Open Access Article

Ann. Acad. Med. Siles. (online) 2023; 77: 67–74
eISSN 1734-025X
DOI: 10.18794/aams/158557
www.annales.sum.edu.pl

PRACA ORYGINALNA
ORIGINAL PAPER

Knowledge of students of selected fields of study on specific eating disorders

Wiedza studentów wybranych kierunków studiów na temat specyficznych zaburzeń odżywiania

Michał Górski[1], Beata Całyniuk[2], Jagoda Garbicz[1], Kamila Szynal[1], Karolina Górska[3], Renata Polaniak[2]

[1]Doctoral School, Faculty of Public Health in Bytom, Medical University of Silesia, Katowice, Poland / Szkoła Doktorska, Wydział Zdrowia Publicznego w Bytomiu, Śląski Uniwersytet Medyczny w Katowicach
[2]Department of Human Nutrition, Faculty of Public Health in Bytom, Medical University of Silesia, Katowice, Poland / Zakład Żywienia Człowieka, Wydział Zdrowia Publicznego w Bytomiu, Śląski Uniwersytet Medyczny w Katowicach
[3]Students' Scientific Association of Special Pedagogy, Faculty of Special Pedagogy, Pedagogical University of Krakow, Poland / Studenckie Towarzystwo Naukowe Pedagogiki Specjalnej, Wydział Pedagogiki Specjalnej, Uniwersytet Pedagogiczny w Krakowie

ABSTRACT

INTRODUCTION: Eating disorders comprise a dynamically developing group of psychiatric disorders. They are characterized by a pathological way of food intake and disturbances in the feelings of hunger and satiety. The clinical picture is dominated by destructive eating behaviours, an abnormal self-image and obsession with controlling body weight. The aim of the study was to assess the knowledge about anorexia nervosa (AN) and bulimia nervosa (BN) among students of selected faculties.
MATERIAL AND METHODS: The group of respondents consisted of students of medicine, dentistry, dietetics and psychology. The questionnaire study included 955 respondents (799 women and 156 men). The probability level of 0.05 was assumed in the statistical analyses.
RESULTS: More than 85% of the respondents correctly indicated the definition of AN and BN. The knowledge of the risk factors, complications, or diagnostic criteria for these conditions ranged 20–60%. The medical and psychology students had the highest level of knowledge. The respondents who had a history of eating disorders had a higher level of knowledge than those who had never suffered from them.
CONCLUSIONS: The knowledge of eating disorders among medical, medical-dental, dietetics and psychology students is selective and insufficient to work with patients with eating disorders. This suggests the need for ongoing education in the researched aspect.

KEY WORDS

anorexia nervosa, bulimia nervosa, specific eating disorder

Received: 31.01.2022 **Revised:** 26.12.2022 **Accepted:** 26.12.2022 **Published online:** 27.04.2023

Address for correspondence: mgr Michał Górski, Szkoła Doktorska, Wydział Zdrowia Publicznego w Bytomiu, Śląski Uniwersytet Medyczny w Katowicach, ul. Jordana 19, 41-808 Zabrze, tel. +48 32 275 51 95, e-mail: d200893@365.sum.edu.pl

Publisher: Medical University of Silesia, Katowice, Poland

STRESZCZENIE

WSTĘP: Zaburzenia odżywiania to dynamicznie rozwijająca się grupa zaburzeń psychicznych. Charakteryzują się patologicznym sposobem przyjmowania pokarmu oraz zaburzeniami w odczuwaniu głodu i sytości. W obrazie klinicznym dominują destrukcyjne zachowania żywieniowe, nieprawidłowy obraz własnego ciała oraz obsesja dotycząca kontrolowania masy ciała. Celem pracy była ocena wiedzy na temat jadłowstrętu psychicznego (*anorexia nervosa* – AN) i żarłoczności psychicznej (*bulimia nervosa* – BN) wśród studentów wybranych kierunków studiów.
MATERIAŁ I METODY: Grupę respondentów stanowili studenci kierunków lekarskiego, lekarsko-dentystycznego, dietetyki i psychologii. Badaniem kwestionariuszowym objęto 955 respondentów (799 kobiet oraz 156 mężczyzn). W analizach statystycznych przyjęto poziom prawdopodobieństwa 0,05.
WYNIKI: Ponad 85% badanych prawidłowo wskazało definicję AN i BN. Wiedza na temat czynników ryzyka, powikłań czy kryterium diagnostycznego tych schorzeń wahała się w zakresie 20–60%. Największą wiedzę posiadali studenci kierunków lekarskiego oraz psychologii. Respondenci, którzy chorowali w przeszłości na zaburzenia odżywiania, posiadali większą wiedzę niż osoby nigdy na nie niechorujące.
WNIOSKI: Wiedza na temat zaburzeń odżywiania wśród studentów kierunków lekarskiego, lekarsko-dentystycznego, dietetyki oraz psychologii jest wybiórcza i niewystarczająca do pracy z pacjentami chorującymi na zaburzenia odżywiania. Sugeruje to konieczność stałej edukacji w badanym aspekcie.

