



Improving emotional intelligence and its effect on teamwork competence in intensive care units' nurses

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Abstract

Background and aims: Teamwork is essential in nursing, particularly in intensive care units (ICUs) where complex working conditions prevail. Many nurses are inadequately prepared for teamwork, leading to workflow disruptions and inefficient resource use. This study evaluates the effects of an emotional intelligence-based empowerment program on the professional competence of ICU nurses.

Methods: A semi-experimental study was conducted in Shahrekord educational hospitals in 2023, where nurses were randomly assigned to intervention and control groups. The intervention group participated in a four-day online workshop focused on emotional intelligence. Teamwork assessments were conducted before and after the intervention. Initially, the control group had a teamwork score of 141.9 ± 19.8 , while the intervention group scored 144.5 ± 16.5 . There was no significant difference between the groups initially ($P=0.59$), but post-intervention, the intervention group demonstrated significantly improved performance ($P=0.001$).

Results: The teamwork score in the control group was 141.9 ± 19.8 , while in the intervention group, it was 144.5 ± 16.5 . Post-intervention, the intervention group showed significantly improved performance compared to the control group ($P=0.001$).

Conclusion: The emotional intelligence-based empowerment program effectively enhanced ICU nurses' self-confidence and teamwork skills, highlighting it as a strategic approach to improving nursing service quality and patient care outcomes. It is recommended that nurses, managers, and healthcare stakeholders utilize these insights to strengthen nurses' qualifications through targeted in-service training.

Keywords: Empowerment, Emotional Intelligence, Teamwork, Intensive care units, Group of nurses

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Introduction

The intensive care unit (ICU) is one of a hospital's busiest and most stressful departments. Nurses in these units must constantly make accurate and quick decisions and perform various nursing processes in emergencies (1). An important issue in care is nurses' professional competence, which is defined as the ability and capacity to perform duties and is considered a crucial factor in evaluating the quality of nursing services (2).

In addition, teamwork skills and communication with other healthcare staff significantly affect nurses' work outcomes and the provision of adequate care (3). These skills need periodic enhancement through in-service training and are acquired during education and work. The importance of teamwork in the health sector is so great that many studies worldwide have examined the benefits

and factors influencing teamwork among healthcare workers (4).

Teamwork is vital to nursing responsibilities and roles and is critical in-patient care and treatment systems. Effective teamwork in the ICU is particularly important for resolving human resource issues, reducing costs, and improving patient health (5).

Grover states that teamwork is essential, especially for nurses in ICUs, where strong communication and management skills are crucial for coping with multiple challenges (6).

Considering the complexity of the ICU and the unique working conditions of nurses in this unit, cooperation and teamwork are of particular importance (7).

Studies show that most nurses lack the necessary preparation for teamwork, which can cause interference

in work, rework, and waste of time and resources in critical working conditions. In addition, a qualitative study in Iran showed that members should have an effective presence to improve teamwork, which requires understanding the responsibilities and cooperation with each other (8,9).

One way to improve these skills is through empowerment interventions. Empowerment is a framework for nurses' professional growth and development and provides a practical tool for increasing their knowledge, skills, and motivation (10).

One of the solutions for empowering nurses is interventions based on emotional intelligence. Nurses are constantly dealing with emotions and feelings at work. For this purpose, it is more formal and emphasizes the process of thought, generation of ideas, and the ultimate goal of problem-solving. This issue requires that in addition to knowledge and skill abilities, one must be equipped with non-cognitive and emotional social characteristics, including how to deal with different people (11).

Goleman states that emotional intelligence provides the foundation for acquiring a range of learnable emotional abilities that lead to superior performance. These abilities include self-awareness, self-mastery or personal management, social awareness, and social relationship management. Nursing is a field that requires a high level of emotional intelligence due to its many interactions with people. Emotional intelligence increases nurses' ability to make quick, accurate decisions in critical situations and flexibility in facing unexpected challenges (12).

The review of existing literature indicates that emotionally intelligent nursing care is a new concept whose features and outcomes have not been extensively studied. Furthermore, this concept needs significant development in the field of nursing. Studies conducted in this area among nurses and nursing students show that individuals with higher emotional intelligence possess more effective caregiving abilities (13-17).

Considering the key role of emotional intelligence in improving the quality of hospital care and the lack of sufficient research in this field, this study aims to investigate the effect of implementing an empowerment program based on emotional intelligence in providing care. A study was conducted on the teamwork ability of nurses in special care units.

Methods

This semi-experimental study of two groups before and after was approved by receiving ethics code IR.SKUMS.REC.1401.031 in the ethics committee of Shahrekord University of Medical Sciences. The study population includes 60 nurses working in ICUs of educational hospitals in Shahrekord, Iran.

