

RESEARCH ARTICLE

Stress management strategies and quality of life in undergraduate nursing and midwifery students in Poland: A pilot study

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Abstract

Aim: To establish the level of the quality of life (QOL) and its determinants in nursing and midwifery students, evaluate stress management strategies and find the correlation between the frequency of specific strategies and the QOL.

Design: Diagnostic survey.

Methods: The study was conducted in June 2019. Two hundred thirty-four undergraduate students were examined with the use of Mini-Cope Inventory of Stress Management Measurement (Mini-Cope) and World Health Organization Quality of Life Instrument Brief Form.

Results: The average QOL of the respondents was found as good (4.06 ± 0.73). The students graded their QOL in the social relationship domain the highest (15.98 ± 2.97) and the lowest in the physical health domain (14.38 ± 2.75). The QOL was influenced by material status and the source of income. In stressful situations, the respondents most commonly used Active Coping (2.09 ± 0.57) and Seeking Emotional Support (2.09 ± 0.77) strategies. The latter correlated most positively with the QOL in social relationship ($r = .514, p < .001$) and environmental ($r = .387, p < .001$) domains.

KEYWORDS

midwifery, nursing, quality of life, students

1 | INTRODUCTION

To achieve the competency levels required to practice as a registered nurse or midwife, student nurses and midwives require in-depth theoretical knowledge and practical skills. To fulfil the requirements, they need to undergo numerous hours of theoretical and practical training (McCarthy et al., 2018). In the European Union Member States, basic nursing education is regulated by Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications (The European

Parliament & of the Council of European Union). According to educational standards existing in Poland, nursing and midwifery undergraduate studies last at least six semesters and the number of theoretical and practical hours of training amounts for at least 4,720. Students in Poland spend a total of 2,300 hr in practical training and professional practice in various medical institutions during the whole course of the studies. Nursing students attend practical classes at such hospital wards as surgery, paediatrics, internal medicine, neurology, anaesthesiology, intensive care, geriatrics, palliative care and psychiatry, whereas midwifery students at neonatology,

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gynaecology and obstetrics and maternity units (Polish Parliament, Regulation of The Minister of Science, & Higher Education, 2019). Students have to master clinical knowledge, especially difficult medical concepts, and need to face challenges connected with acquiring practical skills and clinical practice itself (Labrague et al., 2017; Prymachuk & Richards, 2008; Shaban et al., 2012). The factors mentioned above may constitute powerful stressors depending on individual predispositions and may influence the QOL to different degrees (Shaban et al., 2012).

1.1 | Background

Hans Selye defined 'stress' as 'the non-specific response of the body to any demand for change' (Selye, 1956). In turn Schinderman et al. wrote that stress is a normal biological reaction to a potentially dangerous mental, emotional or physical exposure (Schneiderman et al., 2005). Schuler categorized symptoms of stress into three types: physical symptoms (increased heart rate, high blood pressure, headache and ulcer), psychological symptoms (anxiety, low self-respect and anger) as well as behavioural symptoms (smoking, drinking, weight loss and drug abuse) (Schuler, 1980). Coping with stress is defined as all activities undertaken by a human in a stressful situation. Dealing with stress is classified as a process, strategy or style, where style refers to the correlated set of coping strategies typically used in difficult situations. It is an individual pattern of reaction consistent across situations (Orzechowska et al., 2013). Lazarus distinguished two ways of coping with stress – the first one is task-based and problem-solving-oriented, while the second is management-based and is concentrated on lowering the emotional tension (Lazarus, 1993). However, Parker and Endler (1992) estimated these factors as insufficient and added a new style focused on avoidance and rejection of the thought connected with the problem and in this way distancing from it emotionally (Parker & Endler, 1992). Examples of coping strategies are wishful thinking, problem-solving, information seeking, cognitive restructuring, emotional expression or ventilation, distraction, distancing, avoidance, acceptance, seeking social support and denial (Dubow & Rubinlicht, 2011).

Previous studies showed that students of nursing and midwifery are frequently exposed to significantly high levels of stress during clinical practice (Blomberg et al., 2014; Labrague et al., 2017; Prymachuk & Richards, 2008; Shaban et al., 2012). The students' sources of stress connected with clinical practice include: taking care of patients, professional training, professional communication and time management (Soares de Souza et al., 2016), dying patients and patients with terminal illnesses (Zhao et al., 2015), fear of unknown situations, dealing with unfamiliar situations, making errors with patients, learning to apply clinical procedures and managing technical instruments (Pulido-Martos et al., 2012), noise, moving location, social interaction (Ahmed & Mohammed, 2019), unpleasant emotions, humiliating experiences, feeling suffering due to seeing for patients with critical situation (Rezaei et al., 2020), difficult

relationships with clinical colleagues and clinical educators (Wolf et al., 2015). In Brazilian studies, nursing students complained about problems related to the lack of time for: leisure activities, spending time with family members and for completion of extracurricular activities (Soares de Souza et al., 2016). Moreover, nursing students experience many of the same stressors as their non-nursing undergraduate peers, including financial strain and heavy academic workloads, negative interactions with staff and faculty (Ahmed & Mohammed, 2019; Labrague et al., 2017).

Stressors related to both academic activities and clinical placements have serious health consequences for students (Sánchez de Miguel et al., 2019). According to Güneş and Arslantaş (2017) workload and stress are directly related to insomnia among nursing students which in turn gives rise to an unhealthy situation (Güneş & Arslantaş, 2017). Chronic stress may result in burnout, depression, anxiety and negative health outcomes such as exacerbations of autoimmune diseases, cardiovascular diseases or cold symptoms (Schneiderman et al., 2005). Chronic exposure to stress is attributed to some adverse consequences on well-being, and quality of life (QOL) of student nurses (Labrague et al., 2017). Experience high levels of stress during training may result in psychological or emotional impairment during their professional life ultimately affecting the quality of patient care they provide (Shaban et al., 2012). The research from China conducted among baccalaureate nursing students showed that being in financial difficulty, having sleep problems and not having leisure activity were significant correlates of past-week depression, anxiety and stress (Cheung et al., 2016). Moreover, such aspects related to the lifestyle of students like long classroom and practice hours, teacher-student relationships, lack of leisure areas, poor eating habits, lack of regular exercise, constant pressure regarding academic performance in the university environment may impact on students' QOL (Moura et al., 2016).

The studies presented above suggest nursing students' stress may influence their QOL.

