Central European Journal of Nursing and Midwifery

ORIGINAL PAPER

Emotional competence of nursing students compared to students of non-health studies: a cross-sectional study

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Abstract

Aim: The aim of this study was to compare the emotional competence of students in nursing and other, non-health, programs; to examine differences regarding age, gender, and work experience; and to propose reforms to the nursing education curricula concerning the topics of emotional competence, regulation, and mental health. *Design:* A descriptive cross-sectional study. *Methods:* 105 respondents participated in the study. The Emotional Skill Competencies Questionnaire – 45 (ESCQ-45) was used. Data were analyzed in the SPSS 21.0 statistical program through confirmatory factor analysis with internal consistency reliability ($\alpha = 0.865$). *Results:* The study showed statistically significant differences in emotional competence between nursing students and students of non-health programs, especially for the factors Perceiving and Understanding Emotions ($p = 0.011$) and Expressing and Naming Emotions ($p = 0.032$), and the total score on the survey ($p = 0.009$). No significant correlation was found between emotional competence and age, gender, or work experience. *Conclusion:* Although emotional competence tends to be more pronounced in nurses, it is necessary to develop it further and include it in teaching programs in order to improve the quality of nursing care and professional well-being.

Keywords: education, emotional competence, emotional intelligence, nursing, students.

Introduction

Emotional intelligence (EI) is the ability to accurately perceive, communicate, understand, and regulate emotions to promote positive interaction and intellectual growth (Mayer & Salovey, 1997). Emotional competence (EC) refers to the actual application and demonstration of emotional intelligence in real-life situations and involves using emotional intelligence. EC is often described as the ability to know one's own emotions and to be aware of others' emotions (Lampreia-Raposo et al., 2023). The concept of EC was originally somewhat controversial; however, with more detailed research, it has become recognized in nursing and education. In professions characterized by strong emotional engagement and possible compassion fatigue, education should also address the development and maintenance of socioemotional skills and behaviors crucial in providing empathic, individual-centered care (Tiffin & Roberts, 2024).

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In medical selection and education, EC concepts may be termed 'non-academic' skills or attributes (Niessen & Meijer, 2016). Researchers have linked EI to prosocial behavior, including social interaction, emotional self-management, leadership, empathy, self-compassion, and self-regulation (Extremera et al., 2019; Hajibabaee et al., 2018; Salovey et al., 2002; Şenyuva et al., 2014).

A very important mental construct, EI is responsible for the successful positioning of an individual in all domains of personal, social, and professional life. It is an essential trait and skill for all healthcare workers.

The field of care is the main focus of nurses and a key aspect that makes them different from other healthcare professionals. To provide effective patient-centered care, nurses should develop EC skills, listed as one of the ten life skills that help individuals to be adaptive and positive (Khademi et al., 2021; Martínez Ruíz, 2014). Nurses must have technical and critical thinking abilities as well as the ability to manage the emotions of patients, caregivers, and healthcare team members (Shanta & Gargiulo, 2014). They must also be able

to recognize, manage, and control their own emotions (Codier & Codier, 2017).

Research suggests that emotional intelligence has an impact on academic success, the ability to provide compassionate and competent patient care, the ability to lead and influence others, and the ability to manage stress (Butler et al., 2022). Recently, the amount of research in medical education that deals with the relevance of EC for the successful function of health workers has grown exponentially. For a long time, the training of emotional skills and the managing of emotions and ethical values have not been given sufficient attention in nursing education, and the literature on this issue is still sparse (Xu et al., 2023). These points warn us of the importance of teaching the domains that make up emotional competence in nursing education (Dugué et al., 2021; Tosun et al., 2021).

Work on the development of EC in the nursing profession could lead to improvements in the quality of health care, patient satisfaction, nurses' critical thinking, the professional well-being of nurses, and turnover of nursing staff (Sahanowas & Santoshi, 2020). Many studies call for changes in educational curricula for nurses whereby more space could be given to teaching content that includes EC (McNulty & Politis, 2023). A nursing student who has strong EC will be aware of emotions and how they influence moral judgment (Allen et al., 2012).

