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# ANALYSIS OF STRESS FACTORS AND THE LEVEL OF ANXIETY AND DEPRESSION AMONG BACHELOR'S DEGREE NURSING STUDENTS – A PILOT STUDY

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**A** – study design, **B** – data collection, **C** – statistical analysis, **D** – interpretation of data, **E** – manuscript preparation, **F** – literature review, **G** – sourcing of funding

**ABSTRACT**

**Background:** Nursing students are affected by stressors related to academic activities and those related to clinical activities.

**Aim of the study:** To analyze the stressors and the level of anxiety and depression among bachelor's degree students of nursing.

**Material and methods:** An observational study was conducted between July 2023 and February 2024 among 167 bachelor's degree nursing students. The Hospital Anxiety and Depression Scale (HADS) and a self-report survey were used.

**Results:** Respondents considered stressors related to learning theoretical subjects (M=3.85, SD=1), stressors related to learning in the practical classes lab in the Medical Simulation Center (M=3.06, SD=1.08), and stressors related to patient care to be the strongest (M=2.91, SD=0.91).
A group of 79 (47.31%) participants had a severe anxiety disorder; 56 respondents (33.53%) had a borderline state of this disorder. A group of 56 (33.53%) had a borderline state of depressive disorders, and 42 (25.15%) had severe depressive disorders. The mean score for the presence of anxiety was M=10.43 (SD=3.26), and for depression was M=8.2 (SD=3.42).

**Conclusions:** The lecturers and the decision-makers should take these results into consideration and pay special attention to the stressors that students consider to be the worst. It is recommended that positive coping strategies for stress management be reinforced and that students be encouraged to participate in programs or workshops designed to teach them effective stress management techniques. It is similarly crucial to maintain communication with students, provide them with encouragement and assistance during challenging periods within the academic and clinical settings, and acknowledge and reinforce their strengths.

**KEYWORDS:** stress; anxiety; depression; nursing students

## Background

Stress is an integral part of life and affects everyone. The concept of stress was introduced by the physiologist W. Canon and further developed by H. Selye. W. Canon used the term stress to describe the "fight or flight" response triggered when the body's equilibrium is upset by an interacting stimulus. H. Selye defined stress as the "response of the body to any demand, whether it is caused by, or results in, pleasant or unpleasant conditions" [1, 2].

A group of people who are particularly vulnerable to stress are those in the medical profession, due to the nature of the work of health-care work-

ers [3], which involves a sense of great responsibility for human health and life, and often working under immense time pressure. Nursing personnel are particularly vulnerable to experiencing elevated levels of stress. The nursing profession entails the acquisition of extensive theoretical and practical knowledge, which is initially obtained at the university level and then further developed during nursing practice. Those who elect to pursue this profession are confronted with a substantial amount of material to master, as well as a large number of hours of practical training and professional practice. In accordance with the prevailing standard of nursing education in Poland, the minimum requirement for the number of hours dedicated to practical training and professional practice is 4720, while the minimum requirement for the number of ECTS credits is 180 [4–6]. The pursuit of a nursing degree is widely perceived as a time-consuming and challenging endeavor, which inevitably gives rise to elevated stress levels among those engaged in this academic pursuit. The level of stress experienced can be attributed to a multitude of factors, including the stressors inherent to everyday life and the responsibilities associated with pursuing higher education [7–11]. Stressors affecting nursing students can be divided into two main categories: stressors related to academic activities and stressors related to clinical activities. The first category includes such stressors as a large amount of material to be mastered, a large number of hours of theoretical classes, difficult exams, challenging assignments, heavy workloads, classes in nursing skills labs, and negative relationships with lecturers. The stressors associated with clinical classes, on the other hand, can include fear of the unknown, the need to care for patients and the associated sense of great responsibility for human health and life, the hospital environment, a sense of lack of professionalism and sufficient nursing knowledge and skills, fear of failure, the experience of death, patient suffering, situations requiring a quick student response related to a sudden deterioration in the patient's condition, fear of making a mistake while performing various nursing activities, and negative relationships with the supervisors of practical classes and with medical staff [12,13–16]. Prior research has indicated that prolonged exposure to a multitude of stressors among undergraduate nursing students may result in the emergence of anxiety and depression, with prevalence rates ranging from moderate to high [17,18]. Anxiety and depressive disorders can negatively affect the attention, concentration, working memory, and perceptual-motor functions necessary for learning, as well as a decline in interest in activities that previously gave them satisfaction. A lack of interest in learning, loss of motivation, feelings of hopelessness and lack of self-confidence, and difficulties in decision-making are often observed, which can result in students exhibiting a reluctance to complete their studies and ultimately dropping out [18].

