Short Communication

J Babol Univ Med Sci
Vol 20, Issu 3; Mar 2018. P:69-73

The Effect of Educating the Use of Developmental Positions of Premature Infants on the Clinical Performance of Neonatal Intensive Care Unit Nurses

Z. Montaseri (MSc)[1], F.Bakhshi (MSc)[2], M.Edraki (MSc)[1], S.M. Razavi Nejad (MD)[3•], S. Haghpanah (MD)[4]

1.Department of Pediatrics Nursing, Faculty of Midwifery, Shiraz University of Medical Sciences, Shiraz, I.R.Iran
2.Faculty of Nursing Midwifery, Shiraz University of Medical Sciences, Shiraz, I.R.Iran
3.Department of Pediatrics, Faculty of Medicine, Shiraz University of Medical Sciences, Shiraz, I.R.Iran
4.Department of Hematology, Shiraz University of Medical Sciences, Shiraz, I.R.Iran

J Babol Univ Med Sci; 20(3); Mar 2018; PP: 69-73
Received: Aug 8th 2017, Revised: Dec 2nd 2017, Accepted: Dec 25th 2017.

ABSTRACT

BACKGROUND AND OBJECTIVE: One of the early interventions in neurodevelopmental disorders in neonatal intensive care units is providing proper conditions for infants. Premature infants have lost their last three months of life in the uterus, and as a result, have not reached a collapsed status, which is a developmental position that indicates brain growth in the infant. Considering the importance of the neonatal position in developmental positions and achievement of better neural evolution, this study was conducted to implement educational intervention to improve the performance of nurses in order to properly implement the developmental positions of premature infants in neonatal intensive care unit.

METHODS: This interventional study was carried out among 85 neonatal intensive care unit nurses in Shahid Akbar-Abadi and Ali Asghar Hospitals in Tehran in three stages. First, the nurses' performance was evaluated regarding the supportive developmental positions of the premature infants in the neonatal intensive care unit through a neonatal assessment tool (IPAT with a maximum score of 12 and a minimum score of 3). Then, nurses were educated by slides and face to face and the performance of nurses was evaluated and compared after the first week after training and two months after the training.

FINDINGS: Demographic data showed that the education level of most nurses (98.8%) was bachelor's degree and most nurses (48.2%) were older than 30 years of age. The highest work experience of nurses (42.4%) was in the range of 5–10 years. In addition, the nurses' performance score regarding the supportive developmental position of premature infants in the pre-training stage (5.84±0.03), the first week after training (8.35±1.42) and two months after training (8.71±1.16) had a significant difference ($p<0.001$).

CONCLUSION: Based on the results of this research, educating the use of developmental positions of premature infants has positive effects on the clinical performance of neonatal intensive care unit nurses.

KEY WORDS: *Education, Supportive developmental position, Neonatal Intensive Care Unit, Performance.*

Please cite this article as follows:

Montesari Z, Bakhshi F, Edraki M, Razavi Nejad SM, Haghpanah S. The Effect of Educating the Use of Developmental Positions of Premature Infants on the Clinical Performance of Neonatal Intensive Care Unit Nurses. J Babol Univ Med Sci. 2017;20(3):69-73.

•Corresponding author; S.M. Razavi Nejad (MD)
Address: Shahid Akbarabadi Hospital, Ferdows Station, , Molavi Street,Tehran, I.R.Iran.
Tel: +98 21 55628166
E-mail: fbakhshi1979@gmail.com

[DOR: 20.1001.1.15614107.1396.20.3.10.8]
[DOI: 10.18869/acadpub.jbums.20.3.69]

Introduction

Premature infants are those infants born before 37 weeks of gestation. The World Health Organization estimates the birth of premature infants more than one-tenth of the total birth of infants. These infants are very delicate and many of their organs are still not fully developed (1). By flexion, limiting organs' stretch, light and noise, providing quiet sleep and allowing unlimited access to the mother, the mother's uterus provides a good environment by facilitating positive sensory receptors that are necessary for the natural growth of the fetus's brain. However, the premature infant is deprived from these developmental needs due to early birth and being transferred to the neonatal intensive care unit (2).

Placing an infant in a developmental position actually means bringing the infant closer to the longitudinal line of the body to support the baby and achieve a better neurodevelopment. A supportive developmental position includes limiting the infant's body, causing curvature in the body similar to the fetal position, and directing the body organs toward the central axis of the body. This way, the infant is like a fetus in the womb (3).

Nursing of premature infants admitted to the neonatal intensive care unit needs sensitivity, accuracy, skill and experience. Since nurses are the main caregivers of hospitalized infants, their smallest non-standard performance may cause irreversible complications in the infant. Not only does it affect the infant itself, it also brings about a lot of marginal legal issues for nurses. Therefore, educating the standard of care will increase the quality of services and reduce the complications of infants (4).