The concept of QOL is subjective and multidimensional. Subjective QOL reflects an individual's overall perception and satisfaction with how things are going on in their lives (Wood-Dauphinée et al., 2002). QOL is also defined as 'the degree of need and satisfaction within the physical, psychological, social, activity, material and structural area' (Hörnquist, 1982). According to the World Health Organisation (WHO), QOL is 'individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns' (WHO, 1998). There are many definitions and different approaches to the QOL, but most authors mention that QOL assessment should take into consideration multiple domains such as the physical, social, psychological and spiritual ones (Arronqui et al., 2011; Post, 2014; WHO, 1998). It is worth mentioning that QOL of nursing student's is influenced by many factors such as gender, academic year level, community type, age of the respondents, country of residence and monthly family income (Aboshaiqah & Cruz, 2019; Cruz et al., 2018).

Taking into account the factors mentioned above and the others such as demographic aging of European societies, deficits of nursing staff and an increasing demand for nursing and midwifery staff training (Marc et al., 2019; OECD, 2021) it is worth looking into the problem of QOL among students and stress management strategies used by them. As Gomathi et al. (2013) underlined studying causes of stress and coping strategies used can help in designing appropriate interventions and planning modifications in the curricula to reduce stress and enhance students' well-being and learning abilities. The results of this study will allow for early detection of difficulties experienced by nursing and midwifery students and may support strategies that benefit the search for solutions to conflicts that affect QOL.

The research is trying to answer the following questions. (1) What are the students' QOL in the physical health, psychological, environment and social relationship domains? (2) What factors determine their QOL? (3) What stress management strategies do they use? (4) Is there a correlation between the strategies used and the QOL?

Despite common beliefs that there are people, who while facing difficult situations, can cope with stress better or worse, none advantage of one strategy over the other has ever been proved (Lewandowska et al., 2009). Thanks to establishing the strategies which positively correlate with the QOL in nursing and midwifery students, it will be possible to recommend the ones which may work more efficiently in this group.

2 | METHODS

2.1 | Study design and setting

A diagnostic survey was carried out among nursing and midwifery students of the Institute of Health Sciences at one of the universities in Poland. This quantitative study was an evaluation of the responses of students to the three questionnaires. The method of non-probability sampling was applied. It was a pilot study conducted in June 2019 after the approval of the Bioethical Committee. We used pilot studies to evaluate the adequacy our planned methods and procedures (Polit & Beck, 2017).

2.2 | Participants

Initially, all undergraduate students (277) of the Institute of Health Sciences were invited to participate in the study including 182 nursing and 95 midwifery ones. Inclusion criteria comprised being a student of one of the fields, being 18 years old and signing a voluntary consent of participation. Those who did not meet the criteria were excluded. All of them were informed about the anonymity and a voluntary character of the participation as well as possible resignation at any stage of the research. The aim of the study and the instruction on the instruments' fulfilment were explained to the participants.

2.3 | Variables

In order to carry out statistical calculations the following groups of variables were distinguished:

- Variables related to the QOL in the physical, psychological, social relationship and environment domains, general individual perception of the QOL, general individual perception of the respondents' health condition.
- Variables related to stress management strategies: Active Coping, Positive Revalidation, Acceptance, Sense of Humour, Turn into Religion, Seeking Emotional Support, Seeking Instrumental Support, Use of Psychoactive Substances, Taking care of Something Else, Denial, Discharge, Cessation of Action, Self-Blame.
- Socio-demographic variables: level of education, material status, source of income, mother's level of education, father's level of education, place of residence, marital status.
- Variables related to studies: year of studies, field of study.

2.4 | Measurement

The method of diagnostic survey with the use of a questionnaire was used. The tools included two standardized questionnaires and the authors' self-prepared one.

2.4.1 | World Health Organization quality of life instrument short form

The QOL of the students was determined according to the WHO Scale Quality of Life Short Form (WHOQoL BREF). It consists of 26 questions related to various aspects of life such as physical, psychological, social relationship and environment. The physical domain assesses every day activities, pharmacology or treatment dependence, energy, fatigue, mobility, pain, discomfort, rest, sleep and readiness for work. The psychological domain allows students to self-evaluate their physical appearance, positive and negative feelings, spirituality, religion, faith, cognitive competence, learning, memory and concentration. The area of social relationship includes such aspects as personal relationships, sexual activity and social support while the environment domain evaluates financial satisfaction, the sense of freedom, the feeling of safety, QOL and health care access, accommodation, access to information, relaxation and availability and possibility to pursue one's interests. Finally, the environment domain examines pollution, noise, traffic, climate and transport. The examinees grade each aspect at a 5-grade-scale (very bad, bad, neutral, good and very good). The scale includes some questions which are separately analysed: Question 1 applies to general individual perception of one's QOL, Question 2 concerns general individual perception of one's health condition. The domain scoring reflects individual perceptions of the QOL domains and has a positive direction

– the higher the score, the higher the QOL. The overall scoring for each domain is calculated by counting the average of all the positions included in each domain. Internal cohesion of Polish version of WHOQOL-BREF (Cronbach α) is set at 0.90 (Jaracz et al., 2006).

2.4.2 | Mini-Cope inventory of stress management measurement

The second measuring tool used in the study was the Mini-COPE Questionnaire by Charles Carver in a Polish adaptation of Juczyński and Ogińska-Bulik, (2012). It contains 28 statements which refer to 14 strategies. The group of strategies defined as 'Active Coping' includes the following strategies: Active Coping, Planning and Positive Revalidation. Another group of strategies referred to as 'Helplessness' includes: Use of Psychoactive Substances, Cessation of Actions and Self-blame, while, 'Seeking Support' includes the strategies: Seeking Emotional Support and Seeking Instrumental Support. 'Avoidance Behaviours' include the following strategies: Taking Care of Something Else, Denial and Discharge. Such strategies as: 'Turn to Religion', 'Acceptance' and 'Sense of Humour' form independent groups. Each strategy is represented with two statements and a respondent grades it at a scale from 0–3 (0 – I almost never proceed this way, 1 – I rarely proceed this way, 2 – I often proceed this way, 3 – I almost always proceed this way). Stress management strategies may be grouped into factors describing three stress management styles, namely, problem-oriented, emotion-based and evasive. Internal cohesion of the Polish version of Mini – Cope questionnaire was established on the basis of the examination among 200 individuals aged 25–60. A split-half test reliability was set at 0.86 (Guttman's index) (Juczyński & Ogińska-Bulik, 2012).

2.4.3 | Authors' self-prepared questionnaire

The questionnaire consisted of 17 questions and referred to socio-demographic data, educational and professional plans and preferred values. This article discusses only socio-demographic data. The students' educational and professional plans as well as preferred values will be discussed in further publications.

2.5 | Analysis

The comparison of the values of the qualitative variables in the groups was carried out with the chi-squared test (with Yates' correction for 2x2 tables) or Fisher's test (when the expected amounts appeared to be low in the tables).

