

Eating Disorder Risk among Young Physicians in a Tunisian University Hospital: A Cross-sectional Screening Study

Running head: Eating Disorder Risk in Young Physicians

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Keywords

Eating disorders; SCOFF; young physicians; residents; interns; anxiety; depression; medical training; Tunisia

Author Contributions

Om Kolthoum Sallem conceived and supervised the study, contributed to interpretation of the findings, critically revised the manuscript, and served as corresponding author. Cherif Dhaoui contributed to data collection, data organization, initial analysis, and drafting of the original academic work. Faten Hadj Kacem contributed to study supervision, methodological guidance, interpretation of the findings, and critical revision. Yosra Hasni contributed to clinical interpretation, manuscript drafting, and critical revision. All authors approved the final version and agreed to be accountable for the work.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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No external funding was received for this study.

Statement of Ethics

The study used an anonymous questionnaire and verbal informed consent. Institutional ethics committee information should be completed before submission if available.

Data Availability Statement

Data are available from the corresponding author upon reasonable request, subject to institutional and ethical requirements.

Abstract

Background:

Eating disorders and disordered eating behaviors are increasingly recognized among medical trainees, but data in young physicians remain limited. Screening in this population is clinically relevant because eating disorder risk may coexist with anxiety, depressive symptoms, weight-control behaviors, and occupational stress.

Objective:

To estimate the prevalence of a positive SCOFF-F screen for eating disorder risk among interns and residents at a Tunisian university hospital and to describe associated sociodemographic, psychological, and weight-control factors.

Methods:

This cross-sectional descriptive and analytical study was conducted at Fattouma Bourguiba University Hospital, Monastir, during the 2022-2023 academic year. Interns and residents completed an anonymous self-administered questionnaire assessing sociodemographic characteristics, clinical history, substance use, body mass index, weight-control behaviors, gastrointestinal symptoms, the French SCOFF questionnaire, and the Hospital Anxiety and Depression Scale. Categorical variables were summarized as counts and percentages. Exploratory comparisons used the chi-square test or Fisher exact test when appropriate.

Results:

Of 55 returned questionnaires, 50 were analyzable. The mean age was 26 years, 28 participants (56%) were women, and 33 (66%) were residents. Twelve participants (24%) screened positive for eating disorder risk. Underweight, overweight, and obesity were observed in 12%, 16%, and 2% of participants, respectively. Anxiety symptoms were common, and depressive symptoms were present in approximately one quarter of participants. In exploratory analyses based on the available tabulated counts, SCOFF positivity was associated with anxiety category, depression category, dieting, and exercise used as a weight-control behavior, whereas sex and training status were not statistically significant.

Conclusion:

One in four young physicians screened positive for eating disorder risk in this single-center cohort. The findings support systematic awareness, early screening, and institutional wellness strategies targeting disordered eating, psychological distress, and potentially harmful weight-control behaviors among medical trainees.

Keywords:

Eating disorders; SCOFF; young physicians; residents; interns; anxiety; depression; medical training; Tunisia

Introduction

Eating disorders are severe psychiatric conditions characterized by persistent disturbances in eating behavior, body image, and weight-related cognition, with potentially serious somatic, psychological, and functional consequences [1-3]. Although anorexia nervosa, bulimia nervosa, and binge-eating disorder represent distinct diagnostic entities, subthreshold and screening-positive states are clinically important because they may precede established disease, impair quality of life, and coexist with anxiety, depression, substance use, and maladaptive weight-control practices [2,4].

Medical students, interns, and residents constitute a population exposed to specific occupational and psychosocial stressors, including intense workload, sleep disruption, high performance demands, repeated exposure to illness and death, irregular meals, and limited time for self-care. These exposures may contribute to psychological distress and unhealthy eating patterns, while professional stigma may delay help-seeking [5,6]. In addition, healthcare trainees may have biomedical knowledge that facilitates health-promoting behavior but may also reinforce perfectionism, self-surveillance, and weight-focused practices.