SŁOWA KLUCZOWE

jadłowstręt psychiczny, żarłoczność psychiczna, specyficzne zaburzenia odżywiania

INTRODUCTION

The number of patients diagnosed with mental illnesses is increasing rapidly worldwide [1]. According to World Health Organization (WHO), they occur in 10––20% of children and adolescents, which is the leading cause of disability among young people, regardless of geographical region [2]. A lack of appropriate treatment causes developmental disorders and makes it impossible to lead a fulfilling life in the future [2]. It is also worrying that the incidence of mental disorders is increasing in the elderly group (over 60 years of age) and is currently around 15% [3].

One of the most rapidly growing groups of mental disorders is eating disorders [4]. They are diseases characterized by disturbed food intake and disturbances in the feelings of hunger and satiety. These disorders do not have organic causes; they develop on psychological grounds [5]. The clinical picture is dominated by destructive eating behaviours, an abnormal self-image and obsession with controlling body weight. The patient usually hides the problems from the family and the environment, and in some cases isolates himself from society [4,5,6].

In the literature, eating disorders are divided into two groups. There are specific eating disorders such as anorexia nervosa (AN) and bulimia nervosa (BN) and non-specific eating disorders such as night eating syndrome, orthorexia, bigorexia and pregorexia [4].

These disorders are becoming some of the biggest public health problems. They occur mainly in girls and young women, but their prevalence is increasingly observed in boys, men and older people [5]. It seems that the extent of their prevalence, which was determined at the beginning of the 21st century (at that time eating disorders were observed to be much more common in Western Europe and North America compared to Eastern Europe, Asia or Africa) [5,6]. Currently, these disorders occur in similar intensity in all geographic regions, and in Africa and Asia, there has been a dynamic increase in their prevalence [4,5,6].

One of the main diseases among this group of disorders is AN. It is a disease characterized by the refusal of food intake or strict dietary restrictions [6]. The affected person has a disturbed self-image (exaggeration of body size), it is often hatred directed towards the body. The patient is accompanied by severe anxiety and a fear of weight gain, even after eating the smallest meal. Body mass index (BMI) is maintained below the lower limit of normal [5]. Long-term starvation leads to cachexia, numerous complications, e.g. menstrual atrophy, bradycardia, anaemia, hair loss, hypothermia, and immunodeficiency [4,5,6]. Affective disorders, including depression, may also occur [5]. The annihilation of the organism leads to significant strain on the body, in many cases ending in death. Anorexia nervosa is a disease with the highest mortality rate of all mental illnesses; about 50% of deaths are due to cachexia, the remaining 50% are associated with suicidal behaviour [7].

Another disease entity is BN, which is characterised by the occurrence of overeating attacks, after which the patient uses compensatory methods [8]. They include provoked vomiting, the use of laxatives, restrictive fasting, diuretics, excessive physical exercise or the use of drugs to speed up the metabolism [7,8,9]. Common complications of BN are perforations of the gastrointestinal tract, damage to tooth enamel, ulcers in the oral cavity, salivary gland enlargement, hormonal disorders, and heart disorders [8,9].

The treatment process of AN and BN is long-lasting and requires the cooperation of many specialists. Patients usually seek help in situations of extreme malnutrition (in the case of AN), with numerous complications [7,8,9]. Treatment includes the help of

a psychologist, psychiatrist, internist, gynaecologist, cardiologist and nutritionist. Depending on the existing complications, other specialists may be involved in the treatment process. The longer the duration of the illness, the worse the prognosis and the less effective the treatment, which is why it is important to diagnose these disorders as soon as possible. It seems that the knowledge of characteristic symptoms, complications and diagnostics will favour their better recognition [5,7,8,9].

To date, research on the knowledge of eating disorders among medical and social science students has been conducted extremely rarely. Only three studies conducted among students can be found in the Polish and foreign literature; more frequently, such studies have been conducted among school students, school employees, and university teachers [10,11,12,13,14, 15,16]. Therefore, it seems interesting to investigate the level of knowledge about eating disorders among students of selected faculties of medical and social science studies.

This study aimed to assess the knowledge of AN and BN among students of selected majors.

MATERIAL AND METHODS

The group of respondents consisted of students of selected faculties (medicine, dentistry, dietetics, psychology) studying at six Polish universities. The sample size calculator [17] was used to estimate the sample size. The following parameters were kept: estimated fraction size (p) – 50%; significance level (alpha) – 0.05; population size (N): data based on Central Statistical Office reports [18]: 45327; permissible error (e): 5%. Based on the calculator, the sample size for the finite population was determined to be 381 subjects. However, in order to obtain the most accurate data, a much larger group of respondents was examined.