Nursing staff are more emotionally competent but, at the same time, subject to a higher level of stress in the workplace than radiology staff. The existence of a positive correlation between EC and stress levels in both groups was indicated, with the level of stress increasing with increased levels of EC (Legenović et al., 2017). Findings show that EC plays a significant role in academic success and that more pronounced EC in healthcare teams leads to a holistic improvement in care (Cruz Walma et al., 2023; Niessen & Meijer, 2016). Undergraduate students with EI are more likely to consider others' perspectives and explore several options for a scenario or issue. People with 'cognitive maturity' are open-minded and listen to others' perspectives (Irani et al., 2007; Ricketts & Rudd, 2004). Emotional competencies are sometimes lacking in nursing programs, despite the expectation for graduates to perform immediately in today's complex healthcare system. Various research findings indicate that evaluation of EI in nursing students is inadequate. Faculty education on the importance of EI in nursing practice is required. EI should be introduced and integrated into the curriculum utilizing a scaffolding method,

similar to other traditional nursing elements such as safety, leadership, and communication skills (Cheshire et al., 2020; Shanta & Gargiulo, 2014). According to the Institute of Medicine (2011), new graduate nurses are not prepared to navigate the current healthcare setting, characterized by a complex network of relationships. At the organizational level, conflict is commonly encountered due to a paucity of nursing staff working in complex environments with scarce resources (Shanta & Connolly, 2013).

Aim

The main goal of this research was to compare the emotional competence of students of nursing and other (non-health) programs and to examine differences concerning age, gender, and work experience to determine whether there are significant differences in emotional competence with regard to these demographic variables. Furthermore, by comparing the emotional competence of nursing students and students of other (non-health) programs, the study sought to reveal the extent to which educational context and specific academic responsibilities can influence the development of emotional skills. In this way, the research looked for associations between these variables to offer insights that could be useful for developing educational programs and strategies to improve emotional competence among students.

Methods

Design

A descriptive cross-sectional study.

Sample

The research was conducted on students in the first year of the undergraduate study programs: Business Informatics, Administrative Law, Tourism Management, Traffic, and Nursing. The sample was convenient, and available and willing students participated. Out of a total of 240 enrolled first-year students, 105 participated in the research. The sample can be categorized as small in terms of size, including 44% of all students enrolled in the first year of studies. Respondents were divided into classes according to age (18–51+ years). Forty-one participants (39%) were male, and sixty-four (61%) were female. Analysis of participants regarding age indicated that 75 participants (71.4%) were in the 18–30 years age group, 15 participants (14.3%) in the 31–40 years age group, 10 participants (9.5%) in the 41–50 years age group,

and 5 (4.8%) in the over 51 years age group. Since only five participants were older than 51 years, participants from this category were joined with participants from the age category of 41–50 years for the analysis. To answer the questions posed, the participants were divided into those who attended a health program (n = 35; 33.3%) and those who did not (n = 70; 66.7%). Of those who attended the program, 51 (48.6%) attended a part-time program, and 51 (48.6%) attended a full-time program (three participants did not answer this question). In terms of years of work experience, the largest number of participants had less than a year of work experience (n = 48; 45.7%), followed by 1–5 years of work experience (n = 33; 31.4%), 20+ years of work experience (n = 12; 11.4%), 6–10 years of work experience (n = 7; 6.7%), 11–20 years of work experience (n = 4; 3.8%), and no work experience (n = 1; 1.0%).

Data collection

The Emotional Skill Competence Questionnaire – 45 (ESCQ-45) measuring instrument, which has been translated into more than 30 world languages, was used for this cross-sectional study, conducted from October to December 2023. The ESCQ-45 consists of two parts, the first of which contains six items and refers to socio-demographic data, study program, and work experience. The second part of the questionnaire contains 45 items / statements from the ESCQ-45 (Takšić, 2002) – a shortened version of the ESCQ-136. The statements are divided into three categories: ability to perceive / understand emotions (15 items), the ability scale expression / naming of emotions (14 items), and the scale of ability to regulate / manage emotions (16 items). Participants respond to the statements using a Google Forms survey and a five-point Likert self-report scale (with values indicating 1 – "do not agree at all" to 5 – "strongly agree").