Brief screening instruments are useful in settings where comprehensive psychiatric assessment is not feasible. The SCOFF questionnaire is a widely used five-item screening tool for eating disorder risk, and its French version has been validated in adult populations [7-9]. However, evidence remains limited regarding the burden of eating disorder risk among young physicians in North African hospital settings.

The present study aimed to estimate the prevalence of a positive SCOFF-F screen among interns and residents at a Tunisian university hospital and to identify associated sociodemographic, psychological, and weight-control factors. The broader objective was to generate clinically actionable evidence to inform early detection and institutional prevention strategies.

Methods**Study Design and Setting**

This was a cross-sectional descriptive and analytical study conducted at Fattouma Bourguiba University Hospital, Monastir, Tunisia, during the 2022-2023 academic year. The manuscript was prepared as an original research article in accordance with the journal structure for research articles.

Participants

The target population comprised young physicians in training, including interns and residents working at the hospital during the study period. Participants were eligible if they were interns or residents and agreed to complete the questionnaire. Non-inclusion criteria were refusal to participate, absence during questionnaire distribution, and incomplete or incorrectly completed questionnaires.

Data Collection

Data were collected using an anonymous self-administered questionnaire distributed in hospital departments. When direct distribution was not feasible, the questionnaire was provided electronically using Google Forms. Participants were informed about the study objective, and confidentiality was ensured.

Measures

The questionnaire captured age, sex, family status, socioeconomic level, training status, personal psychiatric history, medical and surgical history, family history, current treatment, psychoactive substance use, body weight, height, body mass index (BMI), perceived body shape, physical activity, weight-control behaviors, and gastrointestinal symptoms.

Eating disorder risk was assessed using the French version of the SCOFF questionnaire (SCOFF-F), which includes five binary items. A score of two or more positive responses was considered indicative of probable eating disorder risk rather than a formal psychiatric diagnosis [7-9]. Anxiety and depressive symptoms were assessed using the Hospital Anxiety and Depression Scale (HADS), which includes seven anxiety items and seven depression items [10].

Statistical Analysis

Data were summarized using counts and percentages for categorical variables and means for continuous variables when available. Comparisons between participants with positive and negative SCOFF screens were conducted using chi-square tests or Fisher exact tests for categorical variables, depending on expected cell counts. Because the available source tables did not provide dispersion parameters for age, age-related inference was not recalculated in this manuscript. The analysis should be interpreted as exploratory because of the small sample size and the single-center design.

Ethical Considerations

The study used an anonymous questionnaire and verbal consent. Confidentiality was maintained throughout data collection and analysis. The institutional ethics approval reference should be inserted before submission if available, in accordance with the requirements for human-subject research.

Results**Study Population**

Among 55 returned questionnaires, 50 were retained for analysis after exclusion of five incomplete or incorrectly completed forms, yielding an analyzable response proportion of 91%. The mean participant

age was 26 years, with a range from 23 to 34 years. Women represented 56% of the cohort (n=28), and the male-to-female ratio was 0.78. Residents accounted for 66% of participants (n=33), while interns accounted for 34% (n=17). Most participants were single or engaged, and the majority reported a middle socioeconomic level (Table 1).

Table 1. Sociodemographic characteristics of the study population.

Characteristic	Category	n (%)
Sex	Male	22 (44)
	Female	28 (56)
Training level	Intern	17 (34)
	Resident	33 (66)
Family status	Single	32 (64)
	Engaged	13 (26)
	Married	5 (10)
	Divorced	0 (0)
Socioeconomic level	Low	6 (12)
	Middle	40 (80)
	High	4 (8)

Clinical Characteristics, Lifestyle Factors, and Psychological Symptoms

Twelve percent of participants reported a personal psychiatric history, and 4% reported cannabis use. Tobacco use and alcohol consumption were reported by 27 (54%) and 10 (20%) participants, respectively. Regarding BMI, 35 participants (70%) had normal body weight, whereas underweight, overweight, and obesity were observed in 6 (12%), 8 (16%), and 1 (2%) participants, respectively. Weight-control behaviors were reported by a subset of participants and included dieting, exercise, fasting, laxative use, appetite suppressants, and self-induced vomiting (Table 2).

