Completed year of study moderating effect on the relation between coping strategies and self-esteem among novice nurses – cross sectional study

Moderacyjny efekt ukończenia roku studiów na zależność pomiędzy strategiami radzenia sobie a samooceną początkujących pielęgniarek – badanie przekrojowe

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STRESZCZENIE

MODERACYJNY EFEKT UKOŃCZENIA ROKU STUDIÓW NA ZALEŻNOŚĆ POMIĘDZY STRATEGIAMI RADZENIA SOBIE A SAMOOCENĄ POCZĄTKUJĄCYCH PIELĘGNIAREK – BADANIE PRZEKROJOWE

Cel pracy. Ocena moderującej roli ukończonego roku studiów na związek między strategiami radzenia sobie a samooceną wśród studentów pielęgniarstwa.

Metody. Zbieranie danych przeprowadzono w okresie od czerwca do grudnia 2020 roku. Zastosowano dogodną metodę doboru próby. Do analizy włączono 182 kwestionariusze. Kwestionariusz składa się z dwóch skal (Rosenberg Self-Esteem Scale i Brief COPE) oraz metryki.

Wyniki. Najniższą samoocenę prezentowali studenci pielęgniarstwa, którzy ukończyli drugi rok edukacji (M=24.74; SD=4.97). Stwierdzono moderujący wpływ ukończonego roku kształcenia na związek między samooceną a strategią radzenia sobie – obwinianiem siebie oraz między poziomem samoceny a stosowaniem strategii radzenia sobie - wsparcie emocjonalne.

Wnioski. Niepokojące wyniki dotyczące studentów, którzy ukończyli drugi rok studiów, wskazują na potrzebę szczególnej uwagi i monitorowania tej grupy. Ponadto należy promować równowagę między nauką a życiem prywatnym, aby skuteczniej radzić sobie ze stresem i wspierać samoocenę studentów.

Słowa kluczowe: studenci pielęgniarstwa, stres, rozwój zawodowy, poczucie własnej wartości, strategie radzenia sobie

ABSTRACT

COMPLETED YEAR OF STUDY MODERATING EFFECT ON THE RELATION BETWEEN COPING STRATEGIES AND SELF-ESTEEM AMONG NOVICE NURSES – CROSS SECTIONAL STUDY

Aim. To investigate the moderating role of the completed year of study on the relationship between coping strategies and self-esteem among undergraduate nursing students.

Material and methods. Data collection was carried out in June-December 2020. A convenience sample has been used. A number of 182 questionnaires have been included for the analysis. A questionnaire consists of two scales (Rosenberg Self-Esteem Scale and Brief COPE) and a metric.

Results. The lowest self-esteem presented nursing students who completed their second year of education (M=24.74; SD=4.97). A moderation effect of the completed year of education on the relationship between self-esteem and the self-blame coping strategy and between the level of self-esteem and use of emotional support coping strategy was found.

Conclusions. The alarming results for students who completed the second year of study indicate the need for special attention and intervention among this group. Moreover, study-life balance should be promoted to deal with stress more effectively and to support students' self-esteem.

Key words: nursing students, stress, professional development, self-esteem, coping strategies

INTRODUCTION

Stress is an integral part of life and affects all areas of a person's functioning. According to the concept of R.S. Lazarus and S. Folkman, "psychological stress is a particular relationship between the person and the environment that the person appraises as taxing or exceeding his or her resources and endangering his or her well-being" [1]. Nursing students experience a higher level of stress than students of other health sciences [2], including experiencing traumatic events, such as dying and death [3]. Mental health problems could occur among nursing students related to self-esteem, stress, and coping skills [3,4]. Earlier studies have shown that the higher the self-esteem, the lower the reactivity to stressful events and the minimization of the risk of adverse mental health disorders [2,5]. The studies conducted so far also indicate a significant influence of stress on decreasing self-esteem [2,6,7]. At the same time, self-esteem and mental well-being influence students' behaviour in stressful situations, including the strategies of coping with stress [4]. Therefore, the main research question for this investigation was: Is completed year of professional education a moderator for the relationship between self-esteem and coping strategies among nursing students?

Undergraduate nursing training in Poland lasts six semesters and includes 4600 h of training, half of which is clinical training. It was revealed that nursing students are exposed to stressful situations, especially those in a semester of education where clinical classes predominate [8]. Researchers emphasize the need to include instructions on coping with stress in undergraduate education programs for nurses and postulate that nursing students should recognize and deal with the stress they will encounter [9,10]. It has been shown that strengthening the mechanisms of effective coping of nursing students improves coping with stressors, thus improving their clinical learning outcomes [11].

