



Jordan Journal of Nursing Research

Journal homepage: <https://jjnr.just.edu.jo/jjnr/>



Prevalence of Risks for Eating Disorders among Undergraduate University Students: A Cross-sectional Study from the United Arab Emirates

Heyam Dalky, RN MSN, CNS-PMHN, PhD^{1*}; Adam Mahmoud Khraisat²;

Mona Jassim Albalushi³; Sara Ahmed Ibrahim³; Abrar Mohsen Ahmed³;

Fatima Abdulla Ali³; Reem Hassan Ibrahim³

1 Associate Professor, Psychiatric Mental Health, Faculty of Nursing, Jordan University of Science & Technology, Irbid, Jordan. * Corresponding Author: Email: hfdalky@just.edu.jo

2 Assistant Professor, Nursing Program, Health Science Faculty, Higher Colleges of Technology (HCTs), Sharjah, United Arab Emirates.

3 Under Graduate Students, Nursing Program, Health Science Faculty, Higher Colleges of Technology (HCTs), Sharjah, United Arab Emirates.

ARTICLE INFO

Article History:

Received: November 15, 2022

Accepted: February 15, 2023

ABSTRACT

Background: Eating disorders are disturbances that result in severe and long-lasting abnormal eating patterns and consequences to a variety of physical and psychological components of health. **Purpose:** To determine the prevalence of risks for eating disorders among Emirati female undergraduate university students at higher colleges in the United Arab Emirates. **Methods:** Utilizing a cross-sectional design, a total of 501 university students were recruited conveniently to participate in this study (the response rate was 90%). A questionnaire consisting of demographical and eating pattern sections and the Eating Attitudes Test-26 (EAT-26) (Arabic version) were used and shared online with the university students using Google Forms. This study was conducted in the spring semester of 2020/2021. Descriptive and inferential statistics were utilized. **Results:** The prevalence of female university students with risks of eating disorders was 13.97%. The most frequent (13.6%) statement chosen by university students was "I am terrified of being overweight." Almost 50% of the university students were not satisfied with their weight and 48.1% were dissatisfied with their physical appearance. Only 8.18% of the female university students have a family history of eating disorders and 8.98% were confirmed cases of eating disorders. Yet, the study revealed no statistically significant correlations between age ($r = 0.036$, $P = 0.416$), body mass index ($r = 0.015$, $P = 0.734$) or meals/day ($r = -0.076$, $P = 0.087$) and EAT-26 scores. **Conclusions:** The risks of eating disorders in the current study were lower compared to those obtained by previous studies. Regardless of that, the awareness regarding eating disorders is required by multiple education programs utilizing reading materials, online education sessions, games, mass media and social communication methods. **Implications for Nursing:** Extended community-based educational programs are suggested to enhance female university students' knowledge about EDs, their consequences on health and methods to promote healthy eating habits and positive attitudes toward body image.

Keywords: Eating disorders, Higher colleges, University students, United Arab Emirates, Female adolescents, Anorexia nervosa, EAT-26.

What does this paper add?

1. This paper will assist health care professionals and

dietitians in understanding more about undergraduate university students' food beliefs and habits.

2. This paper can be employed as a new guidance/reference for a better understanding of the current eating disorder matters among undergraduate university students in the UAE.
3. This paper can be utilized for comparing the EAT-26 questionnaire results between previous studies and this study and updating the dieticians' references.

Introduction

Eating disorders (EDs) are a category of disturbances characterized by a disruption in eating patterns that affects physical or psychosocial performance (Feltner et al., 2022). The major types of EDs are *Anorexia nervosa* (AN), avoidant/restrictive food-intake disorder, *Bulimia nervosa* (BN) and binge eating disorder. AN, BN and binge eating disorder have a lifetime prevalence of 1.42 %, 0.46% and 1.25% in adult women, respectively and are less in adult males (AN, 0.12%; BN, 0.08%; binge eating disorder, 0.42%) (Feltner et al., 2022). Because they are excessively concerned about their weight and body form, people with EDs make tremendous attempts that considerably interfere with their lives to maintain their weight and physique (Stabouli et al., 2021).