Table 2. Clinical characteristics, lifestyle factors, and psychological symptom categories.

Domain	Variable / category	n (%)
Personal psychiatric history	Yes	6 (12)
Psychoactive substance use	Tobacco	27 (54)
	Alcohol	10 (20)
	Cannabis	2 (4)
Body mass index	Underweight	6 (12)
	Normal weight	35 (70)
	Overweight	8 (16)
	Obesity	1 (2)
Weight-control behaviors	Dieting	8 (16)
	Exercise/sport	6 (12)
	Fasting	2 (4)
	Laxative use	1 (2)
	Appetite suppressant use	1 (2)
	Self-induced vomiting	1 (2)
	Skipping meals	0 (0)
Digestive symptoms	Bloating	22 (44)

	Diarrhea	11 (22)
	Constipation	11 (22)
HADS anxiety category	No symptoms	23 (46)
	Doubtful symptoms	22 (44)
	Definite symptoms	5 (10)
HADS depression category	No symptoms	38 (76)
	Doubtful symptoms	9 (18)
	Definite symptoms	3 (6)

BMI, body mass index; HADS, Hospital Anxiety and Depression Scale. Weight-control behaviors and digestive symptoms were not mutually exclusive.

Psychological symptoms were frequent. Based on the available categories, 27 participants had doubtful or definite anxiety symptoms, and 12 had doubtful or definite depressive symptoms. Gastrointestinal symptoms were also reported, particularly bloating, diarrhea, and constipation (Table 2).

Prevalence of Positive SCOFF Screening

Twelve participants (24%) screened positive for eating disorder risk using the SCOFF-F threshold of two or more positive responses. This result indicates that approximately one in four young physicians in the sample had a screening profile compatible with probable eating disorder risk.

Factors Associated with Positive SCOFF Screening

Exploratory comparisons based on the available tabulated counts showed that positive SCOFF screening was associated with anxiety category ($p=0.005$), depression category ($p=0.006$), dieting as a weight-control behavior ($p=0.014$), and exercise used as a weight-control behavior ($p=0.048$). By contrast, sex and training level were not statistically significant when recalculated from the available counts. Other weight-control behaviors, including fasting, laxative use, appetite suppressants, and self-induced vomiting, were limited by very small cell counts and should be interpreted cautiously (Table 3).

Table 3. Exploratory associations between participant characteristics and positive SCOFF-F screening.

Factor	Category	SCOFF-positive n=12	SCOFF-negative n=38	p value
Sex	Male	5	17	1.000
	Female	7	21	
Training level	Intern	4	13	1.000
	Resident	8	25	
HADS anxiety category	No symptoms	1	22	0.005
	Doubtful symptoms	10	12	
	Definite symptoms	1	4	
HADS depression category	No symptoms	5	33	0.006

	Doubtful symptoms	5	4	
	Definite symptoms	2	1	
Weight-control behavior	Dieting	6	5	0.014
	Exercise/sport	4	3	0.048
	Fasting	1	7	0.661
	Laxative use	1	3	1.000
	Appetite suppressant use	1	9	0.416
	Self-induced vomiting	1	2	1.000

SCOFF-F, French version of the SCOFF questionnaire; HADS, Hospital Anxiety and Depression Scale. p values were recalculated from the available counts; because several cells were small, these analyses should be interpreted as exploratory.

Discussion

In this single-center cross-sectional study of young physicians, 24% of participants screened positive for eating disorder risk using the SCOFF-F questionnaire. This proportion is clinically meaningful and broadly consistent with the upper range of prevalence estimates reported in university and medical trainee populations, although direct comparisons are limited by differences in screening instruments, settings, cultural context, and sampling methods [11-14].