In implementing the educational programs, choosing the appropriate teaching method is one of the most important steps in the designing process of instruction, because effective learning is the result of good teaching more than anything and, on the other hand, one of the important and effective factors in the quality of education is educational method. In nursing education, the relationship between education and nursing care is also continuingly increasing. Considering the importance of nursing education, which is currently aimed at lifelong learning, it is necessary to implement educational programs that have a significant effect on the capabilities, and are at the same time cost effective and feasible. Continuous education of nurses is one of the ways that improves nursing quality and prevents problems (5). Positioning of infants by the nurse is considered to be a precious asset, because in the near future, healthy infants will cause fewest complications for parents and the community. Since placing the infant in the proper position is considered as a part of developmental care and as one of the responsibilities of the nurses in the neonatal intensive care unit, therefore, it seems that educating the nurses regarding the use of neonatal developmental position will have a significant effect on improving the clinical performance of nurses in intensive care units (6). Considering that few studies have been conducted in this regard, this study was carried out to evaluate the effect of training the use of developmental positions of premature infants on the clinical performance of nurses working in neonatal intensive care units.

Methods

This interventional study (registration code of IRCT: 2016071328915N1) was performed among nurses with a bachelor's degree and master's degree in neonatal intensive care units of Shahid Akbar-Abadi and Ali Asghar Hospitals affiliated to Iran University of Medical Sciences. Nurses with at least one year of work experience in neonatal intensive care unit, having at least bachelor's degree, filling out an informed consent form, not completing an educational course on developmental position, nursing care of infants with gestational age of 28-36 weeks, were easily included in the study after filling out the demographic data form and were excluded from the study if they did not want to continue their collaboration during the study. First, the nurses' performance regarding the placement of infants in developmental positions was monitored during one week and was evaluated by the research assistant using a checklist for assessing the infant's position that evaluates the status of the infants in 6 positions. Then, training was provided by the researcher for the nurses through slideshows and then face to face in the infant's bedside. Nurses were divided into groups of 5, and then, the correct way of placing the organs of the baby was displayed by 10 educational slides for one hour using the computer and video projector in the neonatal intensive care unit room. Then, these groups of 5 were immediately present in the neonatal intensive care unit at the bedside of the infants, and the training was carried out face to face by the researcher for two hours.

[DOR: 20.1001.1.15614107.1396.20.3.10.8]
[DOI: 10.18869/acadpub.jbums.20.3.69]

In the next step, immediately after completing the training, the research assistant evaluated and recorded the performance of each nurse once (since they had fixed shift schedule) during a week using the checklist for assessing the developmental position of the infant. In the second step, two months after the training, the research assistant evaluated and recorded the performance of each nurse during a week using the checklist for assessing the developmental position of the infant and $p < 0.05$ was considered significant. In this research, blinding was performed this way: observation of the performance was done before and after the training by the research assistant and the training was carried out by the researcher. In the end, in order to observe the ethical considerations, the nurses were noted about their errors.

The data gathering tools in this research is a review list for assessing the performance of nursing staff regarding developmental positions, which include: position of the various organs of the infant including shoulder position, hand and arm position, pelvic position, knee and ankle position, head position, and chin and neck position. The total score that a nurse receives in these six positions is in fact her performance score. Overall, the score of 12 indicates the best position, and the score of 9 and above is acceptable. Finally, the effect of training the use of developmental positions of premature infants on the performance of nurses was determined by the score obtained from the three stages; before the training, the first week after training and two months after the training.

First, the checklist for assessing the developmental position of the infant, which was used in the Spilker's study, was translated into Persian and then translated into English and its content validity was confirmed by a number of nursing experts. The reliability of checklist for assessing the developmental position of the infant was verified by a pilot sample of 15 people and Cronbach's alpha of 93% was found. Data were analyzed using SPSS 21 software and paired t-test. $p<0.05$ was considered significant.

Results

Based on the results of this study, demographic characteristics showed that the highest frequency regarding education was bachelor's degree (98.8%), the age of the majority of nurses (48.2%) was above 30 years, the majority of the studied samples (97.6%) were nurses and the highest work experience of nurses (42.4%) was 5-10 years (Table 1). There was a significant difference between nurses' performance score before and after the training ($p < 0.001$). In addition, there was a significant difference between the performance score of nurses in the pre-training stage and two months after training ($p < 0.001$), and between the nurses' performance score in the first week after training and two months after training ($p < 0.001$) (Table 2).

Table 1. Demographic characteristics of nurses working in neonatal intensive care units of selected hospitals of Iran University of Medical Sciences

Study variables		Frequency
Level of Education	Master's degree	1 (1.2)
	Bachelor's degree	84 (98.8)
Age of nurses	25 – 30	13 (15.3)
	31 – 35	31 (36.5)
	> 30	41 (48.2)
The status of participants	Head nurse	2 (2.4)
	Nurse	83 (97.6)
Work experience	1 – 5	16 (18.8)
	6 – 10	36 (42.4)
	> 10	33 (38.8)

Table 2. Comparison of the mean score of nurses' performance on developmental positions of infants before training, the first week after training and two months after training

Variable	Frequency	Mean performance score Mean±SD
Before training	85	5.84±2.03
The first week after the training	85	8.35±1.42
Two months after training	85	8.71±1.16

p<0.001

Discussion

Based on the results of this study, education the use of developmental positions of premature infants had positive effects on the clinical performance of neonatal intensive care unit nurses, which was consistent with the study of Godarzi et al. regarding the effect of in-service training of nurses in the neonatal intensive care unit on the awareness and performance of nurses (7).