Anorexia nervosa (AN) is an eating disorder characterized by extreme weight loss and a distorted body image. It is an unpleasant and frequently life-threatening way of dealing with emotional issues (Stice et al., 2021). AN has the most remarkable mental-health fatality rate (van Hoeken & Hoek, 2020). On average, 5-20 % of individuals with AN will have a fatal outcome (American Addiction Centers, 2022). People with AN typically restrict their food intake to avoid weight gain or maintain weight loss. Furthermore, they are still terrified of gaining weight, no matter how much they have dropped (Amatullah & Mulyana, 2022). More than 8% of the world's population has an eating disorder (Castelpietra et al., 2022). According to the National Eating Disorder Association (NEDA), 4% of adolescents and teens have AN, BN or binge eating disorder (NEDA, 2022). Because of the intense stigma surrounding EDs among youth, it was challenging to acquire correct statistics (NEDA, 2022).

Eating disorders can affect persons of any age, as they are not restricted to any age. Teenagers are more vulnerable because of the changes in their bodies that occur throughout puberty (Mayo Clinic, 2022). According to a study conducted in Ajman (in the United

Arab Emirates (UAE)), roughly 36% of female school teenagers aged 15 to 19 years are at risk of being diagnosed with EDs (Kazim et al., 2017). Similarly, Hasan et al. (2018) found that 33.2% of Sharjah (UAE) university students were more likely to have an eating disorder. These conditions cause extreme weight loss and anxieties about self-image, calorie intake and constant thinking about how others see them. Females in their early twenties are more likely to develop an eating issue (Mayo Clinic, 2022). The onset of EDs usually occurs during adolescence, specifically between 13 and 18 years of age (Swanson et al., 2011). Melisse et al. (2022) conducted a meta-analysis of 81 studies on EDs and concluded that people in Arab nations are 13% to 55% more prone to eating problems than others in other countries. Also, females were found to be more vulnerable to EDs in numerous studies. Obesity, Western influence, body dissatisfaction and media consumption have all been identified as major risk factors for EDs (Melisse et al., 2020).

Izydorczyk and Sitnik-Warchulska (2018) investigated the factors pre-disposing teenagers to EDs. First, there are genetic and hormonal influences, which are qualities that are handed down from generation to generation. Second, societal reasons, where social beauty standards drive females to reduce weight to meet those norms. Third, social platforms are a component that contributes to AN and BN. Furthermore, individuals may be ridiculed by peers and family members because of their physical appearance, leading to harmful eating habits (Izydorczyk & Sitnik-Warchulska, 2018).

Significance of the Study

In general, EDs are associated with harmful consequences on teens' various aspects of life. Most of those consequences are life-threatening and require immediate care from families of affected teens, teachers at schools or even faculty members or health counsellors at university settings or health-care professionals at primary or acute health-care settings (Izydorczyk & Sitnik-Warchulska, 2018). All EDs have serious health consequences, including electrolyte imbalances, reduced menstrual cycle frequency, which might result in amenorrhea (absence of menstruation), developmental delays (slow height and weight gain) and a variety of many other life-threatening effects on vital organs, such as the lungs, heart and kidneys (NEDA, 2022). Although rare, EDs can be fatal and pose a significant public-health

danger because of their long-term implications on general and reproductive health. Teens suffering from an eating disorder should seek expert treatment (van Hoeken & Hoek, 2020). EDs can be treated with a multi-disciplinary approach that involves medical monitoring and treatment. The sooner someone with an eating disorder seeks help, the better his/her physical and mental recovery chances are (American Addiction Centers, 2020). Indeed, exploring and assessing eating habits among university students and conducting a regular assessment or screening for EDs are necessary steps to promote university students' overall health as well as ensuring full academic achievement. A preceded step to be highlighted and assured by most public and community policy makers is increasing the awareness about the importance of maintaining healthy eating habits for teens and educating these risky groups about EDs that could dangerously impact their health if not treated. This will further enhance teens' and university students' physical and mental health at the primary and secondary health-promotion levels.

To conclude, EDs are caused by unhealthy food intake, negatively affecting key life elements. EDs are more common in women, according to studies, with an emphasis on the adolescent group. As a result, several researchers have looked at eating problems in adolescents. Several studies highlighted low self-esteem, family and peer pressure and unfavourable body evaluations as risk factors and driving forces (Fitts, 2022; Hosokawa et al., 2023; Pinto et al., 2022). Many instruments were utilized to study eating habits or attitudes. The eating attitudes test (EAT)-26 (Garner, 2022) was employed as a reliable questionnaire to screen for EDs in a few cited studies. There have undoubtedly been studies in the UAE to examine the possibility of EDs. Other Western nations appear to have published more research with detailed information on screening tests, risk factors and identifying connections between variables. As a result, there were inadequate investigations in the UAE to better understand the prevalence of ED risk among Emirati adolescents. Therefore, this study aimed to determine the prevalence of ED risk among Emirati female university students aged from 18 to 21 years at a higher college in the UAE.