Before the start of the study, respondents received written instructions about the purpose, course, and method of conducting the research. The respondents were guaranteed anonymity and were given instructions for participation. Respondents were informed of the requirement to complete the questionnaire (estimated to take about ten minutes). This study was conducted in strict accordance with ethical guidelines and principles to ensure the protection and rights of all participants. Prior to data collection, informed consent was obtained from all participants, who were fully informed about the purpose, procedures, potential risks, and benefits of the study. Participation was entirely voluntary, and participants were assured

that they could withdraw from the study at any time without any repercussions. Confidentiality and anonymity were rigorously maintained throughout the study. Personal data were anonymized, and all information was stored securely, accessible only to the research team. The study aimed to avoid any harm to participants, with a focus on minimizing potential risks and maximizing benefits.

Data analysis

Data were collected in an MS Excel database (version 11. Microsoft Corporation, Redmond, WA, USA), and the SPSS 21.0 statistical program (IBM Corp., Armonk, NY, USA) was used for statistical analysis. The normality of the distributions of the results was tested with the Shapiro-Wilk test. Data were analyzed using descriptive statistics. Categorical variables were presented as frequency and percentage, while continuous variables were presented as arithmetic mean and standard deviation.

The t-test for independent samples was used to test the differences in the results on certain factors of the questionnaire concerning gender and education. To analyze the differences regarding age categories and years of experience, a one-way analysis of variance was used. The latent structure of both questionnaires was verified by factor analysis under the principal components model. A probability level of $p < 0.05$ was taken as statistically significant in all statistical analyses.

The dimensionality of the questionnaire was tested on this sample, limited to three factors, using an exploratory factor analysis under the principal components model. The significance of the correlation matrix was determined by Bartlett's test, and the suitability of the correlation matrix for factorization was determined by the Kaiser-Meyer-Olkin sampling adequacy test. Bartlett's test of significance of the correlation matrix was high ($\chi^2 = 2501.93$) and significant with a risk of less than 1%. The Kaiser-Meyer-Olkin sampling adequacy index was 0.71, indicating that the correlation matrix of the measuring instrument variables was suitable for factorization. The factor analysis with Varimax rotation showed that a total of 38.27% of the variance was explained by three factors.

Before analyzing the results, the normality of the distribution of the examined variables was checked using the Shapiro-Wilk test by category: Expressing and Naming Emotions (SW = 0.944, df = 105; p = 0.166), Perceiving and Understanding Emotions (SW = 0.977, df = 105; p = 0.069), Regulation of Emotions (SW = 0.972, df = 105;

p = 0.030), and for the ESCQ-45 total (SW = 0.068, df = 105; p = 0.200). Parametric statistical procedures were applied.

Results

In the analysis of the factor saturation results, the average values of the scores for the factors Perceiving and Understanding Emotions (14 statements, reliability of internal consistency Cronbach's alpha = 0.892), Expressing and Naming Emotions (12 statements, reliability of internal consistency Cronbach's alpha = 0.908), Regulation of Emotions (five statements, internal consistency reliability Cronbach's alpha = 0.507), and the total score on the ESCQ-45 scale (31 statements, internal consistency reliability Cronbach's alpha = 0.865) were calculated.

Differences in the results on individual examined variables regarding field of education (nursing

and non-health majors) produced by t-test for independent samples is shown in Table 1. Statistically significant differences were found regarding the educational program in the factors Perceiving and Understanding Emotions and Expressing and Naming emotions, and the total score of the ESCQ-45. Nursing students were shown to have a more pronounced perception and understanding of emotions and, in general, more pronounced emotional competence than participants from non-health study programs. No significant differences were found in the factor Regulation of Emotions with regard to participants' educational programs.

