $[\]overline{\chi^2}$: Chi-square test, p>0.05: no significant, p<0.05: significant

Predictors	Sig.	Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper
Monthly income (sr)5000-10000	.033	5	2.5	12.6
Obese	.005	18	2.39	135.7
Low appetite pattern	.002	1.18	1.1	3.01
Usually suffer from sleeping disturbance	.0001	10.9	3.9	29.78
A person who eats food not prepared at home(daily)	.030	10	1.25	80.2
High-stress level	.008	12.1	1.9	75

Table (5): Multivariate logistic regression analysis for eating disorder attitude among health care providers (n.354)

 $Exp(\beta)$ =the odds ratios for the predictors CI=Confidence interval *p<0.05 significant predictors.

Discussion

Numerous mental health conditions, including depression, anxiety, insomnia, and eating disorders, could be developed because of stress that healthcare professionals experience. Their social isolation from friends and family and their dread from spreading of infection to them may make them worse. Another obstacle lies in the fact that health professionals may not consistently assistance from mental health providers. Concerns about privacy, possible repercussions, and the disgrace devoted to mental illness, as well as financial and scheduling limitations, which all could be contributing factors for such mental health conditions (Shanafelt et al., 2015; Rossom et al., 2017). The chief objective of this research was to assess the prevalence of eating disorders and identify risk factors among healthcare providers in Al Qassim, Saudi Arabia.

The current study's findings showed that married women made up the largest percentage of the sample, and around two-thirds of them were overweight or obese. Additionally, obesity is thought to be a statistically significant positive predictor of eating disorders. An earlier study conducted on nurses in the USA, discovered that around half of the study contestants were overweight, obese, or very obese, accepted these results. Moreover, a positive link was observed between the risk of eating disorders and BMI. Given that being overweight could impair a nurse's work, weight management and preventing obesity and overweight among nurses seem imperative (Ku et al., 2019).

Moreover, a previous study found that elevated BMI was a statistically significant predictor of FED symptoms (Fekih-Romdhane et al., 2022). The healthcare providers under investigation in the current study exhibited a high prevalence of risky eating disorders, as determined by EAT-26 scores. Specifically, as 33.1% of the providers reported engaging in high-risk eating behaviours; 10.3% susceptible to develop a body image distorted through dieting; as 9% of the health providers were at high risk of developing anorexia nervosa; and a only1.1% were at risk of developing bulimia. The elevated rates of the present study could be attributed to many factors. In addition to the influences of social media-defined weight loss motivations, dieting, overweight, and obesity, which are substantial factors to eating disorders, the influence of accelerated life advancement and beauty standards, the slim ideal, and dieting, all increased as risk factors. These findings, corroborated by previous research conducted in Saudi Arabia, identified high-risk behaviour among 32.1% of the sample (Ghamri et al., 2022).

Furthermore, data collected by the EAT26 tool identified over one-third of the participants as being at a heightened risk for developing eating disorders (Al-Jumayan et al., 2021). However, in agreement with our findings, the finding of a study done by Jawed et al. (2020) who proposed that clinicians should conduct routine screenings for eating disorders (Eds). A distinct study pointed out that approximately 42% of individuals in the healthcare field exhibited symptoms of an eating issue. Approximately 33% of individuals

experienced concerns related to their body image. This exceeds the findings of our investigation, and the discrepancy in outcomes which could be attributed to variations in the evaluation of the instrument used in data collection (**Drissi et al.**, 2020).

The current study findings demonstrated a statistically momentous correlation amongst the risk of eating disorders and engaging in unusual behaviours such as binge eating, using laxatives, diet pills, or diuretics, and succeeding in weight management through exercise for at least one hour minutes daily. These behaviours may serve as compensatory measures to prevent weight gain. The findings corroborated those with previous research findings that proposed such eating disorders in identifying eating disordered habits. Unlike an eating disorder (ED), Disorder Eating (DE) lacks the clinical indicative standards for binge eating disorder, anorexia, or bulimia nervosa. Eating disorders (ED) could be observed through various unhealthy weight control behaviours, such as excessive exercise, binge eating, relentless dieting, compulsive eating, fasting, self-inflicted vomiting, use of laxatives, using diet pills, abandoning meals, and engaging in other corresponding behaviours (Wells et al., 2020; Jov et al., 2016; Sundgot-Borgen & Torstveit, **2010**). In a comparable vein, the preceding study indicated increased risk variables such as body dissatisfaction, dieting, the aspiration to reduce weight, the slim ideal, and disordered eating habits (Fekih-Romdhane et al., 2022). Concurring with the current study findings, a previous Chinese study which looked at the risk factors for eating disorders discovered that people with higher scores for shape and weight concern probably were more concerned with wanting a flat stomach, being unhappy with their size, weight, and afraid of gaining weight (Yaqoob et al., 2022).