1103 people were invited to participate in the study. During the analysis of the completed questionnaires, 148 questionnaires were rejected (no marked answers, no metric data, empty questionnaires). Finally, 955 respondents were qualified for the study and the study group consisted of: 250 dietetics students, 244 psychology students, 246 medicine students, 215 dentistry students.

The criterion for inclusion in the study was the status of a student of a Polish university and studying one of the following majors: medicine, dentistry, dietetics and psychology. Persons not fulfilling the above-mentioned criteria were excluded from the study.

Participation in the study was voluntary and anonymous. The questionnaires were handed in personally or sent by post. A limitation of the study is the voluntary participation of the interviewees. The sample was not randomly selected, which may be associated with bias – there is a risk that people related to the subject matter of the study volunteered for it [19]. Thus, the conclusions of this study should be treated with some caution.

According to Polish law, this study was not a medical experiment, therefore it did not require the consent of the Bioethics Committee (Act of December 5, 1996, on the professions of physician and dentist (i.e. Journal of Laws 2019, item 537). Nevertheless, all research standards were observed in the study. It complies with the provisions of the Declaration of Helsinki.

An original questionnaire was used in the study, which was validated on 55 persons. They were asked to fill in the questionnaire twice with an interval of 5 days. The obtained results were statistically analysed to assess the reliability of the developed questionnaire. The internal consistency of the scales was tested using Cronbach's alpha coefficient and by determining the correlation coefficients between the answers to individual questions and the total scale scores. Scale repeatability (test-retest reliability) was determined by comparing the results obtained when the same person completed the same questionnaire twice at an interval of 5 days and by determining the intraclass correlation coefficient (ICC). A significantly high correlation was found between the scores obtained for each question and the total score (in each case $p < 0.05$, $r > 0.67$). The calculated alpha-Cronbach's coefficient was 0.90, indicating the very good internal consistency of the questionnaire.

Reliability analysis of the questionnaire was performed based on questionnaires completed correctly twice. The level of repeatability was determined using the ICC coefficient, which was 0.81. No statistically significant differences were found between the total scores and the scores for individual questions obtained after completing the questionnaire twice (on day 0 and day 5 $p > 0.05$ in each case). Correlation coefficients were determined between answers to individual questions obtained during the first and second filling-out of the questionnaire. A significant, high correlation was found between the results obtained for each question in the case of double questioning ($p < 0.05$ and $r > 0.52$ in each case).

The questions on knowledge about eating disorders had a minimum of 5 answer options, one of which was "I don't know". Each of these questions had only one correct answer. The respondents' answers were scored for correctness. A maximum of 14 points could be obtained. Each correct answer was awarded 1 point, each incorrect answer 0 points. Based on the answers, the actual level of knowledge of the respondents was assessed. The data were interpreted according to the following scale: 14–13 points very good knowledge, 12–11 points good knowledge, 10–8 points sufficient knowledge, < 8 points insufficient knowledge.

The Shapiro-Wilk test was used to assess the normality of data distributions. The χ^2 test was employed to test for the significance of differences. The results for which $p < 0.05$ were considered statistically significant. Statistical analysis was performed using Statistica 13.3 PL (StatSoft Polska, Kraków, Poland).

RESULTS

955 respondents participated in the study. The dominant group of respondents was women (52.1%). The statistical structure of the respondents in terms of the place of residence was significantly different. Considering the field of study, the most numerous group was students of dietetics (26.2%), the least numerous group was students of dentistry (22.4%). Additionally, 244 psychology students (25.6%) and 246 medical students (25.8%) participated in the survey. The majority of the respondents were students of the initial period of study (1–3 years). Eating disorders were diagnosed in 3.9% of the respondents.

The vast majority of respondents, from all the majors surveyed, were able to correctly indicate the definition of AN (85.9%). The correct answer regarding the diagnostic criterion was given by far fewer respondents – knowledge of the criterion according to BMI was indicated only 29% of respondents, and the amenorrhoea criterion by 43.2%. Only half of the respondents knew which products are customarily eliminated from the diet of persons suffering from AN. A similar number of respondents (52.8%) was able to indicate the clinical symptoms of this disease. Only every third respondent was able to indicate the complications of AN (Table I).

Table I. Respondents' knowledge about anorexia nervosa
Tabela I. Wiedza respondentów na temat jadłowstrętu psychicznego

Subject	Correct answer n (%)				
	total students	dietetics	psychology	medicine	dentistry
Knowledge of definition of AN	820 (85.9)	328 (96.2)	166 (67.5)	220 (88.7)	106 (88.3)
Knowledge of diagnostic criterion for BMI	267 (29.0)	101 (29.6)	74 (30.1)	69 (27.8)	23 (19.2)
Knowledge of diagnostic criterion – absence of menstruation	412 (43.2)	174 (51.0)	121 (49.2)	64 (25.7)	53 (44.2)
Knowledge of characteristic dietary behaviour – elimination of fatty products and those containing carbohydrates	480 (50.3)	145 (42.5)	139 (56.5)	140 (56.5)	56 (46.7)
Knowledge of clinical symptoms of AN – constipation, insomnia, syncope, lanugo	504 (52.8)	211 (61.9)	107 (43.5)	109 (44.0)	77 (64.2)
Knowledge of complications of AN – hypothermia, increased cholesterol, infertility	332 (34.8)	139 (40.8)	61 (24.8)	82 (33.1)	50 (41.6)

AN – anorexia nervosa; BMI – body mass index.