According to Rosenberg, self-esteem is a positive or negative attitude towards oneself, a kind of global self-esteem. At the same time, he emphasizes that high self-esteem is the belief that you are "good enough", a worthy person, and low self-esteem means dissatisfaction with yourself, a kind of self-rejection [12]. Self-esteem is also a dominant factor influencing interpersonal relationships and the psychological, physical, and educational abilities of students [13].

The self-esteem of nursing students is a special aspect of self-esteem; hence it appears that the role of influencing factors might be specific to the nursing discipline. Therefore, a better understanding of the relationship between protective factors and pressure factors is required to promote nursing as a career development path that supports high self-esteem [14].

In studies identifying coping methods with stress in nursing students, the most frequently used strategy is problem-focused [11]. Moreover, there was also showed that it is precisely the problem-focused coping strategy that should be promoted among nursing students, as it is associated with a higher level of self-esteem [15]. To our knowledge, there have been no studies to date analysing the moderating effect of completed year of professional education for the relationship between self-esteem and coping strategies among nursing students. Therefore, this issue is the research problem of this study.

AIM

The aim of the study was to investigate the moderating role of the completed year of study on the relationship between coping strategies and self-esteem among undergraduate nursing students.

MATERIALS AND METHODS

Study design
A correlational cross-sectional design has been used in this study. The online questionnaire was disseminated via a survey link distributed to online students' groups. The study was conducted between July and December 2020.

Sample
A convenience sample has been used in this study. The inclusion criteria were the current status of a bachelor's degree nursing student and age (19–22 years old, as confirmation of not having other medical professional qualifications), while the exclusion criteria were study other than the nursing field and the status of a master's degree student in nursing. Following Green's thumb rule, the minimum number of the studied sample was calculated based on the formula $N > 50 + 8n$ (n - number of independent variables in the study) [16]. The calculation results revealed $N = 162$ respondents needed. In total, 240 questionnaires were returned. Fifty-eight questionnaires were rejected for failure to meet the inclusion criteria. Therefore, 182 questionnaires have been included for further analysis.

Data collection
The questionnaire consists of two scales and a metric allowing to characterize the studied group. The first scale used for coping strategies was the Brief-COPE developed by Carver [17] in the Polish adaptation of Juczyński and Ogińska-Bulik [18]. Thus, a scale containing 28 statements about the coping strategies which represent 14 strategies (two statements in each strategy): self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion, and self-blame. A four-point Likert scale was used for statement assessment from 1 "I haven't been doing this at all" to 3 "I have been doing this a lot".

The Polish version of the Rosenberg Self-Esteem scale [19,20] has been used for self-esteem assessment. The scale contains ten statements. A four-point Likert scale was used to answer from strongly agree (4 points) to strongly disagree (1 point). Items 3, 5, 8, 9 and 10 should be reversed during scoring. The scale ranges from 10 to 40, and higher scores indicate higher self-esteem.

Permissions were obtained from the authors for the use of the tools.

All measures used in the study were previously validated for Polish population, showing good psychometric properties of external validity and internal consistency reliability [18,20]. In addition, internal consistency reliability of used instruments has been assessed by Cronbach's alpha coefficient in our study. For Brief-Cope it was 0.31–0.92 and for RSES it was 0.9.

The last part of the questionnaire consisted of three closed, single-choice self-reported questions concerning sex, marital status, and the current year of study, and one open-ended question regarding participants' age.

Ethical considerations

The Institutional Review Board approved the authors' affiliated university study (No. AKBE/125/2020). All participants were informed on the aim of the study and about the principles of voluntary participation and anonymity, the lack of remuneration for participation, and the possibility to withdraw at any moment without any consequences. Returning the completed questionnaire signifies full acceptance of participation in the study.

Data analysis

Statistical analyses were performed with the use of IBM SPSS Statistics 26.0. Descriptive statistics of the data were performed using standard parameters, including percentage, mean and standard deviation, median and range (minimum-maximum), skewness, and kurtosis. The Kolmogorov-Smirnov test was used to detect normal distribution. Univariate analysis of variance was used in the intergroup schema, and correlation analysis with Pearson's r coefficient to study the valuation between variables and moderation analysis. A series of moderation analyses were conducted to determine whether the completed study moderated the relationships between coping strategies and self-esteem. The analyses were performed using the PROCESS macro3.5. Statistical significance was set at α = 0.05.

