# RESEARCH Open Access



# Assessment of disordered eating attitudes and associated factors among female undergraduates at Arba Minch University, Southern Ethiopia

Addisalem Damtie Aserese<sup>1\*</sup>, Melkamu Merid<sup>1,2</sup>, Asmare Getie<sup>1</sup> and Yosef Belayhun<sup>1</sup>

# **Abstract**

**Background** Eating disorders significantly impact physical health and have negative psychosocial consequences. The global burden of anorexia nervosa and bulimia nervosa among young females is estimated to account for 1.9 million disability-adjusted life years. Early identification of disordered eating attitudes is critical for preventing the progression to more severe forms of eating disorders; however, there is limited evidence on this issue among university students in Ethiopia. Therefore, this study aimed to assess disordered eating attitudes and their associated factors among female students at Arba Minch University, Arba Minch, Southern Ethiopia, in 2023.

**Methods** An institution-based cross-sectional study was conducted at Arba Minch University from January 1, 2023, to April 1, 2023. A total of 600 female students participated in the study, selected through simple random sampling. Data were collected using a self-administered questionnaire, entered into Epi-Info version 7, and exported to SPSS version 20 for analysis. Multivariable binary logistic regression was used to identify factors associated with disordered eating attitudes, with variables having *p*-values <0.05 considered statistically significant. The strength and presence of associations between the outcome variable and independent variables were measured using adjusted odds ratios with 95% confidence intervals. Model fitness was assessed using the Hosmer and Lemeshow goodness-of-fit test.

**Results** The study found that the prevalence of disordered eating attitudes among female students at Arba Minch University was 11.5% (95% CI: 9.0-14.3). Factors significantly associated with disordered eating attitudes included academic department (AOR=2.27, 95% CI: 1.06-4.86) and body mass index (AOR=5.83, 95% CI: 2.34-14.52).

**Conclusion** The study indicated a notable prevalence of disordered eating attitudes among female students at Arba Minch University. Body mass index and academic department were found to be significantly associated with these attitudes. The link between disordered eating and body image concerns underscores the need for policies promoting self-confidence and positive body image. More specifically, university health services should implement routine screening using EAT-26, combined with psychological counseling services to support at-risk students.

**Keywords** Disordered eating attitude, Factors, Female students, Arba Minch University

### Introduction

Eating disorders (EDs) are psychological conditions characterized by disturbances in eating behaviors and attitudes [1]. These behaviors, which can range from an obsession with body weight and shape to food restriction,



© The Author(s) 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <a href="http://creativecommons.org/licenses/by-nc-nd/4.0/">http://creativecommons.org/licenses/by-nc-nd/4.0/</a>.

<sup>\*</sup>Correspondence: Addisalem Damtie Aserese addis2010ec@gmail.com

<sup>&</sup>lt;sup>1</sup> School of Public Health, College of Medicine and Health Sciences, Arba Minch University, P.O. Box: 21, Arba Minch, Ethiopia

<sup>&</sup>lt;sup>2</sup> Lund University, Lund, Sweden

dieting, binge eating, vomiting, and the misuse of diuretics, laxatives, and diet pills, may serve as early indicators of more severe eating disorders [2, 3]. EDs are serious mental health conditions that significantly impact physical health and psychosocial well-being, and their prevalence has increased over the last 50 years [4]. The global burden of anorexia nervosa and bulimia nervosa among young females has been estimated to account for 1.9 million disability-adjusted life years [5].

Initially, the prevalence of EDs in Western countries was higher compared to non-Western countries [6]. However, this trend has shifted, as recent systematic analyses suggest a reversal [7]. The economic impact of EDs is substantial, with the annual treatment costs for adult and adolescents was estimated between 1,288\$ and 8,042\$ per patient [8, 9] where females received more treatment and had longer duration of treatment than males [10]. Alarmingly, many college students exhibiting signs of eating disorders have not been diagnosed or treated, underscoring the importance of early detection [11]. Thus, timely identification of disordered eating behaviors in college students appears to be a momentous necessity. Individuals with eating disorders are at risk for a range of health issues, including anxiety, cardiovascular symptoms, depression, chronic pain, insomnia, neurological problems, and even suicide attempts [12]. Moreover, 3.4% to 20% of people with eating disorders have high mortality rates, of which the highest was recorded among individuals with anorexia nervosa due to suicide attempts or physiological complications such as heart failure [13, 14].

In the second half of the 20 th century, the Western media introduced the "thin ideal" body standard, which significantly contributed to the development of EDs among women [15]. Before the development of clinical eating disorders such as anorexia nervosa and bulimia nervosa, many individuals exhibit disordered eating attitudes which is unhealthy behaviors and attitudes related to body image, weight, and food. These attitudes can serve as precursors to more severe eating disorders [16].