Kruskal–Wallis test was also applied as there was no standard distribution of the variables found in the comparison of two groups of quantitative variables. The analysis of three or more quantitative variables required Mann–Whitney's test. In case of statistically significant differences between groups post hoc Dunn's test analysis was applied to identify the groups which were statistically different.

The correlations between quantitative variables were analysed with the use of Spearman's rank correlation coefficient. The dependence value was interpreted according to the following scheme $|r| \geq 0.9$ – strong/high dependence, $0.7 \leq |r| < 0.9$ – medium dependence, $0.5 \leq |r| < 0.7$ – weak/low/little dependence and $|r| < 0.3$ – very little dependence (Hinkle et al., 2003).

The test normality of the variables was examined with Shapiro–Wilk test. The statistical significance level was approved at .05. Therefore, all the values of p below .05 were interpreted as significant. The analysis was carried out in R programme version 3.6.1.

2.6 | Ethics

The approval of the Bioethics Committee was obtained and the requirements of the Helsinki Declaration and Good Clinical Practice were met.

3 | RESULTS

3.1 | Participants

The invitation to take part in the study was accepted by 239 students of nursing and midwifery at University of Opole out of 277 sent. After the analysis of initial questionnaires it turned out that five of them were incorrectly filled in and disqualified the students from the study. Eventually, the analysis was made on the basis of the results from 234 respondents including 146 nursing (62.39%) and 88 midwifery (37.61%) students (Figure 1).

3.2 | Descriptive data

The sample group of 234 undergraduate respondents consisted of 81 (34.62%) first year, 61 (26.07%) second year and 92 (39.32%) third year students. Most of them were single (222; 94.87%) and small village (130; 55.56%) and town (53; 22.65%) residents. Most of them had secondary (186; 79.49%) and postsecondary (37; 15.81%) education. They usually lived off their parents (111; 47.44%) and their material status was self-evaluated as good (111; 47.44%) and average (76; 32.48%). No significant differences were noted between the students of nursing and midwifery as for socio-demographic data (Table 1).

3.3 | Main results

3.3.1 | Level of the quality of life and its determinants in nursing and midwifery students

The overall self-assessment of the QOL in the students was found as good (4.06 ± 0.73). More than a half of the respondents defined it as good (130; 55.56%) and very good (61; 26.07%). The

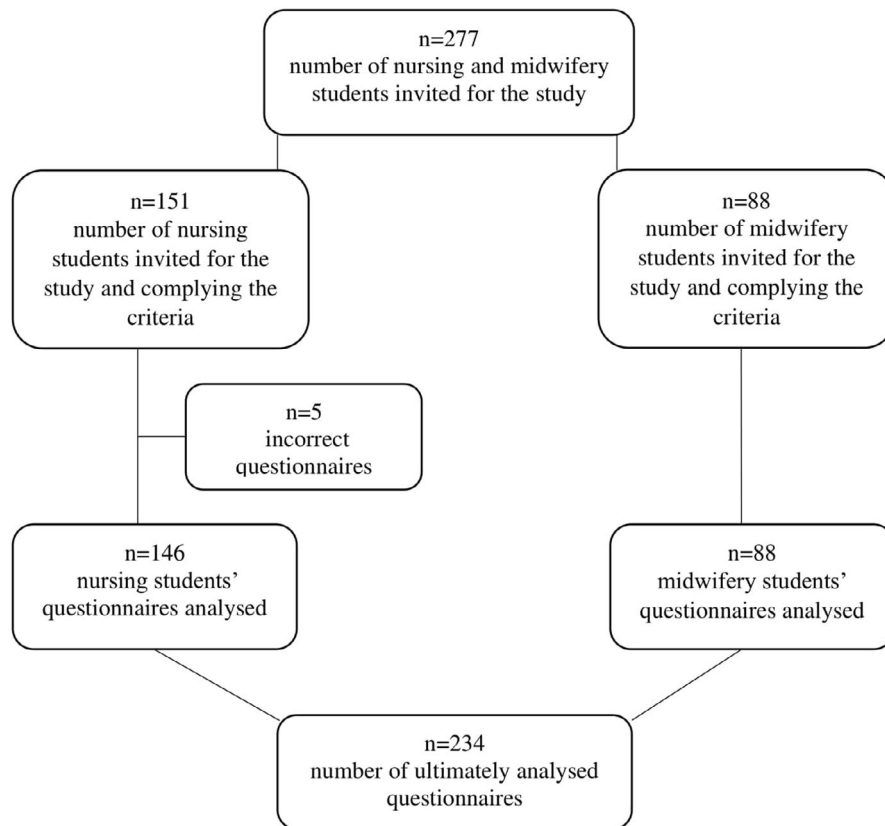


FIGURE 1 Scheme of sample group selection

others answered not too good and not too bad (37; 15.81%), bad (4; 1.47%) and very bad (1; 0.43%). The perception of their health condition was lower and equalled 3.69 ± 0.9 on average. More than a half of the examinees were satisfied (124; 52.99%) or very satisfied (34; 14.53%) with their health condition. Only a small percentage of them were dissatisfied (20; 8.55%) or very dissatisfied (5; 2.14%). The rest of the respondents (51; 21.79%) specified it as neither satisfied nor dissatisfied. The students evaluated their QOL in the social relationship domain the highest (15.98 ± 2.97), lower in the psychological (14.78 ± 2.97) and environment (14.66 ± 2.44) domains and the lowest in the physical one (14.38 ± 2.75).

Subsequently, the influence of socio-demographic data and the variables concerning the studies (year and field) on the QOL was analysed. It was observed that the better material status of the respondents, the better QOL in such domains as the QOL perception (<0.001) in the psychological (<0.001) and environmental domains (<0.001). The respondents who are in a good and very good material situation defined their QOL higher in such domain as health condition ($p = .001$), physical domain ($p < .001$) and social relationship domain ($p < .001$) than those who identified their material status as average, bad or very bad (Table 2).

The perception of the QOL was also diversified by the level of mother's education ($p = .025$). Those, whose mothers were highly educated, defined their QOL higher than those whose mothers had primary or vocational education only (Table 3).

The source of income was the next variable which correlated significantly with the perception of the QOL. The students who lived off their parents or parents and their own incomes had a higher

perception of the QOL than those living on their own incomes only ($p = .035$) (Table 3).

The field of studies was also found statistically differentiating. The midwifery students displayed much higher QOL than the nursing ones in such domains as the QOL perception in the physical and psychological domains (Table 2).

The analysis showed that such variables as place of residence, year of studies and father's education level did not appear to be influencing the respondents' QOL (Table 2, Table 3).