The findings reinforce the vulnerability of medical trainees to disordered eating and psychological distress. Interns and residents are exposed to irregular work schedules, acute care responsibilities, night shifts, limited sleep, and high evaluative pressure. These conditions can disrupt meal timing, appetite regulation, and body-related behaviors. They may also exacerbate anxiety and depressive symptoms, which were strongly associated with SCOFF positivity in the present analysis. The coexistence of eating disorder risk with anxiety and depression has been repeatedly reported in both clinical and nonclinical samples [15-18].

Weight-control behaviors were also important. Dieting and exercise used as a weight-control method were associated with positive SCOFF screening in the exploratory analysis. Although exercise and dietary regulation can be adaptive, their interpretation changes when they occur in a context of body dissatisfaction, loss of control over eating, purging, fasting, or psychological distress. Screening should therefore explore not only the presence of weight-control practices but also their motivation, rigidity, frequency, and associated impairment.

The present data also highlight a practical issue for institutional health promotion. Young physicians may be reluctant to seek help because of stigma, fear of professional consequences, or normalization of distress within medical training. Anonymous screening, accessible psychological support, and nonpunitive wellness pathways may facilitate earlier identification. Hospital-based preventive programs should integrate nutritional counseling, mental health support, and education about early signs of eating disorders.

Clinical and Institutional Implications

The results support the incorporation of brief eating disorder screening into medical trainee wellness programs, particularly when anxiety, depressive symptoms, or maladaptive weight-control behaviors are present. The SCOFF-F is brief and feasible, but a positive screen should always be followed by clinical assessment rather than being interpreted as a definitive diagnosis. Multidisciplinary pathways involving occupational health, psychiatry, nutrition, and training supervisors may be useful to protect both trainee well-being and quality of patient care.

Limitations

This study has several limitations. The sample size was small, and the single-center design limits generalizability. The cross-sectional design precludes causal inference. Self-reported weight, height, substance use, and psychological symptoms may be affected by reporting bias. The SCOFF-F is a screening tool rather than a diagnostic instrument. In addition, several cells in the association analysis were small, and multivariable adjustment was not possible. Some original summary statistics were internally inconsistent; therefore, the present manuscript uses a conservative interpretation of the tabulated counts and emphasizes exploratory rather than definitive associations.

Conclusion

Eating disorder risk was frequent among young physicians in this Tunisian university hospital, affecting approximately one in four participants. Positive screening was closely linked to psychological distress and selected weight-control behaviors. These findings justify early, nonstigmatizing screening and targeted wellness interventions for interns and residents. Larger multicenter studies with standardized diagnostic follow-up are needed to better characterize eating disorder risk trajectories and to design effective prevention strategies in medical training environments.

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None.

Statement of Ethics

This study used an anonymous questionnaire and verbal informed consent. The institutional ethics approval reference should be inserted before submission if available.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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Author Contributions

Om Kolthoum Sallem conceived and supervised the study, contributed to interpretation of the findings, critically revised the manuscript, and serves as corresponding author. Cherif Dhaoui contributed to data

collection, data organization, initial analysis, and drafting of the original academic work. Faten Hadj Kacem contributed to study supervision, methodological guidance, interpretation of the findings, and critical revision. Yosra Hasni contributed to clinical interpretation, manuscript drafting, and critical revision. All authors approved the final version and agree to be accountable for the work.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request, subject to institutional and ethical requirements.

AI Use Disclosure

An AI-assisted language and editorial support tool was used to improve English style and manuscript organization. All scientific content, data interpretation, and final decisions were reviewed and approved by the authors, who take full responsibility for the manuscript.