The sample size was obtained based on the study of Abbasi et al (18) and the sample size formula. Considering the probability of type 1 and 2 errors, respectively 0.01 and 0.10, the minimum required sample size is 22 people.

Considering the attrition rate, the study included 30 participants.

The criteria for entering the study include willingness to participate in the study and providing informed consent, having at least a bachelor's degree in nursing and having at least one year of work experience in the special care department, and not participating in two empowerment sessions and not wanting to continue participating in the study as criteria Exit. The study was considered.

All the nurses who met the inclusion criteria were selected as the research sample after obtaining consent and declaring their readiness to participate. In this way, the number of selected samples from each department was determined according to the sample size of that department. Sampling was done among all eligible people in Ayatollah Kashani and Hajar centers, considering that the total number of nurses in the ICU departments of Hajar and Kashani hospitals is about 120. The current research sample size is 60 people. After referring to each department, half of the nurses working in that department were selected. The selected nurses were divided into intervention and control groups based on the random block allocation method in the next step. The block method ensures the sample size is the same in the two groups.

In this research, data was collected using two self-report questionnaires. The first questionnaire was dedicated to demographic characteristics, and the second to people's teamwork.

The second questionnaire was a teamwork measurement tool designed for the first time in 2001 by Hogel Gomdenden to measure teamwork ability, and its reliability was reported at an acceptable level. The teamwork questionnaire includes 42 items and eight subscales. The way to respond to the items is on a five-point Likert scale, with scores of 1-5 for the options (never), (rarely), (sometimes), (often), and (always). The range of a person's scores is between 42 and 210, and the higher their score is, the greater their teamwork ability. Hugel and Gomoenden expressed the instrument's reliability in most dimensions as more than 92% (19). The validity and reliability of this questionnaire in Iran have been examined and confirmed by Kazemi et al, and it has been reported to be higher than 75% (20-22).

After completing the questionnaires, two groups of nurses in the intervention group carried out workshops and empowerment sessions based on emotional intelligence in the form of training packages and online sessions.

The emotional intelligence-based care empowerment program in this study was designed by taking the idea of emotional intelligence-based care conceptualization from the study of Hadadian (23). In his study entitled "Explaining and developing the concept of nursing care based on emotional intelligence, design and psychometrics of its measurement tool", Hadadian investigated the concept of nursing care based on emotional intelligence in Iran and the qualitative part, the underlying concepts

in providing care based on intelligence. Based on these concepts, the content of training sessions was prepared and presented to the experimental group as a four-day online workshop (120 min/d). Next, the researcher's preparation for the sessions' content was approved by the supervisors and advisors and then presented in the form of slides in the online sessions on the Skyroom platform.

Following the confirmation of the meeting schedule, the link was sent to the group through a message to arrange the meetings for those in the intervention group. The researcher presented the content after all the samples had entered the meeting. At the time of online meetings, by taking feedback from nurses and calling their names randomly, it was ensured that the nurses were present in the workshop until the end of the meeting.

The educational content of these sessions was arranged to include all four dimensions mentioned in Spreitzer's theory of psychological empowerment (competence, meaningfulness and trust, autonomy, and influence). During the implementation of the intervention program, according to the educational strategy, various methods, such as group discussion, role-playing, brainstorming, etc., were used, and the empowerment program was implemented step by step using educational tools. Sessions started with a review of feedback from the previous one and concluded with a summary of the topics covered. Table 1 presents the educational session content.

At the end of the study, after the second stage questionnaires were completed, the content was also provided to the control group in the form of a booklet to comply with ethical issues.

The ethical considerations of this study include respecting the principle of secrecy and confidentiality of information and ensuring that the names of participants were not used. This study imposed no costs on the individuals being studied. Additionally, the principles of trust and confidentiality were maintained using books and resources. The results of this study will be made available to the participants and beneficiaries. After the conclusion of the study, the training packages were also provided to the control group.

Data analysis method

Data were analyzed using SPSS 21 statistical software.

Descriptive statistics parameters were utilized, including frequency, mean, and standard deviation. Inferential statistical tests included independent t-tests (for comparison between the intervention and control groups before and after the intervention), paired t-tests (for comparison within the group before and after the intervention), chi-square tests, and analysis of covariance (ANCOVA). A significance level of 0.05 was considered in all cases.

Results

The findings of the demographic characteristics of the samples showed that out of 60 participants in the study, the average age in the control group (35.07 ± 0.8 years) and the intervention group (32.67 ± 5.9 years) did not significantly differ, as shown by the independent t-test ($P=0.08$). Additionally, the two groups observed no significant differences in other demographic characteristics ($P>0.05$). Table 2 provides more details on the nurses' demographic characteristics in both groups.