Gender differences in the total score on the ESCQ-45 questionnaire and its factors were also examined. No statistically significant differences were found regarding gender (Table 2).

Table 1 Testing the significance of differences in the results of individual variables with regard to the field of education (nursing and non-health fields), with a t-test for independent samples

	Program	N	M	SD	t	df	p
Perceiving and understanding emotions	non-medical	70	3.58	0.600	-2.601	103	0.011*
	nursing	35	3.89	0.486			
Expressing and naming emotions	non-medical	70	3.35	0.799	-2.183	84.45	0.032*
	nursing	35	3.66	0.625			
Regulation of emotions	non-medical	70	3.61	0.544	-1.328	103	0.187
	nursing	35	3.76	0.596			
ESCQ-45 in total	non-medical	70	3.50	0.541	-2.657	103	0.009*
	nursing	35	3.78	0.452			

*p < 0.05; N – number of respondents; M – mean; SD – standard deviation; t – t statistic; df – degrees of freedom; p – p-value

Table 2 Testing the significance of differences in individual variables with regard to the gender of the participants, using the t-test for independent samples

	Gender	N	M	SD	t	df	p
Perceiving and understanding emotions	male	41	3.57	0.699	-1.563	103	0.121
	woman	64	3.75	0.482			
Expressing and naming emotions	male	41	3.52	0.835	0.709	103	0.480
	woman	64	3.41	0.706			
Regulation of emotions	male	41	3.70	0.641	0.658	103	0.512
	woman	64	3.63	0.511			
ESCQ-45 in total	male	41	3.57	0.633	-0.261	103	0.397
	woman	64	3.60	0.454			

N – number of respondents; M – mean; SD – standard deviation; t – t statistic; df – degrees of freedom; p – p-value

Furthermore, no statistically significant differences were found regarding the age of the participants in the factors Perceiving and Understanding Emotions, Expressing and Naming Emotions, and Regulation of Emotions, or in the total score of the ESCQ-45 questionnaire (Table 3).

No significant differences were found regarding years of work experience in the factors Perceiving and Understanding Emotions, Expressing and Naming emotions, Regulation of Emotions, and total score of the ESCQ-45 (Table 4).

Table 3 Testing the significance of differences in individual variables with regard to the age of the participants, using a one-way analysis of variance

	Age	N	M	SD	F	df	p
Perceiving and understanding emotions	18–30	76	3.66	0.625			
	31–40	15	3.72	0.451	0.162	2	0.850
	41–50	14	3.75	0.462			
Expressing and naming emotions	18–30	76	3.36	0.836			
	31–40	15	3.82	0.418	2.707	2	0.073
	41–50	14	3.60	0.360			
Regulation of emotions	18–30	76	3.61	0.605			
	31–40	15	3.85	0.381	1.215	2	0.301
	41–50	14	3.70	0.462			
ESCQ-45 in total	18–30	76	3.54	0.577			
	31–40	15	3.78	0.350	1.592	2	0.209
	41–50	14	3.68	0.333			

N – number of respondents; M – mean; SD – standard deviation; F – Fisher's F-test; df – degrees of freedom; p – p-value

Table 4 Testing the significance of differences in individual variables according to the years of work experience of the participants, by one-way analysis of variance

	Work experience	N	M	SD	F	df	p
Perceiving and understanding emotions	< 1	49	3.59	0.458			
	1–5	33	3.73	0.785			
	6–10	7	3.90	0.589	0.652	4	0.627
	11–20	4	3.75	0.332			
	20+	12	3.75	0.417			
Expressing and naming emotions	< 1	49	3.27	0.707			
	1–5	33	3.66	0.834			
	6–10	7	3.58	1.234	1.483	4	0.213
	11–20	4	3.46	0.493			
	20+	12	3.56	0.369			
Regulation of emotions	< 1	49	3.62	0.433			
	1–5	33	3.70	0.718			
	6–10	7	3.63	0.844	0.135	4	0.969
	11–20	4	3.75	0.412			
	20+	12	3.67	0.485			
ESCQ-45 in total	< 1	49	3.47	0.405			
	1–5	33	3.70	0.708			
	6–10	7	3.73	0.615	1.183	4	0.323
	11–20	4	3.63	0.345			
	20+	12	3.66	0.322			