Given the scarcity of studies in the Polish literature that address the aforementioned issues in relation to nursing students, we decided to examine the severity of stressors affecting this group and measure anxiety and depression levels among them.

## Aim of the study

The objective of the study was to examine the stressors and levels of anxiety and depression among undergraduate nursing students.

## Material and methods

### Study design and setting

An observational study was conducted between July 2023 and February 2024 among students of a bachelor's degree in nursing at the Faculty of Health Sciences of the University of Opole. The research was approved by the Research Ethics Committee of Opole University (Committee Opinion No. 8/2023). Strengthening the Reporting of Observational Studies in Epidemiology was followed.

### Participants

The study included 167 undergraduate nursing students at the Faculty of Health Sciences of the University of Opole. Convenience sampling was used. The study was conducted in accordance with the principles of the Helsinki Declaration. The criteria for inclusion in the study were as follows: being a bachelor's degree nursing student and completing the questionnaire, which was tantamount to consenting to the study.

### Data sources/measurement

The study was conducted using the survey technique known as the diagnostic survey method. The tools used in this study were a self-administered survey questionnaire and a standardized survey called HADS. The survey was created in Microsoft Forms. The survey was conducted online, with students receiving an electronic link to the survey questionnaire.

*The Hospital Anxiety and Depression Scale* is a commonly used scale to assess depression and anxiety. It consists of a total of 16 questions that are used to assess levels of anxiety and depression among the

subjects. The tool uses seven questions related to measuring anxiety, seven to assess levels of depression, and two to assess levels of nervousness and aggression. Each item of the questionnaire is scored on a scale from 0 to 3. The score is obtained by adding up all the points from a given category. For anxiety and depression, the maximum score is 21; for aggression, the maximum is 6. Scores of 0–7 indicate normal levels of anxiety and depression; 8–10 indicate borderline abnormal anxiety and depression levels; and 11–21 indicate high levels of anxiety and depression. The HADS scale is considered a reliable tool, characterized by ease and short time of completion, as well as the immediate ability to interpret the result [19].

*The self-report survey* consisted of two parts. The first part of the self-report survey consisted of sociodemographic questions, and the second part consisted of grouped stressors and statements about stressors. Six groups of stressors were created: patient care, contact with the patient's family, learning theoretical subjects, learning in the practical classes laboratory and in the Medical Simulation Center, teachers/supervisors of practical classes and apprenticeships, and the environment and employees of health-care facilities. For each group, 4–6 statements on stressors were arranged. For this part of the survey, a Likert scale was used. The respondent's task was to write the number answer in the box (from "never" (1) to "very often") (5). The reliability of the constructed stressor subscales was examined. The Cronbach's alpha coefficient for each subscale is higher than 0.7. Thus, they are reliable (Table 1).

Table 1. Cronbach's alpha coefficients for each group of stressors

| Group of stressors | Cronbach's alpha coefficients |
|---|---|
| Patient care | 0.809 |
| Contact with the patient's family | 0.840 |
| Learning theoretical subjects | 0.870 |
| Learning in the practical training lab and in the Medical Simulation Center | 0.923 |
| Teachers and supervisors of practical classes and apprenticeships | 0.909 |
| The environment and health-care workers | 0.888 |

## Statistical methods

Quantitative variables were compared in two groups using the Mann–Whitney test and in three or more groups using the Kruskal–Wallis test. If statistically significant differences between groups were detected, a Dunn's post-hoc test was used. Correlation analysis between quantitative variables was carried out using Spearman's correlation coefficient. The reliability of the scales was assessed using Cronbach's alpha coefficient. The analysis assumed a significance level of 0.05. The analysis was performed in R software, version 4.3.2.