The majority of the surveyed students were able to correctly identify the definition of BN (86.5%), the characteristics of overeating attacks (74.8%), the general risk factors (69.1%) and its health complications (55.5%). The other issues of BN were known to respondents to a much lesser extent. Detailed data are presented in Table II.

The majority of the respondents admitted that they gain knowledge about eating disorders via the Internet (55.1%), followed by at university (35.8%). 13.3% of the respondents said they were not interested in eating disorders. Most of the respondents overall (53.3%) rated their knowledge about eating disorders as sufficient. 20.2% of the total students considered their knowledge to be insufficient. The actual level of knowledge of the respondents, determined by the number of points obtained from the questionnaire, indicates that the vast majority of the respondents (86.2%) have insufficient knowledge. None of the respondents received a very good score. Only 4% of the students obtained a good score. Statistical significance was obtained for the relationship between self-assessment and actual knowledge ($p < 0.05$).

The highest level of knowledge about specific eating disorders was demonstrated by the respondents studying on the faculty of medicine (9 points); a similar result was obtained by the respondents studying on other faculties (8 points). The highest median score, depending on the year of study, was achieved by fourth-year students (10 points), while the lowest knowledge on the subject was characteristic of first and second-year students (7 points). Respondents living in the countryside and not suffering from eating disorders displayed less knowledge than the other groups of respondents from the analysed criteria. Statistical significance was obtained for the number of points obtained depending on the field of study and year of study ($p < 0.001$). People who suffered from eating disorders had greater knowledge than people who did not suffer from these diseases (the differences between the two groups were not statistically significant; Table III).

Table II. Respondents' knowledge of bulimia nervosa
Tabela II. Wiedza respondentów na temat żarłoczności psychicznej

Subject	Correct answer n (%)				
	total students	dietetics	psychology	medicine	dentistry
Knowledge of definition of BN	826 (86.5)	335 (98.2)	200 (81.3)	195 (78.6)	96 (80)
Knowledge of characteristic features of BN – awareness of the illness, use of compensatory methods	220 (23.0)	64 (18.8)	66 (26.9)	65 (26.2)	25 (20.8)
Knowledge of compensatory methods – provoking vomiting, use of laxatives, excessive physical activity	313 (32.8)	119 (34.8)	88 (35.8)	73 (29.4)	33 (27.5)
Knowledge of characteristics of overeating attacks – loss of control, eating large amounts of food	714 (74.8)	282 (82.7)	196 (79.6)	157 (63.2)	79 (65.8)
Knowledge of general risk factors for BN – female gender, adolescence and early adulthood, Western European society	662 (69.1)	264 (77.4)	140 (56.9)	162 (65.3)	96 (80.0)
Knowledge of specific risk factors for BN – mental disorders, obesity, excessive attention to appearance, early onset of first period	304 (31.8)	117 (34.4)	74 (30.1)	71 (28.6)	42 (35.0)
Knowledge of health complications of BN – arrhythmia, damage to tooth enamel, endocrine disruption	530 (55.5)	209 (61.3)	120 (48.8)	111 (44.7)	90 (75.0)
Knowledge of the "vicious cycle"	249 (26.1)	71 (20.8)	68 (27.6)	87 (35.1)	23 (19.2)

BN – bulimia nervosa.

Table III. Analysis of median scores from questionnaire on specific eating disorders according to selected criterion
Tabela III. Analiza mediany wyników uzyskanych z kwestionariusza, dotycząca specyficznych zaburzeń odżywiania w zależności od wybranego kryterium

Criterion	Classification	Median score (lower and upper quartiles)	Minimum	Maximum	p*
Field of study	dietetics	8 (6; 9)	1	13	< 0.001
	psychology	8 (7; 10)	2	13	
	medicine	9 (7; 10)	1	13	
	dentistry	8 (7; 9)	5	10	
Year of study	first	7 (5; 8)	1	13	< 0.001
	second	7 (6; 9)	1	13	
	third	8 (6; 9)	2	13	
	fourth	10 (9; 10)	7	11	
	fifth	9 (8; 10)	1	12	
	sixth	9 (8; 10)	5	12	
Place of residence	village	7 (6; 9)	2	12	0.46
	small city	8 (6; 9)	1	12	
	medium-sized city	8 (6; 9)	1	13	
	large city	8 (6; 9)	1	13	
Diagnosis of eating disorders	yes	9 (8; 10)	2	11	0.29
	no	8 (6; 9)	1	13	