■ RESULTS

Sample characteristic

One hundred eighty-two nursing students participated in this study, and 91.8% (N = 167) were female and 8.2% (N=15) were male. The minimum respondent's age was 19 years old, and the maximum was 22 years old (M = 19.82; SD = 1.04). The most numerous group was nursing students who completed the first year of education (64.3%, N = 117); 18.7% (N=34) completed third year and 17% (N=31) completed second year of study.

Nursing students' self-esteem

Nursing students' self-esteem was M = 25.28 (SD = 5.66). The lowest self-esteem presented nursing students who completed their second year of education (M=24.74; SD=4.97), while the highest self-esteem was presented by students who completed their third year of nursing education (M=25.41; SD=5.43), but there was no significant difference between them (F=0.17; p=0.845) (Tab. 1).

■ Tab. 1. Nursing students' self-esteem

Completed year of nursing education	First year (n = 117)		Second year (n = 31)		Third year (n = 34)		F	p	η²
	M	SD	M	SD	M	SD			
Self-esteem	25.38	5.92	24.74	4.97	25.41	5.43	0.17	0.845	0.00

M – mean. SD – standard deviation; N – number of participants. F – Fishers' F – test.
p – statistical significance. η²- eta-squared

Nursing students' coping strategies

Active coping (M=2.02; SD=0.63) and self-blame (M=1.93; SD=0.78) were the most common coping strategies in the study group, while the least frequently used were substance use (M=0.52; SD=0.73) and denial (M=0.98; SD=0.69) (Tab. 2).

■ Tab. 2. Nursing students' coping strategies

	M	Me	SD	Sk.	Kurt.	Min.	Max.	K-S	p
Active coping	2.02	2	0.63	-0.32	-0.04	0	3.0	0.21	<0.001
Planning	1.90	2	0.59	-0.31	0.37	0	3.0	0.24	<0.001
Positive reframing	1.53	2	0.78	-0.23	-0.64	0	3.0	0.18	<0.001
Acceptance	1.86	2	0.64	-0.62	0.42	0	3.0	0.25	<0.001
Humor	1.02	1	0.60	0.28	-0.32	0	2.5	0.18	<0.001
Religion	1.07	1	1.01	0.47	-1.04	0	3.0	0.20	<0.001
Use of emotional support	1.86	2	0.75	-0.41	-0.34	0	3.0	0.20	<0.001
Use of instrumental support	1.79	2	0.74	-0.47	-0.13	0	3.0	0.20	<0.001
Self-distraction	1.80	2	0.62	-0.19	-0.12	0	3.0	0.18	<0.001
Denial	0.98	1	0.69	0.56	0.04	0	3.0	0.18	<0.001
Venting	1.69	2	0.60	-0.30	0.31	0	3.0	0.18	<0.001
Substance use	0.52	0	0.73	1.35	1.17	0	3.0	0.32	<0.001
Behavioral disengagement	1.02	1	0.70	0.40	-0.33	0	3.0	0.20	<0.001
Self-blame	1.93	2	0.78	-0.17	-0.96	0	3.0	0.15	<0.001

M – mean; Me – median; SD – standard deviation; Sk – skewness, Kurt – kurtosis, Min – minimum, Max – maximum; K-S – results of Kolmogorov-Smirnov test, p – significance.

The analysis of the dependence of coping strategies with the completed year of education showed only one statistically significant difference for the strategy called a sense of humour (p = 0.045). The strength of the effect obtained in this case was weak. This variable was further analyzed post-hoc using the Sidak test, but no statistically significant difference was detected (p = 0.053) (Tab. 3).

■ Tab. 3. Nursing students' coping strategies including completed year of education

Completed year of nursing education	First year (n = 117)		Second year (n = 31)		Third year (n = 34)		F	p	η²
	M	SD	M	SD	M	SD			
Active coping	2.05	0.62	1.97	0.60	1.97	0.67	0.35	0.702	0
Planning	1.91	0.62	1.81	0.46	1.96	0.57	0.58	0.561	0.01
Positive reframing	1.58	0.83	1.45	0.66	1.43	0.71	0.66	0.516	0.01
Acceptance	1.85	0.66	1.90	0.58	1.84	0.65	0.10	0.905	0
Humor	1.05	0.59	1.16	0.61	0.81	0.59	3.14	0.045	0.03
Religion	1.12	0.97	0.87	0.99	1.07	1.17	0.74	0.478	0.01
Use of emotional support	1.88	0.76	1.95	0.62	1.71	0.82	0.97	0.379	0.01
Use of instrumental support	1.80	0.77	1.68	0.57	1.87	0.78	0.55	0.576	0.01
Self-distraction	1.82	0.63	1.73	0.51	1.81	0.69	0.31	0.735	0
Denial	1.00	0.74	1.02	0.51	0.90	0.66	0.32	0.728	0
Venting	1.65	0.59	1.79	0.57	1.75	0.63	0.93	0.394	0.01
Substance use	0.52	0.74	0.53	0.82	0.53	0.63	0.00	0.996	0
Behavioral disengagement	1.01	0.75	1.18	0.54	0.91	0.67	1.18	0.309	0.01
Self-blame	1.97	0.80	1.97	0.69	1.76	0.77	0.96	0.384	0.01

