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Educational challenges of postgraduate neonatal intensive care nursing students: A qualitative study

Monirsadat Nematollahi, Fatemeh Esmaelzadeh¹, Roghayeh Mehdipour-Rabori, Behnaz Bagherian

Abstract:

INTRODUCTION: Despite the progress of health care and the application of new technology in the care of patients, the need to train highly skilled and specialized nurses is inevitable. Given that a master's degree in neonatal intensive care nursing has been recently established in Iran, the aim of the study was to explain the educational challenges of neonatal intensive care postgraduate nursing students in their perspective.

MATERIALS AND METHODS: This conventional content analysis was performed by conducting semi-structured interviews with 18 students of neonatal intensive care in X University of Medical Sciences from 2018 to 2019. Data were analyzed using conventional content analysis. To establish the reliability and validity of findings, Graneheim and Landman criteria were considered.

RESULTS: Following the data analysis, two main categories were extracted: "theoretical education challenges" and "clinical education challenges." The first main category was comprised of the following subcategories: "detachment of nursing department and hospital," "defects in weekly scheduling," "combination of care and treatment approaches in education," "inconsistency between the content of theoretical courses," "limited collaboration between basic science and medical departments," "low number of lecturers," "lecturers' unrealistic expectations," and "the importance of the scoring system." "Extended work shifts," "a large number of students," "lack of opportunity to do clinical practices," "lack of training classes," and "limited amenities in the hospital" were recognized as subcategories of the second category.

CONCLUSION: Managers can address some of the students' challenges and provide the opportunity to enhance the quality of education through being familiar with, considering and meetings the needs and expectations of these students.

Keywords:

Neonatal intensive, nursing education, nursing students, qualitative research

Nursing Research Center,
Kerman University
of Medical Sciences,
Kerman, Iran, ¹Nursing
and Midwifery Care
Research Center,
Mashhad University
of Medical Sciences,
Mashhad, Iran

Address for correspondence:

Dr. Fatemeh
Esmaelzadeh,
Nursing and Midwifery
Care Research Center,
Mashhad University
of Medical Sciences,
Mashhad, Iran.
E-mail: esmaeilzadehf@mums.ac.ir

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Introduction

The increasing complexity of health care, rapid changes in technology, and changes in demographic composition in recent years have led to the need to train nurses with more knowledge, more specialized education, and higher skills.^[1] The foundation of health systems is human resources, and nurses, as the most significant human resource in the health-care system,

play an essential role in promoting the health of individuals in the community.^[2] Nursing education, as a part of the higher education system, has been rapidly expanding in the world in recent decades, which has raised.

Concerns about the quality of education in this field.^[3] Nursing is also closely linked to people's health, highlighting the importance of nursing education.^[4] The prominence of nursing education is essential to develop the nursing profession and

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ensure patients to receive high quality and reliable health services.^[5] The knowledge and skill of nurse specialists are incredibly useful in the variety of provided care.^[6] Changing and adaptation of the nursing care delivery system in the 21st century depend on the success of the nursing profession in designing nursing curriculum models.^[7] Studies have shown that the provision of specialized nursing programs enables nursing students to act professionally in a particular population and develop their skills.^[8] Nursing postgraduate courses are designed to meet these changing community and professional needs. In Iran, the nursing postgraduate program has been limited for more than two decades, which includes specialists nurse in medical-surgical nursing, pediatric nursing, community health nursing, and mental health nursing fields.^[9] At present, the purpose of establishing new postgraduate courses is to empower nursing students to do advanced nursing roles. Equip nurses with specialized knowledge, train nurses to have leadership positions in leading the process of change in the health system, and the influence on nurses' education and clinical practice. The creativity, commitment, and competence of these individuals will influence the quality of care.^[10] The continuity of changes in the health care system, expectations, and demands have contributed to the understanding of this issue that nursing curricula need evaluation, revision, and even significant changes.^[11] The World Health Organization's emphasis on the assessment of the nursing curriculum is comprised two domains, namely the curriculum's relevance to each country's prioritized health needs and the nurse's responsiveness to her/his patients.^[12] In Iran, the Iranian Nursing Planning Group does these periodic revisions with internal evaluations, which have led to a positive and significant impact on the nursing education system.

Challenges related to the postgraduate nursing program include professional identity and culture, work environment, and mismatch among education, research, and clinical practice.^[13] A mismatch between educations and needs of the community, learners, and independent nursing knowledge can cause many damages to nurse education.^[14] To meet these needs, various nursing disciplines have been established around the world. Neonatal intensive care nursing is one of these disciplines.

