Original Article

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Effect of Education on Awareness of Practice of Mothers in Care of Premature Infants

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ABSTRACT

BACKGROUND AND OBJECTIVE: Reducing the mortality rate of low birth weight and preterm infants is associated with an increase in their care needs. Insufficient knowledge of mother in effective care of the premature infant affects the process of growth and development and causes illness and re-admission of the infant. The aim of this study was to determine the effect of educational intervention on awareness of Practice of mothers in care of premature infants.

METHODS: In this quasi experimental study, 100 mothers with premature infants who were admitted to Shafizadeh Amirkola Children's Hospital affiliated to Babol University of Medical Sciences, were randomly assigned to two groups of 50 subjects. Data of mothers' knowledge about infant care was gathered by a researcher-made questionnaire containing 22 questions with a three-point Likert scale ranging a score of 22 to 66. Obtaining a higher grade reflects the better performance of mothers. Based on the needs assessment at the beginning of the study, the training related to the care of the premature infant in the intervention group from the fourth day was given in 4 sessions for 20 minutes. The control group had the current process in the care. After three months, awareness of mothers' performance in both groups was compared and evaluated.

FINDINGS: Mothers' awareness scores in the experimental group increased from 53.15±4.99 before the intervention to 62.5±3.73 after the intervention ($p<0.001$). Also, the average score after 3 months in the control group was 62.5±3.73 and 51.82±3.94, respectively ($p<0.001$).

CONCLUSION: The results of this study showed that educational intervention can increase mother's knowledge & skill regarding to care of low birth weight and premature infants.

KEY WORDS: *Education, Mother, Low Birth Weight Infants, Premature Neonate, Practice, Care, Intervention*.

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Introduction

Prematurity and low birth weight are one of the most important health problems and are one of the most common causes of neonatal mortality (1). The premature infant birth rate in the world was reported 9.6% (2), in the United States 12.7% (3), and in Iran this figure is 10% (4). These infants, according to their physiological characteristics, require basic care to survive and develop natural growth processes (5). Reducing the mortality rate of low birth weight and preterm infants is associated with an increase in their care needs (6). Their parents are in need of support (7) and the health of these babies requires mothers' awareness of how they care for the baby (1).

Mothers' awareness of the care of the premature infant was reported moderately in the study by Gholizade et al. (8). Rasti et al. also indicated in their study that the parents of these infants have several educational needs, including the need for knowledge and information about the health of the baby and the acquisition of skills in nursing care (9). The care of these premature and low-birth weight infants has complex stages that involve nurses and health care personnel, the family and, in particular, the mother in addition to doctors (10).

In order to meet the needs of these infants, recognizing and studying the educational needs of the family, especially the mother is necessary as the first caregiver. Since the natural development of the baby depends to a large extent on the exchange of emotional responses between the mother and the baby, mothers should learn how to care and communicate with the infant (11). On the other hand, today, advanced care in the neonatal sector prompts early discharging from health centers that has anxiety and concern for future care at home (12).

The study of Ghasemi et al. regarding mothers' performance in the care of premature infants showed that 42.02% of the mothers had poor performance, 41.14% had moderate performance and only 16.22% had proper function (13). The role of mother in the care of premature infants affects the duration of hospitalization, hospital infection, readmission, and the frequency of infant visits by the physician (14).

Therefore, interventional programs to improve the awareness of mothers in the care of infants are necessary. Implementation of educational programs does not require modern equipment, and it is very cost-effective in contrast to the costs resulting from lack of proper care and complications of prematurity and behavioral problems. Investigations have shown that providing information and training on care points and active involvement of parents makes them feel more control and more powerful on their own position and have a realistic view of the appearance and condition of the premature and poor infants, and participate eagerly in the care of the infant (16). Considering the special care needs of premature infants and the importance of education of mothers in their nursing care practices, this study aimed to determine the effect of education on knowledge of mothers' performance in the care of premature infants.

Methods

This quasi-experimental study was carried out after obtaining permission from the Ethics Committee of the Babol University of Medical Sciences with the code Mubabol.REC.1388.2, in the Neonatal Department and Neonatal Intensive Care Unit of Shafizadeh Children's Hospital (Amirkola).