The prevalence of disordered eating attitudes among female college students varies regionally. In the United States, 10%–20% of college women reported disordered eating attitude [17] while in Saudi Arabia and China the prevalence was 36.8% [18] and 4% [19] respectively. In Africa, the prevalence also varies, with 21.9% in Nigeria [20], South Africa 21.2% [21], 8.7% at Harar, Ethiopia [22], and 9.7% in Gondar, Ethiopia [23].

Factors influencing disordered eating attitudes include peer influence [24], frequently reading magazines (reading at least weekly); and listening to radio programs (listening more than 1 h per day) [24, 25], sever media usage [23] and a high body mass index or excess weight

[26–28]. Additionally, parental socio-demographic factors including marital status of parents [29] and mothers' education levels [30] have been found to contribute to these attitudes.

The transition to adulthood (ages 18–25) is a critical period for the onset of weight-related health behaviors and attitudes [31]. Since many body and weight related situations and activates emerge, puberty, adolescence and young adulthood are key periods for identifying associated factors for disordered eating attitude [32]. Therefore, addressing these behaviors early can prevent negative outcomes in later life. Conducting research at the university level provides an important opportunity to identify students with disordered eating attitudes for early detection and intervention.

To the best of the authors' knowledge, there is limited evidence on disordered eating attitudes among university female students. Thus, this study was aimed to determine the prevalence of disordered eating attitudes and identify associated factors among female undergraduate students at Arba Minch University.

#### **Methods**

#### Study design and setting

An institution-based cross-sectional study was conducted from January 1 to April 1, 2023, at Arba Minch University (AMU), located in Arba Minch town in the southern region of Ethiopia. The university is situated 500 km from Addis Ababa and 275 km from Hawassa. Established in 2004, AMU grew from the Arba Minch Water Technology Institute, founded in 1986. The university now comprises two institutes, six colleges, and five schools, offering a wide range of undergraduate to doctoral programs in various fields of study through regular, summer, weekend, distance, and continuing education formats. AMU is one of the fastest-growing universities in Ethiopia, expanding in terms of the number of colleges, academic programs, academic staff, and infrastructure. It currently enrolls a total of 16,002 undergraduate students, 5,852 of whom are female. According to the 2020 Ministry of Science and Higher Education classification, AMU has become one of the eight researchfocused universities in Ethiopia [33].

#### Sample size calculation and sampling procedure

The source population for this study consisted of all female undergraduate students at Arba Minch University, while the study population was drawn from female students across selected colleges within the university. The study included all female students aged 19 and above at the university. The sample size was calculated using the single population proportion formula with the following parameters: a 50% estimated proportion of disordered

eating attitudes, a 95% confidence level, a 5% margin of error, a design effect of 1.5, and a 10% non-response rate, yielding a final sample size of 633 participants. To select the study subjects, a two-step sampling strategy was employed: stratified sampling followed by simple random sampling. Of the six campuses (Main Campus, Abaya Campus, Nech Sar Campus, Chamo Campus, Kulfo Campus, and Saula Campus), two were randomly chosen for inclusion: Nech Sar and Chamo campuses. Proportional allocation was applied to each selected campus. Within each campus, stratification was based on department and academic year. Participants were then randomly selected from the departmental lists using their identification numbers as the sampling frame.

# **Operational definitions**

Disordered eating attitude is typically defined by Eating Attitude Test with item 26 (EAT-26) of 20 or above which implies unfavorable eating attitude. In contrary, a score of below 20 indicate favorable eating attitude which suggests healthier relationship with food [34]. Underweight is defined as Body Mass Index (BMI) of less than18.5 kg/m², normal weight falls within the range of 18.5 kg/m² to 24.99 kg/m² and overweight is considered when BMI is 25 kg/m² or higher [35]. Media exposure was considered if students watched television (listened to radio) for more than one hour per day [24].

# Data collection tool and procedure

Data collection was carried out using a self-administered questionnaire and direct measurements of weight and height by the investigators. The questionnaire was structured into two sections. The first section gathered socio-demographic information, including age, height, weight, maternal and paternal educational levels, religious affiliation, maternal and paternal occupations, academic department, and year of study. The second section comprised the validated Eating Attitude Test (EAT-26), which was adapted from previous studies [20, 22, 35, 36] to assess disordered eating attitudes. The EAT-26 consists of 26 items addressing various eating behaviors and attitudes. Each item was rated on a six-point Likert scale, ranging from 'always' to 'never'. Scores were assigned as follows: 3 for 'always', 2 for 'usually', 1 for 'often', and 0 for 'sometimes', 'rarely', and 'never'. However, for item 26, the scoring was reversed: 0 was given for responses of 'always', 'usually', and 'often', while 1, 2, and 3 were assigned for 'sometimes', 'rarely', and 'never', respectively. The total score was obtained by summing the responses to all 26 items.

