Original Article

J Babol Univ Med Sci
21; 2019. P: 364-371

The Effectiveness of Training Program Based on Virtual Participation on Stress and Anxiety of Parents with Premature Infants Hospitalized in Neonatal Intensive Care Units

Y. Zahedpasha (MD)[1], A. Arzani (PhD)[2], S, Khafri (PhD)[3], A. Darvish (PhD)[4], S. Esmaieli (MSc)*[5]

1.Non-Communicable Pediatric Disease Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, I.R.Iran

2.Nursing Care Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, I.R.Iran

3.Infertility and Reproductive Health Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, I.R.Iran

4.Department of Medical_Surgical Nursing & Basic Sciences, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, I.R.Iran

5.Student Research Committee, Babol University of Medical Sciences, Babol, I.R.Iran

J Babol Univ Med Sci; 21; 2019; PP: 364- 71

Received: May 21st 2018, Revised: July 28th 2018, Accepted: Jan 23rd 2019.

ABSTRACT

BACKGROUND AND OBJECTIVE: Due to lack of physical, emotional and psychological preparation, premature birth may cause a lot of stress for parents and may have consequences for both parents and infants. Since some parents have difficulty participating in face-to-face training programs, this study was conducted to determine the effectiveness of a training program based on virtual participation on stress and anxiety of parents with premature infants

METHODS: This quasi-experimental study was performed among 80 parents of premature infants admitted to Amirkola Children's Hospital and Ayatollah Rouhani Hospital, who were randomly assigned to intervention and control groups with 40 participants in each group. The parents of the intervention group received the content of the virtual participation training program asynchronously in the form of Telegram groups within four days. The control group received no intervention other than the usual methods and support of the ward. Then, the State-Trait Anxiety Inventory (score 40-160) and the Parental Stress Scale (score 31-155) were completed and compared on the third and seventh days for both groups and on 13th day for the intervention group.

FINDINGS: Results showed that parental stress score decreased from (97.118±21.68) to (86.27±00.27) ($p<0.001$) in the intervention group. In the control group, it changed from (76.103±30.44) to (91.99±31.82), which was not significant. In investigation of the effect of time on parental stress subscales, the mean scores of the questionnaires showed a significant difference from day 3 to day 13 in regard with the components of stressful parental experiences, relationship with the infant and parental role, parental experiences about behavior, appearance and treatment of the infant, and environmental stress ($p<0.001$). The parental state anxiety score in the intervention group changed from (45.68±4.63) to (46.63±3.54) and in the control group from (46.25±6.38) to (46.83±5.21), and the parental trait anxiety score in the intervention group changed from (43.88±5.91) to (43.97±5.59) and in the control group from (43.18±5.62) to (42.17±6.63), which was not significant.

CONCLUSION: The results of the study showed that training program based on virtual participation reduces the stress of parents with premature infants.

KEY WORDS: *Stress, Anxiety, Premature Infant, Training Program, Virtual Participation, Neonatal Intensive Care Unit.*

Please cite this article as follows:

Zahedpasha Y, Arzani A, Khafri S, Darvish A, Esmaieli S. The Effectiveness of Training Program Based on Virtual Participation on Stress and Anxiety of Parents with Premature Infants Hospitalized in Neonatal Intensive Care Units J Babol Univ Med Sci. 2019; 21:364-71.

***Corresonding Author: S. Esmaieli (MSc)**
Address: Babol University of Medical Science, Ganafrouz Street, Babol, I.R.Iran
Tel: +98 11 32199596
E-mail: somayeh4242@gmail.com

Introduction

The birth of a premature infant imposes a lot of stress on the family because of the parents' lack of physical, emotional, and psychological readiness for the presence a premature infant (1, 2). That's because the parents' perceptions of a normal childbirth and birth of a healthy baby are violated and they are afraid of losing their baby and they are worried about their baby's future health (3). Since the hospitalization of a premature infant immediately after birth is inevitable in most cases, and even an infant may be admitted to the neonatal intensive care unit for a long time, this separation gives family members a sense of loss after the birth of the premature infant. The parents' emotional connection with the infant is disrupted, and in fact the parents suffer a lot of stress (4).