Initially, after engaging the mothers to participate in the study and observing all ethical points in the research (confidentiality of information, obtaining written consent from mothers, voluntary participation in the study), a questionnaire (demographic data of parents, general information of the infant and a researcher made questionnaire, awareness of performance) was used as a data gathering tool. 100 mothers with preterm infants with a fetal age of 28-37 weeks were selected by available sampling method and were randomly assigned to two groups of 50 subjects. Mothers, if they have the desire to participate in the study, have at least reading and writing skills, have a premature infant (28-37), no congenital anomalies, no prohibition of breastfeeding, non-use of antidepressants and mothers who have been admitted to hospital for the first time, were entered to the study and in the case of infant death and absenteeism more than one session of the mother was excluded from the study.

In this study, the content validity method was used to validate the researcher-made questionnaire. For this purpose, after preparing questionnaire questions through the study of books, articles, protocols and existing standards, questionnaires were submitted to the ten relevant experts and their corrective comments were included in the questionnaire. To confirm the scientific reliability of the tool, a test-retest method was used which was validated with a confidence coefficient of 85% of the reliability of the tool.

The researcher-made questionnaire measuring mothers' knowledge about infant care has 22 questions with a three-point Likert scale, with a scoring range of 22-66. A higher score indicates a better performance for mothers. This questionnaire was completed at the beginning of the study and after three months by the mothers in both groups. The contents of educational interventions are included skin care, umbilical cord,

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bathing, breastfeeding, sufficient breastfeeding, diaper replacement and prevention of diaper wounds, skin contact, keeping and controlling infant body temperature, Kangaroo Mother Care, and drug guide in accordance with the physician's instructions.

Education was given from the fourth day of infant admission at least 4 sessions for 20 minutes. The time of the sessions, with the consent of the mother, whenever she came, was presented to them in the mother's milk-based room through direct and face-to-face training (according to the needs of the mothers on the basis of the initial needs assessment) and care points were provided theoretically and practically. At the beginning of each training session, the mother was asked to express her previous care and to perform the skills in the presence of the researcher in order to resolve possible ambiguities.

In order to facilitate the understanding of the materials described, educational instruments such as: Overhead, a short educational film about breastfeeding, images, syringes, thermometers (thermometers) and more emphasis on some essential materials in the form of pamphlets were provided for mothers. During the study, the researcher was available in the test group samples and the mothers could have telephone counseling or in-person counseling if needed. Also, the researcher contacted the research unit at least once a month. One of the important parts of this educational intervention was to predict the continuation of services, such as repetition of educational and care materials to clients after discharge.

The control group received routine nursing care. After three months, the questionnaires were returned to the mothers in both groups. After collecting the final data, using SPSS 14 software, Chi-square, independent t-test, Fisher's exact test and paired t-test were analyzed and $p<0.05$ was considered significant.

Results

In this research, there is no significant relationship between some variables related to parents and infants such as sex, fetal age, weight, type of infant's disease, number of children, family income, age and parent education, maternal delivery, history of low birth weight infant, twins or multiple births, residence in a city or village, duration of hospitalization, and awareness of mothers' performance in the control and tested group and two groups were homogeneous in terms of these factors.

Most of the mothers in two groups were in the age range of 25-30 years old, had undergraduate education and were housewives, 63% had maternal delivery by cesarean section, 68.5% had first-born infants, and average age of their admission, 3 days and weight of neonates were 1948.07±365.64 grams in experimental group and 2001.37±409.11 in control group, respectively. The mean and knowledge score of mothers' performance in infant care at the beginning of the study was 53.15±4.99 in the control group and 51.55±4.3 in the control group, which was not statistically significant and the two groups were identical ($p=0.09$).

Mean and knowledge score of mothers' performance in infant care after 3 months in the experimental group was 62.5±3.73 and 51.82±3.94 in the control group, with a significant difference between two groups ($p<0.001$). The comparison of the mean and knowledge score of mothers' performance in the experimental group before and after the intervention (3 months after intervention) were 53.15±4.99 and 62.5±3.73, respectively that this difference was statistically significant ($p<0.001$)(table 1).