According to the findings of the current study, one-third of healthcare providers at risk of developing eating disorders experienced moderate stress. Furthermore, a significant association was seen between the risk and norisk groups that underwent moderate stress. Similarly, the current studies showed that high stress levels are a statistically significant predictor of eating disorders. This could be because employees who were stressed at work were likelier to report unhealthy eating habits.

In addition to the prevalent stressors in the healthcare context, language, cultural issues, and the work's nature all added to their stress. A study done by Øyane et al. (2013) who found that shift work and stress affect nurses' eating habits and may be a professional risk factor for obesity and unhealthy diets.

In the current study, multivariate logistic regression recognized statistically significant predictors of eating disorder attitude, which include obesity, a low appetite pattern, a history of sleeping disturbance, eating food not prepared at home daily, and a high stress level, that seems to increase the likelihood of battling an eating disorder. The current study findings were bolstered by a previous study that found an increase in BMI which was the robust statistical predictor of FED symptoms (Fekih-Romdhane et al., 2022). Similarly, a prior study claimed that respondents with a higher BMI had a higher frequency of eating disorder (Al-Jumayan et al., Furthermore, a previous study found that sleeping problems, stress, and drug use were independent risk factors for eating disorders among healthcare professionals (Lahlou et al., 2022).

Conclusion

The current study proved that among the healthcare providers, the total prevalence risk of eating disorders was almost one-third (33.1%). By contrast, 66.9% of them were not. The healthcare providers included in the study were at the uppermost peril of emerging with an eating disorder by (33.2%) and those who were not at risk were (668.8%) which had the highest levels of moderate stress. Conversely, there significant correlations statistically between the likelihood of eating disorders and those who had a poor appetite, difficulty falling asleep, getting less than six hours of sleep each day, and eating meals that were not prepared at home. Additionally, this study's findings disclose a statistically significant relation between the risk of eating disorders and binge eating. superseding laxatives. regime prescriptions, or diuretics, as well as engaging in more than 60 minutes of daily exercise to control or lose weight. A person who often eats food not cooked at home, obese, poor appetite, disrupted sleep, with monthly income (SR) between 5,000-10,000, and with greater stress levels all were significant positive predictors of eating disorder attitudes by multivariate logistic regression.

Recommendations

Healthcare professionals require specialized programs in the prevention of disordered eating and the promotion of mental health. It is advisable to adopt specialized initiatives promoting nourishing eating habits to prevent eating disorders (DE) and reduce stress.

Implementing a screening strategy for healthcare providers is advised to determine which individuals require more assessment and care.

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Availability of data and materials

The datasets of the current study are obtainable from the corresponding author upon reasonable request.

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Competing interests: The authors uphold that they have no conflicting of interests.

References

- American Psychiatric Association, D. S. M. T.
 F., & American Psychiatric Association.
 (2013). Diagnostic and statistical manual of mental disorders: DSM-5 (Vol. 5, No. 5).
 Washington, DC: American Psychiatric Association.
- Smink, F. R., van Hoeken, D., & Hoek, H. W. (2012). Epidemiology of eating disorders: incidence, prevalence and mortality rates. *Current Psychiatry Reports*, *14*(4), 406–414. https://doi.org/10.1007/s11920-012-0282-y
- Wells, K. R., Jeacocke, N. A., Appaneal, R., Smith, H. D., Vlahovich, N., Burke, L. M.,

- & Hughes, D. (2020). The Australian Institute of Sport (AIS) and National Eating Disorders Collaboration (NEDC) position statement on disordered eating in high performance sport. *British journal of sports medicine*, 54(21), 1247–1258. https://doi.org/10.1136/bjsports-2019-101813
- Joy, E., Kussman, A., & Nattiv, A. (2016). 2016 update on eating disorders in athletes: A comprehensive narrative review with a focus on clinical assessment and management. *British journal of sports medicine*, 50(3), 154–162. https://doi.org/10.1136/bjsports-2015-095735
- Sundgot-Borgen, J., & Torstveit, M. K. (2010).