3.3.2 | Stress management strategies and their determinants

The analysis of stress management showed how often the nursing and midwifery students used specific strategies in difficult situations. The results proved that they took advantage of Active Coping (2.09 ± 0.57), Seeking Emotional Support (2.09 ± 0.77), Planning (1.97 ± 0.64) and Seeking Instrumental Support (1.97 ± 0.75) most often. Taking Care of Something Else strategy was the fifth one (1.87 ± 0.65) and the next declared strategies included Acceptance (1.83 ± 0.66) and Positive Revalidation (1.82 ± 0.7). Most rarely did they choose Cessation of Action (0.77 ± 0.63) and Use of Psychoactive Substances (0.48 ± 0.75) (Table 4).

Subsequent analysis was directed at examining the correlations between socio-demographic data and the frequency of using each of the 14 stress management strategies. The respondents living in small villages significantly more often applied Turn into Religion strategy ($p = .001$) than those living in towns and cities. Those in a

TABLE 1 Data characteristics

Feature		Total	Midwifery	Nursing	p*
Place of residence before studies	Village	130 (55.56%)	53 (60.23%)	77 (52.74%)	.53 F
	Small town	53 (22.65%)	20 (22.73%)	33 (22.60%)	
	Average town	38 (16.24%)	12 (13.64%)	26 (17.81%)	
	City	13 (5.56%)	3 (3.41%)	10 (6.85%)	
Marital status	Single	222 (94.87%)	85 (96.59%)	137 (93.84%)	.873 F
	Married	8 (3.42%)	2 (2.27%)	6 (4.11%)	
	Other	3 (1.28%)	1 (1.14%)	2 (1.37%)	
	No data	1 (0.43%)	0 (0.00%)	1 (0.68%)	
Education	Secondary	186 (79.49%)	73 (82.95%)	113 (77.40%)	.617 F
	High	11 (4.70%)	3 (3.41%)	8 (5.48%)	
	Post-secondary	37 (15.81%)	12 (13.64%)	25 (17.12%)	
Father's education	Primary	8 (3.42%)	2 (2.27%)	6 (4.11%)	.927 F
	Vocational	135 (57.69%)	52 (59.09%)	83 (56.85%)	
	Secondary	62 (26.50%)	24 (27.27%)	38 (26.03%)	
	High	23 (9.83%)	8 (9.09%)	15 (10.27%)	
	No data	6 (2.56%)	2 (2.27%)	4 (2.74%)	
Mother's education	Primary	6 (2.56%)	0 (0.00%)	6 (4.11%)	.234 F
	Vocational	77 (32.91%)	30 (34.09%)	47 (32.19%)	
	Secondary	84 (35.90%)	30 (34.09%)	54 (36.99%)	
	High	67 (28.63%)	28 (31.82%)	39 (26.71%)	
Year of undergraduate studies	First year	81 (34.62%)	28 (31.82%)	53 (36.30%)	.175 chi2
	Second year	61 (26.07%)	29 (32.95%)	32 (21.92%)	
	Third year	92 (39.32%)	31 (35.23%)	61 (41.78%)	
Source of income	Work	14 (5.98%)	4 (4.55%)	10 (6.85%)	.761 F
	Parents	121 (51.71%)	45 (51.14%)	76 (52.05%)	
	Others	10 (4.27%)	3 (3.41%)	7 (4.79%)	
	Work and parents	56 (23.93%)	21 (23.86%)	35 (23.97%)	
	Work and others	1 (0.43%)	1 (1.14%)	0 (0.00%)	
	Parents and others	24 (10.26%)	10 (11.36%)	14 (9.59%)	
	Work, parents and others	7 (2.99%)	4 (4.55%)	3 (2.05%)	
	No data	1 (0.43%)	0 (0.00%)	1 (0.68%)	
Material status self-assessment	Very good	40 (17.09%)	17 (19.32%)	23 (15.75%)	.516 F
	Good	111 (47.44%)	46 (52.27%)	65 (44.52%)	
	Average	76 (32.48%)	23 (26.14%)	53 (36.30%)	
	Bad	4 (1.71%)	1 (1.14%)	3 (2.05%)	
	Very bad	3 (1.28%)	1 (1.14%)	2 (1.37%)	

Abbreviations: chi2, chi-squared test; F, Fischer's test.

good and very good financial situation most frequently used Seeking Emotional Support ($p = .002$) and Seeking Instrumental Support ($p = .011$) than those in average, bad or very bad material situation. The latter significantly more often used Cessation of Action ($p = .049$) and Self-Blame ($p < .0001$) than those in a better material situation.

The students, whose fathers had secondary and higher education, used Positive Revalidation ($p = .045$) and Turn into Religion ($p = .021$) more frequently than others. What is more, those, whose

mothers had secondary education made use of Seeking Emotional Support Strategy ($p = .013$) definitely more often than those whose mothers had primary or vocational education. The respondents living off their parents or those working on their own significantly more often used Denial Strategy ($p = .011$) than those living off their parents and working as well. All significant correlations were presented in Table 5. Such variables as 'Year of Studies' and 'Field of Study' did not differentiate using any particular stress management strategy ($p > .005$).

TABLE 2 Material status, year and field of studies versus quality of life in nursing and midwifery students

WHOQoL-bref	Material status			Year of undergraduate studies				Field of study			
	Very good (A)	Good (B)	Average, bad, very bad (C)	p*	First year	Second year	Third year	p*	Midwifery	Nursing	p*
QoL Perception	M ± SD	4.14 ± 0.63	3.72 ± 0.69	<.001	4.17 ± 0.63	4.07 ± 0.65	3.95 ± 0.83	.218	4.22 ± 0.56	3.96 ± 0.8	.019
	Me	4	4	A > B; C B > C	4	4	4		4	4	
	Q1-Q3	4-5	4-5	3-4	4-5	4-4	3.75-4.25		4-5	4-4	
Health Perception	M ± SD	3.83 ± 0.7	3.39 ± 1.03	.001	3.81 ± 0.79	3.77 ± 0.86	3.53 ± 0.99	.15	3.84 ± 0.84	3.6 ± 0.92	.069
	Me	4	4	A, B > C	4	4	4		4	4	
	Q1-Q3	4-5	3-4	3-4	3-4	3-4	3-4		3-4	3-4	
QoL Ph	M ± SD	14.91 ± 2.19	13.17 ± 3.16	<.001	14.57 ± 2.52	14.57 ± 2.82	14.09 ± 2.89	.502	15.06 ± 2.44	13.97 ± 2.85	.004
	Me	15	13	A, B > C	15	15	15		15	14	
	Q1-Q3	14-17	13.5-17	11-15.5	13-17	13-17	12-16.25		14-17	12.25-16	
QoL Ps	M ± SD	15.25 ± 2.41	13.45 ± 2.9	<.001	15 ± 2.63	14.87 ± 2.77	14.52 ± 2.94	.689	15.28 ± 2.52	14.47 ± 2.9	.041
	Me	16	13	A > B; C B > C	15	15	15		16	15	
	Q1-Q3	14-17	14-17	11-16	14-17	13-17	13-17		14.75-17	13-17	
QoL S	M ± SD	16.36 ± 2.71	14.82 ± 3.17	<.001	15.99 ± 3.08	16.2 ± 2.94	15.83 ± 2.92	.738	16.01 ± 2.92	15.96 ± 3.01	.934
	Me	16	15	A, B > C	16	16	16		16	16	
	Q1-Q3	16-19.25	15-19	12-17	15-19	15-19	15-17.5		15-18.25	15-19	
QoL E	M ± SD	15.07 ± 2.06	13.28 ± 2.41	<.001	14.69 ± 2.26	14.64 ± 2.7	14.64 ± 2.43	.989	15 ± 2.14	14.45 ± 2.58	.208
	Me	16	14	A > B; C B > C	15	15	15		15.5	15	
	Q1-Q3	14-16	14-16	12-15	13-16	14-16	13-16		14-16	13-16	