# RESULTS

## Participants

A total of 167 people participated in the survey. Women accounted for 93.41% (n=156) of respondents. Most respondents were aged ≤20 years (50.90%; n=85). The largest group was first-year students (45.51%; n=76). The majority declared themselves as not working (73.05%; n=122). Respondents most often resided in villages (50.30%; n=84) or cities with a population of 50–150,000 (24.55%; n=41). When asked about stimulants, the largest groups were caffeine users (52.69%; n=88), alcohol (33.53%; n=56), and cigarette users (33.53%; n=56; Table 2).

Table 2. Sociodemographic data of the study group

| Variations | n | % |
|---|---|---|
| Gender | | |
| Women | 156 | 93.41 |
| Men | 11 | 6.59 |
| Age [years] | | |
| ≤20 | 85 | 50.90 |
| 21–25 | 76 | 45.51 |
| 26–30 | 4 | 2.40 |
| >30 | 2 | 1.20 |
| Year of the study | | |
| I | 76 | 45.51 |
| II | 48 | 28.74 |
| III | 43 | 25.75 |
| Occupational status | | |
| Employed | 122 | 73.05 |
| Unemployed | 45 | 26.95 |
| Place of residence | | |
| Village | 84 | 50.30 |
| City up to 50 thousand inhabitants | 32 | 19.16 |
| City of 50-150 thousand inhabitants | 41 | 24.55 |
| City of 150-500 thousand residents | 9 | 5.39 |
| City of more than 500 thousand residents | 1 | 0.60 |
| Marital status | | |
| Single | 163 | 97.60 |
| Married | 1 | 0.60 |
| Divorced | 2 | 1.20 |
| Widowed | 1 | 0.60 |
| Attitude toward religion | | |
| Religious person | 121 | 72.46 |
| Non-religious person | 46 | 27.54 |

Table 2 contd.

| Variations | n | % |
|---|---|---|
| Used stimulants | | |
| Alcohol | 56 | 33.53 |
| Caffeine | 88 | 52.69 |
| Drugs | 4 | 2.40 |
| Cigarettes | 56 | 33.53 |
| Electric cigarettes | 1 | 0.60 |

## The strongest group of stressors

Respondents considered stressors related to learning theoretical subjects (M=3.85, SD=1), stressors related to learning in the practical classes lab in the Medical Simulation Center (M=3.06, SD=1.08), and stressors related to patient care to be the strongest (M=2.91, SD=0.91; Table 3).

The most significant stressors associated with patient care were identified. The respondents indicated that they were stressed about two specific concerns: the potential inability to handle a sudden change in the patient's condition and the concern that they lacked sufficient practical skills, which could result in an error during the performance of a patient procedure. The mean scores for these concerns were 3.16 (SD=1.05) and 3.09 (SD=1.18), respectively. Conversely, the presence of the family during nursing procedures with the patient (M=2.89, SD=1.14) and the concern about having the requisite knowledge to educate the patient's family (M=2.86, SD=1.06) were the most significant stressors associated with contact with the patient's family. Oral examinations (M=4.19, SD=1.12) were identified as the most significant stressor associated with the acquisition of theoretical knowledge. Regarding the stressors affecting students in the practical classes lab and in the Medical Simulation Center, students are most often stressed by the final practical exam in college (M=3.76, SD=1.25) and time pressure to perform certain activities (M=3.37, SD=1.29). While attending classes at various health-care facilities, students stress that they will be treated badly by medical staff during practical classes or professional practice (M=3.2, SD=1.2) and fear that they will not be able to rely on help and support from nursing staff during practice (M=2.93, SD=1.23; Table 4).