Methods

Study Design

The study utilized a cross-sectional design aimed at determining the prevalence of female university

students at risk of developing EDs.

Population and Sample

The population of the study was all female adolescents in the UAE (i.e., the target population). The target people were undergraduate female university students aged between 18 and 21 years on every womens' campus (i.e., feasible population) of the study settings. Female university students were conveniently invited and enrolled from all campuses during the research period. The pre-determined sample size was a minimum of 800 university students according to G. Power calculation of a study power of 80% and a significance level of 0.05. Of the 607 completed questionnaire forms, only 501 (response rate of 82.53%) participants were included and considered for further analysis in the study.

The inclusion criteria for the study were being female university students currently enrolled in this higher education college, as well as being between the ages of 18 and 24 years. Due to the age limit for university entry, participants under 18 years of age were excluded from the study. University students aged 24 or above were also excluded. The authors stick to the World Health Organization in defining young people (WHO, 2021). In addition, university students who did not complete the study questions were excluded. The study questionnaire was e-mailed to university students and those who agreed to participate were invited to complete it using online Google Forms. Their completion of the survey online was considered as their consent of participation.

Data-collection Method

A self-administered survey using Google Forms was used as the main method to collect data. The survey questions were in Arabic language. An informed consent was displayed, which university students had to read before answering the questions. It was determined that they gave their consent if participants proceeded to answer the questions. The study contained three sections; the first section asked about the participants' demographic data, while the second section asks about eating patterns and societal pressures. Both sections combined multiple-choice, open-ended and dichotomous (i.e., yes/no) questions. In the third section, EAT-26 scale was deployed to screen for possible risks for EDs.

Study Instruments

Eating Attitudes Test-26 (EAT-26)

David Garner et al. (1979) created the EAT-40, which was later modified to EAT-26 (Garner, 2022). It aims to identify eating-disorder risks in specific groups, such as college students (Khoshkardar & Raeisi, 2020). It was chosen as the study's primary screening method. The instrument uses a 6-point Likert scale. The scores for questions 1 to 25 were: always = 3, usually = 2, often = 1, sometimes = 0, rarely = 0 and never = 0. For question 26, the scores were: always = 0, usually = 0, often = 0, sometimes = 1, rarely = 2 and never = 3 (Garner, 2022; Garner & Garfinkel, 1979). According to Garner et al., if the score was 20 or higher, it was considered a concern or risk and required medical consultation (Garner, 2022; Garner & Garfinkel, 1979). In the original study of Garner et al., comparing EAT-40 and EAT-26, EAT-26 had a reliability coefficient of 0.9 for detecting AN (Garner & Garfinkel, 1982). For the purpose of this study, the Arabic version of the EAT-26 (Al-Adawi et al., 2002) was utilized to identify the risk for abnormal eating behaviours or patterns among female university students (i.e., the risk to EDs). In this study, data was collected over a period of four weeks.

Data Analysis

The data was analyzed using the Statistical Package for Social Sciences (SPSS), version 27. Descriptive analysis was used for socio-demographic data, EAT-26 scores, eating patterns and societal pressure. Further, Pearson correlation (r) was utilized to identify a possible relationship between the study variables and EAT-26 scores. Means and standard deviations were calculated for EAT-26 scores and selected study variables. Mean, SD, median and interquartile range were computed for EAT-26, age and BMI. For BMI, university students were asked to report their weight (wt) and height (ht) and BMI was calculated manually using the formula of $BMI = wt / ht^2$. A P -value of ≤ 0.05 was regarded as statistically significant.

Ethical Considerations

Informed consent was provided at the beginning of the online survey form. This was confirmed by the student's agreement to participate in the study. The study was considered a low-risk; so participants were unlikely

to suffer any physical, psychological or social harm to their health. The purpose of the study, confidentiality of responses and anonymity were fully explained in the online survey form. The study was entirely voluntary and university students had the option to withdraw from the study at any time.