The participants' height was meticulously measured using a stadiometer, with individuals positioned barefoot and ensuring that their heels, buttocks, and shoulders

were in full contact with the wall of the device, and their head aligned with the Frankfurt plane. The measurement was recorded to the nearest 0.1 centimeter, with the procedure repeated as necessary to ensure precision and consistency. Weight was determined using a calibrated weighing scale, with readings taken to the nearest 100 grams. To ensure utmost accuracy, multiple measurements were recorded, and the scale was recalibrated to zero after each participant's measurement. Participants were instructed to refrain from wearing shoes or heavy attire during the process.

#### Data quality assurance

The consistency of the questionnaire was maintained by translating the English version to Amharic and then back to English. Before the actual data collection date, training was given to the data collectors and supervisors. Pretests were conducted among 31 respondents at the Abaya Campus, and editorial errors were corrected. The accuracy and completeness of the collected data were checked by the investigators. The data were checked by inspecting and crosschecking the entered data with the questionnaire and running frequency.

# Data processing and analysis

The data were entered into Epi-Info version 7 and subsequently exported to SPSS version 20 for analysis. Descriptive and summary statistics were employed to characterize the study population, with results presented in tables and graphs. Factors associated with disordered eating attitudes were identified using binary logistic regression after verifying the assumptions of the chi-square test and the regression model. The assumptions for the binary logistic regression model included: 1) the response variable must have two possible outcomes, which was confirmed by counting the distinct outcomes; 2) there must be one or more independent variables, which can be either continuous or categorical; 3) the absence of multicollinearity among independent variables, confirmed through the variance inflation factor; 4) a sufficiently large sample size, verified by examining the number of cases for each explanatory variable; 5) the independence of observations, assessed by inspecting the randomness of the plot. For the chi-square test, the assumptions checked included: 1) no cell should have a zero count; 2) all observations must be independent; and 3) observed values should be  $\geq$  5 for at least 80% of the cells.

Variables with a p-value < 0.25 in the bivariable analysis were considered for inclusion in the multivariable logistic regression [35]. Variables with a p-value < 0.05 in the multivariable logistic regression were deemed statistically significant. Adjusted odds ratio with corresponding

95% confidence intervals was calculated to measure the strength and presence of associations between disordered eating attitudes and associated factors. The model's goodness of fit was assessed using the Hosmer and Lemeshow test, which confirmed adequacy (p = 0.923). The reliability of the EAT-26 was evaluated using Cronbach's alpha, yielding a value of 0.90, indicating internal consistency.

# Ethics approval and consent to participate

An ethical approval letter was obtained from the institutional research ethics review board of the Arba Minch University College of Medicine and Health Science, and was approved for implementation with protocol number A09. The objective of the study was briefly clarified, and written consent was obtained from the study participants. Participants were informed that if they were unwilling to participate in the study, they had the right to quit at any time. To ensure the confidentiality of any information, the data collection procedure was anonymous. COVID-19 prevention mechanisms were considered throughout the data collection period.

#### Results

# Socio-demographic characteristics

A total of 600 female students took part in the study, yielding response rate of 94.8%. The participants had a mean age of 21.6 years, with a standard deviation of 1.8 years. A significant majority (82.2%) of students originated from urban settings, while nearly three-quarters (74%) were enrolled in the College of Medicine and Health Sciences. Furthermore, 64.2% of the respondents were in their senior years of study. About 74% of the students reported regular exposure to media (Table 1).

# **Nutritional-related characteristics**

The mean body mass index (BMI) among the study participants was  $20.2 \pm 2.6 \text{ kg/m}^2$ , indicating that, on average, the students fell within the normal weight range. A more thorough assessment of BMI status revealed that, 22.8% of the respondents were categorized as underweight, suggesting a notable proportion of students may be at risk for nutritional deficiencies or related health concerns. The majority of participants (72%) had a BMI within the normal range, reflecting a generally healthy weight status among most students. Only 5.2% of the participants were overweight, but this still indicates the presence of weight-related issues among the students. The variation in body weight highlights the need for targeted health promotion and nutrition education programs within the university.