 Aspects of disordered eating continuum in elite high-intensity sports. Scandinavian journal of medicine & science in sports, 20 Suppl 2, 112–121. https://doi.org/10.1111/j.1600-0838.2010.01190.x
- Adam, T. C., & Epel, E. S. (2007). Stress, eating and the reward system. *Physiology & behavior*, 91(4), 449–458. https://doi.org/10.1016/j.physbeh.2007.04.0
- Rantala, M. J., Luoto, S., Krama, T., & Krams, I. (2019). Eating Disorders: An Evolutionary Psychoneuroimmunological Approach. *Frontiers in psychology*, 10, 2200. https://doi.org/10.3389/fpsyg.2019.02200
- Linnaranta, O., Bourguignon, C., Crescenzi, O., Sibthorpe, D., Buyukkurt, A., Steiger, H., & Storch, K. F. (2020). Late and Instable Sleep Phasing is Associated With Irregular Eating Patterns in Eating Disorders. *Annals of behavioral medicine : a publication of the Society of Behavioral Medicine*, *54*(9), 680–690. https://doi.org/10.1093/abm/kaaa012
- Mallaram, G. K., Sharma, P., Kattula, D., Singh, S., & Pavuluru, P. (2023). Body image perception, eating disorder behavior, self-esteem and quality of life: a cross-sectional study among female medical students. *Journal of eating disorders*, *11*(1),

- 225. https://doi.org/10.1186/s40337-023-00945-2
- Cleland, L., Kennedy, H. L., Pettie, M. A., Kennedy, M. A., Bulik, C. M., & Jordan, J. (2023). Eating disorders, disordered eating, and body image research in New Zealand: a scoping review. *Journal of eating disorders*, *11*(1), 7. https://doi.org/10.1186/s40337-022-00728-1
- Tfifha, M., Abbes, W., Dhemaid, M., Mdhaffar, K., Abbes, M., Zitoun, K., & Ghanmi, L. (2021). Binge eating disorder experienced by young doctors struggling with COVID-19. *European Psychiatry*, 64(S1), S285-S286. https://doi.org/10.1192/j.eurpsy.2021.765
- Ministry of Health. (2021). Annual statistical book G2021. Riyadh, Saudi Arabia. Retrieved from https://www.moh.gov.sa/en/Ministry/Statistics/book/Pages/default.aspx
- Ghamri, R. A., Alahmari, A. M., Alghamdi, L. S., Alamoudi, S. F., & Barashid, M. M. (2022). Prevalence and predictors of eating disorders: A cross-sectional survey of medical students at King Abdul-Aziz University, Jeddah. *Pakistan journal of medical sciences*, *38*(6), 1633–1638. https://doi.org/10.12669/pjms.38.6.5033
- Centers for Disease Control and Prevention. (2022). CDC Adult BMI Calculator in Healthy Weight, Nutrition, and Physical Activity. Retrieved 5 January 2024 from https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/english_bmi_calculator/bmi_calculator.html
- Garner, D. M., & Garfinkel, P. E. (1979). The Eating Attitudes Test: an index of the symptoms of anorexia nervosa. *Psychological medicine*, *9*(2), 273–279. https://doi.org/10.1017/s0033291700030762
- Haddad, C., Khoury, C., Salameh, P., Sacre, H.,
 Hallit, R., Kheir, N., Obeid, S., & Hallit, S.
 (2021). Validation of the Arabic version of the Eating Attitude Test in Lebanon: a population study. *Public Health*

- *Nutrition*, *24*(13), 4132–4143. https://doi.org/10.1017/S1368980020002955
- Garfinkel, P. E., & Newman, A. (2001). The eating attitudes test: twenty-five years later. *Eating and weight disorders: EWD*, *6*(1), 1–24. https://doi.org/10.1007/BF03339747
- Khan, S. A., Alenazi, N., Alsalloum, M. Y., Awad, R., Bahayan, A., & Hamed, A. (2021). Prevalence and Associated Factors of Eating Disorders among Alfaisal University Students, Saudi Arabia. *Medicine*, 216, 74-7. https://doi.org/10.24911/IJMDC.51-1627643720
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of health and social behavior*, 385-396. https://doi.org/10.2307/2136404
- Lee E. H. (2012). Review of the psychometric evidence of the perceived stress scale. *Asian nursing research*, 6(4), 121–127. https://doi.org/10.1016/j.anr.2012.08.004
- Hammad, S. S., Alzhrani, M. D., & Almulla, H. A. (2023). Adolescents' perceived stress of COVID-19 and self-compassion in Saudi Arabia: A cross-sectional study. International journal of nursing sciences, 10(2), 215–220. https://doi.org/10.1016/j.ijnss.2023.03.008
- Shanafelt, T. D., Hasan, O., Dyrbye, L. N., Sinsky, C., Satele, D., Sloan, J., & West, C. P. (2015). Changes in Burnout and Satisfaction With Work-Life Balance in Physicians and the General US Working Population Between 2011 and 2014. *Mayo Clinic Proceedings*, 90(12), 1600–1613. https://doi.org/10.1016/j.mayocp.2015.08.02
- Rossom, R. C., Coleman, K. J., Ahmedani, B. K., Beck, A., Johnson, E., Oliver, M., & Simon, G. E. (2017). Suicidal ideation was reported on the PHQ9 and the risk of suicidal behavior across age groups. *Journal of Affective Disorders*, 215, 77–84. https://doi.org/10.1016/j.jad.2017.03.037