They often worry that they might not be able to play their parental role because of this separation (5). Parents often have difficulty communicating with their infant due to lack of awareness (6). It has been shown that stress is associated with a decrease in affectionate and responsible behaviors and parental anxiety is associated with impaired parental behaviors (7). In fact, stress comes to people when they tolerate more pressure on them than the amount they are used to (8).

The mental reactions of parents whose infant is admitted to Neonatal Intensive Care Unit (NICU) include frustration, guilt, sadness, depression, hostility, anger, fear, anxiety, feeling of incompetence and loss of self-esteem (9). Prolonged hospitalization of the infant in the neonatal intensive care unit takes the parents into an unfamiliar and complex situation (10). Parents of these infants are exposed to a great deal of stress that requires the attention and support from nurses (11). Nurses also rarely work in the neonatal ward to provide family-centered care.

They spend most of their energy to meet patients' needs, and nurses typically focus on technical components of the infant's clinical care and the family is not taken into consideration (12). Tsironi et al. also stated that the knowledge and information that parents receive from staff is valuable to them and makes them better and more connected (13). Some parents find it difficult to attend face – to – face training programs. Benefiting from virtual education has led to increased efficiency of the educational process and quality, as well as ease of access to high amount of information in a shorter time and lower cost (14). Nowadays, with the advancement of information and communication technologies, and with the diminishing importance of time and space, people are able to communicate much more easily in cyberspace and using cellphones (15). The use of telehealth and virtual remote nursing services as a method to support cost reduction and positive outcomes and to provide alternative treatment must be explored and evaluated (16). Since new methods of training program based on virtual participation using Telegram application have been considered in recent years and have been applied in many cases, this study was conducted to investigate the effect of training program based on virtual participation on stress and anxiety of parents with premature infants who are hospitalized in neonatal intensive care unit of teaching hospitals affiliated to Babol University of Medical Sciences.

Methods

This quasi-experimental study was conducted by non-probability sampling method after obtaining permission from the Ethics Committee of Babol University of Medical Sciences (Mubabol.HRI.REC.1395.51).

Written informed consent was obtained from 80 parents of premature infants admitted to the neonatal intensive care unit of teaching hospitals affiliated to Babol University of Medical Sciences in 2016-2017 and were randomly divided into intervention and control groups (n=40). Parents over 18 years of age, parents who had no history of psychiatric illness and addiction (based on self-report and neonatal records), having premature infant admitted for 28 – 37 weeks, absence of congenital anomalies, lack of previous experience of neonatal intensive care unit or death of a baby, lack of separation from spouse, able to read and write Farsi who were not a member of health care team, at least one parent had a smartphone, and had access to the Telegram program at least one hour a day were included. Parents were excluded if they had another child with a serious illness, experienced the death of a loved one, the death of a hospitalized infant, a stressful accident at the time of the intervention, such as divorce or job loss.

Parents participated in the study from day 3 to day 7 of the infant's hospitalization. Demographic characteristics of infants and parents were completed by demographic questionnaire from infant records before the first stage in both groups. Parental Stress Scale questionnaire was used to collect parental stress information (17). This scale consists of 31 items with

Likert scoring scale including 6 items related to neonatal intensive care unit environment, 15 items related to parenting experiences on behavior, appearance and treatment of infant, and 10 items were related to stressful parenting experiences related to infants and the parental role, which was rated on a scale of 1=(no stress at all) to 5=(too much stress) (31–155). State–Trait Anxiety Inventory including 40 items with Likert scale was used to collect anxiety data; 20 items are related to state anxiety subscale, which are the feelings one has at present, and 20 subscales are related to trait anxiety subscale, which are the underlying anxiety of the individual or his or her readiness to face anxiety.