**Table 1** Socio-demographic characteristics of the female students at Arba Minch University, Southern Ethiopia, 2023

Variable	Category	Frequency	Percent (%)	
Age category	≤ 20	93	15.5	
	> 20	507	84.5	
residence	Rural	107	17.8	
	Urban	493	82.2	
Religion	Orthodox	436	72.7	
	Protestant	109	18.2	
	Muslim	48	8	
	Others(Catholic, Adventist)	7	1.2	
Media exposure	Yes	444	74	
	No	156	26	
Department	Health	156	26	
	Non-health	444	74	
Batch	Senior	465	77.5	
	Graduating class	135	22.5	
Feeding type	Café	548	91.3	
	Non-cafe	52	8.7	
Maternal education	No formal education	116	19.3	
	Primary school	132	22	
	Secondary school	150	25	
	College and above	202	33.7	
Paternal education	No formal education	74	12.3	
	Primary school	94	15.7	
	Secondary school	164	27.3	
	College and above	268	44.7	
Maternal occupation	Housewife	283	47.2	
	Government employee	175	29.2	
	Private worker	109	18.2	
	Nongovernment employee	30	5	
	Others (student, pensioner)	3	0.5	
Paternal occupation	Government employee	221	36.8	
	Private worker	187	31.2	
	Farmer	114	19	
	Nongovernment employee	67	11.2	
	Others (student, pensioner)	11	1.8	
Parents live together	Yes	519	86.5	
<b>J</b>	No	81	13.5	
Family income	<39.08\$	110	18.3	
,	≥39.08\$	490	81.7	

### Prevalence of disordered eating attitudes

The mean score on the Eating Attitudes Test (EAT-26) among participants was 8.3 ± 9.4. When broken down by subscales, the mean scores were 3.6  $\pm$  5.7 for dieting, 2.4 ± 2.2 for bulimia and food preoccupation, and  $2.3 \pm 3.4$  for oral control. The study identified that 11.5%of undergraduate female students at Arba Minch University exhibited disordered eating attitudes (95% CI: 9.0-14.3) (Fig. 1). Among the dieting items, the most frequently agreed-upon statement was "I fear becoming overweight," For the bulimia and food preoccupation subscale, the item "I obsess over food for excessive amounts of time" was most commonly endorsed. On the oral control subscale, the statement "I exhibit strong self-discipline around food" received the highest level of agreement (Table 2). These patterns shed light on the underlying thoughts and behaviours that may contribute to disordered eating attitudes among the students.

### Factors associated with disordered eating attitudes

The association between disordered eating attitudes and potential factors were examined using a binary logistic regression model. Factors that met the assumptions of the chi-square test and had a p-value of <0.25 in bivariable analysis were considered for inclusion in the multivariable logistic regression. Accordingly, BMI, family income, department, residence, media exposure, academic year, parental marital status, and religion were incorporated into the multivariable analysis. Ultimately, department and BMI emerged as statistically significant factors with p-values <0.05 and were found to be associated with disordered eating attitudes. Specifically, Students from non-health departments showed 2.27 times higher prevalence of disordered eating attitudes than their counterparts (AOR = 2.27, 95% CI: 1.06–4.86) but further research is

needed to determine causality. Moreover, students with a normal BMI had 97% lower prevalence of disordered eating attitudes compared to those who were underweight (AOR = 0.03, 95% CI: 0.004-0.040). Furthermore, overweight students had 5.83 times higher prevalence of disordered eating attitudes compared to underweight students (AOR = 5.83, 95% CI: 2.34-14.52) (Table 3).

# **Discussion**

This study aimed to determine the prevalence of disordered eating attitudes and identify associated factors among female undergraduate students at Arba Minch University. The findings revealed that, 11.5% of students exhibited disordered eating attitudes (95% CI: 9.0–14.3), indicating a significant public health concern. The high prevalence of such attitudes highlights the need for targeted interventions among female students, as disordered eating can lead to various physical and psychological issues, including poor academic performance, malnutrition, and the development of severe eating disorders such as anorexia and bulimia nervosa [36].

The results aligned with a study conducted in Gondar city, which found a prevalence of 9.7% [23], but were lower than those from studies at An-Najah National University (28.6%) [16] and in Saudi Arabia (36.8%) [37]. The higher prevalence observed at Najah University may be attributed to the relatively high proportion of overweight individuals. Conversely, the prevalence found in this study was higher than studies conducted at Harar (8.6%) [22], China (4%) [19], Florida (10%) [37], and Mongolia (5.4%) [38]. This low prevalence among high income countries may be explained by greater awareness and access to healthcare services, particularly mental health support, in high-income countries, which help create

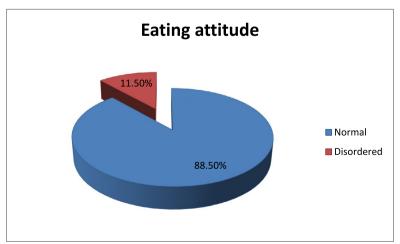


Fig. 1 Prevalence of disordered eating attitudes among undergraduate female students at Arba Minch University, Southern Ethiopia, 2023