Approval was granted to utilize the EAT-26 in this study among Emirati female undergraduate university students by Al-Adawi et al. (2002) to use the Arabic version of the survey. Also, ethical approval was granted by the higher college 'Research Ethics and Integrity Committee' to conduct the survey. Participants' data was stored in a password-protected excel sheet and was only accessible by primary and co-researchers. Further, the current study complies with the Declaration of Helsinki.

Results

Socio-demographic Characteristics

A total of 501 female university students from a higher college completed the online survey and were eligible to be included according to the inclusion criteria. As shown in Table 1, participants ranged from 18 to 21 years of age: 22.75% were 18 years old, 28.74% were 19 years old, 29.74% were 20 years old and 19.16% were 21 years old, showing a fairly even distribution. The mean age was 19.46 ± 1.042 years (see Table 1). There was equal participation from computer science (23.35%), health science (23.55%) and business (23.15%) divisions, with lower proportions from applied media (13.77%), engineering technology (10.78%) and education (5.39%) divisions. Approximately two-thirds of the university students were in their first (39.32%) or second year (35.32%). Most of them (92.42%) were unemployed, whereas only less than one-tenth (7.58%) were employed. With regard to their marital status, only 3% were married. On the other hand, more than 90 % were not yet married. Four of the married university students were pregnant. In terms of their BMI, more than a half (54.89%) of the participants were within the normal range, less than a quarter (23.95%) were overweight and 16.97% were underweight. Only 4.19% were classified as class II and class III obese. BMI had a mean of 23.38 kg/m^2 ($SD = 7.74$) (see Table 1).

Table 1. Socio-demographic characteristics of female adolescents presented as numbers and percentages (N=501)

	N	Percent (%)
Age		
18 y	114	22.75%
19 y	142	28.34%
20 y	149	29.74%
21 y	96	19.16%
Major/Division		
Engineering Technology	54	10.78%
Applied Media	69	13.77%
Business	116	23.15%
Health Science	118	23.55%
Education	27	5.39%
Computer Science	117	23.35%
Semester		
Semester 1	64	12.77%
Semester 2	133	26.55%
Semester 3	63	12.57%
Semester 4	114	22.75%
Semester 5	50	9.98%
Semester 6	46	9.18%
Semester 7	17	3.39%
Semester 8	14	2.79%
Employment		
Unemployed	463	92.42%
Employed	38	7.58%
Marital Status		
Single	485	96.81%
Married	15	2.99%
Separated	1	0.20%
Widowed	0	0.00%
Divorced	0	0.00%
Pregnancy		
Yes	4	0.80%
No	497	99.20%
BMI		
Underweight (<18.5kg/m ²)	85	16.97%
Normal (18.5 – 24.9kg/m ²)	275	54.89%
Overweight (25 – 29.9kg/m ²)	120	23.95%
Obesity Class I (30 – 34.9 kg/m ²)	0	0.00%
Obesity Class II (35 – 38.9 kg/m ²)	14	2.79%
Obesity Class III (>39kg/m ²)	7	1.40%

BMI: body mass index.

Eating Patterns

Results in Table 2 demonstrate the eating habits of university students. Most university students have 2

(35.13%) to 3 (49.90%) meals a day. Around 5% have only one meal, 8% eat four meals and 1% have five or more meals. The majority (79.24%) of university

students frequently consumed snacks between meals. University students rarely (35.53%) or occasionally (30.14%) skipped their meals. One-tenth of the participants always skipped their meals and approximately 7.19% always ate their meals in a timely manner.

Body Image and External Pressure

Responses related to participants' contentment with

their weight showed an equal distribution between 'yes' (49.7%) and 'no' (50.3%). A similar distribution was noted in "satisfaction with own physical appearance," showing results of 51.9% (yes) and 48.1% (no). Around two-thirds of the participants (67.47%) do not feel pressured to lose weight or change their physical appearance compared to 32.53% who perceive an external pressure to change their weight or physique (see Table 2).

Table 2. Eating patterns and societal pressures (N=501)

	N	Percent (%)
Meals/day		
One meal	26	5.19%
Two meals	176	35.13%
Three meals	250	49.90%
Four meals	44	8.78%
Five or more meals	5	1.00%
Frequently consume snacks		
Yes	397	79.24%
No	104	20.76%
Skip meals		
Never	36	7.19%
Rarely	178	35.53%
Occasionally	151	30.14%
Frequently	85	16.97%
Always	51	10.18%
Satisfaction with current weight		
Yes	249	49.70%
No	252	50.30%
Satisfaction with physical appearance		
Yes	260	51.90%
No	241	48.10%
Perceived pressure to lose weight or look in a certain way		
Yes	163	32.53%
No	338	67.47%
Confirmed ED diagnosis		
Yes	45	8.98%
No	456	91.02%
Family History of ED		
Yes	41	8.18%
No	460	91.82%

Family History and ED History of Participants

Around 91.8% of the university students did not have a previous history of EDs, while 8.9% confirmed having an eating-disorder diagnosis. 41 out of 501 participants had a family history of EDs, whereas

91.82% denied the presence of a family history of EDs (see Table 2).