This scale was designed by Spielberg in 1970 and revised in 1983, with scores ranging from 1- (very low) to 4- (very high) (scores 40 – 160). Content validity method was used to determine scientific validity. After translating the questionnaires to Farsi, they were evaluated by ten faculty members of Babol University of Medical Sciences, and after collecting comments, the necessary modifications were made to the questionnaires with the help of instructors. However, Parental Stress Scale has been used in internal studies in neonatal intensive care unit and its validity has been evaluated (12,18).

The internal consistency method was used to determine the scientific reliability of State – Trait Anxiety Inventory and the Parental Stress Scale. The Cronbach's alpha coefficient of the Parental Stress Scale was reported to be 87% in the study by Valizadeh et al. and Kadivar et al. (12,18). In the present study, Cronbach's alpha coefficient was found to be 85%. In the study of Jafari Mianaei et al., internal consistency was reported to be 93% for state anxiety subscale and 87% for trait anxiety subscale (19). In the present study, internal consistency was found to be 90% for state anxiety subscale and 83% for trait anxiety subscale. In order to prevent any exchange of information between the experimental and control groups, first the control group and then 40 parents were placed in the experimental group.

Considering that the infants were not all hospitalized at the same time, 4 groups of 6 subjects, 1 group of 10, 1 group of 2, 5 groups of 4, and 3 groups of 8 were formed; each week, a number of parents whose children were admitted at the same time entered a Telegram group. The educational content was then presented in order. Then, the next day or the next week, we re-assigned some of the parents to a new Telegram group and provided the content with the same order. This process resulted in the formation of several Telegram groups until the samples reached the desired sample size. Eight participants of the intervention and control group were from Amirkola Children's Hospital and the rest were from Ayatollah Rouhani Hospital in Babol. In both centers, kangaroo mother care and developmental care are also routinely performed. The training content was evaluated by ten nursing faculty members and nurses working in neonatal intensive care unit and corrections were applied.

In addition, the electronic content was experimentally provided to a group of 10 parents in a Telegram group, and the parents' comments were received based on their needs and required content was added at the discretion of professors and the research team. On the third day of admission of both groups' infants, the State – Trait Anxiety Inventory and the Parental Stress Scale were separately completed by parents. Then, in addition to the psychological support of the parents in the experimental group, the researchers provided a series of information about the ward and familiarity with the physical environment and regulations of the ward and the doctors' visits, a brief introduction to the equipment of the ward, exclusive breastfeeding, the importance of breastfeeding, paying attention to the infant's weight gain, developmental care, interacting with the infant, and infant massage, and infant bathing using educational videos. The Telegram training content included a mix of texts, videos and images.

This information was provided by the researcher using the Telegram application and the cellphone and the learners could interact with each other and with the instructor in the group, and the researcher ensured if all members followed the educational content every day. On the seventh day of hospitalization, parents completed both questionnaires separately. The control group received no intervention except the usual methods and support of the ward, but the parents of the control group also completed the questionnaires on the third and seventh day. The required information was collected by completing the questionnaires. Data analysis was performed using SPSS version 23 and t-test, ANCOVA, Chi-Square, paired t-test, while $p \leq 0.05$ was considered significant.

Results

In this study, 50% of fathers in control group had a degree less than high-school diploma. In the experimental group, 45% of fathers had college

education (p=0.03). More than half of the fathers in both groups were self-employed (p=0.02). Regarding the awareness about the possibility of preterm birth, 60% of parents in control group and 85% in experimental group had no information (p=0.02).

There was no significant difference in the mean age of the parents in the experimental and control groups. Moreover, the mean fetal age was not significantly different between the experimental and control groups (Table 1). The mean parental stress score on the third day was 118.97±21.68 in the experimental group and 103.76±30.34 in the control group (p=0.01). The level of parental stress on the third day had a significant effect on the level of parental stress on the seventh day (p<0.001). There was a significant difference only in the amount of stress in evaluating the difference between the scores of state anxiety, trait anxiety and parental stress (p<0.001). The mean scores of state anxiety and trait anxiety on third and seventh days and their differences in the control and experimental groups did not show significant differences (Table 2). In evaluating the subscale of parental stress on third and seventh days in the control and experimental groups, the mean stress score related to relationship with infant and parental role on seventh day was higher in control group, and this difference was significant (p=0.009). The mean score of stress related to the appearance and behavior of infant on the third day was higher in the parents of the experimental group and there was a significant difference (p=0.002) (Table 3).

