The Effect of Empowerment Program on Participation of Mothers with Premature Infants Hospitalized in Neonatal Intensive Care Unit

Hania Sajadi[1], Golbahar Akhundzadeh[2], Hamid Hojjati[3]

[1]Student, [2]Assistant Professor, [3]Assistant Professor, Department of Nursing Branch, Aliabad Katoul Islamic Azad University, Aliabad Katoul, Iran

Abstract

Introduction: The birth of a premature infant who needs to be admitted to neonatal intensive care unit from birth impedes early communication and participation of mother in her infant's care. The purpose of this study was to determine the effect of empowerment program on the participation of mothers with premature infants admitted to neonatal intensive care unit.

Method: This study was a randomized clinical trial in 2018, which was conduct on a sample of mothers with premature infant who had randomly been divided into two intervention and control groups. The data collection tools were the Parents' Participation Inventory designed by Melnick in 1994. Data were analyzed by descriptive statistics (tables, mean and standard deviation) and inferential statistics using SPSS-16 software.

Results: There was no significant difference in the level of mothers' participation in the care of their infants between the two groups before the intervention ($p = 0.45$). But after the empowerment training program, the results showed that mothers' participation in the intervention group (19.10 ± 3.09) was higher than the control group (16.8 ± 2.01), ($p = 0.01$).

Conclusion: The results of this study showed that implementation of empowerment training program increases mothers' participation in the care of their premature infants. Early intervention and the use of written information along with the booklet will increase the mothers' participation in the care of their infant.

Key words: *Empowerment, Participation, Mothers of premature infants*

Introduction

When the patient's age is small events and various diseases threaten him[1, 2]. Patient hospitalization poses challenges for the patient and the patient's family[3]. These events can cause more harm to the person. Infants who are born before 37 weeks from the last menstruation day are called premature infants that often weight less than 2500 grams[4]. Premature or gestational age of less than 37 weeks is one of the most important health indicators in any society, and infant survival is directly related to gestational age and birth weight(5). Advances in technology and neonatal care have ensured the survival of pre-term infants and reduced their mortality rate[6, 7].

Admission of a newborn infant to a neonatal intensive care unit (NICU) is a frightening and stressful experience for parents [8, 9]. Number of adverse outcomes including increased risk of mental problems such as anxiety, depression, traumatic stress disorder, poor parent-infant interactions, and emotional, behavioral and cognitive problems are associated with the premature birth. It has been well documented that, the presence of scary medical equipment in the neonatal intensive care

Corresponding Author:
Hamid Hojjati,
Assistant Professor, Department of Nursing Branch, Aliabad Katoul Islamic Azad University, Aliabad Katoul, Iran, Email: hojjati_hamid2019@yahoo.com

unit other factors such as unfamiliar staff, restrictive patient policies, infant appearance, vague parental role and parent-infant interactions often create a frustrating and stressful condition for the parents of premature infants[10, 11].

Birth of a premature infant is not only an emotional and stressful experience for parents, but also an evolutionary stage of life for infant[12, 13]. Understanding the process of becoming a parent is difficult due to the fast and unexpected events that unfold, and having a premature infant can be a sad experience and difficult to cope with and sometime, this emotion is so severe that makes it difficult to control the situation[14]. Numerous studies have shown that parental roles and responsibilities will change in these situations[15]. Mothers of premature infants are less likely to have parental roles and often have doubts about their abilities to identify and meet their infant's needs[16]. Parents need to be able to cope with these conditions and their new role, but this process is not always easy[15]. Undoubtedly, the parents of premature infants require support and currently, one of the best and most effective ways to prevent injuries and harm to premature infants is to actively involve their parents in their care[17].

The purpose of this study was to determine the effect of empowerment program on participation of mothers with premature infants hospitalized in neonatal intensive care unit of Sayyed Shirazi hospital in Gorgan, Iran.

Materials and Method

This study is a randomized clinical trial which was conducted on the two groups of mothers with preterm infants. The setting of this study was Sayyad Shirazi Hospital at the city of Gorgan, Iran. The sample size in this study was determined based on the study of Gavami et al (2012) using G*POWER software with the effect size of 0.94, significant level 0.05, confidence interval of 0.95 and test power 0.080.The samples were randomly divided into two groups of intervention (n=20) and control (n=20). Inclusion criteria were; being over 18 years old, having the ability to read and write, having no history of neonatal intensive care unit care, having no physical or mental illness leading to drug use, having a 26 to 37 weeks old infant who weigh less than 2500 grams, and lack of life-threatening condition in the infant. The simple random sampling method was used in this study. Data collection tools were demographic information questionnaire (maternal age, education, occupation, number of children) and Parents' Participation Inventory, which was designed by Melnick in 1997 to measure parental involvement in the neonatal intensive care unit. This questionnaire lists 25 activities that a mother can perform for her infant. Also, the mother is asked to tick every activity that she has performed. The questions in this questionnaire have two options, and the higher number of options selected by the mother indicate the greater care provided by the mother and the more involvement she has in the care of her infant. A score of less than 9 indicates low level of participation, 10-18 indicates moderate level of participation, and score of 19 or more indicates the high level of participation. In Melnick's (1997) study, the Cronbach's alpha of this tool was 0.85.

After explaining the purpose of study, the necessary permission was obtained from the hospital authorities. According to the inclusion criteria, purposeful sampling was done in the first step and then, the study samples were randomly divided into two intervention and control groups. The researcher, after introducing herself, explained the aims of study to the mothers, ensured them about the principles of confidentiality and anonymity, asked them to provide a written informed consent and informed them that they could withdraw from the study at any time with any reason. The first appointments were made with the participating parents and the meeting place was agreed upon. The interval between each intervention step was 4 days. Three phases of the parent empowerment program were implemented for the parents in the intervention group. The control group received no intervention other than routine care and support in the ward. At the beginning and the end of the study, pre-test and post-test questions were completed by the participants. Data were analyzed by SPSS-16 software.

