



Risk of eating disorders among nursing students at Duy Tan university 2023

Tran Thi Thu Huong¹, Le Thanh Ha²

¹Duy Tan University, ²108 Military Central Hospital

ABSTRACT

Objectives: Describe the proportion of the risk of eating disorders among nursing students and identify some factors related to the risk of eating disorders among nursing students at Duy Tan University in 2023. **Method:** A cross-sectional descriptive study was carried out among 200 nursing students at Duy Tan University. **Results:** The percentage of nursing students at risk of eating disorders accounted for 23.5%. Some factors related to the risk of eating disorders were academic year, living status, perception of learning, time spent using the internet, stress, anxiety, and depression ($p < 0.05$). **Conclusion:** The proportion of nursing students at risk of eating disorders was relatively high, so it is necessary to have interventions to prevent the risk of eating disorders for students, especially final-year students and those living alone. In addition, students with mental health problems such as stress, anxiety, and depression also need a screening program to prevent the risk of eating disorders.

Keywords: Risk, eating disorders, nursing students.

INTRODUCTION

An eating disorder is often a serious and fatal illness that involves serious disturbances in people's eating behaviors as well as related thoughts and feelings¹. Eating disorders are one of the mental disorders that are relevant not only in Western countries but also on the rise in Asia and countries in Southeast Asia (ASEAN)². This is also one of the extremely serious health problems that affects people of all ages but is mainly found in teenagers and students³.

Anorexia nervosa and bulimia are the most severe manifestations and are associated with clinical malnutrition and

metabolic, digestive, endocrine, and renal changes^{4,5}. Besides, the diagnosis of eating disorders is still elusive and more than half of cases are undetected⁶. Research in several ASEAN Universities found that 11.5% of students across all countries were classified as at risk of developing an eating disorder, from less than 10% in Indonesia, Thailand, and Vietnam to 13.8% in Malaysia and 20.6% in Myanmar⁷.

There are a number of factors that increase university students' risk of developing an eating disorder, such as peer pressure, academic stress, living in a dormitory, close relationships, social

interactions, and high expectations of life⁸. Some studies also reported an association between eating attitudes and low self-esteem, which is body image dissatisfaction among university students^{9, 10}. Eating disorder symptoms among university students may be positively correlated with other mental health problems such as depression and anxiety¹¹ and with behavioral mechanisms to cope with psychological distress such as drinking alcohol, smoking, exercising¹², and excessive internet use¹³.

Developing a thorough screening program is the best strategy to prevent serious complications of eating disorders. To be able to develop such a strategy, it is important to determine the distribution and characteristics of eating disorders in the population¹⁴. Therefore, the research was conducted with the aim of describing the proportion of the risk of eating disorders among nursing students and identifying some factors related to the risk of eating disorders among nursing students at Duy Tan University in 2023.

SUBJECTS AND METHODS

Participants

- *Inclusion criteria*: Full-time university nursing students from year 1 to year 4 at Duy Tan University.

- *Exclusion criteria*: Students who did not agree to participate in the research, were absent during the time of participating in the study.

Location and time of research: The research was conducted at Duy Tan University from October 2022 to June 2023.

Research design: A cross-sectional descriptive design was conducted.

Research sample: 200 nursing students.

Sampling: The quota sampling method was employed to select 50 students each school year (first year to fourth year) with a total of 200 included students.

- Then the convenience sampling method was utilized to select 50 nursing students in each school year that met the sampling criteria.

Instruments: The questionnaire includes 3 parts:

Part 1: General information of the participants.

Part 2: DASS-21 (Depression Anxiety and Stress Scale – 21): Scale for assessing depression, anxiety, and stress. The Vietnamese version of the scale was standardized and used in many studies in Vietnam¹⁵. A pilot study on 20 nursing students was conducted to test whether respondents could understand the questions. Students who participated in the pilot study would not be included in the final study. The results of testing the reliability of items about depression, anxiety, and stress reported that: Cronbach’s Alpha was 0.87.