Table 1. Demographic characteristics of the study participants

Variable / Group	Control Mean±SD	Experimental Mean±SD	P-value
Parents' Age (years)	27.48±5.42	28.25±5.51	0.52
Father's age (years)	31.15±3.88	32.10±5.17	0.35
Mother's age (years)	27.47±5.42	28.25±5.51	0.52
Infant's age (weeks)	33.06±3.11	33.30±2.74	0.72
Gender of infant	N(%)	N(%)	
girl	17(42.5)	20(50.0)	0.65
boy	23(57.5)	20(50.0)	
Father's education			
Below high school diploma	20(50.0)	14(35.0)	
High school diploma	13(32.5)	8(20.0)	0.03
College education	7(17.5)	18(45.0)	
Mother's education			
Below high school diploma	9(22.5)	6(15.0)	
High school diploma	19(47.5)	12(30.0)	0.08
College education	12(30.0)	22(55.0)	
Father's job			
Unemployed	1(2.5)	-	
Self-employed	35(87.5)	27(67.5)	0.02
Employee	4(10.0)	13(32.5)	
Mother's job			
Housewife	35(87.5)	29(72.5)	0.16
Employee	5(12.5)	11(27.5)	
Awareness of the possibility of preterm birth			
Yes	16(40.0)	6(15.0)	0.02
No	24(60.0)	34(85.0)	
Type of delivery			
Vaginal delivery	29(72.5)	22(55.0)	0.10
Cesarean section	11(27.5)	18(45.0)	

Table 2. Comparison of the mean scores of state anxiety, trait anxiety and parental stress on the third and seventh days and their differences in the experimental and control groups

Variable (time)	Group	Control group Mean±SD	Experimental group Mean±SD	P-value
State anxiety	Third day	46.25±6.38	45.68±4.63	1.48
	Seventh day	46.83±5.21	46.63±3.54	7.28
	Difference	0.58±3.83	0.95±3.04	1.36
Trait anxiety	Third day	43.18±5.62	43.88±5.91	0.108
	Seventh day	42.17±6.63	43.97±5.59	0.00
	Difference	- 1.01±6.08	0.08±1.87	6.77
Parental stress	Third day	103.76±30.44	118.97±21.68	3.94
	Seventh day	99.91±31.82	86.00±27.27	46.86
	Difference	- 3.85±13.95	- 32.97±20.37	8.07

Table 3. Comparison of mean scores of parental stress subscales on the third and seventh days between the experimental and control groups

Time (stress variables)	Group	Control Mean±SD	Experimental Mean±SD	P-value
Third day (parents)	Communication with the infant and parental role	42.40±13.19	45.92±11.21	0.20
	The appearance and behavior of the infant	81.87±28.66	99.23±20.05	0.002
	Environmental factors	30.41±8.40	31.28±6.99	0.31
Seventh day (parents)	Communication with the infant and parental role	40.85±14.09	32.32±14.30	0.009
	The appearance and behavior of the infant	77.60±30.39	72.57±24.12	0.41
	Environmental factors	29.01±6.15	30.21±7.14	0.71

Discussion

In this study, training program based on virtual participation significantly reduced parental stress. Moreover, stress subscales such as stressful parental experiences regarding relationship with infant and parental role, parental stress regarding infant behavior, appearance and treatment, and stress related to neonatal intensive care unit were also significantly reduced in the experimental group. The effectiveness of the intervention demonstrates the importance of education in the advancement of knowledge and consequently the reduction of stress due to ignorance.