Table 3. The strongest group of stressors

| Group of stressors | n | M | SD | Me | Min | Max | Q1 | Q3 |
|---|---|---|---|---|---|---|---|---|
| Patient care | 167 | 2.91 | 0.91 | 3 | 1 | 5 | 2.2 | 3.6 |
| Contact with the patient's family | 167 | 2.83 | 0.92 | 2.75 | 1 | 5 | 2.5 | 3.38 |
| Learning theoretical subjects | 167 | 3.85 | 1 | 4 | 1 | 5 | 3 | 4.75 |
| Learning in the practical training lab and in the Medical Simulation Center | 167 | 3.06 | 1.08 | 3 | 1 | 5 | 2.33 | 3.83 |
| Teachers and supervisors of practical classes and apprenticeships | 167 | 2.88 | 1.03 | 2.8 | 1 | 5 | 2.1 | 3.4 |
| The environment and health-care workers | 167 | 2.86 | 1.03 | 2.75 | 1 | 5 | 2 | 3.5 |

Legend: M – mean, Me – median, SD – standard deviation, Q1 – first quartile, Q3 – third quartile.

Table 4. Detailed analysis of stressors within each group

| Stressors | N | M | SD | Me | Min | Max | Q1 | Q3 |
|---|---|---|---|---|---|---|---|---|
| **Stressors associated with patient care** | | | | | | | | |
| I am stressed that I will not be able to handle a sudden change in the patient's condition | 167 | 3.16 | 1.05 | 3 | 1 | 5 | 3 | 4 |
| I am afraid that I do not have the right level of knowledge to educate the patient well and prepare him for self-care | 167 | 3.05 | 1.11 | 3 | 1 | 5 | 2 | 4 |
| I am stressed that a patient will go into cardiac arrest during practical classes and apprenticeship and I will have to start CPR | 167 | 2.85 | 1.27 | 3 | 1 | 5 | 2 | 4 |
| I am afraid of the moment of the patient's dying in the hospital and the performance of the patient's post-mortem grooming | 167 | 2.40 | 1.38 | 2 | 1 | 5 | 1 | 3 |
| I am stressed that I do not have sufficient practical skills and I may make a mistake in the process of performing surgical procedures on a patient | 167 | 3.09 | 1.18 | 3 | 1 | 5 | 2 | 4 |
| **Stressors associated with contact with the patient's family** | | | | | | | | |
| I get stressed by difficult questions about the patient's condition from the family | 167 | 2.72 | 0.99 | 3 | 1 | 5 | 2 | 3 |

Table 4 contd.