Abbreviations: M, mean; Me, median; p*, statistical significance (Mann-Whitney test); Q1, first quartile; Q3, third quartile; QoL E, quality of life in Environmental Domain; QoL Ph, quality of life in Physical Domain; QoL Ps, quality of life in Psychological I Domain; QoL S, quality of life in Social Relationships Domain; SD, standard deviation.

Bold indicates the value of p below .05.

3.3.3 | Quality of life versus stress management strategies

The results collected in the study proved a weak positive correlation between the perception of the QOL in the psychological domain and four stress management strategies such as Positive Revalidation ($r_s = 0.426$, $p < .001$), Seeking Emotional Support ($r_s = 0.383$, $p < .001$), Active Coping ($r_s = 0.34$, $p < .001$) and Planning ($r_s = 0.31$, $p < .001$). Applying these strategies increased the QOL in the domain. Little negative correlation was, however, found in the psychological domain and such strategies as Self-Blame ($r_s = -0.492$, $p < .001$), Cessation of Action ($r_s = -0.368$, $p < .001$) and Use of Psychoactive Substances ($r_s = -0.368$, $p < .001$). Applying these strategies significantly decreased the QOL in the psychological domain among the examinees. Other strategies displayed faint correlation with the QOL in this domain.

The social relationship domain of the QOL correlated mildly with Seeking Emotional Support ($r_s = 0.514$, $p < .001$) and weakly with Seeking Instrumental Support ($r_s = 0.372$, $p < .001$). Therefore, using these strategies increased the QOL in social relationship domain but other strategies demonstrated little correlation with it.

In the environmental domain there was a weak positive correlation detected with Seeking Emotional Support strategy ($r_s = 0.387$, $p < .001$), and a negative - weak one with Self-Blame strategy ($r_s = -0.417$, $p < .001$). The dependence between this domain and other strategies was very little.

In the physical domain, a weak positive correlation was discovered referring to Positive Revalidation ($r_s = 0.329$, $p < .001$) and Seeking Emotional Support ($r_s = 0.301$, $p < .001$). Little negative correlation was found between physical domain and Self-Blame strategy ($r_s = -0.365$, $p < .001$). Very little correlation was also proved in other stress management strategies.

No correlation was detected between all the domains of the QOL and such strategies as Sense of Humour or Turn into Religion. The students who used Seeking Emotional Support, Seeking Instrumental Support and Positive Revalidation displayed higher QOL in all the domains. And, those who used Acceptance, Active Coping and Planning showed better QOL in all the domains except for Health Perception. The QOL among the respondents was definitely decreased by using the following strategies: Self-Blaming, Ceasing Action and Use of Psychoactive substances (the latter did not decrease Health Perception and social relationship domain) (Table 6).

4 | DISCUSSION

4.1 | Key results

As the results present, the average assessment of the QOL among nursing and midwifery students appeared to be good with the highest in the social relationship domain and the lowest in the physical health one. The self-assessment of health condition was found

as satisfactory and average. It has also been noticed that material status, mother's education, source of income and field of studies significantly determined the students' QOL. While dealing with stress, the surveyed most frequently applied problem and emotion-based strategies such as Active Coping, Seeking Emotional Support, Planning and Seeking Instrumental Support. The highest correlation was observed between Seeking Emotional Support and QOL in social relationship and environment domains and Positive Revalidation and the QOL in the psychological domain.

4.2 | Interpretation

4.2.1 | Quality of life in students

The research on the QOL in Polish students was carried out in the recent years by Fidecki et al. (2018). The empirical results showed that the students evaluated their general QOL lower (3.98 ± 0.57) and general health condition higher (3.73 ± 0.74) than in other studies. The study by Fidecki et al. (2018) found the highest score in the physical domain (average 15.54 ± 2.28) and the lowest in the psychological domain (13.62 ± 2.49). Our own research found the highest score in the social relationship domain, then in the psychological and environment domains, and the lowest in the physical domain. Similar results were noted by Moritz et al., who studied the QOL in Brazilian students. Authors showed that among the areas of QOL, social relationships showed the highest score (77.20) followed by psychological (67.73), environmental (64.85) and physical (63.40) (Moritz et al., 2016). The authors of another Brazilian study showed that the domains with the best average scores were Physical (69.4) and Social Relations (74.3), and the domains with the worst average scores were Psychological (68.5) and Environmental (54.2). In that study the QOL correlated significantly with the number of children, namely, those without children displayed much higher QOL (Moura et al., 2016).