Due to its flexibility, virtual education courses provide a good opportunity to expand scientific content and increase learning depth. In their study, Heydari et al. suggested that factors such as giving morale, hope, and comfort to parents, providing information on infant treatment, contact with the infant, and access to the medical team can greatly contribute to stress reduction. Furthermore, nurses and physicians can be effective in reducing their stress considering the importance of stress management in parents (20). Hasanpour et al. stated that the greater the relationship between parents and nurses and the caregivers in NICU is and the more they are informed about the treatment process, the less their level of stress will be (21). Arzani et al. reported that interventions to assist mothers with premature infants during hospitalization and after hospital discharge appear to be necessary (22). In this study, the level of parental stress before the intervention was significantly higher in the experimental group compared with the control group. This was also the case in the stress subgroup regarding the appearance and behavior of the infant.

However, this component was not significant on the seventh day of hospitalization of the infant, which was four days after the first intervention. Studies in Sweden (23), Norway (24), and Iran (25) show that the duration of e-learning intervention is approximately three weeks or more. In the present study, intervention was done in about four days. If the intervention took longer than four days, some samples would be discharged and we might have sample dropouts.

Therefore, considering the probability of sample dropouts, a four-day intervention period was considered. In evaluating the scores of state anxiety, trait anxiety and stress, only the stress score decreased significantly from the third to the seventh day of infant hospitalization. Two factors related to anxiety decreased but were not statistically significant. This finding suggests that the training program can have a positive effect on reducing parental stress. Anxiety and

parental stress are two separate categories, since our curriculum is related to the Parental Stress Scale and we had no intervention to relieve their anxiety, the intervention might have only been effective on the level of stress. Since parents are involved with multiple stressors, including medical outcomes and separation due to their infant's hospitalization, other stressors such as the physical environment, appearance and behavior of the infant, and changes in parental role also exacerbate the stress (26).

The results of evaluating stress subscales also indicate a decrease in stress. A study by Zamanzadeh et al. stated that mothers of preterm infants who experience repeated separations will continue their participation outside the hospital (27). In the study of Jafari Mianaei et al., creation of opportunities to empower parents had a positive effect on mothers' participation and increased mothers' participation in the experimental group (19). In this study, training program based on virtual participation on the third and seventh days of infant hospitalization was effective on stress components. The analysis showed that all components of stressful parental experiences, relationship with the infant and parental role, parental experiences about behavior, appearance and treatment of the infant, and environmental stress decreased over time, and this process continued from day three until day seven; the mean score was lower on the seventh day compared to the third day. By presenting the training program, the family is considered as a system and the infant is a part of it, and the focus is on improving parent-infant communication and enhancing the confidence of parents in their parental role in regard with caring for their infant. Therefore, focusing on parental stress during infant hospitalization is important because assessing parental stress can provide valuable information for better understanding and controlling parental conditions (28). Evaluation of parental stress is important because the infant can receive anxiety and stress from the parents. That's because parents are the most important people in an infant's supportive system, and disturbance in parental emotions affects the development of infant's emotions. Any disturbance in the parents' mood may have a negative impact on the infant (29). The limitations of the study are the inability to randomize the samples to prevent the possibility of any exchange of information between the two groups and the impossibility of holding a briefing and familiarizing them with the method of using the system for all participants simultaneously in the experimental group. In the future research, it is suggested to investigate the effect of training program based on virtual participation on stress and anxiety of parents with premature infants after infant discharge and parents with hospitalized term infants and the impact of training program based on virtual participation on stress and anxiety with the help of relaxation techniques, as well as the impact of virtual training programs on stress and anxiety of parents before birth. The results of the present study showed that training program based on virtual participation can reduce parental stress and the effects of this decrease have been evident over time. However, this intervention has not been effective in state anxiety and trait anxiety. In addition, in the evaluation of stress subgroups, all three stress components decreased in parents over time. According to the results of the present study, which shows the impact of virtual education on parental stress, e-learning can be used as a flexible way of accessing educational content at any time and place, used to support parents in reducing and managing their stress.

Conflict of Interest: The authors of this article have no conflict of interest.

Acknowledgment

Hereby, we would like to thank the Deputy of Research and Technology of Babol University of Medical Sciences for the financial support of the research and the professors and authorities of the medical centers affiliated to this university as well as all the parents who patiently contributed to this study.