| Stressors | N | M | SD | Me | Min | Max | Q1 | Q3 |
|---|---|---|---|---|---|---|---|---|
| I am concerned that I do not have the appropriate level of knowledge to educate the patient's family | 167 | 2.86 | 1.06 | 3 | 1 | 5 | 2 | 3 |
| I get stressed when the patient's family is present when I perform nursing activities with the patient | 167 | 2.89 | 1.14 | 3 | 1 | 5 | 2 | 4 |
| I worry that I won't be able to handle unpleasant remarks about me or resentment from the patient's relatives | 167 | 2.86 | 1.30 | 3 | 1 | 5 | 2 | 4 |
| **Stressors associated with learning theoretical subjects** | | | | | | | | |
| I am concerned about the significant volume of theoretical material I must master during my college education | 167 | 3.77 | 1.12 | 4 | 1 | 5 | 3 | 5 |
| I am anxious about the possibility of failing the theoretical examinations | 167 | 3.84 | 1.17 | 4 | 1 | 5 | 3 | 5 |
| I am overwhelmed by the extensive number of lecture hours | 167 | 3.59 | 1.29 | 4 | 1 | 5 | 3 | 5 |
| I become stressed about the prospect of oral examinations | 167 | 4.19 | 1.12 | 5 | 1 | 5 | 3 | 5 |
| **Stressors associated with learning in the practical training lab and in the Medical Simulation Center** | | | | | | | | |
| I get stressed about learning new activities in the practical classes lab | 167 | 2.56 | 1.13 | 3 | 1 | 5 | 2 | 3 |
| I get stressed about not passing the final practical exam in college | 167 | 3.76 | 1.25 | 4 | 1 | 5 | 3 | 5 |
| I get stressed about classes at the Medical Simulation Center | 167 | 2.55 | 1.17 | 2 | 1 | 5 | 2 | 3 |
| I get stressed about performing scenarios at the Medical Simulation Center | 167 | 2.98 | 1.39 | 3 | 1 | 5 | 2 | 4 |
| I get stressed about the time pressure to perform certain activities | 167 | 3.37 | 1.29 | 3 | 1 | 5 | 3 | 5 |
| I am stressed by classes at the Medical Simulation Center with the participation of a standardized patient | 167 | 3.14 | 1.34 | 3 | 1 | 5 | 2 | 4 |
| **Stressors related to teachers and supervisors of practical classes and apprenticeships** | | | | | | | | |
| I am afraid that I will not be able to maintain a good relationship with the supervisor/teacher of practical classes or apprenticeships | 167 | 2.72 | 1.16 | 3 | 1 | 5 | 2 | 3 |
| I am stressed that I will be treated unequally compared to others in the group in practical classes or apprenticeships | 167 | 2.81 | 1.26 | 3 | 1 | 5 | 2 | 4 |
| I get stressed about classes with a teacher/mentor I don't know | 167 | 2.90 | 1.19 | 3 | 1 | 5 | 2 | 4 |
| I am stressed that I will be unfairly graded in practical classes or apprenticeships | 167 | 3.09 | 1.21 | 3 | 1 | 5 | 2 | 4 |
| I'm afraid that I won't be able to rely on the instructor's help and support when doing things with the patient | 167 | 2.87 | 1.17 | 3 | 1 | 5 | 2 | 4 |
| **Stressors related to the environment and health-care workers** | | | | | | | | |
| It stresses me out to use high-tech medical equipment | 167 | 2.57 | 1.06 | 3 | 1 | 5 | 2 | 3 |
| It stresses me out to get to know the medical staff during my apprenticeship | 167 | 2.73 | 1.26 | 3 | 1 | 5 | 2 | 3 |
| I'm worried that I won't be able to count on the nursing staff for help and support during my internship | 167 | 2.93 | 1.23 | 3 | 1 | 5 | 2 | 4 |
| I am stressed that I will be mistreated by the medical staff during my practical classes or apprenticeships | 167 | 3.20 | 1.20 | 3 | 1 | 5 | 2 | 4 |

Legend: M – mean, SD – standard deviation, min – minimum, max – maximum, Q1 – first quartile, Q3 – third quartile.

## Different groups of stressors vs. year of study

The severity of stressors associated with learning theoretical subjects was significantly higher in first-year students than in second-year students (p=0.023). In addition, the severity of stressors related to learning in the practical classes laboratory and the Medical Simulation Center was significantly higher in third-year students than in both second-year students in first-year students (p=0.019; Table 5).

## Prevalence of anxiety and depression

A group of 79 out of 167 survey participants (47.31%) had a severe anxiety disorder, 56 respondents (33.53%) had a borderline state of this disorder, and 32 respondents (19.16%) had no anxiety disorder. In contrast, a group of 69 out of 167 survey participants (41.32%) had no depressive disorders, 56 respondents (33.53%) had a borderline state of these disorders, and 42 respondents (25.15%) had severe depressive disorders. The mean score for the presence