Since one of the critical indicators of the health and well-being level of each country is the reduction of infant mortality and improvement of their quality of life,^[15] training of neonatal intensive care specialist nurses is one of the countries' policies to maintain this indicator at the desired level. Significant advances in treatment and technology have made it possible to care for younger and more critically ill neonates.^[16]

With the increasing number of preterm infants, there is a growing need for evidence-based care to reduce mortality and the complications induced by a prolonged stay in intensive care units. Training of clinical specialist nurses in these units seems necessary. Ameyaw *et al.* found that fundamental changes in clinical education, clinical management is essential. They also emphasized the need for curriculum changes.^[17] The advancement of nursing education depends on the clinical knowledge. Nowadays, nursing profession specialization is of particular importance for providing appropriate education to the students, training qualified nurses for the clinical setting and providing quality health services.^[18] At present, clinical education planners only pay attention to the amount of time spent in clinical education but do not pay attention to the quality of clinical practice and training.^[19] Nikfarid and Ashktorab studied neonatal intensive care postgraduate nursing students' understanding of their professional status in Iran. They found that postgraduate nursing students often believed that their training in the clinical field was not much different from that of BSN students.^[20]

On the other hand, another study showed that students wanted to be trained by experienced and skilled nursing educators rather than specialists, which is in contrast with the findings of Nikfarid and Ashktorab's study.^[20] Accordingly, it can be concluded that assessing the educational challenges of neonatal intensive care postgraduate nursing students is one of practical importance given the special conditions of this field. Besides, any changes and improvements require a real understanding of current challenges and situations to address the potential points and challenges, and this helped to develop trusting relationships between neonates' parents and students as well as nurses working in the neonatal intensive care unit. Given that the first step in curriculum design and assessment is to analyze the current situation and study the challenges, expectations, and experiences of those who are involved, including students and lecturers, conducting a qualitative study to address existing problems and provide potential solutions seems necessary.^[21] Since there are very few studies in this regard, this study was done to explain the educational challenges of neonatal intensive care postgraduate nursing students.

Materials and Methods

The study was conducted in Iran from 2018 to 2019. Among the research methods, one that can reveal the nature of the phenomenon and its formation process in a natural context is the qualitative study.^[21] Qualitative research enables the researcher to understand the real world of daily human activities and personal life, perceive the reality as it is, and describe and explain the

social world.^[22] In this study, the conventional content analysis method was used as a qualitative method. This method is applied in the social sciences to study the content of communication (speech, written texts, interviews, and images).^[23] In this study, postgraduate neonatal students were selected purposefully.

Participants were postgraduate students of neonatal intensive care in X University of Medical Sciences. To have maximum variability, we selected students with different characteristics (i.e., native or nonnative students, students with high and low averages, etc.) [Table 1]. Inclusion criteria were as follows: being in the third semester or higher, having experience of working at the neonatal intensive care unit and be able to share her/his valuable experiences with the researcher. Data were collected using semi-structured interviews (18 interviews in total after data saturation). Initially, the researcher informed the participants about the objectives of the study. Then, written informed consent was obtained from each participant before initiating the interviews. The interviews began with a general question such as “what are the challenges of studying in their field” or “what are their main problems in this field?” and “what challenges are they confronted within the period of studying as a student there?” Interview questions were based on information elicited from participants’ statements. To gain more information, probing questions such as “can you give an example?” “Can you explain more?” and “how did you feel at the time?” were raised. Interviews were continued until participants offered no new categories or subcategories, and saturation was achieved.

Table 1: Characteristics of MSc students participated in study

Number of participant	Native/nonnative	Level of educational term	Level of mean
1	Nonnative	Third term of MSc	A
2	Native	Fourth term of MSc	B
3	Native	Third term of MSc	A
4	Native	Third term of MSc	A
5	Native	Fourth term of MSc	B
6	Nonnative	Fourth term of MSc	B
7	Native	Sixth term of MSc	A
8	Native	Third term of MSc	B
9	Native	Third term of MSc	B
10	Native	Third term of MSc	A
11	Native	Third term of MSc	B
12	Nonnative	Third term of MSc	A
13	Native	Third term of MSc	B
14	Native	Third term of MSc	A
15	Nonnative	Third term of MSc	B
16	Native	Third term of MSc	B
17	Nonnative	Third term of MSc	A
18	Native	Third term of MSc	A

Data analysis

Data were analyzed using Landman and Granheim method. First, the interviews were transcribed word by word. Transcriptions were studied several times to gain a better understanding, and then meaningful units were extracted. Initially, the coding was open coded so that the participants’ statements were coded without any particular understanding of what the participants were saying. Then, based on the differences and similarities, categorization was done. The process of reduction was continued to understand the phenomenon better. MAXQDATA 10 was used to categorize the data.