* χ^2 test

DISCUSSION

Three factors are the most important in the treatment process of eating disorders: early diagnosis, the patient's consent to start treatment and the motivation to start therapy [11]. The first factor depends on the closest environment of the sick person (family, friends, school environment) and medical professionals (physicians, nurses, dentists, dieticians, physiotherapists, psychologists), who are the first to have contact with the sick person, and thus can spot disturbing symptoms and start treatment [5,6,20,21]. Early diagnosis is a factor that is relatively easy to modify by introducing appropriate training and disseminating knowledge about eating disorders [11,12]. Clinical practice, as well as numerous scientific publications, point out that the other two factors are difficult to

implement as people with eating disorders often do not want to undertake treatment, deny the illness, or consider it a way of life rather than a pathology leading in some cases to death [6,8,22].

An additional complication is the effective masking of symptoms by patients and the lack of common procedures for early detection of these disorders [11]. Patients with eating disorders usually seek help after a long period of illness [1,20,23,24]. They most often seek help from family physicians or clinical dietitians because they have numerous somatic complications as a consequence of their underlying disease entities [11,25]. During the medical and nutritional interview, patients do not admit their eating problems, moreover, they often deny them [11]. Therefore, it is important to be able to recognize the symptoms of eating disorders at an early stage, even when patients initially deny their occurrence.

In the present study, students of four majors were investigated: medicine, dentistry, dietetics and psychology. These groups of students were chosen because scientific publications [10,12,26,27,28] indicate that patients with eating disorders most often seek help from graduates of these fields of study. A similar study, determining knowledge about eating disorders, was conducted by Godala et al. [24] among students of the Medical University of Łódź. The study involved 200 students of physiotherapy, nursing, medical rescue and public health. Subsequently, in the study conducted by Turk et al. [13] the examined group consisted of 138 sports trainers working at universities. The study by Johansson et al. [10] was carried out among 1726 Norwegian dental practitioners and had the largest group of respondents among the discussed literature. It determined not only knowledge about eating disorders, but also the frequency with which dentists provide health care to people with eating disorders and the type of medical procedures they perform.

In our study, the vast majority of the total number of surveyed students (85.9%) were able to indicate the correct definition of AN. The widest knowledge in this area was possessed by the students of dietetics, 96.2% of whom gave the correct answer. It is interesting, however, that almost 15% of the psychology students answered that AN is a disorder in which the patient maintains his/her body weight above the upper limit of the BMI norm. This response is contrary to the correct definition of AN since a prerequisite for the diagnosis of AN is the maintenance of body weight below the lower limit appropriate for age and sex [29].

The knowledge of the definition of AN among the students partaking in our study can be considered satisfactory, but it was lower than in other works. In the study by Godala et al. [24], the correct definition of AN was indicated by as many as 90% of the surveyed students (in our study – 85.9%). It is also surprising that more students of lower and upper secondary schools were able to indicate the correct definition of AN than the respondents in our study. In the study by Chwałczyńska and Bembenek [22], as many as 90% of junior high school students knew the concept of AN.

Unfortunately, despite good knowledge of the definition of AN, most respondents could not correctly identify the diagnostic criteria for the disorder. Only 29% of the total number of surveyed students correctly indicated that AN can be diagnosed when the BMI value is less than 17.5 kg/m²; less than half of the respondents considered the absence of menstruation as a diagnostic criterion. Similar awareness (42.7%) on the discussed topic was demonstrated by high school students in the study by Żołnierczuk-Kieliszek et al. [30]. In our study, the greatest knowledge in this field was demonstrated by the students of dietetics and psychology, while the lowest was by the students of medicine. This is disturbing information because knowledge of the diagnostic criteria is essential for correct medical diagnosis.

In this study, questions were asked relating to the symptoms that accompany AN. Questions related to psychiatric symptoms (including behavioural changes – changes in behaviour and eating habits) and somatic changes were addressed.

Unfortunately, only slightly more than half of the respondents (50.3%) were able to correctly identify the groups of products that are eliminated from the diet of patients with AN. The students of psychology and medicine had the widest knowledge in this field. Surprisingly, among all the majors, the students of dietetics gave the correct answers with the lowest frequency. Patients, especially in large cities, often turn to a dietician for help before they become aware of the disease and start treatment, hence a dietician must be able to recognize the characteristic eating behaviours that may suggest a problem with eating disorders and pay attention to this fact in further work with the patient [26,31,32,33,34].

A problem for a significant number of subjects was to identify the characteristic somatic symptoms that occur in AN. The results obtained in our work differ from those obtained in other studies. Much better knowledge of AN symptoms was demonstrated by trainers working at universities [12]. Nearly ¾ (73.8%) of them correctly identified the symptoms that occur in this disease entity. This is positive information as such knowledge of symptoms may help in early diagnosis of the disease and encourage treatment. High school students, on the other hand, were characterised by possessing less knowledge of the researched subject. In the study by Szpytman et al. [35], only 13% of the respondents correctly recognised dermatological changes (including the presence of whiteheads on the skin) as a symptom of AN.