Damtie Aserese et al. BMC Public Health (2025) 25:1730

Table 2 EAT\_26 scores among undergraduate female students at Arba Minch University, Southern Ethiopia, 2023

EAT-26 subgroups	Always N (%)		Usually N (%)	Often N (%)	Sometime & never N	
Dieting scale						
Terrified of being overweight	66 (11)	28 (4.7)		34 (5.7)	472 (78.7)	
Aware of the calorie content of foods that I eat	13 (2.2)	17 (2.8)		24 (4.0)	546 (91.0)	
Particularly avoid food with high carbohydrate content	26 (4.3)	21 (3.5)		23 (3.8)	530 (88.3)	
Feel extremely guilty after eating	7 (1.2)	8 (1.3)		18 (3.0)	567 (94.5)	
I am extremely preoccupied with a desire of thinner	43 (7.2)	20 (3.3)		21 (3.5)	516 (86.0)	
Think burning up calories when I exercise	44 (7.3)	26 (4.3)		31 (5.2)	499 (83.2)	
Other people think that I am too thin	62 (10.3)	40 (6.7)		47 (7.8)	451 (75.2)	
Avoid food with sugar in them	36 (6.0)	35 (5.8)		53 (8.8)	476 (79.3)	
Eat diet food	26 (4.3)	42 (7.0)		43 (7.2)	489 (81.5)	
Feel uncomfortable after eating sweets	36 (6.0)	25 (4.2)		45 (7.5)	494 (82.3)	
Engage in dieting behavior	25 (4.2)	39 (6.5)		27 (4.5)	509 (84.8)	
Like my stomach to be empty	19 (3.2)	12 (2.0)		24 (4.0)	545 (90.8)	
Have the impulse to vomit after meals	12 (2)	9 (1.5)		17 (2.8)	592 (93.7)	
Bulimia scale						
Find myself preoccupied with food	21 (3.5)	20 (3.3)		15 (2.5)		544 (90.7)
Have gone on eating binges where I feel that I may not be able to stop	10 (1.7)	20 (3.3)		11 (1.8)		559 (93.2)
Vomit after I have eaten	7 (1.2)	10 (1.7)		4 (0.7)		579 (96.5)
Feel that food control my life	26 (4.3)	23 (3.8)		44 (7.3)		507 (84.5)
Give too much time and thought to food	28 (4.7)	28 (4.7)		35 (5.8)		509 (84.8)
Enjoy trying new rich food	27 (4.5)	169 (28.2)		104 (17.3)		300 (50)
Oral control scale						
Avoid eating when I am hungry	14 (2.3)		13 (2.2)	12 (2.0)	561 (93.5)	
Cut my food into pieces	28 (4.7)		15 (2.5)	26 (4.3)	531 (88.5)	
Feel that others would prefer if I ate more	23 (3.8)		17 (2.8)	35 (5.8)	525 (87.5)	
I am preoccupied with the thought with of having fat on my body	37 (6.2)		20 (3.3)	22 (3.7)	521 (86.8)	
Take longer than other to eat my meal	39 (6.5)		28 (4.7)	31 (5.2)	502 (83.7)	
Display self-control around food	53 (8.8)		45 ()7.5	51 (8.5)	451 (75.2)	
Feel that others pressure me to eat	33 (5.5)		24 (4.0)	37 (6.2)	506 (84.5)	

N=frequency

environments that prevent disordered eating attitudes [39].

A key finding in this study was the strong focus on body weight and shape. Among the dieting scale items, the most frequently endorsed statement was "I am terrified about being overweight," a result consistent with findings from Najah University [15]. This suggests that female students are highly concerned with their body image, likely influenced by peer pressure, family dynamics, and societal expectations of an ideal body shape. On the bulimia scale, "Give too much time and thought to food" was the most commonly endorsed statement, while the oral control scale showed that "Display self-control around food" was the most endorsed item. These patterns indicate that, participants at higher risk for disordered eating attitudes leaned more toward anorexia nervosa than bulimia nervosa. Such cognitive patterns, where individuals obsessed over food and felt guilt, are often linked to anorexia, extreme self-discipline is used to restrict food intake and maintain an unnaturally low body weight [39]. Moreover, oral control is manifestation of anorexia nervosa where persons usually attempt to reduce hunger [40].