*p < 0.05; N – number of respondents; M – mean; SD – standard deviation; F – Fisher's F-test; df – degrees of freedom; p – p-value

Discussion

Nurses often work with severely ill or dying patients and their family members and then have to cope with death and grief. Although the findings of this study suggest that nursing students exhibit a more pronounced perception and understanding of emotions, as well as higher overall emotional competence compared to students from non-health disciplines, in a qualitative study with phenomenological analysis of undergraduate nursing students, they reported feelings of fear, lack of knowledge, and inability to provide appropriate emotional support (Lovrić et al., 2020). These results align with prior research emphasizing the importance of EC in healthcare professionals. The integration of EC into the nursing curriculum has been shown to enhance clinical judgment and stress management skills. Similarly, the results of this study indicated that nursing students, likely exposed to certain EC concepts as part of their education, demonstrate superior emotional awareness and competence. This reinforces the notion that EC training is beneficial in preparing students for the emotional demands of healthcare professions (Ramadan et al., 2020; Vargas et al., 2022). Regardless of the controversies raised by the definition of EC, the disagreement as to whether it is a capability or a characteristic, and the variability of the instrumentation, it becomes apparent that the ability to determine level of EC may serve as a useful tool during the recruitment process

(McNulty & Politis, 2023), since higher EC is associated with improved clinical judgment and contributes to more effective stress management (Toriello et al., 2022).

In another study, an EI-Resilience curriculum was offered as an elective to second-year medical students and was well received by the students. The results revealed significant improvement in students' scores in all components of complex stress management and well-being outcomes (Versel et al., 2023). Our study results were consistent with this, since nursing students – who may receive more focused training on emotional intelligence and resilience – showed higher levels of EC, suggesting a beneficial impact on their academic and clinical performance.

In a further study, nurses who attended a teaching program on EC achieved significantly better results in the domain of emotional competence and management of social relationships than those who did not complete the targeted education. A graduate nurse program also produced significantly higher results in the domain of social connections compared to results for those who did not attend the program. No relationship was found between "ability", emotional intelligence, and program completion (Snowden et al., 2018). These outcomes are supported by our study, which indicated that nursing students scored higher on EC measures than their non-health counterparts, possibly due to similar educational interventions.

Nursing students unanimously agree that EC skills are essential components of the undergraduate nursing curriculum and are critical to maintaining a healthy academic environment (Ireland, 2022).

In a study conducted in 2021 on the influence of EC on departure from the profession and the development of team culture, heads of organizational units in the field of health care advocated the encouragement of nurses in critical constructive thinking, contributing to a pleasant working atmosphere and reduced nurse turnover (Majeed & Jamshed, 2021). However, a literature search also revealed a study in which EC (through the prism of parents of hospitalized children) was found to have no influence on the safety of young patients, in contrast to compassion, which was considered to have a significant impact on hospital safety and quality of care (Gelkop et al., 2022). This discrepancy highlights the complexity of measuring and interpreting the impact of EC in different contexts, suggesting that while EC is crucial for interpersonal relationships and team dynamics,

its direct effects on outcomes like patient safety may vary.

The question arises as to how compassionate a person can be if he / she does not possess the basic attributes of EC. In contrast to our findings, in a cross-sectional study by Štiglic et al (2018), an increase in EC with age was recorded and was more significant in women. Similarly, higher EC levels were found in nursing students compared to engineering students (Štiglic et al., 2018). In the findings of a 2020 study by Cassano et al. (2020), women had better results (0.2 points higher than men) for EC factors, indicating a pronounced ability to "assess and express emotions concerning 'others'". The discrepancy could be due to different sample characteristics or measurement tools. Nonetheless, these studies collectively underscore the relevance of EC across genders and disciplines.