M – mean. SD – standard deviation; N – number of participants. F – Fishers'F – test.
p – statistical significance. η²- eta-squared

■ Tab. 4. Correlation between nursing students' coping strategies and self--esteem

		Self-esteem
Active coping	Pearson's r	**0.29**
	significance	<0.001
Planning	Pearson's r	**0.27**
	significance	<0.001
Positive reframing	Pearson's r	**0.54**
	significance	<0.001
Acceptance	Pearson's r	**0.4**
	significance	<0.001
Humor	Pearson's r	**0.2**
	significance	0.007
Religion	Pearson's r	**0.18**
	significance	0.018
Use of emotional support	Pearson's r	**0.43**
	significance	<0.001
Use of instrumental support	Pearson's r	**0.35**
	significance	<0.001
Self-distraction	Pearson's r	0.08
	significance	0.261
Denial	Pearson's r	**-0.29**
	significance	<0.001
Venting	Pearson's r	-0.13
	significance	0.092
Substance use	Pearson's r	**-0.31**
	significance	<0.001
Behavioral disengagement	Pearson's r	**-0.44**
	significance	<0.001
Self-blame	Pearson's r	**-0.63**
	significance	<0.001

Relationship between nursing students' self-esteem and coping strategies

Twelve statistically significant relationships were found between coping strategies and self-esteem. The level of self-esteem the strongest positively correlated with the positive reframing ($r = 0.54$; $p < 0.001$), use of emotional support ($r = 0.43$; $p < 0.001$), and use of instrumental support ($r = 0.35$; $p < 0.001$) coping strategies. In addition, it has also been reported that the level of self-esteem correlated negatively with the self-blame ($r = -0.63$; $p < 0.001$), behavioural disengagement ($r = -0.44$; $p < 0.001$), and substance use ($r = -0.31$; $p < 0.001$) coping strategies (Tab. 4).

Completed year of study as a moderator on the relationship between coping strategies and self-esteem

As a result of the moderation analysis, a statistically significant moderation effect of the completed year of education was noted on the relationship between self-esteem and use of emotional support coping strategy. This relationship was statistically significant among students who completed first year of education ($β = 4$; SE = 0.62; $t = 6.43$; $p < 0.001$), and among students who completed the third year of education ($β = 2.59$; SE = 1.08; $t = 2.39$; $p = 0.018$), while among students who completed the second year of education, this relationship was not statistically significant ($β = 0.35$; SE = 1.49; $t = 0.24$; $p = 0.813$) (Fig. 1). There was also a statistically significant moderation effect of the completed year of education on the relationship between self-esteem and the self-blame coping strategy. The conducted analysis revealed that this relationship was statistically significant for all studied groups, as follow: nursing
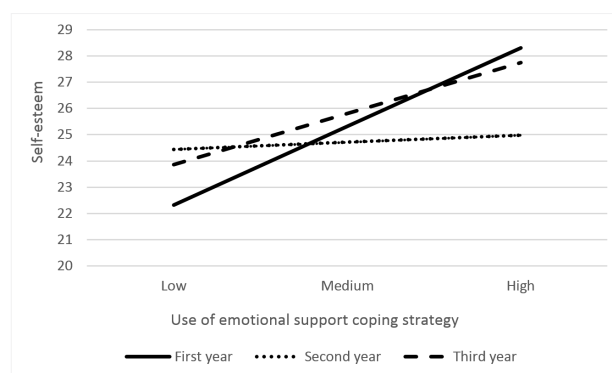
■ Fig 1. Completed year of study moderating effect on the relation between self-esteem and use of emotional support coping strategy
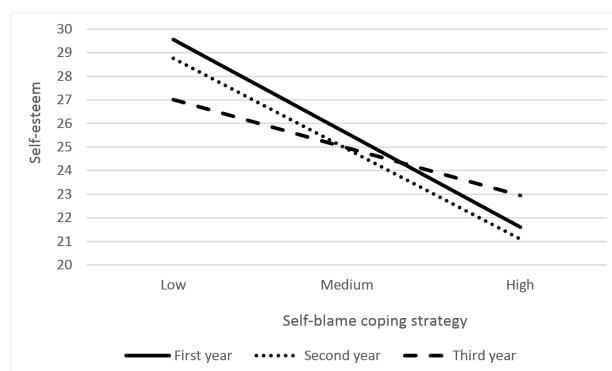
■ Fig 2. Completed year of study moderating effect on the relation between self-esteem and self-blame coping strategy

students who completed their first year of education (β = -5.11; SE = 0.51; t = -10.07; p < 0.001), students who completed their second year of education (β = -4.93; SE = 1.15; t = -4.29; p < 0.001), and students who completed third year of education (β = -2.61; SE = 0.99; t = -2.65; p = 0.009) (Fig. 2).