Table 1. Classification of depression, anxiety, and stress

Level	Depression	Anxiety	Stress
Normal	0 – 9	0 – 7	0 – 14
Mild	10 – 13	8 – 9	15 – 18
Moderate	14 – 20	10 – 14	19 – 25
Severe	21 – 27	15 – 19	26 – 33
Critical	≥ 28	≥ 20	≥ 34

Part 3: The EAT-26 is a validated questionnaire used to measure the symptoms and characteristics of eating disorders ¹⁶, includes 26 items related to diet, bulimic and food preoccupation, and eating control. Each item has 6 optional answers with increasing levels from never to always, scored as follows: always – 3; usually – 2; often – 1; sometimes, rarely, never - 0 (item 26 is scored in reverse), the total score is calculated from 0 to 78. Students with scores of 20 or more are considered to have a risk of eating attitude and behavior disorders ^{6,16}.

The scale was standardized and widely used throughout the world ¹⁷, in Vietnam, this scale was also used in a number of studies and had Cronbach's alpha reliability as high as 0.96 in research on public health students in Hanoi ¹³ and 0.86 in the study by Nguyen Thi My Dung ¹⁸. The reliability of the scale in this study was 0.835.

Data collection methods: The data was collected through an interview.

The research was conducted at Duy Tan University. The researcher approached the students during their studies and explained the research objectives. Beforehand, the participants were informed about the study objectives and progress, and their questions were answered by the researcher. Students who met the research criteria were asked to fill out the questionnaire, and then return it to the researcher immediately upon completion. Survey response time was about 20 minutes.

Data processing method: Data were coded and analyzed using SPSS 20.0 and Excel 2010 software. Descriptive statistics was employed to analyze the data of

participants' information characteristics. Frequencies and percentages were used to examine data related to the EAT-26 and DASS-21 scales. T-test and ANOVA analysis were used to test the association between variables and the risk of eating disorders. Results were evaluated within a 95% confidence interval, and $p < 0.05$ was considered statistically significant.

Research ethics: The research was approved by Duy Tan University. The participants were provided with full information about the purpose and content of the research. They were informed about their right to stop participating in the research, and that their decision did not affect their studies. Participants' information and identities were committed to be kept confidential, and participants' forms were encrypted with numbers. The study did not affect participants and the results were for research purposes only.

RESULTS

Characteristics of participants

Of the 200 participants, female students accounted for a higher proportion than male students at 94.5%. Only 11% of students lived with family or relatives. 2.5% of students had family financial conditions at a level of lack. The proportion of students with good academic performance and average/weak academic performance was 61.5% and 7.0% respectively. 59% of students felt that learning was a lot. Only 10% of students regularly participated in extracurricular activities (table 1).

Table 1. General information of participants (n = 200)

Characteristic		n	%
School year	Year 1	50	25.0
	Year 2	50	25.0
	Year 3	50	25.0
	Year 4	50	25.0
Gender	Male	11	5.5
	Female	189	94.5
Living status	Renting house (alone)	59	29.5
	Renting house (≥ 2 people)	119	59.5
	Staying with family/relatives	22	11.0
Family's financial condition	Lack	5	2.5
	Enough to live	192	96.0
	Well off	3	1.5
Academic performance	Excellent/good	63	31.5
	Rather	123	61.5
	Average/Weak	14	7.0
Feeling about the learning	Moderate	82	41.0
	Much	118	59.0
Participating in extracurricular activities	Seldom	29	14.5
	Sometimes	151	75.5
	Regularly	20	10.0

Most students used the internet more than 3 hours/day for entertainment (84.5%). Only 17.5% of students exercised 150 minutes/week or more. The proportion of students with BMI underweight and overweight and obese was respectively 19.0% and 10.5%. 21.5% of students rated themselves as thin and 15% of students rated themselves as overweight. 4.0% of students had moderate stress and 10% of students had mild stress. Regarding the level of anxiety, the proportion of students with mild and moderate anxiety was 16.5% and 16%, respectively. 15.5% of students showed signs of mild depression (table 2).