Table 3 presents the independent t-test results, which reveal no statistically significant difference in average teamwork scores between the groups before the intervention ($P=0.59$).

However, after the intervention, there was a significant difference in the average scores between the two groups ($P=0.001$). Additionally, the paired t-test showed no statistically significant difference in the average teamwork score in the control group before and after the intervention ($P=0.79$). In contrast, the intervention group saw an increase in the average score from 144.5 to 170.3, which was statistically significant ($P=0.001$).

Discussion

The present study aimed to examine the impact of an emotional intelligence-based empowerment program on teamwork among nurses in ICUs. Our results suggest that demographic data has a minimal effect on nurses' teamwork abilities, which aligns with results from other studies (24-26).

According to the results of statistical tests, research findings showed no statistically significant difference in terms of the average teamwork score before the intervention between the two groups. Still, after that, the average scores

Table 1. The content of empowerment program sessions based on emotional intelligence

Session	Content Title	Main Goal	Method
One	Prerequisites related to the nurse, client, and environment for implementing nursing care based on emotional intelligence	Understand the requirements for nursing care based on emotional intelligence.	Lecture, Q&A, group discussions, sharing caregivers' experiences, PowerPoint presentation, educational booklets, content classification
Two	Characteristics of nursing care based on emotional intelligence (communication)	Learn the characteristics and dimensions of communication based on emotional intelligence in nursing care.	Lecture, Q&A, group discussions, sharing caregivers' experiences, PowerPoint presentation, educational booklet, summary
Three	Characteristics of nursing care based on emotional intelligence (professional practice), how to apply these in daily care, and recognizing characteristics of emotionally intelligent nursing practices	Understand the characteristics of professional practice in nursing care based on emotional intelligence.	Lecture, Q&A, group discussions, sharing caregivers' experiences, PowerPoint presentation, educational booklet, summary
Four	Consequences of implementing nursing care based on emotional intelligence for nurses, clients, and society	Recognize the outcomes of emotionally intelligent nursing care	Lecture, Q&A, PowerPoint presentation, feedback, summary

Table 2. Demographic characteristics of the sample based on the intervention and control groups

Variable		Intervention		Control		P value
		Mean ± SD		Mean ± SD		
Work year		3.3 ± 1.4		3.9 ± 1.9		0.50 ^a
Variable		Frequency	%	Frequency	%	P value
Sex	Female	29	96.7	29	96.7	0.99 ^b
	Male	1	3.3	1	3.3	
Marital status	Married	23	53.3	26	86.7	0.11 ^b
	Single	7	46.7	4	13.3	
Education level	Bachelor	22	73.3	25	96.7	0.13 ^b
	Master	8	26.7	5	3.3	

^a Independent t-test; ^b Chi-square test.

Table 3. The average score of teamwork in two intervention and control groups before and after the intervention

Variable	Group	Before intervention	After intervention	P value (0.05)
Teamwork	intervention	16.5 ± 144.5	12.5 ± 170.3	0.001 >
	Control	19.8 ± 141.9	14.3 ± 141.3	0.79 ^a
P value between group		0.59 ^b	<0.001 ^c	-

^a Paired t-test; ^b Independent t-test; ^c Covariance analysis.

of the two groups had a significant difference. Also, there was no statistically significant difference in the average teamwork score in the control group before and after the intervention. However, in the intervention group, the average score increased significantly. These results suggest that nursing care empowerment interventions based on emotional intelligence positively influence nurses' motivation. These findings are consistent with the results of Meng and Qi, who demonstrated that emotional intelligence interventions can prevent increased perceived stress and lead to a reduction in communication skills in ICUs. Strengthening the emotional intelligence of nursing students helped improve their critical thinking skills and boosted their self-esteem (27).

In 2023, Abdel Fattah and colleagues conducted a study examining the impact of emotional intelligence training on reducing burnout among nurses in ICUs. The results showed that emotional intelligence training positively reduced nurses' burnout. They suggest providing emotional intelligence training programs for newly recruited nurses that align with requests for general and task-specific interventions to enhance teamwork and emphasize the concept of patient care in ICUs as a complex team effort (28).

In this regard, this study aims to investigate the role of teamwork strategies in improving care outcomes in units that provide complex nursing care. This study showed that teamwork is one of the key skills for nurses and is particularly important in achieving the desired results in these departments. Nurses who work effectively in a team can better understand patients' clinical conditions through collaboration with other specialists, which helps achieve the best prognosis and treatment results for hospitalized patients.