Validity and reliability of data

Continuous comparisons of interviews and codes were made during data analysis. To establish the validity of the data, Guba and Lincoln criteria were considered. To the validity and reliability of the data, the triangulation technique was used to collect the data, in-depth interviews were performed, codes were reviewed by the interviewees, and data analysis was done by a team. In order to verify the researchers’ perceptions, the interview transcriptions were returned to the interviewees, and their final comments on what the research team had interpreted were evaluated. A group of research experts was also recruited to help increase the confirmability of the data. Furthermore, all the steps and the way of extracting data were recorded with details.

Results

In total, 18 interviews were conducted with postgraduate students of neonatal intensive care. Out of these 18 participants, 15 were female and 3 were male. The age of the participants ranged from 26 to 38 years old, with a mean of $26.7 \pm 5 / 9$ years old. Following data analysis, two main categories were extracted, namely theoretical education challenges and clinical education challenges.

The main category of theoretical education challenges was comprised of following subcategories: detachment of nursing department of nursing and hospital, defects in weekly scheduling, combination of care and treatment education approaches, inconsistency between the content of theoretical courses and their credits, limited collaboration between basic science and medical departments, low number of lecturers, lecturers’ unrealistic expectations, and the importance of the scoring system. Extended work shifts, a large number of students, and lack of opportunity to do clinical practices, lack of training classes in hospital, and limited amenities in the hospital were recognized as subcategories of clinical education challenges.

Theoretical education challenges

Theory training of postgraduate students of neonatal intensive care is done in the classrooms of nursing

departments. However, the department setting is completely detached from that of the hospital, and lecturers cannot immediately show the case to the student during theory courses.

One participant stated

"It would have been much more effective if the theoretical training environment was located in the hospital, and we actually received the theoretical training in the hospital while observing the clinical case."

Another participant said

"I wish I could receive training about ventilator and its modes in the hospital when we are visiting neonates and after receiving training about ventilator theoretically in consecutive 4-5 sessions. Ventilators are expensive, and our nursing school cannot afford it."

Defect in weekly scheduling was the other challenge of the participants. Several participants stated that basic science courses such as neonatal physiology and anatomy have a large volume of content but low credits; on the other hand, they are one of the major courses. Each of these courses (anatomy and physiology) is scheduled for the half of a semester. However, if one complete semester is allocated to each of these courses, the effectiveness of each course will be much higher for the students.

One student said

"Even though our physiology professor was great, we couldn't benefit a lot from this course because the course was started in the second half of the semester...."

A combination of care and treatment education approaches was another category extracted following data analysis. Some postgraduate students had passed all their courses with neonatologists. However, many undergraduate students were taught theoretical courses by pediatric and neonatal nursing due to the lack of newborn specialists' collaboration.

One of the students who had passed their courses with neonatologists said

"We were not comfortable with physicians. We were ashamed to ask questions. We thought if we ask the question, they would think that we are illiterate. I think our class did not have sufficient adequacy."

Another participant stated

"Physicians only focused on treatment and did not consider care, but care is very important for us."

Some who were taught only by nursing professors believed that participation of neonatologists in teaching was also needed.

"They could also provide us with valuable information."

Regarding the subcategory of inconsistency between the content of theoretical courses and their credits as well as the duplication of some of the syllabuses, participants considered some courses, such as pathophysiology, useless since its content had been actually presented in other neonatal nursing courses. In fact, they believed that it was a 2-credit course that could be omitted from the curriculum.

In this regard, one participant (number six) said

"Simultaneously, we were taught about neonatal resuscitation and infant checkup and examination during one semester. It was a one-credit course despite its heavy content and syllabus."

A low number of lecturers was found as another challenge for these participants.

One participant stated

"There are few numbers of the competent faculty member teaching neonatal courses, and so classes are held with a limited number of lectures."

The other participant said

"Lectures really need to be changed. It will be better for us as well as them."

The participants also addressed lecturers' unrealistic expectations.

One participant said

"In one group, the students' conditions were not the same. Three of us had worked and received specialized training in the neonatal intensive care unit for many years. However, our lectures had similar expectations from all of us. It was too demanding for some of us who never had worked previously in the neonatal intensive care unit."