As in the case of AN, the vast majority of respondents were able to recognise the definition of BN. As many

as 86.5% of the respondents correctly recognized that bulimia is a disease that "is characterized by eating very large amounts of food, with a loss of self-control, followed by methods leading to weight loss". This answer was indicated by almost all the surveyed dietetics students (98.2%), who displayed the greatest knowledge in this area. The lowest number correct answers to this question was given by the surveyed medicine and dentistry students. Knowledge of the definition of bulimia, among the students participating in this study, was slightly higher than in the study by Godala et al. [24] (80%). The cited study was also conducted among medical university students, which may suggest that the results obtained in our work are highly reliable. The respondents in our study demonstrated significantly greater knowledge of the definition of bulimia than pregnant women and diabetics [16]. In cited study, BN was correctly defined by only 53% of pregnant women and 39.6% of diabetics. The cited results indicate a higher level of knowledge on the studied topic among medical and social science students than in other population groups.

The occurrence of eating disorders has complex pathogenesis, and it is difficult to determine unequivocally which factor is the direct cause of these disease entities [25,26,36,37,38,39]. Nevertheless, some factors that carry the risk of developing BN have been described in quite some detail in the literature as general factors and specific factors [1,40,41].

Nearly 70% of the respondents were able to identify the general risk factors for bulimia (female gender, adolescence and early adulthood, Western European society). The highest number of correct answers was given by the students of medicine and dentistry (80%), the lowest level of knowledge on this issue was displayed by the students of psychology (56.9%). However, the vast majority of respondents could not identify the specific risk factors for bulimia. The correct answer (mental disorders, obesity, excessive attention to appearance, early onset of the first menstrual period) was given by only 31.8% of the respondents.

The knowledge of BN risk factors of the respondents of the present study was lower than that of sports coaches working at universities in the USA [12]. A study by Turk et al. [13] found that 80% of coaches were able to correctly identify the risk factors for eating disorders.

This study is intended to draw attention to a topic rarely discussed in the literature – medical students' knowledge of eating disorders. We are aware that this survey is not perfect and has its drawbacks. They include the selectivity of the questions, but the authors tried to ask about different aspects of AN and BN. The scope of the study may also be a limitation. The survey was conducted only in Poland, which makes it impossible to relate the results to students from other countries. Nonetheless, it is a nationwide survey with a large number of respondents, which makes it possible to relate the results to the level of knowledge about eating disorders among the general population of students in the selected fields of study.

Eating disorders comprise a significant mental health problem. Their treatment requires the cooperation of many different specialists, which is why education in this area is so important. We are convinced that only an interdisciplinary team of specialists, characterized by an appropriate state of knowledge, can adequately fulfil its tasks and treat people suffering from eating disorders. The surveyed students of medicine, dentistry, dietetics and psychology are very likely to encounter the problem of eating disorders among their patients in their future professional work.

CONCLUSIONS

The conducted study and analysis of available literature show that students of the chosen faculties have selective and insufficient knowledge to work with patients suffering from eating disorders. The students of medicine had the widest knowledge, while the students of dentistry, psychology and dietetics had less knowledge. The study suggests that teaching programmes for eating disorders need to be revised. Due to the increasing incidence of eating disorders, it seems necessary to continue research in this area to raise the awareness of future health professionals about the consequences of eating disorders and to educate them about how to help the ill.

Author's contribution

Study design – M. Górski, B. Całyniuk, K. Górska
Data collection – M. Górski, J. Garbicz, K. Szynal
Data interpretation – K. Szynal, J. Garbicz
Statistical analysis – J. Garbicz, K. Górska
Manuscript preparation – M. Górski, B. Całyniuk, J. Garbicz, R. Polaniak
Literature research – M. Górski, K. Szynal, B. Całyniuk, K. Górska, R. Polaniak

REFERENCES

1. Zdrowie psychiczne Polaków [pdf]. Komunikat z badań BS/132/2012. Oprac. R. Boguszewski. CBOS. Warszawa, październik 2012 <https://cbos.pl/SPISKOM.POL/2012/K_132_12.PDF> [accessed on: 22.11.2021].

2. Improving the mental and brain health of children and adolescents. World Health Organization [online] <http://www.who.int/mental_health/maternal-child/child_adolescent/en/> [accessed on: 22.11.2021].

3. Mental health of older adults. World Health Organization, 12 December 2017 [online] <https://www.who.int/en/news-room/fact-sheets/detail/mental-health-of-older-adults> [accessed on: 22.11.2021].