The study also identified some factors associated with disordered eating attitudes, including body mass index (BMI) and department. A significant association was found between BMI and disordered eating attitudes. The prevalence of disordered eating attitudes among students with a normal body mass index was 97% lower than those who were underweight (AOR=0.03, 95% CI; 0.004–0.040). Additionally, overweight students had 5.83 times more prevalence of disordered eating attitudes than underweight students (AOR=5.83, 95% CI; 2.34–14.52). This finding is consistent with studies at Najah University [16] and in Saudi Arabia [40]. The desire to conform to the "thin ideal" as a standard of feminine beauty may play a pivotal role in the development of disordered eating

Damtie Aserese et al. BMC Public Health (2025) 25:1730

**Table 3** Factors associated with disordered eating attitudes among undergraduate female students at Arba Minch University, Southern Ethiopia, 2023

Variable	Eating attitude Normal disordered	COR(95%CI)	AOR (95%CI)	
 Resident				
	00.10	1	1	
Rural	89 18	1	1	
Urban	442 51	1.75(0.97–3.14)	0.45(0.17–1.16)	
Family income				
<39.08\$	92 18	1	1	
≥39.08\$	439 51	1.68(0.94–3.01)	0.52(0.21–1.28)	
Parents live together				
Yes	463 56	0.63(0.32–1.21)	0.68(0.27-1.67)	
No	68 13	1	1	
Religion				
Orthodox	381 55	1	1	
Protestant, Muslim and Catholic	150 14	0.64(0.34-1.19)	0.93(0.41-2.12)	
Media exposure				
Yes	402 42	0.49(0.29-0.84)	0.59(0.28-1.24)	
No	129 27	1	1	
Batch				
Senior	416 49	1	1	
GC	115 20	1.47(0.84–2.58)	1.58 (0.70-3.54)	
Department				
Health	136 20	1	1	
Nonhealth	344 100	1.35(0.81-2.23)	2.27(1.06-4.86) *	
BMI		, ,	,	
Underweight	93 44	1	1	
Normal	428 4	0.02(0.007–0.056)	0.03(0.004-0.040) *	
Overweight	10 21	4.43(1.92–10.22)	5.83(2.34–14.52) *	

COR crude odds ratio and AOR adjusted odds ratio

attitudes, especially among overweight individuals who may have a negative body image and a strong desire to lose weight.

Moreover, departmental affiliation was significantly associated with disordered eating attitudes. Students from non-health departments showed 2.27 times higher prevalence of disordered eating attitudes than their counterparts (AOR = 2.27, 95% CI: 1.06-4.86) even though, further research is needed to determine causality. This could be attributed to varying levels of awareness about the consequences of unhealthy eating behaviors and coping strategies between students from health-related fields and those from other disciplines, placing the latter group to higher chance of developing disordered eating attitudes [41].

Although abnormal eating attitudes do not always lead to eating disorders, they undoubtedly increase the chance of the development of such disorders [42]. Given the severe health consequences of eating disorders, including the risk of cardiovascular diseases and renal failure,

it is essential to implement effective interventions at the institutional level to safeguard the health of students [43]. This study highlighted the need for policies that promote self-confidence and a positive body image. More specifically, university health services should implement routine screening using EAT-26, combined with psychological counseling services to support at-risk students.

# Limitations of the study

The study was conducted using a cross-sectional study design, which cannot determine the cause-and-effect relationship between the outcome variable and associated factors. Additionally, the study did not explore the association between social media use and anxiety. Moreover, the study did not control for mental health variables (e.g., stress, depression, anxiety), which are strongly linked to disordered eating attitudes. So, future studies should incorporate psychological assessments. BMI and income were not analyzed as continuous variable.

<sup>\*</sup> p value < 0.05

Therefore, we recommend the next researchers to consider this to preserve statistical power.

# Conclusion

This study found that disordered eating attitudes were present among a notable proportion of female students at Arba Minch University. The results suggest that some students may be at risk for developing eating disorders. Body mass index and academic department were identified as factors that showed a significant association with disordered eating attitudes. These findings highlight the need for targeted awareness programs and mental health interventions within the university setting to address and mitigate the risks of disordered eating behaviors among female students.

#### Abbreviations

AMU Arba Minch University
BMI Body Mass Index
DEA Disordered eating attitude
EAT Eating Attitude Test
EDs Eating Disorders

#### Authors' contributions

M.M. and A.G. wrote the first draft of the manuscript and A.D. and Y.B. wrote the main manuscript text. All authors reviewed the manuscript.

#### **Funding**

No funding was obtained for this study.

#### Data availability

Data is provided within the manuscript or supplementary information files.

#### Declarations

#### Consent for publication

Not applicable.

# **Competing interest**

The authors declare no competing interests.