Table 2. Characteristics of participants regarding habits and health status (n = 200)

Characteristic	n	%	
Time spent using the Internet for entertainment	≤ 3 hours/day	31	15.5
	> 3 hours/day	169	84.5
Time for doing exercise	< 150 minutes/week	165	82.5
	≥ 150 minutes/week	35	17.5
BMI	Underweight (BMI < 18.5)	38	19.0
	Normal (18.5 ≤ BMI < 23)	141	70.5
	Overweight, obese (BMI ≥ 23)	21	10.5
Self-evaluate the weight and shape	Thin	43	21.5
	Fit	125	62.5
	Overweight	32	15.0
Stress	Normal	172	86.0
	Mild	20	10.0
	Moderate	8	4.0
Anxiety	Normal	135	67.5
	Mild	33	16.5
	Moderate	32	16.0
Depression	Normal	161	84.5
	Mild	31	15.5

Table 3. Risk of eating disorders in students (n = 200)

Risk of eating disorders	n	%
Have	47	23.5
Do not have	153	76.5

Of the 200 participants, 23.5% of them were at risk of eating disorders and 76.5% of them were not at risk.

Table 4. The relationship between eating disorders and factors of sample characteristics, family, and school (n = 200)

Characteristic	Mean	SD	t/F	P	Post Hoc
School year			F = 2.759	0.039	④>③>②>①
1 year	9.88	9.88			
Year 2	11.66	10,034			
Year 3	13.82	10,665			
Year 4	15.58	11,872			
Gender			t = -1.562	0.908	
Male	7.92	13,375			
Female	13.02	10,372			
Living status			F = 3.537	0.031	①>②>③
Accommodation (alone)	15.66	11,776			
Accommodation (≥ 2 people)	11.78	10,211			
Stay with family/relatives	10.05	7,442			
Family's financial condition			F = 1.716	0.063	
Lack	21,20	16,888			
Enough to live	12.48	10,425			
Well off	14.67	0.577			
Academic performance			F = 2.581	0.078	
Excellent/good	15.22	11,667			
Rather	11.59	9,788			
Average/Weak	11.64	10,050			
Feeling about the learning			t = -2.058	0.041	
Moderate	10.90	10,144			
Much	14.01	10,734			
Participation in extracurricular activities			F = 2.857	0.06	
Seldom	16.79	11,280			
Sometimes	11.81	9,860			
Regularly	13.80	13,590			

School year: ①: 1 year; ②: Year 2; ③: Year 3; ④: Year 4

Current residence: ①: Rent house alone; ②:rent house ≥ 2 people; ③: Stay with family/relatives.

The results presented that there was a statistically significant relationship between school year and eating disorders ($p < 0.05$). Fourth- and third-year nursing students were at greater risk of eating disorders than first- and second-year nursing students.

The students' living status was related to the risk of eating disorders. Students who lived alone in a rented house had a higher risk of eating disorders than students who lived in a rented house with 2 or more people. or live with family or relatives. This difference was statistically significant ($p < 0.05$).

The research reported that students who felt that their study was a lot were at risk of eating disorders ($p < 0.05$).

Table 5. The relationship among eating disorders and habits and health status of the participants (n = 200)

Characteristic	Mean	SD	t/F	P	Post Hoc
Time spent using the Internet for entertainment			t = -2.416	0.019	
≤ 3 hours/day	9.61	7,084			
> 3 hours/day	13.31	11,025			
Time for doing exercise			t = -0.163	0.871	
< 150 minutes/week	12.68	10,444			
≥ 150 minutes/week	13.00	11,366			
BMI			F = 0.169	0.862	
Underweight (BMI < 18.5)	13.03	7,855			
Normal (18.5 ≤ BMI < 23)	12.49	11,037			
Overweight, obese (BMI ≥ 23)	13.86	12,059			
Self-evaluate the weight and shape			F = 2.366	0.096	
Thin	15.02	10,313			
Fit	11.49	10,683			
Overweight	14.53	10,067			
Stress			F = 3.106	0.047	③>②>①
Normal	12.00	10,114			
Mild	16.75	10,731			
Moderate	18.50	16,570			

Characteristic	Mean	SD	t/F	P	Post Hoc
Concerned			F = 3.314	0.038	③>②>①
Normal	11.41	10,422			
Mild	15.33	9,639			
Moderate	15.63	11,401			
Depression			t = -2.084	0.044	
Normal	11.91	9,766			
Mild	17.23	13,566			

Stress: ①: Normal; ②: Light; ③: Fit

Anxiety: ①: Normal; ②: Light; ③: Fit

The factor of time spent using the internet for entertainment was related to the risk of eating disorders. Students who used the Internet ≥ 3 hours/day had a higher risk of eating disorders than students with Internet usage time less than 3 hours/day. This difference was statistically significant ($p < 0.05$).