Taking into consideration the studies carried out in Poland, Slovakia and Spain, Polish students (4.12 ± 0.7 versus 4.02 ± 0.78) and Slovakian students (4.11 ± 0.63 versus 3.90 ± 0.76) declared the highest general QOL and general health. The Spanish respondents assessed these domains a little bit lower (3.97 ± 2.22 versus 3.65 ± 0.92). Polish students achieved the highest average scores in the social relationship (16.13 ± 2.89), similarly to the Slovakian ones (15.81 ± 2.94), while The Spanish declared the highest QOL in the physical domain (14.94 ± 2.23) (Kupcewicz et al., 2020). In our research the respondents evaluated their general health condition and general QOL lower than in the international studies presented above. On the other hand, the results of the Vietnamese students of nursing on General QOL and Health Condition Satisfaction were as follows: 3.35 and 3.07 and were lower than the ones presented above. They achieved the highest scores in the physical domain and the lowest in the environment one. What is more, the results found the correlation between gender, year of studies, a monthly spending and the QOL (Ngo et al., 2020). The students of nursing at the university

TABLE 3 Parental education level, place of residence and source of income versus quality of life in nursing and midwifery students

WHOQOL- bref		Mother's education			<i>p</i> *	Father's education		<i>p</i> *
		Primary, vocational (A)	Secondary (B)	High (C)		Primary, vocational	Secondary, high	
QoL Perception	<i>M</i> ± <i>SD</i>	3.94 ± 0.74	4.01 ± 0.74	4.25 ± 0.66	.025 C > A	4.06 ± 0.65	4.06 ± 0.84	.718
	Me	4	4	4		4	4	
	Q1–Q3	3.25–4	4–4	4–5		4–4	4–5	
Health Perception	<i>M</i> ± <i>SD</i>	3.7 ± 0.87	3.67 ± 0.92	3.72 ± 0.92	.982	3.71 ± 0.87	3.66 ± 0.96	.76
	Me	4	4	4		4	4	
	Q1–Q3	3–4	3–4	3–4		3–4	3–4	
QoL Ph	<i>M</i> ± <i>SD</i>	14.18 ± 2.91	14.4 ± 2.76	14.6 ± 2.54	.796	14.61 ± 2.71	14.02 ± 2.81	.113
	Me	15	15	15		15	14	
	Q1–Q3	12–17	13–17	13–17		13–17	13–16	
QoL Ps	<i>M</i> ± <i>SD</i>	14.43 ± 2.83	14.85 ± 2.75	15.12 ± 2.78	.208	14.93 ± 2.55	14.58 ± 3.19	.637
	Me	15	15	16		15	15	
	Q1–Q3	13–17	13.75–17	14–17		14–17	12–17	
QoL S	<i>M</i> ± <i>SD</i>	15.64 ± 3.25	16.23 ± 2.73	16.09 ± 2.91	.514	15.98 ± 2.92	16.11 ± 3.11	.624
	Me	16	16	16		16	16	
	Q1–Q3	13–19	15–19	15–19		15–19	15–19	
QoL E	<i>M</i> ± <i>SD</i>	14.6 ± 2.5	14.68 ± 2.31	14.7 ± 2.53	.98	14.88 ± 2.29	14.42 ± 2.61	.211
	Me	15	15	15		15	15	
	Q1–Q3	14–16	13.75–16	12–16		14–16	12–16	

Abbreviations: M, mean; Me, median; *p**, statistical significance (Mann–Whitney test); Q1, first quartile; Q3, third quartile; QoL E, quality of life in Environmental Domain; QoL Ph, quality of life in Physical Domain; QoL Ps, quality of life in Psychological I Domain; QoL S, quality of life in Social Relationships Domain; SD, standard deviation.

TABLE 4 Frequency of using stress management strategies in the respondents according to Mini-Cope Questionnaire

Type of strategy	N	M	SD	Me	Min	Max	Q1	Q3
1 Active Coping	234	2.09	0.57	2	0.5	3	1.5	2.5
2 Planning	234	1.97	0.64	2	0	3	1.5	2.5
3 Positive Revalidation	234	1.82	0.70	2	0	3	1.5	2
4 Acceptance	232	1.83	0.66	2	0	3	1.5	2
5 Sense of Humour	232	1.02	0.78	1	0	3	0.5	1.5
6 Turn to Religion	232	1.00	0.98	1	0	3	0	2
7 Seeking Emotional Support	234	2.09	0.77	2	0	3	1.5	3
8 Seeking Instrumental Support	234	1.97	0.75	2	0	3	1.5	2.5
9 Taking Care of Something Else	234	1.87	0.65	2	0	3	1.5	2.38
10 Denial	234	0.9	0.75	1	0	3	0.12	1.5
11 Discharge	234	1.6	0.73	1.5	0	3	1	2
12 Use of Psychoactive Substances	234	0.48	0.75	0	0	3	0	1
13 Cessation of Action	234	0.77	0.63	1	0	2.5	0	1
14 Self-blame	234	1.39	0.89	1.5	0	3	0.5	2

Abbreviations: M, mean; max, maximum; Me, median; min, minimum; Q1, first quartile; Q3, third quartile; SD, standard deviation.

in Saudi Arabia while compared to our own studies, defined general QoL (4.09 ± 0.71 versus 4.06 ± 0.73) and their health condition (4.02 ± 0.87 versus 3.69 ± 0.9) slightly higher. Their highest score was in their mental health quality and the lowest in the physical

domain, similarly to our respondents. The most important factors in those two studies appeared to be gender, year of studies, type of community and monthly income (Aboshaiqah & Cruz, 2019). In our research material status, mother's education, source of income and

Place of residence before studies				Source of income			
Village (A)	Small town (B)	Average town, city (c)	<i>p</i> *	Work (A)	Parents (B)	Work and parents- (C)	<i>p</i> *
4.02 ± 0.72	4.04 ± 0.68	4.16 ± 0.78	.461	3.6 ± 0.74	4.08 ± 0.75	4.14 ± 0.67	.035
4	4	4		4	4	4	C, B > A
4-4	4-4	4-5		3-4	4-5	4-5	
3.7 ± 0.89	3.72 ± 0.89	3.65 ± 0.93	.858	3.4 ± 1.06	3.72 ± 0.85	3.68 ± 0.96	.538
4	4	4		4	4	4	
3-4	3-4	3-4		3-4	3-4	3-4	
14.48 ± 2.68	14 ± 2.76	14.53 ± 2.91	.469	12.6 ± 2.92	14.41 ± 2.62	14.51 ± 2.84	.054
15	14	15		13	15	15	
13-17	13-16	12-17		10-15	13-17	13-17	
14.73 ± 2.74	14.7 ± 2.69	14.98 ± 3.04	.693	13.13 ± 3.91	14.85 ± 2.6	14.95 ± 2.82	.202
15	16	16		14	15	15	
14-17	13-17	13-17		9-16	13-17	13-17	
15.94 ± 2.79	16.02 ± 3.39	16.04 ± 3.02	.927	15.6 ± 4.05	15.92 ± 2.91	16.44 ± 2.8	.47
16	16	16		16	16	16	
15-17	15-19	14-19		14-19.5	15-18	15-19	
14.74 ± 2.13	14.32 ± 2.69	14.8 ± 2.88	.507	13.87 ± 2.13	14.79 ± 2.55	14.48 ± 2.24	.223
15	15	16		14	15	15	
14-16	12-16	12.5-16		12-16	14-16	13.5-16	

the field of studies significantly correlated with the QOL as well. The overview of the results presented above allows for noticing essential differences in different countries and the conditions of living there.