The scoring system and the emphasis on summative evaluation was another challenge raised by the participants. All participants complained about this system and said:

"We hope this scoring system changes or removes in the near future."

Extended work shifts, a large number of students, lack of opportunity to practice clinical skills, lack of training classes, and limited amenities in the hospital and during shifts were recognized as subcategories of clinical education challenges.

The first challenge for these students regarding the clinical domain was extended work shifts without the

presence of any instructors. They believed that extended work shifts were not useful without the presence of an instructor because the nurses did not have a good relationship with them and would not assign them any work.

One participant said

"Without an instructor, the nurses do not assign us much work and do not communicate with us. I am not sure; maybe they do not trust us. This makes it difficult for us to use our time efficiently."

Another major challenge regarding clinical education in this field was the simultaneous presence of a large number of medical students in the neonatal intensive care unit, leading to overcrowding of the group and loss of the opportunity nursing students had to care for patients.

One of the participants acknowledged

"We, along with medical students, interns, residents, and fellows, are present in the unit simultaneously. It gets too crowded and...."

Lack of training classes was detected as another subcategory. Participants said that there should be at least one training class at the hospital for each nursing school.

One of the participants stated

"If our classrooms were held in the hospital, the quality of education would be much higher, but we do not have even one class in the hospital...."

The other challenge of this population was limited facilities in the hospital. Students were deprived of basic amenities, such as a wardrobe, a bed to rest, and even a training class, during hospital shifts. These deficiencies naturally had a negative effect on the quality of their education.

Another participant said

"We really have no welfare facilities here, and most of our courses are presented in the hospital. It is challenging. Thank God for having the library and computers in the hospital."

Discussion

The analysis of data in this study has led to the emergence of two main categories, namely the theoretical education challenges and the clinical education challenges. The main category of theoretical education challenges consisted of seven subcategories, including detachment of nursing department and hospital, defects in weekly scheduling, combination of care and treatment education, inconsistency between the content of theoretical courses

and their credits, limited collaboration between basic science and medical departments, low number of lecturers, lecturers' unrealistic expectations, and the importance of the scoring system and emphasis on summative scoring. Extended work shifts, a large number of students, lack of opportunity to do clinical practices, lack of training classes, and limited facilities in the hospital and during shifts were recognized as subcategories of clinical education challenges. Today, nursing education faces issues such as graduates' competency, quality of education, and nursing education curricula. Concerns about the quality of nursing education are increasing day-by-day due to the close relationship between professional human resources and human beings.^[3] The purpose of nursing education is empowering of students to adopt the critical role of the nurse, and the promotion of nursing knowledge and skills is the prerequisite to achieve professionalization.^[24] In order to promote nursing education, educational problems and their solutions should be addressed.

The results of the current study showed that ineffective planning in the area of education and teaching was one of the educational challenges. In Mikkonen, Kristina's study, "ineffective program organizing" was reported as one of the key themes. Participants stated that inappropriate planning forward, inappropriate and short program scheduling, inadequate focus on the essential sciences needed for care, insufficient focus on critical thinking ability, and ineffective policies and processes run by departments posed challenges against clinical preparedness and performance.^[25] In addition, Thomas L revealed that issues related to the educational curriculum caused stress for students. To ensure that graduates are ready to meet the challenges of a dynamic and complex health-care system, it is essential that the nursing curriculum has been aligned with the clinical environment,^[26] and it is suggested that nursing education planners pay more attention to this issue.

In the current study, two groups of students were interviewed; the neonatologists taught one group all theoretical courses, and the other group had passed all their theoretical courses by the neonatal nurse specialists. Both groups addressed problems related to lectures' teaching methods and acknowledged that collaborative teaching and increasing the number of lectures could enhance the quality of education so that most of the courses are taught by nursing lectures, and few are left to physicians. According to participants' statements in this study, physicians' expectations from nursing students as well as their approach to teaching were treatment based rather than care based. In qualitative research by Baraz *et al.*, inadequate supervision and inappropriate approach adopted by the lectures while using unsuitable education and evaluation strategies