References

- 1 American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 5th ed. Text Revision. Washington, DC: American Psychiatric Association; 2022.
- 2 Hudson JI, Hiripi E, Pope HG Jr, Kessler RC. The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biol Psychiatry*. 2007;61(3):348-358.
- 3 Smink FRE, van Hoeken D, Hoek HW. Epidemiology of eating disorders: incidence, prevalence and mortality rates. *Curr Psychiatry Rep*. 2012;14(4):406-414.
- 4 Keski-Rahkonen A, Mustelin L. Epidemiology of eating disorders in Europe: prevalence, incidence, comorbidity, course, consequences, and risk factors. *Curr Opin Psychiatry*. 2016;29(6):340-345.
- 5 Rotenstein LS, Ramos MA, Torre M, Segal JB, Peluso MJ, Guille C, et al. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students: a systematic review and meta-analysis. *JAMA*. 2016;316(21):2214-2236.
- 6 Parker SC, Lyons J, Bonner J. Eating disorders in graduate students: exploring the SCOFF questionnaire as a simple screening tool. *J Am Coll Health*. 2005;54(2):103-107.
- 7 Morgan JF, Reid F, Lacey JH. The SCOFF questionnaire: a new screening tool for eating disorders. *West J Med*. 2000;172(3):164-165.
- 8 Garcia FD, Grigioni S, Chelali S, Meyrignac G, Thibaut F, Dechelotte P. Validation of the French version of SCOFF questionnaire for screening of eating disorders among adults. *World J Biol Psychiatry*. 2010;11(7):888-893.
- 9 Kutz AM, Marsh AG, Gunderson CG, Maguen S, Masheb RM. Eating disorder screening: a systematic review and meta-analysis of diagnostic test characteristics of the SCOFF. *J Gen Intern Med*. 2020;35(3):885-893.
- 10 Zigmond AS, Snaith RP. The Hospital Anxiety and Depression Scale. *Acta Psychiatr Scand*. 1983;67(6):361-370.
- 11 Tavoracci MP, Grigioni S, Richard L, Meyrignac G, Dechelotte P, Ladner J. Eating disorders and associated health risks among university students. *J Nutr Educ Behav*. 2015;47(5):412-420.e1.

- 12 Tavolacci MP, Ladner J, Dechelotte P. Forte augmentation de la prévalence des troubles du comportement alimentaire chez les étudiants pendant la pandémie COVID-19. *Nutr Clin Metab.* 2022;36(1):S28-S29.
- 13 Jahrami H, Sater M, Abdulla A, Faris MAI, AlAnsari A. Eating disorders risk among medical students: a global systematic review and meta-analysis. *Eat Weight Disord.* 2019;24(3):397-410.
- 14 Zakhem E, El Hage R, Peze T, Hurdziel R, Zunquin G, Theunynck D. Factors associated with eating disorders in students of the University of Littoral Cote d'Opale. *Rev Epidemiol Sante Publique.* 2015;63(4):259-265.
- 15 Sharan P, Sundar AS. Eating disorders in women. *Indian J Psychiatry.* 2015;57(Suppl 2):S286-S295.
- 16 Blond A. Impacts of exposure to images of ideal bodies on male body dissatisfaction: a review. *Body Image.* 2008;5(3):244-250.
- 17 Piran N, Robinson SR. Associations between disordered eating behaviors and licit and illicit substance use and abuse in a university sample. *Addict Behav.* 2006;31(10):1761-1775.
- 18 Fragkos KC, Frangos CC. Assessing eating disorder risk: the pivotal role of achievement anxiety, depression and female gender in non-clinical samples. *Nutrients.* 2013;5(3):811-828.
- 19 Yang W, Xiao D, Shi Y, Dong T, Xiong P. Network analysis of eating disorder and depression symptoms among university students in the late stage of COVID-19 pandemic in China. *Front Nutr.* 2023;10:1176076.
- 20 Britz J, Pappas E. Sources and outlets of stress among university students: correlations between stress and unhealthy habits. *Undergrad Res J Hum Sci.* 2010;9(1).