4.2.2 | Stress management strategies

The empirical results of the study proved that nursing students most frequently used problem-based strategies such as Active Coping and Planning and emotion-oriented ones, namely Seeking Emotional Support. Similar findings were reported by Szadowska-Szlachetka et al. (2020) and Bodys-Cupak et al. (2018). These studies showed that the nursing students most frequently used strategies such as Active Coping, Seeking Emotional Support and Seeking Instrumental Support (Bodys-Cupak et al., 2018; Szadowska-Szlachetka et al., 2020). Most rarely did they use strategies directed at reducing bad emotions or resigning (Use of Psychoactive Substances, Cessation of Action). Another study by Bodys-Cupak et al. (2016) showed that the choice of strategies was determined by the sense of self-efficiency. The students who felt lower intensity of stress expressed higher level of self-efficiency and more frequently took advantage of the strategies directed at a problem such as Positive Revalidation (Bodys-Cupak et al., 2016).

The results related to the stress management strategies used by Polish students were confirmed in international studies, in which

the respondents also made use of problem-based ones such as Active Coping and Planning. Unlike Polish students, the Slovakian ones more often used Positive Revalidation and the Spanish ones used Avoidance, Sense of Humour and Turn into Religion (Kupcewicz et al., 2020). The results collected by Fornes-Vives J. et al. (2016) at three different Spanish universities correspond partially with our own results. The first proved that the style of stress management focused on emotions was the most dominant. The authors also proved a correlation between emotion-based strategies and neuroticism (Fornés-Vives et al., 2016). Similar findings were observed in the study on Brazilian nursing students who most frequently used an emotion-based strategy such as Escape. The study also proved a correlation between the students' dissatisfaction connected with education and using negative stress management strategies (Hirsch et al., 2015). Nursing students from Jordan at a very early stage of clinical practice used a following manner of behaviour. First, they solved the problem, then kept optimistic and, then, redirected their attention from a stressful situation to other things. They rarely used Avoidance strategy (Shaban et al., 2012). West-Indian students at a nursing college in Western Rajasthan applied adaptation strategies of stress management like Active Coping, Positive Revalidation and Planning more often than maladaptation. It was connected with the respondents' interest in nursing (Nebhinani et al., 2020). The findings presented above show how diversified methods of stress management nursing students

TABLE 5 Frequency of stress management strategies application versus socio-demographic data in respondents – results statistically significant

Type of strategy	Variables	Descriptive statistics				
	Material status	$M \pm SD$	Me	Q ₁	Q ₃	p^*
Seeking Emotional Support	Very good (A)	2.27 ± 0.75	2.25	2	3	.002 A, B > C
	Good (B)	2.19 ± 0.74	2	2	3	
	Average, bad, very bad (C)	1.87 ± 0.87	2	1	2.5	
Seeking Instrumental Support	Very good (A)	2.08 ± 0.82	2	1.5	2.5	.011 A, B > C
	Good (B)	2.06 ± 0.7	2	1.5	2.5	
	Average, bad, very bad (C)	1.78 ± 0.75	1.5	1.5	2.25	
Cessation of Action	Very good (A)	0.6 ± 0.64	0.5	0	1	.049 C > A
	Good (B)	0.75 ± 0.63	0.5	1	1.5	
	Average, bad, very bad (C)	1.69 ± 0.84	1.5	0.5	1	
Self-blame	Very good (A)	1.87 ± 0.82	1	0.5	1.5	<.0001 C > B, A
	Good (B)	1.29 ± 0.9	1	0.5	2	
	Average, bad, very bad (C)	1.69 ± 0.84	1.5	1	2.25	
	Source of income	$M \pm SD$	Me	Q ₁	Q ₃	p^*
Denial	Work (A)	1.37 ± 0.93	1	1	1.75	.011 A, B > C
	Parents (B)	0.94 ± 0.72	1	0.5	1.5	
	Work and parents (C)	0.71 ± 0.74	0.5	0	1	
	Place of residence	$M \pm SD$	Me	Q ₁	Q ₃	p^*
Turn to Religion	Village (A)	1.13 ± 0.92	1	0.5	2	.01 A > B, C
	Small town (B)	0.9 ± 1.13	0.5	0	1.5	
	Average town, city (C)	0.76 ± 0.95	0.5	0	1	
	Father's education	$M \pm SD$	Me	Q ₁	Q ₃	p^*
Positive Revalidation	Primary, vocational (A)	1.88 ± 0.71	2	1.5	2.5	.045
	Secondary, high (B)	1.72 ± 0.69	1.5	1.5	2	
Turn to Religion	Primary, vocational (A)	1.11 ± 0.98	1	0	2	.021
	Secondary, high (B)	0.84 ± 0.99	0.5	0	1.5	
	Mother's education	$M \pm SD$	Me	Q ₁	Q ₃	p^*
Seeking Emotional Support	Primary, vocational (A)	1.95 ± 0.72	2	1.5	2.5	.013 B > A
	Secondary (B)	2.27 ± 0.74	2.5	2	3	
	High (C)	2.05 ± 0.84	2	1.5	3	

Note: p^* - statistical significance -Kruskal-Wallis test with results of post-hoc analysis (Dunn test).

Abbreviations: M, mean; max, maximum; Me, median; min, minimum; Q1, first quartile; Q3, third quartile; SD, standard deviation.

use and, above all, demonstrate clear differences referred to the country of residence, cultural differences, individual resources, interests and the field of studies.

4.2.3 | Quality of life versus stress management strategies

The research proved that students who used such strategies as Seeking Emotional Support, Seeking Instrumental Support and Positive Revalidation evaluated their QOL in all the domains much higher. What is more, those who applied Acceptance, Active Coping

and Planning assessed their QOL higher in all the domains except for health condition. On the other hand, Self-Blame and Cessation of Action was said to have decreased the QOL in all the domains. The international study by Kupcewicz et al., which included Polish students as well, found a positive correlation between active stress management strategies and the QOL in the psychological domain ($r = .43$; $p < .001$) and the physical health ($r = .42$; $p < .001$). However, in Spanish students, a strong correlation was detected between Sense of Humour strategy and the psychological domain. Weak correlations were also found between active stress management strategies and the QOL in all the domains in Slovakian students (Kupcewicz et al., 2020).