Eating Attitudes Test-26 Scores

The prevalence of female university students with a

risk of EDs was 13.97%, with a mean of 9.49 ± 9.79 (see Table 3). More than 85% had EAT-26 scores of less than 20. The most frequent statement that scored 3 (i.e., always) was “I am terrified about being overweight,” with a percentage of 13.6% ($n=68$), followed by “other people think that I am too thin,” which was 12.6% ($n=63$). Lastly, 12.4% ($n=62$) chose ‘always’ to “think about burning up calories when I exercise”.

Table 3. Correlation and statistical significance of EAT-26 and age, BMI and number of meals (N=501)

	EAT-26	
	<i>r</i>	P-value
Age	0.036	0.416
BMI	0.015	0.734
No. of meals	-0.076	0.087

EAT-26: Eating Attitudes Test-26, BMI: body mass index, *r*: Pearson's correlation coefficient.

EAT-26 Scores and Relationship with Selected Study Variables

Comparison among EAT-26 means according to age showed a gradual increase as age increased. The change was approximated by a value of 1. There was a slight decrease between the ages of 20 and 21. The scores were within a narrow range of 8 to 10 (see Table 3). Regarding BMI, the average EAT-26 scores with the five categories of BMI revealed that EAT-26 scores had similar means (≈ 9.5) regardless of BMI, indicating consistency and no observed relationship.

Notably, no statistically significant correlations were found between age ($r= 0.036$, $P= 0.416$); BMI ($r = 0.015$, $P= 0.734$) or meals/day ($r= -0.076$, $P= 0.087$) and EAT-26 scores.

Discussion

The study's main objective was to determine the prevalence of ED risk among Emirati female university students aged from 18 to 21 years at a higher college in the UAE using the EAT-26 instrument. It also aimed to investigate the correlation between the scores and selected participants' variables, including age, BMI and number of meals.

To begin with, EAT-26 scores that were 20 or higher revealed a prevalence of 13.97 % ($\approx 14\%$), which was surprisingly low compared to those obtained by previous research in the UAE, Arab countries and worldwide.

Hasan et al. (2018) performed a study in the UAE, in which they aimed to identify the risk for EDs in relation to body image, family and mass media, including female and male university students. Their results were mainly compared between gender and risk factors and revealed a higher prevalence of 33.2% ($n=220$) (Hasan et al., 2018). Yet, one possible justification for this relatively low rate would be a ‘small’, not very representative sample. In the current study, participants had to be 18 and less than 24 years of age to conform to the definition of young people which implies those enrolling in universities.

In another study by Saleh et al. (2018) to determine whether the risk of disordered eating existed in female university students in Palestine. Using EAT-26 and the SCOFF (sick, control, one, fat, food) questionnaire, the results depicted that 28.6% ($n=573$) were classified as “high risk” of developing disordered eating habits. In addition, Pengpid et al. (2015) wanted to analyze the perception toward and practices related to eating patterns of female university students in Bangladesh. The outcome demonstrated that out of 800 university students, 37.6% were at a greater risk of ED development (Pengpid et al., 2015). In regards to EAT-26 statements, Saleh et al. (2018) highlighted that the following statement in EAT-26 questionnaire, “I am terrified about being overweight,” recorded the highest score 3 (24.2%), which was similar to the current study results, with different proportions (Saleh et al., 2018). To this end, it can be clearly noticed the importance of highlighting the relationship between female university students' eating patterns, their concerns about their body image and how they look with their proneness to increase the risk of EDs.