The present study is in line with the results of some

previous research. For example, the research of Hossieni and Soltani has shown that teamwork reduces nurses' job stress, helps increase job motivation, and improves clinical performance (20). Also, the study of Jawabreh emphasizes the importance of teamwork in special departments, and this study also shows that teamwork in these departments directly affects the quality of care and the improvement of patients' conditions (29).

A critical topic in the care discussion is nurses' competencies, which are essential in evaluating the quality of nursing services. These competencies should be periodically updated through appropriate training. One way to strengthen these skills is through empowerment interventions. Empowerment is a framework for nurses' professional growth and development and a practical tool for increasing knowledge, skills, and motivation. In this context, interventions based on emotional intelligence can play a significant role in empowering nurses.

Addressing the study's objective (determining and comparing the mean teamwork score of ICU nurses in the two groups before and after the intervention), the findings showed that the teamwork variables of nurses in the two groups (control and intervention) at the start of the intervention were not statistically significant ($P=0.59$).

In 2021, Keykha and colleagues studied attitudes and barriers to teamwork in ICUs from the perspective of nurses. The study's results and comparison of demographic variables of nurses with the mean scores obtained from various teamwork dimensions showed no statistically significant differences between the groups. Additionally, assessing nurses' attitudes toward teamwork in ICUs using a questionnaire measuring teamwork attitudes indicated a positive attitude among nurses. The examination of barriers revealed that high workload, dissatisfaction with unfair wages, the appointment

of individuals lacking teamwork skills as department heads, underutilization of nurses' expertise, and negative physician attitudes towards collaborating with nurses were the primary obstacles to teamwork in ICUs (30).

The performance of nursing managers and weak intra-group relationships were among the significant barriers to teamwork during epidemics. To provide quality teamwork during epidemics, tasks, and programs must be pre-determined by organization managers, and nurses should receive adequate training. The present study also showed that improving emotional intelligence levels could enhance ICU nurses' professional capabilities and teamwork abilities.

The 2019 semi-experimental study by Miri et al, which aimed to examine the effect of emotional intelligence on the communication skills of nursing students, demonstrated a strong positive link between emotional intelligence and communication skills and their specific components. The study concluded that training in emotional intelligence significantly improved communication skills and their aspects (31). In 2017, Hossieni and Soltani researched the interplay between teamwork, job stress, and job motivation in nursing. The study shows a negative correlation between teamwork and job stress and between job motivation and job stress, while a significant positive correlation exists between teamwork and job motivation. These results imply that improving the quality of clinical work is closely tied to effective teamwork, which can be supported by efforts to enhance job motivation and reduce stress factors (20).

The previous study explored the connection between nurses' teamwork and job motivation; however, this study focused on a different target group than the current research. Additionally, the present study examined how emotional intelligence-based nursing care empowerment programs influence teamwork among ICU nurses (32).

This finding suggests that nurses' abilities are crucial to their motivation. Improved skills lead to fewer deficiencies and shortcomings in their work, allowing them to offer more effective, high-quality care. In conclusion, research consistently highlights the importance of confidence and teamwork as key professional attributes for nurses and the need for empowerment initiatives to strengthen these attributes.

Conclusion

The study demonstrated the positive impact of an emotional intelligence-based empowerment program on teamwork among ICU nurses, highlighting the significance of these skills in high-pressure environments. Enhancing emotional intelligence has helped nurses improve communication, manage stress more effectively, and collaborate better with colleagues, which is crucial for improving patient outcomes and ensuring patient safety.

Unfortunately, emotional intelligence has not been sufficiently emphasized in nursing education in Iran. Therefore, it is essential to incorporate emotional

intelligence skills training into educational and in-service training programs. The findings of this research can assist nursing managers in selecting suitable nurses for sensitive areas such as ICUs, emergency departments, and oncology, ultimately improving the quality of care and patient safety.

The study faced limitations, including sample attrition, which was addressed by increasing the sample size. Additionally, individual differences and socioeconomic factors that were not measured could have influenced the results. It is recommended that broader studies be conducted in other hospital departments and under diverse conditions to enhance the reliability and generalizability of the findings regarding emotional intelligence. Such research would contribute to a better understanding of the importance of emotional intelligence among nursing professionals and its impact on the quality of healthcare delivery.

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Competing Interests

The authors declare that there is no conflict of interest.

Ethical Approval

Ethical considerations in this study included obtaining permission from the Shahrekord University of Medical Science Ethics Committee (Ethical Code: IR.SKUMS.REC.1401.031) and obtaining written consent from the participants.

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