TABLE 6 Spearman's rank correlation coefficient in stress management strategies versus QOL in nursing and midwifery students

Type of strategy	Domain of quality of life																	
	Psychological			Social			Environmental			Physical			QoL perception			Health perception		
	r_s	p	r_s	r_s	p	r_s	r_s	p	r_s	r_s	p	r_s	r_s	p	r_s	r_s	p	
Active Coping	0.348	<.001	0.238	0.204	.002	0.255	0.249	<.001	0.249	0.249	<.001	0.00	0.00	<.001	0.00	0.00	ni	
Planning	0.310	<.001	0.242	0.138	.035	0.235	0.162	<.001	0.162	0.162	<.001	0.00	0.00	.013	0.00	0.00	ni	
Positive Revalidation	0.426	<.001	0.271	0.290	<.001	0.329	0.246	<.001	0.246	0.246	<.001	0.00	0.00	<.001	0.151	0.151	.021	
Acceptance	0.247	<.001	0.243	0.209	.001	0.159	0.144	.015	0.144	0.144	.028	0.00	0.00	.028	0.00	0.00	ni	
Sense of Humour	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	
Turn to Religion	0.00	ni	0.00	0.00	ni	0.188	0.00	.004	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	
Seeking Emotional Support	0.383	<.001	0.514	0.387	<.001	0.301	0.285	<.001	0.285	0.285	<.001	0.184	0.184	<.001	0.184	0.184	.005	
Seeking Instrumental Support	0.275	<.001	0.372	0.287	<.001	0.26	0.176	<.001	0.176	0.176	.007	0.152	0.152	.007	0.152	0.152	.002	
Taking Care of Something Else	0.00	ni	0.192	0.00	.003	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	
Denial	-0.169	.01	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	
Discharge	-0.142	.03	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	0.00	0.00	ni	
Use of Psychoactive Substances	-0.315	<.001	0.00	-0.247	<.001	-0.219	-0.199	.001	-0.199	-0.199	.002	0.00	0.00	.002	0.00	0.00	ni	
Cessation of Action	-0.368	<.001	-0.131	-0.282	<.001	-0.262	-0.291	<.001	-0.291	-0.291	<.001	0.00	0.00	<.001	0.00	0.00	ni	
Self-blame	-0.492	<.001	-0.257	-0.417	<.001	-0.365	-0.328	<.001	-0.328	-0.328	<.001	-0.234	-0.234	<.001	-0.234	-0.234	.001	

Abbreviations: p , statistical significance; r_s , Spearman's correlation coefficient.

In our own research the strongest correlation was discovered between the social relationship domain of the QOL and Seeking Emotional Support strategy. Weak positive correlations were observed between problem-based strategies and psychological domain of the QOL. And, finally, weak negative correlations were noticed between Self-Blame and psychological, environment and physical domains and the QOL perception. The research among Norwegian nursing students showed that stress negatively correlated with the QOL to a significant extent. It was demonstrated in a simple regression analysis. The authors proved that the moderating role between the QOL and stress is played by the sense of coherence, which might be perceived as a resource for teachers and nurses used to support pupils fighting stress. However, our research did not take this aspect into analysis (Kleveland et al., 2015).

4.3 | Limitations of the study

There are several limitations to this study. Firstly, a small sample size and conducting the research among students from one university which may limit the generalizability of the findings of all nursing and midwifery students in Poland. Secondly, the study did not exclude persons experiencing difficulties not related to studying (i.e. financial problems, family and emotional problems not related to studies) at the study time. Thirdly, in the pilot study we did not examine the sense of coherence (Antonovsky's concept of salutogenesis). Fourthly, all conclusions are based on the self-reported responses of the students with no way to corroborate those responses, but we are of the opinion that the responses could potentially be ones the students feel. Despite the indicated limitations, the results of the conducted study provide new information to allow for early detection of difficulties experienced by nursing and midwifery students and may support strategies that benefit the search for solutions to conflicts that affect their QOL.

In the future, we are planning to carry out a longitudinal, multi-centre study which will include students of nursing and midwifery from universities all over Poland. In addition, we are planning to measure the sense of coherence among students.

5 | CONCLUSIONS

Among all the domains, the physical one should be exceptionally paid attention to in order to increase the perception of the QOL in nursing and midwifery students as it was assessed the lowest of all. It is additionally important as doing such jobs includes a lot of locomotor system overloads and spine injuries. Students should be more aware of how to take care of their physical condition not only during studies but also during the whole professional career as well. Good physical condition constitutes an important resource of proper nursing and midwifery functioning with patients.

We showed that the students' QOL was directly determined by their material status and the source of income. Providing extra

financial support may improve their QOL, especially those in financial hardships. Therefore, it is essential to properly inform students entering higher education about possible sources of material support and the ways to apply for it (e.g. social benefits, social scholarships, scholarships for foreigners and academic scholarships for best academic achievements). The information might, for example, be provided by an academic in charge of students.

The students used very different stress management strategies. Most frequently they were problem-based and emotion-oriented. It has been showed, however, that applying only some of the strategies increases the QOL. The strongest positive correlation was found between Seeking Emotional Support and the QOL in the social relationship and environment domains as well as Positive Revalidation and the QOL in the psychological domain. Those who used Seeking Emotional Support, Seeking Instrumental Support and Positive Revalidation more frequently assessed their QOL much higher in all the domains. It, then, might be concluded, that training these strategies needs to be recommended. The abilities seem to be necessary not only during studies but also in the course of professional career as well. On the other hand, strategies like Self-Blame, Cessation of Action and Use of Psychoactive Substances definitely decreased the respondents' QOL in all the domains, and, therefore they are not recommended.

In the process of education and training of nursing and midwifery students their personal resources have to be strengthened, their personal features need to be modelled and their interest in the profession should be supported. We suggest that a mentoring programme should be used to increase students' positive coping strategies and managing their academic and clinical practice stress level. A mentoring programme should foremost include students who manifest helplessness in their performance and some refraining behaviours. It ought to concentrate on: (1) developing students' awareness on their own reactions to stressful situations, (2) early recognition of symptoms indicative of stress and tensions, (3) learning to manage their own reactions in order to minimize stressful situations deriving from internal experience (e.g. dealing with some difficulties in life), (4) learning to identify the stimuli, which are stressful for an individual and (5) learning some methods and techniques of stress management as well as relaxation techniques. The participation in such a monitoring programme should support students' personal development and lead to more aware behaviours in stressful environment.

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CONFLICT OF INTEREST

Wiesława Kowalska report no conflicts of interest in this work. Katarzyna Szwamel report no conflicts of interest in this work.

AUTHOR CONTRIBUTIONS

WK, KS.: conception and design. WK: acquisition of data. WK, KS.: analysis and interpretation of data. WK, KS.: manuscript draft. KS:

revising manuscript critically for important intellectual content. WK, KS.: given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content. WK, KS agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ETHICAL APPROVAL

The approval of the Bioethics Committee at the Opole Medical School was obtained (approval number 15/PI/2019).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from Katarzyna Szwamel upon reasonable request.

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