Research results also indicated that there was a statistically significant relationship among stress, anxiety, depression, and eating disorders ($p < 0.05$).

DISCUSSION

Current status of risk of eating disorders among students: Research results indicated that 23.8% of nursing students were at risk of eating disorders. The development of eating behavior disorders was not only in Europe but also increasing in Asia and ASEAN countries ². Compared with some previous studies on eating disorders in Vietnam, this proportion was lower than the study by Ko, N et al (2015) in 203 female university students in Hanoi with 48.8% of students at risk of eating disorders ². Research by Nguyen Thi My Dung et al (2020) also reported that the proportion of medical students at Ho Chi Minh City University of Medicine and Pharmacy with eating disorders was quite high at 30% ¹⁸. This may be due to differences in the instruments used in the

studies. When researching medical students, Nguyen Thi My Dung et al simultaneously used two scales, EAT-26 and BITE, to assess eating disorders, the study by Ko, N et al used SCOFF, but this scale had poor validity in the research population of female college students, and in this research, EAT-26 was employed to assess the risk of eating disorders in students.

Some studies using EAT-26 to assess eating disorders in students presented that the proportion of students at risk of eating disorders was also relatively high. In a survey using a cross-sectional questionnaire and anthropometric measurements conducted with randomly selected university students in Bangladesh, 37.6% of students were classified as at risk of eating disorders ¹⁴. A cross-sectional descriptive study on knowledge and prevalence of

eating disorders in nursing students in Nepal (2018) by Subedi, S. et al. reported that 27.2% of students were at risk of eating disorders¹⁹. Research results on risk factors for eating disorders by Mazzaia, MC et al (2018) in 120 nursing students also indicated that 25% of students showed signs of eating disorders²⁰.

However, the results of some other studies using EAT-26 to assess eating disorders recorded lower results than this study. In a study conducted at a private university in Malaysia (2016), it was found that 6.3% of 206 female medical university students were at risk of eating disorders²¹. Research on eating disorders and associated factors in students of a medical university in South India by Iyer, S. et al (2021) demonstrated that the proportion of students at risk of developing eating disorders was 13%⁶. When compared with the study of Pengpid, S et al (2018) on the risk of eating disorders among university students in ASEAN, including Vietnam, it reported that the proportion of students in Hanoi University of Public Health at risk of eating disorders was 9.1%¹³. Differences in research time, study population, as well as socio-economic characteristics among regions and countries in the above studies such as Vietnam, Malaysia, India, etc. may give differences in results among studies despite using the same EAT-26 scale to assess the risk of eating disorders in students.

Associated factors to the risk of eating disorders among students: Research indicated that the fourth - and third - year students were more likely to have eating disorders than first - and second - year students ($p < 0.05$). Research results also demonstrated that students who felt that their study was a lot were at risk of

eating disorders ($p < 0.05$). According to the curriculum framework of Duy Tan University, it is not until the 2nd semester of the 2nd year that nursing students begin to study specialized subjects. Therefore, the volume of specialized knowledge as well as the volume of practical learning and clinical work of students in the 3rd and 4th years may be greater than in previous years. Besides, at the time of the survey, the 4th year students were participating in internships at medical facilities, so it may affect students' eating habits.

Compared to students living with family or relatives, students living in rented houses were more likely to suffer from eating disorders, especially students living alone ($p < 0.05$). This result was also similar to the results of research by Kiss-Tóth, E. et al. (2018)²². This may be because nursing students spend a lot of time studying at school and medical facilities, so students may have difficulty following a moderate diet, especially those who live alone. Additionally, students who live alone may sometimes feel lonely, and this feeling may influence their emotional and behavioral orientation, including eating behavior²³.