In Brazil, Cecon et al. (2017) found that 11% of adolescent students between 10 and 19 years of age were at a greater risk of showing ED symptoms. Additionally, about one-fifth of the participants (21.6%) had generally negative attitudes toward weight gain, as depicted by EAT-26 and EAT instruments (Cecon et al., 2017). It was shown that a great proportion of university students in almost all studies perceive increased weight and becoming labelled “fat” as a major concern. Further, with respect to the relationship between age and EAT-26 scores, Cecon et al. (2017) discovered that as age increased, the scores increased, indicating that older ages (17-19 years) had a greater risk compared to other groups. Their results contradict the current study, where

no statistically significant correlation was found. Also, no statistically significant correlation was found between BMI and scores in EAT-26, demonstrating outcomes that are contrary to other research articles. The study by Saleh et al. (2018) confirmed the existence of a positive association between increased BMI and the risk of EDs. Similar results were reported by Hasan et al. (2018), in which they found that higher BMI was correlated with overall body dissatisfaction, resulting in an increased likelihood of EDs.

Participants' weight and physical appearance satisfaction showed proportions of 49.7% and 51.9%, which presented consistent attitudes toward body image. In the present study, limited results were available to explore the participants' views on their implications to the participants' day-to-day lives. Although no statistically significant correlation was established between body satisfaction and EAT-26 scores, a study published by Ganguly et al. (2018) revealed that female adolescents who were not pleased with their body image and/or perceived themselves to be overweight were more likely to show disturbances in eating patterns.

Compared to prior studies, a possible justification for the lower prevalence of EDs in female adolescents was that most of the university students were considered to have regular eating patterns and a healthy relationship with the food they consume. In addition, a large proportion of university students (86%) may not have perceived risks with eating habits, the emotional impact of food or personal opinions regarding physical characteristics outlined in EAT-26 questionnaire. Furthermore, the participants may have been reluctant to answer questions accurately, since EDs are considered a sensitive topic; thus, university students may have given ideal answers. Despite that, the results of the current study showed no statistically significant correlation between a participant's BMI and EAT-26 scores, while other studies found the contrast. People with normal BMI are less likely to develop EDs (Hilbert et al., 2014). Further, Ali et al. (2021) performed a study in the UAE on women from 19 to 35 years of age. The majority of them were college students. The study aimed to understand whether participants have the required family and peer support and their abilities to execute interventions to increase their regular eating patterns. The study indicated that support from significant people and proper self-efficacy could represent factors that positively impact the quality and pattern of meals, thus

decreasing the likelihood of ED development. A further explanation was that university students might have sufficient knowledge of EDs and understand preventive measures, such as initiatives or college programs to increase awareness of EDs (NEDA, 2022).

In this study, female college students expressed concerns about becoming fat, which could be mainly associated with globalization and the emphasis on achieving the ideal body shape and weight. Mass media allowed the transfer of information worldwide, enabling the introduction of Western beauty standards to other areas of the world (Ganguly et al., 2018). Adolescents undergo profound changes in their physical appearance, emotions, cognitive thinking, ... etc. This is considered one of the important phases in a person's lifetime when he/she would experience external pressure, increasing susceptibility to body dissatisfaction (Ferrari et al., 2013)

Implications for Nursing

This study emphasizes the importance of increasing awareness about eating disorders (EDs) among university students, conducts a screening for ED prevalence among female university students and calls for focused and university-based education programs to promote awareness about EDs among this population age group. Proposed educational programs are suggested to enhance university students' knowledge and increase their awareness regarding proper eating habits, factors associated with EDs, their consequences on health and methods to promote healthy eating habits and positive attitudes toward body image. Indeed, further studies are to be conducted in this regard with a larger sample size and different adolescent age groups.

Study Limitations

The current study has many strength points; however, it has many limitations that will limit the generalizability of its results, such as that it was a self-administered survey, where university students' responses could have biases when answering the study questions. University students may have given ideal answers without being truthful with their feelings or opinions. In addition, inferences from the results are not possible, because the study is a descriptive cross-sectional study and yet; no causal inferences could be implied. Further, since the sample size may still be considered relatively small, the specific proportion of

university students with EAT-26 scores of ≥ 20 may have been underestimated. Further, this study was conducted in one multi-branch high education institute and did not consider all other universities or collages. Results can be inferred for this multi-branch high education institute. The economic status and social status of the participants were not taken into consideration, thus more research is needed to fix these issues.