DISCUSSION

Our study showed that the average value of self-esteem among nursing students was 25.28, and it presents a higher level than in previous research conducted among nursing students [5,21,22]. The highest level of self-esteem was demonstrated by senior students who completed their third year of education. This might result from the adaptation of students to the new academic reality, adapting to the clinical practice environment, establishing peer relationships, and getting to know lecturers during the 3-year learning process. Our study also revealed that the lowest level of self-esteem is presented by students who completed their second year of education. It is in line with the results obtained by Ghezelbash et al. (2015) [23]. Therefore, the importance of second-year students additional support based on monitoring and strengthening self-esteem should be highlighted [23]. It has been revealed that an effective action that fosters nursing students' self-esteem can be creating friendly learning environments without pressure factors that they are exposed to [14]. Moreover, teachers', nursing leaders', and clinical managers' activities undertaken in both clinical and academic environments could have a significant impact on the development of self-esteem among students and their ability to cope with stress [14,24]

Active coping has been revealed as the most frequently used coping strategy in our investigation. This result aligns with earlier studies that presented student nurses' coping strategies [11,25,26]. Active coping is among the most effective coping strategies [18]. Substance use was the least frequently used coping strategy among nursing students in our study, which is consistent with previous studies indicating this strategy as the least utilized coping strategy by nursing students when faced with stress [11]. In our study, substance use was the most used strategy among those with lower self-esteem levels. Nevertheless, the strongest positive correlation has been revealed between positive reframing, emotional support, instrumental support, and self-esteem.

However, due to changes in nursing students' utilization of coping strategies, which depends on their degree program [27], we have conducted moderation analyses that confirmed the moderation effect of the completed year of study on the relationship between coping strategies and self-esteem. A positive relationship between emotional support strategy and self-esteem has been revealed among students who completed their first and third years of study. Earlier studies indicated that this strategy is effective for nursing students and is keenly used, especially by novice students [11,28]. Utilizing emotional support as a coping strategy is mainly focused on family and friends support and spending time together [11]. Therefore, teaching effective coping strategies will allow not only to regulate stress but also to strengthen self-esteem, which translates into better learning outcomes and subsequent fulfilment of professional duties.

On the other hand, our study showed that using a self-blame coping strategy strongly correlates with lower self-esteem among all students: those who completed their first, second, and third year of study. It is disturbing that this strategy, indicated as less effective, is at the forefront of our studied group's most frequently used strategies. Self-blame has also been shown as often used in another study conducted among Polish nursing students [29] The frequent use of this strategy highlights the deficiencies in the coping skills of undergraduate nursing students and could result in lowering self-esteem. Moreover, a self-blame coping strategy has also been revealed as associated with a lower sense of self-efficacy among undergraduate nursing students [28]. It highlights the need to develop the nursing curriculum in the context of effective coping strategies [30,31] and monitoring students' development and efficacy to avoid negative effects of stress, which are so widely described in the literature.

Limitations

Some limitations of this study should be considered. The convenience sample and small sample size demand that the results be interpreted cautiously, notwithstanding their representativeness of the studied population. Hence, generalizing these findings outside the context and in other geographical areas where nursing education programs are similar must take account of these facts. Moreover, using the cross-sectional design, this study cannot establish a causal relationship between coping strategies and self-esteem. Thus, a longitudinal study could provide further insight.

CONCLUSIONS

Overall, the alarming results for students who completed the second year of the study indicate the need for special attention and intervention among undergraduate students in the middle of their education. They present the lowest levels of self-esteem and are the only group in which the influence of the strategy based on emotional support on the level of self-esteem was not observed. However, it is a strategy whose positive impact on self-esteem can be observed in the first- and third-year students. Due to the most frequent emotional support of family and friends, study-life balance based on spending time with relatives and people who provide emotional support should be promoted. Simultaneously, the frequent use of the self-blame strategy, which is associated with lower self-esteem among nursing students on each level of education, indicates the need to develop coping skills by supplementing education programs with additional training.

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