were also identified as factors influencing learning.^[27] Moreover, Jamshidi's study on learning challenges, lectures' unrealistic expectations, experience, knowledge, and skills were reported as barriers against learning.^[28] Significant proportion of the postgraduate students' evaluation system in the current study was related to the end-of-semester score, and most of the students expressed their dissatisfaction with this evaluation system. They mostly expected that much of their final score was allocated to research work. Implementation of new evaluation methods can be considered for dealing with this challenge. In Baraz's study, the subjective evaluation of students by the lectures was described as a subcategory of noncivilized lecturer's behavior.^[27] One of the clinical education challenges from the viewpoints of our participants was extended work shifts without the presence of any instructors. According to educational regulations, neonatal intensive care nursing students are required to spend 60 h of extended work shifts per month in addition to their training courses, and they should care the newborn infants such as neonatal intensive care unit nurses. Since the neonatal intensive care unit nurses did not communicate well with the students, having extended work shifts was inefficient and useless according to the participants' points of view.

One of the goals of clinical education is that students learn practical communication skills along with clinical expertise. This communication should be kept among the patient, her/his family, and all members of the medical team. The ability to communicate effectively leads to the development of professional identity.^[29,30] The complexity of social relationships and the unpredictability of learning situations are characteristic of the clinical learning environment, which can provide an opportunity for students to integrate cognitive, mental, and motor skills.^[31] In a study by Heydari *et al.*, nursing students suggested that a positive and friendly relationship among students, nurses, and instructors had an impact on the clinical learning environment and led to students' self-esteem and learning.^[32] Part of professional competence is gained weak interactions, communication, and teamwork. Therefore, an opportunity for being socialized should be provided for the students in the clinical setting. Restricted facilities in the hospital, such as not having a room, class, food jetton, and suitable resting place during shifts was another problem raised by the students in this study. In Heydari *et al.*'s study, the most common problem raised by 68% of nursing students was the lack of welfare education facilities in the clinical wards.^[32] In Melincavage's study in the United States, a sense of abandonment was also reported as one of the themes extracted from nursing students' statements.^[33] The complexities of the clinical setting and challenges that nursing students and lecturers are faced have a negative impact on students' learning,

health, and career satisfaction as well as the quality of care services provided to patients. However, in order to enhance the process of students' professionalization, student education must be done professionally, and all aspects of professionalism should be considered in education.^[33] Planning to solve clinical education problems is essential. Because Doody and Condon, 2012 emphasized that optimal clinical training can enable students to solve clinical problems and enhance their critical thinking skills.^[34]

Furthermore, through optimal education, an opportunity is provided for the students to develop their confidence, self-competence, and leadership skill and find a professional perspective toward their major.^[6,35] Moreover, the presence of stressful factors during clinical education can lead to adverse changes in students' mental and social life, causing poor academic performance, and health problems. The adverse effects of stress on the process of student socialization were also emphasized in many studies.^[36] Therefore, comprehensive support of the students by the lecturer, medical and nursing staff in the clinical setting is inevitable, and support in the clinical settings is regarded as a source of motivation for the students to feel that they are part of the treatment team. Supportive environments facilitate students' socialization, reduce their anxiety, increase their confidence and learning, and enhance their professional competence and identity.

Limitation of the study

The major limitation of the study is that the findings cannot be generalized given the nature of the research method selected. Another limitation regards the small sample size. However, the research includes a specific participant (MSc students in nursing) and a particular geographic location. However, we believe that these findings would support further investigation of broader scope and deeper reach. The results of this study are transferable to other nursing universities, nursing students, and faculty members.

According to the findings of this study, there is essential to do more investigations about the interventions to solve theoretical and clinical education problems.

One of the majors in the Iranian educational system that neglected in researches is neonatal intensive care postgraduate nursing students, and the innovative aspect of this study is the explanation of their educational challenges from themselves perspective.

Conclusion

According to the results of the current study, managers can address some of the students' challenges and provide

the opportunity to enhance the quality of education through considering the needs and expectations of a group of students before designing and planning the theoretical and clinical training and having more interaction and communication with the students, especially those who were trained with previous educational planning and receiving their feedback about education planning. In the theoretical training domain, many solutions can be provided to solve some challenges through communicating with other groups, including physicians and basic science faculties. It is also possible to improve the quality of education by obtaining students' feedback about their experiences of educational content. Regarding the clinical domain, a professional education opportunity can be provided for students through the provision of educational and welfare facilities for students and more collaboration between school administrators and clinical administrators. Providing problem-based clinical education, familiarizing students with the clinical environment before entering a new clinical setting is effective. In addition, holding workshops to introduce the reality of clinical work to students, and creating a supportive climate in the clinical setting may help overcome these challenges.

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Conflicts of interest

There are no conflicts of interest.

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