Table 5. Different groups of stressors affecting nursing students according to the year of study

| Stressors | Year of the study | N | Mean | SD | Median | Min | Max | Q1 | Q3 | p |
|---|---|---|---|---|---|---|---|---|---|---|
| Patient care | I | 76 | 2.94 | 0.98 | 2.90 | 1.00 | 5.00 | 2.35 | 3.80 | p=0.787 |
| | II | 48 | 2.93 | 0.82 | 3.00 | 1.40 | 5.00 | 2.20 | 3.45 | |
| | III | 43 | 2.82 | 0.89 | 2.80 | 1.20 | 4.60 | 2.00 | 3.40 | |
| Contact with the patient's family | I | 76 | 2.81 | 0.97 | 2.88 | 1.00 | 5.00 | 2.44 | 3.25 | p=0.914 |
| | II | 48 | 2.86 | 0.83 | 2.75 | 1.25 | 5.00 | 2.50 | 3.25 | |
| | III | 43 | 2.85 | 0.96 | 3.00 | 1.00 | 4.75 | 2.38 | 3.50 | |
| Learning theoretical subjects | I year – A | 76 | 4.02 | 1.02 | 4.25 | 1.00 | 5.00 | 3.00 | 5.00 | p=0.023* A>B |
| | II year – B | 48 | 3.60 | 0.89 | 3.75 | 1.25 | 5.00 | 3.00 | 4.25 | |
| | III year – C | 43 | 3.81 | 1.04 | 3.75 | 1.00 | 5.00 | 3.00 | 4.75 | |
| Learning in the practical training lab and in the Medical Simulation Center | I year – A | 76 | 2.89 | 1.06 | 2.83 | 1.00 | 5.00 | 2.00 | 3.50 | p=0.019* C>B, A |
| | II year – B | 48 | 3.00 | 0.98 | 3.00 | 1.00 | 5.00 | 2.33 | 3.71 | |
| | III year – C | 43 | 3.42 | 1.14 | 3.83 | 1.00 | 5.00 | 2.67 | 4.17 | |
| Teachers and supervisors of practical classes and apprenticeships | I | 76 | 2.86 | 1.03 | 3.00 | 1.00 | 5.00 | 2.00 | 3.60 | p=0.986 |
| | II | 48 | 2.90 | 1.02 | 2.70 | 1.00 | 5.00 | 2.20 | 3.25 | |
| | III | 43 | 2.90 | 1.06 | 2.80 | 1.00 | 5.00 | 2.20 | 3.40 | |
| The environment and health-care workers | I | 76 | 2.99 | 1.08 | 3.00 | 1.00 | 5.00 | 2.19 | 3.75 | p=0.295 |
| | II | 48 | 2.74 | 0.99 | 2.50 | 1.00 | 5.00 | 2.00 | 3.25 | |
| | III | 43 | 2.75 | 0.97 | 2.75 | 1.00 | 5.00 | 2.00 | 3.38 | |

Legend: p – Kruskal–Wallis test + post-hoc analysis (Dunn's test), SD – standard deviation, min – minimum, max – maximum, Q1 – first quartile, Q3 – third quartile, * statistically significant dependence ($p<0.05$).

of anxiety was M=10.43 (SD=3.26), and for depression was M=8.2 (SD=3.42).

## The impact of stressors on the severity of anxiety and depression

The majority of the analyzed groups of stressors exhibited a significant and positive correlation with anxiety and depression. The only exceptions were stressors related to patient care and stressors related to contact with the patient's family, which did not demonstrate a significant correlation with the level of depression and, in fact, appeared to only exacerbate the level of anxiety (Table 6).

## Discussion

The aim of the study was to analyze the effect of different stress factors on the level of anxiety and depression among bachelor's degree students of nursing. Our research shows that the students of nursing are mostly affected by stressors connected to learning

Table 6. Correlation coefficients between anxiety. Depression, and different groups of stressors

| HADS | Groups of stressors affecting nursing students | HADS | Groups of stressors affecting nursing students |
|---|---|---|---|
| **Patient care** | | **Learning in the practical training lab and in the Medical Simulation Center** | |
| Anxiety | r=0.207, p=0.007* | Anxiety | r=0.326, p<0.001* |
| Depression | r=0.087, p=0.265 | Depression | r=0.18, p=0.02* |
| **Contact with the patient's family** | | **Teachers and supervisors of practical classes and apprenticeships** | |
| Anxiety | r=0.261, p=0.001* | Anxiety | r=0.353, p<0.001* |
| Depression | r=0.111, p=0.154 | Depression | r=0.36, p<0.001* |
| **Learning theoretical subjects** | | **The environment and health-care workers** | |
| Anxiety | r=0.341, p<0.001* | Anxiety | r=0.375. p<0.001* |
| Depression | r=0.21, p=0.007* | Depression | r=0.307, p<0.001* |