There is no doubt that nursing students who receive training in emotional competence exhibit a higher level of EC than university students in other study programs. EC is strongly related to the characteristics of the individual and his / her personality and is different from technical and professional skills. It is also an excellent predictor of professional success. EI can enhance nursing practice across the board by boosting individual interactions and effectiveness. Nurses are responsible for satisfying patient requirements and establishing their place in decision-making and policymaking (Shanta & Connolly, 2013).

Limitation of the study

Several potential sources of bias were considered and addressed in this study to enhance the validity and reliability of the findings. To minimize selection bias, participants were randomly selected from a comprehensive list of registered students across various academic programs. Information bias was addressed by using validated and standardized instruments to measure emotional competence. All data collection procedures were standardized, and the research team received training to ensure consistency in administering and interpreting the assessments. Potential confounders, such as socio-economic status and prior academic performance, were identified and checked for in the statistical analysis. Multivariate techniques were used to adjust for these confounding variables, ensuring that the observed relationships between exposure and outcomes were not distorted by extraneous factors. On the other hand, only one university was included and the sample size was small (n = 105). A larger sample would likely provide more conclusive data.

Conclusion

This study supports the growing body of evidence that underscores the importance of emotional competence in nursing education. Due to the very nature of the profession and the specific empathetic relationship that the nurse builds with the patient, based as it is on noticing, understanding, and regulating emotions, the construct of emotional competence becomes an indispensable feature of nursing. Whether it be labelled an ability or trait, it has been established that EC can be developed through education. For Croatian nurses at the secondary school and undergraduate level, there is no mandatory teaching content aimed at increasing EC in a structured way. The review of the literature confirms the findings of this study i.e., that nursing students have more pronounced emotional competence than students in the same year of other (non-health) study programs. The observed differences in EC between nursing and non-health students suggest that EC training can significantly enhance students' emotional awareness and professional skills. However, the variability in findings across studies points to the need for standardized measures and further research to fully understand the nuances of EC development and its impact on professional practice. Although the statistical analysis did not indicate significant differences concerning age, gender, and length of work experience, it is possible that the sample size influenced the interpretation of the results. Therefore, additional research is needed on the impact of EC in nurses on the quality of health care and patient safety. In addition, it would be desirable to include mandatory educational activities aimed at developing emotional competencies in the curricula.

By comparing these findings with the existing literature, we can appreciate the critical role of EC in fostering a supportive and effective learning environment for healthcare students, ultimately benefiting patient care and team collaboration in clinical settings.

Ethical aspects and conflict of interest

This study was conducted in strict accordance with ethical guidelines and principles to ensure the protection and rights of all participants. Prior to data collection, informed consent was obtained from all participants, who were fully informed about the study's purpose, procedures, potential risks, and benefits. Participation was entirely voluntary, and participants were assured that they could withdraw from the study at any time without any repercussions.

Confidentiality and anonymity were rigorously maintained throughout the study. Personal data were anonymized, and all information was stored securely, accessible only to the research team. The study aimed to avoid any harm to participants, with a focus on minimizing potential risks and maximizing benefits.

The research was reviewed and approved by the Ethics Committee University of Applied Science in Šibenik (Class: 007-02/2-13/01, File Number: 103-01-24-02) ensuring that all ethical considerations were appropriately addressed. In addition, permission was obtained from the author of the original questionnaire, Vladimir Takšić (2002). The research was conducted according to the 1964 Helsinki Declaration (2013 revision).

The authors declare no conflict of interest.

Author contributions

Conception and design (VB), data analysis and interpretation (VB, NŠ, AŽP), manuscript draft (VB, NŠ, AŽP), critical revision of the manuscript (VB, NŠ, AŽP), final approval of the manuscript (VB, NŠ, AŽP).

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