Received: 4 March 2024 Accepted: 28 April 2025 Published online: 10 May 2025

#### References

- Kessler, R. C., Berglund, P. A., Chiu, W. T., Deitz, A. C., Hudson, J. I., Shahly, V., ... & Xavier, M. (2013). The prevalence and correlates of binge eating disorder in the World Health Organization World Mental Health Surveys. Biological Psychiatry, 73(9), 904–914. https://doi.org/10.1016/j.biopsych. 2012.11.020
- Fisher M, Golden NH, Katzman DK, Kreipe RE, Rees J, Schebendach J, et al. Eating disorders in adolescents: a background paper. J Adolesc Health. 1995;16(6):420–37.
- Shisslak CM, Crago M, Estes LS. The spectrum of eating disturbances. Int J Eat Disord. 1995;18:209–19.
- Treasure J, Duarte TA, Schmidt U. Eating disorders. Lancet. 2020;395(10227):899–911. Available from: http://dx.doi.org/10.1016/ S0140-6736(20)30059-3.
- Erskine HE, Whiteford HA, Pike KM. The global burden of eating disorders. Curr Opin Psychiatry. 2016;29(6):346–53.

- Makino M, Tsuboi K, Dennerstein L. Prevalence of eating disorders\_a comparison of Western and non-Western countries - PMC. MedGenMed. 2004;6:49.
- Podar I, Allik J. A cross-cultural comparison of the eating disorder inventory. Int J Eat Disord. 2009;42:346–55.
- Hudson, John I., Hiripi, Eva, Pope, Harrison G. Jr., Kessler, Ronald C. The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. Int J Eat Disord. 2007;41(3):263–70.
- Stuhldreher N, Konnopka A, Wild B, Herzog W, Zipfel S, Löwe B, et al. Cost-of-illness studies and cost-effectiveness analyses in eating disorders: a systematic review. Int J Eat Disord. 2012;45(4):476–91.
- Striegel-Moore RH, Leslie D, Petrill SA, Garvin V, Rosenheck RA. One-year use and cost of inpatient and outpatient services among female and male patients with an eating disorder: evidence from a national database of health insurance claims. Int J Eat Disord. 2000;27(4):381–9.
- Eisenberg D, Nicklett EJ, MKR, Kirz NE. Eating disorder symptoms among college students: prevalence, persistence, correlates, and treatmentseeking. Bone. 2008;23(1):1–7.
- Johnson JG, Cohen P, Kotler L, Kasen S, Brook JS. Psychiatric disorders associated with risk for the development of eating disorders during adolescence and early adulthood. J Consult Clin Psychol. 2002;70:1119–28.
- Arcelus J, Mitchell AJ, Wales J, Nielsen S. Mortality rates in patients with anorexia nervosa and other eating disorders: a meta-analysis of 36 studies. Arch Gen Psychiatry. 2011;68(7):724–31.
- 14. Birmingham CL, Su J, Hlynsky JA, Goldner EM, Gao M. The mortality rate from anorexia nervosa. Int J Eat Disord. 2005;38:143–6.
- Grabe S, Ward LM, Hyde JS. The role of the media in body image concerns among women: a meta-analysis of experimental and correlational studies. Psychol Bull. 2008;134:460–76.
- Saleh RN, Salameh RA, Yhya HH, Sweileh WM. Disordered eating attitudes in female students of An-Najah National University: a cross-sectional study. BMC Public Health. 2018;18(1):291.
- Jacobson R. College students and eating disorders. ChildmindOrg. 2022;3–5. Available from: https://childmind.org/article/eating-disorders-and-college/#full\_article.
- Albrahim T, Alrubaish AA, Saleh Alfadhliah JT, Alaskar MK, Alatawi MA, Aldekhayyil SA. The spectrum of disordered eating attitudes among female university students: a cross-sectional study. Curr Res Nutr Food Sci. 2019;7:698–707.
- Yu J, Lu M, Tian L, Lu W, Meng F, Chen C, Tang T, He L, Yao Y. Prevalence of disordered eating attitudes among university students in Wuhu, China. Nutr Hosp. 2015;32(4):1752–7.
- Fadipe B, Oyelohunnu MA, Olagunju AT, Aina OF, Akinbode AA, Suleiman TF. Disordered eating attitudes: demographic and clinico-anthropometric correlates among a sample of Nigerian students. Afr Health Sci. 2017;17(2):513–23.
- La Grange D, Telch CF, Tibbs J. Eating attitudes and behaviors in 1,435 South African Caucasian and non-Caucasian college students. Int J Eat Disord. 1998;23(2):251–7.
- Leta M, Mohammed A. Assessment of disordered eating attitude and associated factor among Harar Health Science college second Year female students in Harar town eastern Ethiopia. Int J Dent Diab Endocrinol Oral Hyg. 2022;4(1):25–38.
- Engdyhu BM, Gonete KA, Mengistu B, Worku N. Disordered eating attitude and associated factors among late adolescent girls in Gondar city, northwest Ethiopia: a community-based cross-sectional study. Front Public Health. 2024;12:1425986.
- Van Den Berg P, Thompson JK, Obremski-Brandon K, Coovert M. The Tripartite influence model of body image and eating disturbance: A covariance structure modeling investigation testing the mediational role of appearance comparison. J Psychosom Res. 2002;53:1007–20.
- Ahern AL, Bennett KM, Hetherington MM. Internalization of the ultra-thin ideal: positive implicit associations with underweight fashion models are associated with drive for thinness in young women. Eat Disord. 2008;16:294–307.
- Upadhyah A, Misra R, Parchwani D, Maheria P. Prevalence and risk factors for eating disorders in Indian adolescent females. Natl J Physiol Pharm Pharmacol. 2014;4(2):153–7.
- 27. Fallatah A, Al-Hemairy M, Al-Ghamidi HEW. Cooperative work in Titan business in Europe: Istanbul Bulletin. 2015.