Legend: * statistically significant dependence ($p<0.05$), r – Spearman's correlation coefficient.

theoretical subjects, secondly with those linked with practical laboratory classes at the Center of Medical Stimulation, and thirdly, stressors connected with the patient's care. The results of a study conducted by researchers in Malaysia showed that the stress connected with clinical tasks and workload were the worst stressors among nursing students nursing [15]. Additionally, Ahmed et al. showed that the strongest stressors among nursing students were stress generated by peers and everyday life, stress connected to tasks and workload, and, similar to our research, stress connected to taking care of the patients [20]. Labrague et al. point to such main stressors as stress connected with the patient's care, tasks and workload, and stressors connected to negative interactions with staff and lecturers [16]. Similar results are shown by the research of Al-Zayyat et al., conducted among the students in Jordan [21].

Shdaifat et al. reported that the most common stressor was felt when the tasks were given and as a result of the workload. The students felt stressed about potential poor grades and not meeting their teacher's expectations, as well as the pressure of clinical practice. The second most common type of stressor was stress connected with teachers and nursing staff. In stressful situations, the students showed discrepancies in experience between theory and practice, differences between their teachers' instructions and expectations, and problems with talking about their patients' health with their teachers. The third most common stressor was stress connected to taking care of the patients. Specifically, the students cited the lack of experience and skills in taking care of the patients, and problems with answering questions asked by the doctors, staff, and patients. The least common stressor was the environment, e.g., the hospital environment, unfamiliarity with the hospital equipment, or the stress connected with a sudden change in the patient's health condition [22], Analyzing the above data, it can be noticed that regardless of location, the stressors affecting the students of nursing are quite similar, and taking care of the patient is mentioned in many studies.

Our own studies also showed that the year of study was connected with the intensity of stressors related to learning theoretical subjects, as the intensity of stress was significantly higher among the first-year students compared to the second-year students ($p=0.023$). The academic year was found to have a significant effect on the level of stress experienced by students in practical classes and those at the Center of Medical Stimulation. Specifically, third-year students reported experiencing significantly higher levels of stress in the practical classes and those held at the Center of Medical Stimulation compared to students in their first and second years ($p=0.019$). However, Ludin et al. [23] and Pinto et al. [24] reported no significant affect of year of study on the level of stress experienced by students. In turn, Admi et al. found significant differences in the level of stress factors connected with all demographic characteristics. In examining the variable "the year of study", it was observed that students in their second year of preclinical studies exhibited markedly elevated levels of stress in four of the six identified stress factors compared to students in their third and fourth years. [25]

Our own study also showed that 47.31% of participants had some anxiety disorders, and 33.53% were on the verge of those disorders. Additionally, a group of 33.53% of students had some depressive disorders. The average result on the anxiety scale for the whole group of students was $M=10.43$ points ($SD=3.26$), which shows the possibility of depression. What is more, we showed that the stress factors related to learning theoretical subjects, practical classes and classes in the Center of Medical Stimulation, teachers and supervisors of practical classes and internships, as well as the environment and workers of health-care facilities significantly correlated with the level of anxiety and depression among the students of nursing. The above data show that with the increase in the intensity of these stressors, the level of students' anxiety and depression increased significantly.

The studies of other authors conducted among students of nursing in other countries are similar to our research, showing that emotions such as stress, anxiety, or depression quite often relate to this group. For example, in a study conducted by Rethnayake and Ekanayaka in Sri Lanka, most of the respondents showed mild or very severe symptoms of depression (51.1%), anxiety (51.8%), and stress (82.6%). This research, similarly to ours, shows a positive, significant relationship between depression and stress ($r=0.785$, $p<0.001$) and between anxiety and stress ($r=0.763$, $p<0.001$) [26]. A significant positive correlation between stress and anxiety was also shown by Onieva-Zafra et al. – where 47.92% of students of nursing experienced a moderate level of stress [27].