[DOR: 20.1001.1.15614107.1396.20.3.10.8]
[DOI: 10.18869/acadpub.jbums.20.3.69]

The training of correct positioning of the shoulder, arm, hip, ankle and knee, head and neck are the positions that need to be trained in the neonatal department. The results of various studies indicate the different effects of different positions on premature infants. Each position has its own advantages and disadvantages that should be considered by nurses. The study by Segal et al. showed that developmental support reduces the stress of premature infants (8). In a study by Alinegad et al. with the aim of positioning the infants in the neonatal intensive care unit, neurological developmental support of infants led to a reduction in neurodevelopmental problems (9).

In addition, according to studies by Jeanson regarding the effect of training the use of standard devices for positioning the infant on clinical skills of nurses in the neonatal intensive care unit, the mean score of nurses' performance regarding developmental position of the infant before training was 8.3, one month after training was 8.7 and four months after the training was 9.2. The highest mean was related to arm position (10), which was consistent with the present study. Although the results of the present study are similar to the results of the above studies, the specialty of the present study is the fact that it examines the effect of training as an intervention on the performance of nurses and it showed that training has a significant effect on the clinical performance of nurses.

It seems that this may be due to the lack of continuous training regarding the correct positioning of the infant specifically for nurses or the lack of regular participation of nurses in educational programs. Therefore, considering that nurses of the intensive care unit should have adequate competence for the care of the newborn, the implementation of nursing care education in accordance with the standard principles to improve the conditions of the infants and reduce the complications can play a decisive role in their health (11). The results of this study well indicate the educational needs of neonatal intensive care unit nurses regarding developmental position of the infant before the intervention.

On the other hand, the proper effectiveness of the educational intervention used in this study indicates the necessity for educating developmental positions of premature infants as a part of official hospital education and strategic planning by health department officials. Therefore, considering the positive effects of developmental care, including proper placement of premature infants on neurodevelopment and reducing neurological problems, it can be concluded that proper education, in addition to changing the behavior and performance of nurses, can play an important role in improving the care, treatment and even early discharge of premature infants. Therefore, it is essential to hold training courses in this field for personnel working in neonatal intensive care units as well as nursing students.

Regarding the limitations of this research, it can be noted that these data refer to hospitals affiliated to one of the universities of medical sciences in Iran and have limited generalization. Therefore, it is suggested that further studies at a much wider level compare the nurses in difference centers and evaluate the satisfaction of nurses in implementing and observing developmental positions.

Conflict of Interest: No conflicts of interest.

Acknowledgment

Hereby, we express our deepest sense of gratitude and indebtedness to the officials of Iran University of Medical Sciences, subsidiary hospitals and all colleagues who have contributed to this research.

[DOR: 20.1001.1.15614107.1396.20.3.10.8]
[DOI: 10.18869/acadpub.jbums.20.3.69]

References

1.Keshavarz M, Dieter J. Effect of Tactile-Kinesthetic Stimulation in weight gaining of pre-term infants hospitalized in intensive care unit. Univ Med J. 2009,67(5):347-52. [In Persian]

2.De Rouck S, Leys M. Information behaviour of parents of children admitted to a neonatal intensive care low birth weight infants. Health. 2011;15(1) 54-77.

3.Blencowe H, Cousens S, Oestergaard MZ, Chou D, Moller A-B, Narwal R, et al. National, regional, and worldwide estimates of preterm birth rates in the year 2010 with time trends since 1990 for selected countries: a systematic analysis and implications. Lancet. 2012;379(9832):2162-72.

4.Najafi araghi H RM, Atashzade F. Auditing preterm neonatal nutrition nursing care. Quart Nurs Manage. 2013;2:29-37.[In Persian].

5.Tuma JM. Mental health services for children: The state of the art. Am Psychol. 1989;44(2):188.

6.Godarzi Z, Tefagh M, Monjamed Z, Meemari A, Kamali p. The effect of gob training on knowledge and practice of nurses in the neonatal intensive care unit for childeren. Life Magazine. 2004;10(20):25-31. [In Persian]

7.Sehgal A, Stack J. Developmentally supportive care and NIDCAP. India J Pediat. 2006;73(11):1007-10.

8.Alinejad-Naine M. Neonatal positioning during care in neonatal intensive care unit. Iran J Cardiov Nurs. 2014;3(1):60-5.[In Persian].

9.Jeanson, E. One-to-One Bedside Nurse education as a means to improve positioning consistency. Newborn Infant Nurs Rev. 2013;13(1):27-30.

10.Hack M, Flannery DJ, Schluchter M, Cartar L, Borawski E, Klein N. Outcomes in young adulthood for very-low-birth-weight infants. Eng J Med. 2002;346(3):149-57.

[DOR: 20.1001.1.15614107.1396.20.3.10.8]

[DOI: 10.18869/acadpub.jbums.20.3.69]