4. Atwood M.E., Friedman A. A systematic review of enhanced cognitive behavioral therapy (CBT-E) for eating disorders. Int. J. Eat. Disord. 2020; 53(3): 311–330, doi: 10.1002/eat.23206.

5. Kezelman S., Crosby R.D., Rhodes P., Hunt C., Anderson G., Clarke S. et al. Anorexia nervosa, anxiety, and the clinical implications of rapid refeeding. Front. Psychol. 2018; 9: 1097, doi: 10.3389/fpsyg.2018.01097.

6. Galmiche M., Déchelotte P., Lambert G., Tavolacci M.P. Prevalence of eating disorders over the 2000–2018 period: a systematic literature review. Am. J. Clin. Nutr. 2019; 109(5): 1402–1413, doi: 10.1093/ajcn/nqy342.

7. Dobrescu S.R., Dinkler L., Gillberg C., Rastam M., Gillberg C., Wentz E. Anorexia nervosa: 30-year outcome. Br. J. Psychiatry 2020; 216(2): 97–104, doi: 10.1192/bjp.2019.113.

8. Meule A., Küppers C., Harms L., Friederich H.C., Schmidt U., Blechert J. et al. Food cue-induced craving in individuals with bulimia nervosa and binge-eating disorder. PLoS ONE 2018; 13(9): e0204151, doi: 10.1371/journal.pone.0204151.

9. Pike K.M., So M., Hilbert A., Maekawa H., Shimanouchi T., Wilfley D. et al. Risk factors for anorexia nervosa and bulimia nervosa in Japan and compared to a U.S. sample. Int. J. Eat. Disord. 2021; 54(2): 155–167, doi: 10.1002/eat.23442.

10. Johansson A.K., Johansson A., Nohlert E., Norring C., Åstrøm A.N., Tegelberg Å. Eating disorders – knowledge, attitudes, management and clinical experience of Norwegian dentists. BMC Oral Health 2015; 15(1): 124, doi: 10.1186/s12903-015-0114-7.

11. Le L.K., Hay P., Mihalopoulos C. A systematic review of cost--effectiveness studies of prevention and treatment for eating disorders. Aust. N. Z. J. Psychiatry 2018; 52(4): 328–338, doi: 10.1177/0004867417739690.

12. Lydecker J.A., Grilo C.M. Fathers and mothers with eating-disorder psychopathology: Associations with child eating-disorder behaviors. J. Psychom. Res. 2016; 86: 63–69, doi: 10.1016/j.jpsychores.2016.05.006.

13. Turk J.C., Prentice W.E., Chappell S., Shields E.W. Collegiate coaches' knowledge of eating disorders. J. Athl. Train. 1999; 34(1): 19–24.

14. Ziora K., Pilarz Ł.B., Sztylc J., Oświęcimska J. Ocena stanu wiedzy nastolatków na temat *anorexia nervosa*. Endocrinol. Obes. Metab. Disord. 2009; 5(1): 12–18.

15. Przewoźnik D.A. Wybrane zagadnienia dotyczące neurobiologii jadłowstrętu psychicznego. Neuropsychiatr. Neuropsychol. 2013; 8(3–4): 118–122.

16. Pettersen G., Rosenvinge J.H., Bakland M., Wynn R., Mathisen T.F, Sundgot-Borgen J. Patients' and therapists' experiences with a new treatment programme for eating disorders that combines physical exercise and dietary therapy: the PED-t trial. A qualitative study protocol. BMJ Open 2018; 8(1): e018708, doi: 10.1136/bmjopen-2017-018708.

17. Kalkulator wielkości próby. Statystyka od A do Z [online] <https://www.statystyka.az.pl/dobor/kalkulator-wielkosci-proby.php> [accessed on: 25.03.2022].

18. Szkolnictwo wyższe w roku akademickim 2020/2021 (wyniki wstępne). Główny Urząd Statystyczny, 15.06.2021 [online] <https://stat.gov.pl/obszary-tematyczne/edukacja/edukacja/szkolnictwo-wyzsze-w-roku-akademickim-20202021-wyniki-wstepne,8,7.html> [accessed on: 25.03.2022].

19. Shelley A., Horner K. Questionnaire surveys – sources of error and implications for design, reporting and appraisal. Br. Dent. J. 2021; 230(4): 251––258, doi: 10.1038/s41415-021-2654-3.

20. Pilarczyk K. Wykorzystanie seksualne w dzieciństwie a zaburzenia odżywiania. Dziecko Krzywdzone. Teoria, badania, praktyka 2016; 15(2): 56–72.

21. Bryant-Waugh R. Feeding and eating disorders in children. Psychiatr. Clin. North Am. 2019; 42(1): 157–167, doi: 10.1016/j.psc.2018.10.005.

22. Chwałczyńska A., Bembenek A. Ocena świadomości dziewcząt w wieku gimnazjalnym dotycząca jadłowstrętu psychicznego. Endocrinol. Obes. Metab. Disord. 2010; 6(3): 118–123.