After the study, audio tapes containing written information and booklets used for parents in the intervention group during the study were given to the control group, so that they could also benefit from the program. The intervention was based on the following protocol:

Session1: Demographic information questionnaire was competed by mothers 4 days after the infant hospitalization and beginning of the intervention in this stage. Then, a 15-minute long audio tape containing information on the first stage along with the booklet was given to the mothers. The information on this stage was

related to the appearance and behavioral characteristics of the premature infant, the differences between a pre-term and term infant, environmental characteristics of NICU, and strategies to enhance the maximum participation of parents in the infant care.

Session2: It took place 4 days after the first stage. A 15-minute long audio tape containing information on the second stage along with the booklet was given to the mothers. In addition to providing support for the first stage, information on the behavior and evolutionary growth of infant and some suggestion for maximizing the parents' participation in the care was provided.

Session3: It took place one day before the infant discharge. In addition to providing support for the last two stages, information on discharge, how to care for infant at home, how to identify the characteristics of behavior and evolutionary growth of infant and signs of distress were given to parents. After the intervention, mothers completed the post-test.

Findings

The results of independent t-test showed no significant difference between the two groups in terms of mothers' age (p = 0.62) and length of hospital stay (p = 0.27). In the intervention group, 0.09 of the samples (N=18) were housewives and 0.010 (N = 2) were employed. Also, in the control group,0.080 of the samples (N = 41) were housewives and 0.020 (N = 4) were employed. The result of chi-square test showed no significant difference between the two groups in terms of mother's occupation (p = 0.66), history of childbirth (p = 0.25), delivery method (p=0.35), history of abortion (p = 0.26), and type of pregnancy (p = 0.36). The Fisher test showed no significant difference between the two groups in terms of education (p = 0.69), and the Mann-Whitney test also showed no significant difference between the two groups in terms of number of children (p = 0.31).

Chi-square test did not show a significant difference between the two groups before and after the intervention (p = 0.45). Also, the independent t-test showed no significant difference between the two groups in terms of the mean score of level of participation (p=0.21), (Table 1).

Chi-square test showed a significant difference between the two groups in terms of the level of participation after the intervention (p=0.01), so that the level of participation increased to 55% (N=11). Paired t-test showed a significant difference between the two groups in terms of the level of participation before and after the intervention (p=0.008), (Table 1).

Table1: level of parents' participation in the intervention and control groups after the intervention

Variable	Intervention			Control		p-value
Level of participation		frequency	Percentage	frequency	Percentage	**P=0.01**
	Moderate	9	45	16	80	
	High	11	55	4	20	
Mean & SD		19.10±3.09		16.8±2.01		P=0.008

Paired t-test showed a significant difference in the level of participation in the intervention group before and after the intervention (p<0.01, t=-11.2). It also showed a significant difference in the control group (p<0.01, t=-10.82), but the level of participation was more in the intervention group (Table 3).

Table 2: Comparison of the level of parents' participation in the intervention and control groups before and after the intervention.

Time	Intervention group	Control group	p-value
Before intervention	9.2 ± 3.63	10.35 ± 1.89	P=0.21
After intervention	19.1 ± 3.09	16.8 ± 2.10	P=0.008
p-value	p<0.01	p<0.01	
	t=11.2	t=10.82	

Covariance test showed a significant difference before the intervention (p=0.004, Eta=0.2), so that 20% of the changes in parents' level of participation was due to the empowerment training (Table 3).

Table 3: The effect of empowerment training program on the level of parents' participation

Variance source	Sum of squares	Degree of freedom	Mean of squares	F-value	Significant level	Eta
Modified model	70.49	2	35.24	5.4	P=0.009	0.22
Post-test separator	17.59	1	17.59	2.69	P=0.1	0.06
Group	63.41	1	63.41	9.71	P=0.004	0.2
Error	241.4	37.5.6				
Sum	13200	40				
Total	311.90	39				

Conclusion

Nursing interventions improve patients' health[18, 19]. Findings of the present study showed that mothers with premature infants who had an empowerment training program were more involved in the care of their infants. In a study by Melnick et al., four stages of the "creating opportunities for parent empowerment" (COPE) were implemented in the United States[6]. In this program, parents learned about the premature infant, family's abilities and activities that parents can perform. Also, psychological support was provided for parents and sufficient time was given to them for preparation. Consequently, the confidence of parents in caring for their premature infants increased[20]. Jaw Brown conducted a study on parents of premature infants that showed that the knowledge of mothers increased after the training. Providing information on infant behavior and interaction with infant reduce mothers' stress and have positive effects on the level of parents' participation in the care of their infants[16].

Results of studies by Fatemeh Alaei Karahroudi et al. (2012) showed that COPE program had a positive effect on mothers' participation in the care of their infant and increased it in the intervention group[20]. Therefore, empowerment model can be considered as an appropriate model for promoting health, increasing knowledge and enhancing parents' participation in the care of their infants[21]. Study of Abdolali Zadeh et al. (2015) showed that a health promotion support program is effective in promoting the quality of life in mothers of premature infants[22]. Empowering and involving parents and families in the care and decision-making for their infants promote health and wellbeing. People who are able to control their emotions can make the right decision[23].

Conclusion

Considering the results and the impact of empowerment program on the participation of parents in the care of their premature infants, it can be said that the implementation of empowerment program can facilitate active participation of parents in the care of their premature infants. Thus, we suggest to implement this program from the first day of delivery for mothers of premature infants.

Conflict of Interest: There is no conflict of interest between authors.

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