- Álvarez-Malé ML, Bautista-Castaño I, Serra-Majem L. Factors associated with the risk of eating disorders. Ann Nutr Disord Ther. 2015;2(2):1021.
- Martínez-González MA, Gual P, Lahortiga F, Alonso Y, De Irala-Estévez
  J, Cervera S. Parental factors, mass media influences, and the onset of
  eating disorders in a prospective population-based cohort. Pediatrics.
  2003;111(2):315–20.
- Ho TF, Tai BC, Lee EL, Cheng S, Liow PH. Prevalence and profile of females at risk of eating disorders in Singapore. Singapore Med J. 2006;47(6):499–503
- Nelson MC, Story M, Larson NI, Neumark-Sztainer D, Lytle LA. Emerging adulthood and college-aged youth: an overlooked age for weight-related behavior change. Obesity. 2008;16(10):2205–11.
- Becker AE, Franko DL, Nussbaum K, Herzog DB. Secondary prevention for eating disorders: the impact of education, screening, and referral in a college-based screening program. Int J Eat Disord. 2004;36(2):157–62.
- 33. Arba Minch University. University Profile. Arba Minch, Ethiopia: Arba Minch University; 2020. Available from: https://www.amu.edu.et/
- Alhazmi AH, Al Johani A. Prevalence and associated factors of eating disorders among students in Taiba University, Saudi Arabia: A cross-sectional study. Malays J Public Health Med. 2019;19(1):172–6.
- Bursac Z, Gauss CH, Williams DK, Hosmer DW. Purposeful selection of variables in logistic regression. Source Code Biol Med. 2008;3:17.
- Health, United States, 2017: With Special Feature on Mortality. Hyattsville (MD): National Center for Health Statistics; 2018. Report No.: 2018-1232. Available from: https://www.cdc.gov/nchs/data/hus/hus17.pdf
- Yu Z, Tan M. Disordered eating behaviors and food addiction among nutrition major college students. Nutrients. 2016;8(11):1–16.
- Choijiljav D, Nasanjargal T, Ogawa S, Oidov B, Yanjmaa E, Nyam N, Munkhbat L, Dash M, Hayashi K, Irie Y, Shinozaki H. Disordered eating attitude and associated factors among university students in Ulaanbaatar, Mongolia. Kitakanto Med J. 2020;70(3):223–8.
- 39. Fairburn CG, Harrison PJ. Eating disorders. Lancet. 2003;361(9355):407–416.
- Albrahim T, Alrubaish AA, Alfadhliah JTS, Alaskar MK, Alatawi MA, Aldekhayyil SA. The spectrum of disordered eating attitudes among female university students: a cross-sectional study. Curr Res Nutr Food Sci. 2019;7(3):1021–8.
- Levine MP, Murnen SK. "Everybody knows that mass media are/are not [pick one] a cause of eating disorders": a critical review of evidence for a causal link between media, negative body image, and disordered eating in females. J Soc Clin Psychol. 2009;28(1):9–42.
- Smink FRE, Van Hoeken D, Hoek HW. Epidemiology of eating disorders: incidence, prevalence and mortality rates. Curr Psychiatry Rep. 2012;14(4):406–14.
- Thomas J, Khan S, Abdulrahman AA. Eating attitudes and body image concerns among female university students in the United Arab Emirates. Appetite. 2010;54(3):595–8. Available from: http://dx.doi.org/10.1016/j. appet.2010.02.008.

#### **Publisher's Note**

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.