Table 1. Comparison of mean score of knowledge of mothers' performance in infant care before and 3 months after intervention in two groups

Group Time of intervention	Test Mean±SD	Control Mean±SD	P-value
Before	53.15±4.99	51.55±4.3	0.09
Three month after	62.5±3.73	51.82±3.94	0.001

Discussion

The results of our study showed that educational intervention has a positive effect on knowledge of mothers 'performance in the care of premature and low weight infants, so that the knowledge score of mothers' performance in the experimental group was 53.15±4.99 before the intervention which increased to 62.5±3.73 after three months of intervention. Bagheri et al., in their study, indicated that poor or very poor level of knowledge parents after an educational intervention was improved to moderate and good levels of knowledge (17).

Study population in their research were parents who had experienced parents for the first time and needed to know the exact and informative information on the care of the newborn. The results of a study by Mozafari et al. indicated that mothers' awareness was increased about the care of the newborns and familiarity with the problems of the infant after the holding of workshops (18) which were consistent with the results of our study. Mothers in Guillaume's study stated that their knowledge changes with the search for information and awareness of the health care team, and this information can be used in practice and

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transmitted through infant care (19). In this regard, the study of Ghasemi et al. showed that only 16.22% of mothers had a good performance in the care of premature infants, and mothers of these infants had poor performance in Kangaroo Mother Care (13), which indicated the need of mothers to educational courses regarding the care of infant.

Our findings, before the implementation of educational intervention, based on the need-assessment questionnaire, showed the needs of mothers regarding the care of the infants. In the study of literature, no study was found to indicate ineffectiveness of training. However, study of Longer et al. did not indicate any difference between two groups regarding the change of mothers' misconceptions and educational intervention (20), that mothers may not have received appropriate training or that the training was not complete. The applicability of educational materials and the presence of mothers in training sessions, the timing of training, and the continuation of these interventions are among the issues that add to the effectiveness of these programs (21,22). Because the impact of training has been confirmed in the short term (23).

Findings of the study by Kohan et al. showed that mothers need to be aware of the condition of the newborn and to obtain the correct information regarding the care of the infant. The support received by the mothers from the treatment team was not as high as expected (24). Arzani et al. also stated in their study that mothers with premature and sick newborns are seeking information about the care of the newborn (25). Providing information and raising the awareness and performance of mothers in the care of the infant causes the mother to feel the control of her position and gradually mothers realize that they themselves have the ability to care their infants (26).

The results of the research show that the care of mothers from the infant during admission and long after that is difficult for them (27, 28). Mothers participating in the study of Lindberg et al., stated that they were able to manage and adapt to existing conditions if they received the necessary information from the treatment team (29). In the study of Cook and colleagues, mothers suggested that they did not have access to health care personals as a problem in the continuation of breastfeeding. They stated that they were not supported by health personnel for breastfeeding and did not have access to them when having problems in breastfeeding (30).

Nurses and physicians play a very important role in transferring information and learning skills to mothers with premature and low birth weight infants in breastfeeding and health care (31). For example, the mothers in the study of Gaucher et al. were hopeful to gain knowledge and raise their trust and confidence by advising and receiving information from neonatal physicians about infant's negligence and role play. A study by Tarverdy et al. showed that special training for mothers with preterm infants has a positive effect on the reduction of complications (33).

Therefore, only qualified nurse training in hospital to reduce complications is not enough, but in order to prevent complications of prematurity, training can make the mother a full-time nurse responsible for taking care of the baby. The positive aspects of this study are the provision of information and awareness based on the educational needs of mothers and their specificity for each mother, which was obtained at the beginning of the study using questionnaires completed by mothers. In addition, in most studies, the result of the educational intervention in the short term (immediately after the last session) was examined (9,17). But in our research, this exploration was carried out after three months and the impact of training was evaluated over a relatively longer period.

From the findings of this study, it can be concluded that educational interventions for mothers with premature infants are effective on their care knowledge for these infants. Therefore, it is necessary to be taught at least some routine and essential care for their newborns in the neonatal intensive care unit at a time when they are present to repeat these skills in the presence of nurses, a way is needed to improve the function of the mothers.

From the limitations of the present study, it was not possible to observe the behavior of the mother in relation to the skills. Therefore, a performance awareness questionnaire was used to evaluate educational intervention. Therefore, in future studies, evaluation of the mothers' performance in the department should be conducted in direct observation and based on a checklist of skills.

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