Chen et al. studied 625 nursing students from a junior college in Taiwan. A group of 32.6% scored 8 or more points on the Adolescent Depression Inventory (ADI) scale, which indicates depressive symptoms. Among those students, 22.9% had a mild level, 8.9% had a moderate level, and 0.8% had a severe level of symptoms of depression. The average stress level was 120.78 points ($SD=28.47$), which indicates that the students felt a moderate level of stress [28]. Deo et al. conducted their study in Kathmandu, also among students of nursing. They showed that the majority of students (77.71%, $n=143$) did not have depressive symptoms, a group of 11.95% ($n=22$) showed

mild levels of depression, and 10.32% (n=19) showed a moderate level of depression. The majority of the respondents (71.73%, n=132) had a normal level of anxiety, a group of 26 people (14.3%) had a mild level of anxiety, a group of 19 people (10.32%) had a moderate level of anxiety, a group of six people (3.26%) had a high level of anxiety, and one person (0.52%) had a very high level of anxiety. [29] Wang et al. showed that within the clinical situation, the highest perceived level of anxiety among the respondents was fear of making mistakes, followed by observation by the instructors and the initial clinical experiences in the ward [30].

As evidenced by the aforementioned studies, stress is a prevalent phenomenon among nursing students, frequently occurring in conjunction with anxiety and depression. It happens, among other factors, because of the demanding program of nursing studies and the intensive nature of clinical internships. Stress factors can have a significant impact on nursing students because they can lead to feelings of overwhelm and burnout and may even trigger anxiety and depressive disorders among the students. Stress can also trigger problems with concentration and have an impact on learning abilities, which may lead to a decline in academic performance. What is more, the negative impact of stress can lead to poor well-being, low self-esteem, and loss of motivation. Therefore, it is very important to take these factors into account and pay attention to this group of students in order to better provide them with support and constructive skills for coping with stress [17,18,31].

## Limitations of the study

One of the limitations is that the study was conducted among the students of one university, so the number of students was limited. The strength of the study was a well-prepared questionnaire so that the results obtained were reliable because Cronbach's alpha was higher than 0.7 for each scale. In addition, a standardized questionnaire was used to assess anxiety and depression, which is another advantage of the study.

## Conclusions

Bachelor's Degree Nursing Students are mostly affected by the stressors connected with learning theoretical subjects, followed by the stressors connected with learning in the practical workshop and in the Center of Medical Simulation, as well as the stressors related to taking care of the patient.

The intensity of stressors connected with learning theoretical subjects was greater among the students of the first year than the second year, which can be related to the fact that in the first year, there are more theoretical subjects compared to the second year, when there are more clinical classes. On the other hand, the intensity of stressors related to learning the practical classes and in the Center of Medical Stimulation was significantly greater among the third-year students than among the first- and second-year students. This can be related to the fact that the third-year students are preparing for their diploma exam in practical classes and in the Center of Medical Stimulation.

Almost half of the surveyed students of nursing had a clear anxiety disorder, and one fourth had a clear depressive disorder. Both of these groups of disorders intensified with the increasing stress factors generated during the studies.

The lecturers and the decision-makers should take these results into consideration and pay special attention to the stressors that students consider to be the worst. It will be important in the process of educating future nurses because a high level of stress leads to negative health effects, loss of motivation to learn, low self-esteem, and eventually may result in resignation from studies. It could be worth paying attention to this fact and implementing some actions to minimize the level of anxiety, stress, and depression in this group of people. Suggested actions that can be implemented for this purpose are strengthening the positive coping strategies and management of stress, and encouraging the students to take part in programs/workshops aimed at learning how to cope with stress. It is also important to keep in touch with the students, support and motivate them in hard moments during academic and clinic practice as well as recognize and support the students' strengths.

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