Although the internet offers potential advantages to educational institutions in terms of students' ability to access knowledge and information that was previously inaccessible, it also has some negative effects such as wasting time or anti-social behavior²⁴. However, the degree of adverse effects of internet use on adolescents depends on the duration of internet use, purpose, and intention as well as excessive and uncontrolled use²⁵. The study results demonstrated that among the participants, the group of students who spent ≥ 3 hours/day using the internet for entertainment

were more likely to have eating disorders. This result was similar to several studies providing insight into how heavy internet use can impact eating behavior and lead to the development of eating disorders ^{26, 27}.

Anxiety and depressive disorders are among the most common mental disorders in adolescents ²⁸. Students are a special group of people who are going through the most important period of their lives, during which they experience many stressful events ²⁹, the most common mental problems found among university students are depression, anxiety, and stress.

This study indicated that students who showed signs of stress were at risk of eating disorders ($p < 0.05$). High-stress learning environments as well as clinical internship environments of nursing students can lead to poor diet. Some studies reported that people under stress tended to consume foods or snacks that were high in calories and fat, which could lead to weight gain or obesity ^{30, 31}.

The research results also presented that students with anxiety disorders were at higher risk of eating disorders than normal students ($p < 0.05$), which was also similar to the results of other studies ^{18, 22}. In addition, eating disorders also had a statistically significant association with depression ($p < 0.05$). This result was also similar to the study of Celik, S. et al (2015) ³², a study by Mazzaiz, MC, et al. (2018) ²⁰, similar to the research by Pengdid, S. et al (2018) ¹³ and research by Nguyen Thi My Dung et al (2020) ¹⁸.

Eating disorder symptoms among university students may be positively correlated with mental health problems such as depression and anxiety ¹¹. Depression is one of the diseases that accompany eating

disorders ³³, leading to the progression of eating pathology ^{34, 35} and conversely, improper diet and nutrition may also create chemical imbalances that play an important role in causing certain types of depression ³⁶. Additionally, previous studies found that some university students experiencing anxiety used life-threatening measures to control their weight, such as severe fasting, appetite suppressants, diuretics, etc ²¹.

This study has several limitations that may affect the results. Regarding research design, conducting descriptive cross-sectional research makes the research power in proving causality not high compared to other research designs. The data obtained from this study was limited to a group of nursing students, and therefore, cannot be generalized to all nursing students in the university. This study used a self-reported questionnaire, which may increase the possibility of result bias. In addition, students provided information only at one time, that was when the student was interning at hospitals, so it may affect the research results.

CONCLUSION

Research results demonstrated that the proportion of nursing students at risk of eating disorders accounted for 23.5%. The study found that there was a relationship between students' risk of eating disorders and year of study, living status, perception of learning, time spent using the internet, stress, anxiety, and depression ($p < 0, 05$).

Recommendation: The university needs to regularly monitor, observe, and grasp the psychology of students, especially students who are final-year students and live alone. The university also needs to increase counseling and encouragement for students to reduce pressure and stress,

especially before clinical internships at medical facilities, and develop seminars and discussions about appropriate internet usage time, and about building a suitable diet.