23. Behar R., Arancibia M., Gaete M.I., Silva H., Meza-Concha N. The delusional dimension of anorexia nervosa: phenomenological, neurobiological and clinical perspectives. Arch. Clin. Psychiatr. 2018; 45(1): 15–21, doi: 10.1590/0101-60830000000148.

24. Godala M., Karasińska E., Trafalska E., Kolmaga A., Szatko F. Wiedza studentów Uniwersytetu Medycznego w Łodzi na temat zaburzeń odżywiania. Probl. Hig. Epidemiol. 2012; 93(1): 80–85.

25. Myszkowska-Ryciak J., Leśniak W., Harton A., Gajewska D., Bawa S. Poziom wiedzy na temat specyficznych zaburzeń odżywiania w wybranych grupach populacyjnych. Bromat. Chem. Toksykol. 2012; 45(3): 827–832.

26. Międzynarodowa Statystyczna Klasyfikacja Chorób i Problemów Zdrowotnych (ICD-10) – X Rewizja. T. 1. Wydanie 2008. WHO; Centrum Systemów Informacyjnych Ochrony Zdrowia 2012.

27. Cordery H., Waller G. Nutritional knowledge of health care professional working in the eating disorders. Eur. Eat. Disord. Rev. 2006; 14(6): 462–467, doi: 10.1002/erv.688.

28. Harshbarger J.L., Ahlers-Schmidt C.R., Atif A., Allred E., Carroll M., Hauser R. School counselors' knowledge of eating disorders. Eat. Weight Disord. 2011; 16(2): 131–136, doi: 10.1007/BF03325319.

29. Miles S., Gnatt I., Phillipou A., Nedeljkovic M. Cognitive flexibility in acute anorexia nervosa and after recovery: A systematic review. Clin. Psychol. Rev. 2020; 81: 101905, doi: 10.1016/j.cpr.2020.101905.

30. Żołnierczuk-Kieliszek D., Piwko E., Janiszewska M., Kulik T., Pawlikowska-Łagód K., Kryk A. High school students' awareness of anorexia and bulimia threats. Pol. Nurs. 2015; 4(58): 403–408.

31. Facts about eating disorders. Eating Disorders Coalition [online] <https://eatingdisorderscoalition.org/inner_template/facts_and_info/facts-about-eating-disorders.html> [accessed on: 25.03.2022].

32. Butler R.M., Heimberg R.G. Exposure therapy for eating disorders: A systematic review. Clin. Psychol. Rev. 2020; 78: 101851, doi: 10.1016/j.cpr.2020.101851.

33. Meneguzzo P., Tenconi E., Todisco P., Favaro A. Cognitive remediation therapy for anorexia nervosa as a rolling group intervention: Data from a longitudinal study in an eating disorders specialized inpatient unit. Eur. Eat. Disord. Rev. 2021; 29(5): 770–782, doi: 10.1002/erv.2848.

34. Jowik K., Tyszkiewicz-Nwafor M., Słopień A. Anorexia nervosa – what has changed in the state of knowledge about nutritional rehabilitation for patients over the past 10 years? A review of literature. Nutrients 2021; 13(11): 3819, doi: 10.3390/nu13113819.

35. Szpytman A., Brukwicka I., Kopański Z., Kollár R., Kollárová M., Bajger B. et al. Młodzież o anoreksji i bulimii – badania ankietowe. J. Clin. Health. 2016; 1: 32–37.

36. Touyz S., Lacey H., Hay P. Eating disorders in the time of COVID-19. J. Eat. Disord. 2020; 8: 19, doi: 10.1186/s40337-020-00295-3.

37. Mulkens S., Waller G. New developments in cognitive-behavioural therapy for eating disorders (CBT-ED). Curr. Opin. Psychiatry 2021; 34(6): 576–583, doi: 10.1097/YCO.0000000000000745.

38. Yan P., Gao B., Wang S., Wang S., Li J., Song M. Association of 5--HTR2A -1438A/G polymorphism with anorexia nervosa and bulimia nervosa: A meta-analysis. Neurosci. Lett. 2021; 755: 135918, doi: 10.1016/j.neulet.2021.135918.

39. Gorwood P., Duriez P., Ramoz N. The BDNF gene as an example of gene x environment interaction in eating disorders. Nutr. Clin. Métab. 2020; 34(1): 6–10, doi: 10.1016/j.nupar.2020.02.009.

40. Hagan K.E., Walsh B.T. State of the art: the therapeutic approaches to bulimia nervosa. Clin. Ther. 2021; 43(1): 40–49, doi: 10.1016/j.clinthera.2020.10.012.

41. Himmerich H., Kan C., Au K., Treasure J. Pharmacological treatment of eating disorders, comorbid mental health problems, malnutrition and physical health consequences. Pharmacol. Ther. 2021; 217: 107667, doi: 10.1016/j.pharmthera.2020.107667.