Conclusion

The present study demonstrated the prevalence risks of EDs among female university students at a higher college of education in the UAE. Even though EAT-26 results revealed that a low percentage of university students had a risk of EDs, it is yet vital to implement effective interventions to decrease the prevalence significantly. Such interventional programs can be best promoted in university settings. Extended university-based educational programs are suggested to enhance female university students' knowledge about EDs, their consequences on health and methods to promote healthy eating habits and positive attitudes toward body image. Future research is recommended using longitudinal

studies to determine whether the prevalence increases, decreases or remains consistent. Yet, this study will assist university health counsellors, health-care professionals and dietitians in understanding more about undergraduate university students' food beliefs and habits. It can also be employed as a new guidance/reference for a better understanding of the current eating disorder matters among undergraduate university students in the UAE. Further, the results of this study can be utilized for comparing the EAT-26 questionnaire between previous studies and this study and updating the dietitians' references.

Acknowledgments

The authors would like to acknowledge all participants who filled out the survey willingly.

Funding or Sources of Financial Support

No grants or funds were given to this project.

Conflict of Interest

All authors declare that there was no conflict of interest in this project.

REFERENCES

- Al-Adawi, S., Dorvlo, A., Burke, D., Moosa, S., & Al-Bahlani, S. (2002). A survey of *Anorexia nervosa* using the Arabic version of the EAT-26 and "gold standard" interviews among Omani adolescents. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, 7 (4), 304-311.
- Ali, H.I., Alhebshi, S., Elmi, F., & Bataineh, M.A.F. (2021). Perceived social support and self-efficacy beliefs for healthy eating and physical activity among Arabic-speaking university students: Adaptation and implementation of health beliefs survey questionnaire. *BMC Public Health*, 21 (1), 1-13.
- Amatullah, A., & Mulyana, R. (2022). Understanding anorexia and eating capability of older adults in an attempt to prevent malnutrition. *Bioscientia Medicina: Journal of Biomedicine and Translational Research*, 6 (1), 1307-1317.
- American Addiction Centers. (2020). *What are the health risks of anorexia?* <https://americanaddictioncenters.org/anorexia-treatment/health-risks>
- American Addiction Centers. (2022). *What are the health risks of anorexia?* <https://americanaddictioncenters.org/anorexia-treatment/health-risks>
- Castelpietra, G., Knudsen, A.K.S., Agardh, E.E., Armocida, B., Beghi, M., Iburg, K.M., Logroscino, G., Ma, R., Starace, F., & Steel, N. (2022). The burden of mental disorders, substance-use disorders and self-harm among young people in Europe, 1990-2019: Findings from the Global Burden of Disease Study 2019. *The Lancet Regional Health-Europe*, 16, 100341.
- Cecon, R.S., Franceschini, S.D.C.C., Peluzio, M.D.C.G., Hermsdorff, H.H.M., & Priore, S.E. (2017). Overweight and body-image perception in adolescents with triage of eating disorders. *The Scientific World Journal*, 2017, 8257329. <https://doi.org/10.1155/2017/8257329>
- Feltner, C., Peat, C., Reddy, S., Riley, S., Berkman, N., Middleton, J.C., Balio, C., Coker-Schwimmer, M., & Jonas, D.E. (2022). Screening for eating disorders in adolescents and adults: Evidence report and systematic