REFERENCES

1. National Institute of Mental Health. Eating Disorders. Retrieved from <https://www.nimh.nih.gov/health/topics/eating-disorders>. 2023.
2. Ko, N., Tam, D.M., Viet, NK, Scheib, P., Wirsching, M., & Zeeck, A. Disordered eating behaviors in university students in Hanoi, Vietnam. *J Eat Disord*, 2015, 3, 18. doi:10.1186/s40337-015-0054-2.
3. Klump, K.L., Bulik, C.M., Kaye, W.H., Treasure, J., & Tyson, E. Academy for eating disorders position paper: eating disorders are serious mental illnesses. *International Journal of Eating Disorders*, 2009, 42(2), 97-103. doi: 10.1002/eat.20589.
4. Bandeira, Y., Mendes, A., Cavalcante, A., & Arruda, S. Body image evaluation of Nutrition students a private college of Fortaleza. *J Bras Psiquiatr*, 2016, 168-167. DOI10.1590/0047-2085000000119
5. Fortes, L. d. S., Filgueiras, J.F., Oliveira, F. d. C., Almeida, S.S., & Ferreira, MEC. Etiological model of disordered eating behaviors in Brazilian adolescent girls. *Cadernos de Saúde Pública*, 2016, 32. doi: 10.1590/0102-311X00024115.
6. Iyer, S., & Shriram, V. Prevalence of Eating Disorders and Their Associated Risk Factors in Students of a Medical College Hospital in South India. *Cureus*, 2021,13(1). doi: 10.7759/cureus.12926.
7. Moessner, M., Fassnacht, D.B., & Bauer, S. Online assessment of eating disorders: the clinical and research inventory for eating disorders (CR-EAT). *Mental Health & Prevention*, 2015, 3(4), 170-177. <https://doi.org/10.1016/j.mhp.2015.08.001>.
8. Sanchez-Ruiz, M.J., et al. Personality, emotion-related variables, and media pressure predict eating disorders via disordered eating in Lebanese university students. *Eat Weight Disord*, 2019, 24(2): p. 313-322. doi: 10.1007/s40519-017-0387-8.
9. Blow, J., & Cooper, TV. Predictors of body dissatisfaction in a Hispanic college student sample. *Eat Behav*, 2014, 15(1), 1-4. doi: 10.1016/j.eatbeh.2013.10.010.
10. Davila, E.P., Kolodziejczyk, J.K., Norman, G.J., Calfas, K., Huang, J.S., Rock, C.L., . . . Patrick, K. Relationships between depression, gender, and unhealthy weight loss practices among overweight or obese college students. *Eat Behavior*, 2014, 15(2), 271-274. doi:10.1016/j.eatbeh.2014.03.010.
11. Fortes, L. d. S., Filgueiras, J.F., Oliveira, F. d. C., Almeida, S.S., & Ferreira, MEC. Etiological model of disordered eating behaviors in Brazilian adolescent girls. *Cadernos de Saúde Pública*, 2016, 32. doi: 10.1590/0102-311X00024115.
12. Eisenberg, D., Nicklett, E.J., Roeder, K., & Kirz, N.E. Eating disorder symptoms among college students: prevalence, persistence, correlations, and treatment-seeking. *J Am Coll Health*, 2011,59(8), 700-707. doi:10.1080/07448481.2010.546461.
13. Pengpid, S., & Peltzer, K. Risk of disordered eating attitudes and its relation to mental health among university students in ASEAN. *Eat Weight Disord*, 2018, 23(3), 349-355. doi:10.1007/s40519-018-0507-0.
14. Pengpid, S., Peltzer, K., & Ahsan, G.U. Risk of eating disorders among university students in Bangladesh. *Int J Adolesc Med Health*, 2015, 27(1), 93-100. doi:10.1515/ijamh-2014-0013.