Ku, B., Phillips, K. E., & Fitzpatrick, J. J. (2019). The relationship of body mass index (BMI) to job performance, absenteeism and risk of eating disorder among hospital-based nurses. Applied nursing research: ANR, 49, 77–79.

https://doi.org/10.1016/j.apnr.2019.05.021

- F., Fekih-Romdhane, Daher-Nashif, S., Alhuwailah, A. H., Al Gahtani, H. M. S., Hubail, S. A., Shuwiekh, H. A. M., Khudhair, M. F., Alhaj, O. A., Bragazzi, N. L., & Jahrami, H. (2022). The prevalence of feeding and eating disorders symptomology in medical students: an updated systematic review. meta-analysis. and metaregression. Eating and weight disorders: 1991-2010. EWD, 27(6),https://doi.org/10.1007/s40519-021-01351-
- Al-Jumayan, A. A., Al-Eid, N. A., AlShamlan, N. A., & AlOmar, R. S. (2021). Prevalence and associated factors of eating disorders in patrons of sport centers in Saudi Arabia. *Journal of family & community medicine*, 28(2), 94–102. https://doi.org/10.4103/jfcm.jfcm_113_21
- Jawed, A., Harrison, A., & Dimitriou, D. (2020). The Presentation of Eating Disorders in Saudi Arabia. *Frontiers in psychology*, 11, 586706. https://doi.org/10.3389/fpsyg.2020.586706
- Drissi, N., Ouhbi, S., Janati Idrissi, M. A., & Ghogho, M. (2020). An analysis on self-management and treatment-related functionality and characteristics of highly rated anxiety apps. *International journal of medical informatics*, 141, 104243. https://doi.org/10.1016/j.ijmedinf.2020.104243
- Wells, K. R., Jeacocke, N. A., Appaneal, R., Smith, H. D., Vlahovich, N., Burke, L. M.,

- & Hughes, D. (2020). The Australian Institute of Sport (AIS) and National Eating Disorders Collaboration (NEDC) position statement on disordered eating in high performance sport. *British journal of sports medicine*, *54*(21), 1247–1258. https://doi.org/10.1136/bjsports-2019-101813
- Joy, E., Kussman, A., & Nattiv, A. (2016). 2016 update on eating disorders in athletes: A comprehensive narrative review with a focus on clinical assessment and management. *British journal of sports medicine*, 50(3), 154–162. https://doi.org/10.1136/bjsports-2015-095735
- Sundgot-Borgen, J., & Torstveit, M. K. (2010).

 Aspects of disordered eating continuum in elite high-intensity sports. Scandinavian journal of medicine & science in sports, 20 Suppl 2, 112–121.

 https://doi.org/10.1111/j.1600-0838.2010.01190.x
- Yaqoob, A., Majeed, I., Khalid, H., Hussain, S., Shahid, M. H., Majeed, F., Hassan, O. U., Haq, I. U., & Qing, F. (2022). Risk factors for eating disorders among Chinese and international university students: a comparative cross-sectional study. *Central European journal of public health*, 30(4), 241–247.

https://doi.org/10.21101/cejph.a6998

Lahlou, L., Ziouziou, I., Abdelnaby, A., Kharroubi, A., Wakrim, S., Mouhadi, K., & Ajdi, F. (2022). Depression and eating disorders among health care professionals in Morocco during the COVID-19 pandemic. Electronic Journal of General Medicine, 19(5).

https://doi.org/10.29333/ejgm/12155