- review for the US Preventive Services Task Force. *Jama*, 327 (11), 1068-1082. <https://doi.org/10.1001/jama.2022.1807>
- Ferrari, E.P., Petroski, E.L., & Silva, D.A.S. (2013). Prevalence of body-image dissatisfaction and associated factors among physical-education students. *Trends in Psychiatry and Psychotherapy*, 35 (2), 119-127.
- Fitts, V. (2022). *Exploring relationships of disordered eating and body dissatisfaction with lean, non-lean and mixed sport athletes*. Rutgers University-School of Graduate Studies.
- Ganguly, N., Roy, S., & Mukhopadhyay, S. (2018). Association of socio-culture factors with disordered eating behavior: An empirical study on urban young girls of West Bengal, India. *Anthropological Review*, 81 (4), 364-378.
- Garner, D.M. (2022). *The Eating Attitudes Test (EAT-26)*. <https://www.eat-26.com/>
- Garner, D.M., & Garfinkel, P.E. (1979). The Eating Attitudes Test: An index of the symptoms of Anorexia nervosa. *Psychol. Med.*, 9 (2), 273-279. <https://doi.org/10.1017/s0033291700030762>
- Garner, D.M., & Garfinkel, P.E. (1982). Body image in *Anorexia nervosa*: Measurement, theory and clinical implications. *The International Journal of Psychiatry in Medicine*, 11 (3), 263-284.
- Hasan, H.A., Najm, L., Zaurub, S., Jami, F., Javadi, F., Deeb, L.A., Iskandarani, A., & Radwan, H. (2018). Eating disorders and body-image concerns as influenced by family and media among university students in Sharjah, UAE. *Asia Pacific Journal of Clinical Nutrition*, 27 (3), 695-700.
- Hilbert, A., Pike, K.M., Goldschmidt, A.B., Wilfley, D.E., Fairburn, C.G., Dohm, F.A., Walsh, B.T., & Striegel Weissman, R. (2014). Risk factors across eating disorders. *Psychiatry Res.*, 220 (1-2), 500-506. <https://doi.org/10.1016/j.psychres.2014.05.054>
- Hosokawa, R., Kawabe, K., Nakachi, K., Soga, J., Horiuchi, F., & Ueno, S.-I. (2023). Effects of social media on body dissatisfaction in junior high-school girls in Japan. *Eating Behaviors*, 48, 101685.
- Izydorczyk, B., & Sitnik-Warchulska, K. (2018). Socio-cultural appearance standards and risk factors for eating disorders in adolescents and women of various ages. *Frontiers in Psychology*, 9, 429.
- Kazim, A., Almarzooqi, M.S., & Karavetian, M. (2017). The prevalence and determinants of eating disorders among Emirati female students aged 14-19 years in Ajman, UAE. *Journal of Food and Nutritional Disorders*, 2017, 1-4.
- Khoshkardar, P., & Raeisi, Z. (2020). The effect of mindfulness-based stress reduction on body-image concerns of adolescent girls with dysfunctional eating attitudes. *Australian Journal of Psychology*, 72 (1), 11-19.
- MayoClinic. (2022). *Anorexia nervosa*. <https://www.mayoclinic.org/diseases-conditions/anorexia-nervosa/symptoms-causes/syc-20353591>
- Melisse, B., de Beurs, E., & van Furth, E.F. (2020). Eating disorders in the Arab world: A literature review. *J. Eat. Disord.*, 8 (1), 59. <https://doi.org/10.1186/s40337-020-00336-x>
- NEDA, N.E.D.A. (2022). *Anorexia nervosa*. <https://www.nationaleatingdisorders.org/learn/by-eating-disorder/anorexia>
- Pengpid, S., Peltzer, K., & Ahsan, G.U. (2015). Risk of eating disorders among university students in Bangladesh. *International Journal of Adolescent Medicine and Health*, 27 (1), 93-100.
- Pinto, A.J., Mazzolani, B.C., Smaira, F.I., Ulian, M.D., Gualano, B., & Benatti, F.B. (2022). "Can a ballerina eat ice cream?": A mixed-method study on eating attitudes and body image in female ballet dancers. *Frontiers in Nutrition*, 8, 1157.
- Saleh, R.N., Salameh, R.A., Yhya, H.H., & Sweileh, W.M. (2018). Disordered eating attitudes in female students of An-Najah National University: A cross-sectional study. *Journal of Eating Disorders*, 6 (1), 1-6.
- Stabouli, S., Erdine, S., Suurorg, L., Jankauskienė, A., & Lurbe, E. (2021). Obesity and eating disorders in children and adolescents: The bidirectional link. *Nutrients*, 13 (12), 4321.
- Stice, E., Desjardins, C.D., Rohde, P., & Shaw, H. (2021). Sequencing of symptom emergence in *Anorexia nervosa*, *Bulimia nervosa*, binge eating disorder and purging disorder and relations of prodromal symptoms to future onset of these disorders. *Journal of Abnormal Psychology*, 130 (4), 377.
- Swanson, S.A., Crow, S.J., Le Grange, D., Swendsen, J., & Merikangas, K.R. (2011). Prevalence and correlates of eating disorders in adolescents: Results from the national comorbidity survey replication adolescent supplement. *Archives of General Psychiatry*, 68 (7), 714-723.
- van Hoeken, D., & Hoek, H.W. (2020). Review of the

burden of eating disorders: Mortality, disability, costs, quality of life and family burden. *Current Opinion in Psychiatry*, 33 (6), 521.

World Health Organization. Regional Office for South-East, A. (2021). Success stories in reproductive,

maternal, newborn, child and adolescent health. a regional compendium from WHO South-East Asia region. *World Health Organization*. Regional Office for South-East Asia. <https://apps.who.int/iris/handle/10665/344887>