15. Le, MTH, Tran, TD, Holton, S., Nguyen, H.T., Wolfe, R., & Fisher, J. Reliability, convergent validity and factor structure of the DASS-21 in a sample of Vietnamese adolescents. *PLoS One*, 2017, 12(7), e0180557. doi:10.1371/journal.pone.0180557.
16. Garner, D.M., Olmsted, M.P., Bohr, Y., & Garfinkel, P.E. The eating attitudes test: psychometric features and clinical correlations. *Psychol Med*, 1982, 12(4), 871-878. doi:10.1017/s0033291700049163.
17. Nasser, M. The EAT speaks many languages: review of the use of the EAT in eating disorders research. *Eat Weight Disord*, 1997, 2(4), 174-181. doi:10.1007/bf03339972.
18. Nguyen Thi My Dung, Khuong Quynh Long and Thai Thanh Truc. Eating disorders and associated factors among medical students in Ho Chi Minh City. *Ho Chi Minh City Journal of Medicine*, 2020, 24(1), 106-114.
19. Subedi, S., Shah, S.K., Thapa, M., Maharjan, P.L., & Shrestha, P.D. Knowledge and prevalence of eating disorder among nursing students of Lalitpur, Nepal. *International Journal of Research-GRANTHAALAYAH*, 2018, 6(4), 179-187. DOI: 10.5281/zenodo.1243120.
20. Mazzaia, MC, & Santos, RMC. Risk factors for eating disorders among undergraduate nursing students. *Acta Paulista de Enfermagem*, 2018, 31, 456-462. <https://doi.org/10.1590/1982-0194201800065>.
21. Manaf, N.A., Saravanan, C., & Zuhrah, B. The Prevalence and Inter-Relationship of Negative Body Image Perception, Depression and Susceptibility to Eating Disorders among Female Medical Undergraduate Students. *J Clin Diagn Res*, 2016, 10(3), Vc01-vc04. doi:10.7860/jcdr/2016/16678.7341.
22. Kiss-Tóth, E., Wasilewska, M., Sopel, O., Mandziuk, M., Ladner, J., Varga, B., Lukács, A. Eating disorder in university students: an International Multi-Institutional Study. *European Journal of Public Health*, 2018, 28(suppl_4), cky214.010. <https://doi.org/10.1093/eurpub/cky214.010>
23. Cortés-García, L., Rodríguez-Cano, R., & von Soest, T. Prospective associations between loneliness and disordered eating from early adolescence to adulthood. *Int J Eat Disord*, 2022, 55(12), 1678-1689. doi:10.1002/eat.23793.
24. Hazelhurst, S., Johnson, Y., & Sanders, I. An empirical analysis of the relationship between web usage and academic performance in undergraduate students. *arXiv preprint arXiv*. 2011,
25. Filiz, A. Purposes, causes and consequences of excessive internet use among Turkish adolescents. *Eurasian Journal of Educational Research*, 2015, 15(60), 35-56. Doi: 10.14689/ejer.2015.60.3.
26. Çelik Ç, B., Odacı, H., & Bayraktar, N. Is problematic internet use an indicator of eating disorders among Turkish university students? *Eat Weight Disord*, 2015, 20(2), 167-172. doi:10.1007/s40519-014-0150-3.
27. Hinojo-Lucena, F.J., Aznar-Díaz, I., Caceres-Reche, M.P., Trujillo-Torres, J.M., & Romero-Rodríguez, J.M. Problematic Internet Use as a Predictor of Eating Disorders in Students: A Systematic Review and Meta-Analysis Study. *Nutrients*, 2019, 11(9). doi:10.3390/nu11092151.
28. Polanczyk, G.V., Salum, G.A., Sugaya, L.S., Caye, A., & Rohde, L.A. Annual research review: A meta-analysis

- of the worldwide prevalence of mental disorders in children and adolescents. *J Child Psychol Psychiatry*, 2015, 56(3), 345-365. doi:10.1111/jcpp.12381.
29. Buchanan, J.L. Prevention of depression in the college student population: a review of the literature. *Arch Psychiatr Nurs*, 2012, 26(1), 21-42. doi:10.1016/j.apnu.2011.03.003.
30. Unusan, N. Linkage between stress and fruit and vegetable intake among university students: an empirical analysis on Turkish students. *Nutrition Research*, 2006, 26(8), 385-390. <https://doi.org/10.1016/j.nutres.2006.06.002>.
31. Zellner, D.A., Loaiza, S., Gonzalez, Z., Pita, J., Morales, J., Pecora, D., & Wolf, A. Food selection changes under stress. *Physiology & behavior*, 2006, 87(4), 789-793. doi: 10.1016/j.physbeh.2006.01.014.
32. Celik, S., Ugur, B.A., Aykurt, F.A., & Bektas, M. Eating Attitudes and Related Factors in Turkish Nursing Students. *Nurses Midwifery Stud*, 2015, 4(2). doi:10.17795/nmsjournal25479.
33. McElroy, S. L., Kotwal, R., & Keck, P. E., Jr. Comorbidity of eating disorders with bipolar disorder and treatment implications. *Bipolar Disord*, 2006, 8(6), 686-695. doi:10.1111/j.1399-5618.2006.00401.x.
34. García-Villamisar, D., Dattilo, J., & Del Pozo, A. Depressive mood, eating disorder symptoms, and perfectionism in female college students: a mediation analysis. *Eat Disord*, 2012, 20(1), 60-72. doi:10.1080/10640266.2012.635569.
35. Jones, L.E., Buckner, E., & Miller, R. Chronological progression of body dissatisfaction and drive for thinness in females 12 to 17 years of age. *Pediatr Nurs*, 2014, 40(1), 21-25.
36. Rao, TS, Asha, MR, Ramesh, BN, & Rao, KS. Understanding nutrition, depression and mental illnesses. *Indian J Psychiatry*, 2008, 50(2), 77-82. doi:10.4103/0019-5545.42391.