References

1. Hollywood M, Hollywood E. The lived experiences of fathers of a premature baby on a neonatal intensive care unit. J Neonatal Nurs. 2011;17(1):32-40.
2. Freitas K, Kimura M, Ferreira K. Family members' needs at intensive care units: comparative analysis between a public and a private hospital. Rev Lat Am Enfermagem. 2007;15(1):84-92.
3. Grunau R, Whitfield M, Petrie-Thomas J, Synnes A, Cepeda IL, Keidar A, et al. Neonatal pain, parenting stress and interaction, in relation to cognitive and motor development at 8 and 18 months in preterm infants. Pain. 2009;143(1-2):138-46.
4. Mok E, SF L. Nurses as providers of support for mothers of premature infants. J Clin Nurs. 2006;15(6):726-34.
5. Carter JD, Mulder RT, Darlow B. Parental stress in the NICU: The influence of personality psychological, pregnancy and family factors. Personal Mental Health. 2007;1(1):40-50.
6. Melnyk BM, Feinstein NF, Alpert-Gillis L, Fairbanks E, Crean HF, Sinkin RA, et al. Reducing premature infants' length of stay and improving parents' mental health outcomes with the Creating Opportunities for Parent Empowerment (COPE) neonatal intensive care unit program: a randomized, controlled trial. Pediatrics. 2006;118(5):e1414-27.
7. Zelkowitz P, Papageorgiou A, Bardin C, Wang T. Persistent maternal anxiety affects the interaction between mothers and their very low birthweight children at 24 months. Early Hum Dev. 2009;85(1):51-8.
8. Barc J, Thollet A, Le Scouarnec S, Bézieau S, Schott JJ, Redon R, et al. Mental stress unmasked new phenotype of sudden cardiac death related to adrenalin dependent prolongation of the QT interval. Arch Cardiovasc Dis Suppl. 2015;7(2):171.
9. Franck LS, Cox S, Allen A, Winter I. Measuring neonatal intensive care unit-related parental stress. J Adv Nurs. 2005;49(6):608-15.
10. Lee TY, Wang MM, Lin KC, Kao CH. The effectiveness of early intervention on paternal stress for fathers of premature infants admitted to a neonatal intensive care unit. J Adv Nurs. 2013;69(5):1085-95.
11. Ibrahimi E, Mardani Hamoleh M, Heidari H, Mahboobi M. Assessment of perceived social support among selected hospital personnel in Isfahan. Iran J Med Ethics History Med. 2011;5(1):82-8. [In Persian]
12. Valizadeh l, Akbarbeiglo M, Asadollahi M. Stressors affecting the mothers of premature infants hospitalized in neonatal intensive care units. J Tabriz Univ Med Sci. 2009;4(1):85-90. [In Persian]
13. Tsironi S, Bovaretos N, Tsoumakas K, Giannakopoulou M, Matziou V. Factors affecting parental satisfaction in the neonatal intensive care unit. J Neonatal Nurs. 2012;18(5):183-92.
14. Zolfaghari M, Sarmadi M, Negarandeh R, Zandi B, Ahmadi F. Attitudes of Nursing and Midwifery School's Faculty toward Blended E-learning at Tehran University of Medical Sciences. Hayat. 2009; 15 (1):31-9. [In Persian]
15. Darjani H, Ahmadi H, Eslami M, Sofi Y. Investigating the Impact of Information and Communication Technology (ICT) on Citizens' Social Security. Social Welfare. 2015; 14 (55):271-89. [In Persian]
16. Dingler T, Pielot M. I'll be there for you: Quantifying Attentiveness towards Mobile Messaging. Proceedings of the 17th International Conference on Human-Computer Interaction with Mobile Devices and Services; 2015: 1-5.
17. Miles MS, Funk SG, Carlson J. Parental Stressor Scale: neonatal intensive care unit. Nurs Res. 1993;42(3):148-52.
18. kadivar M, seyedfatemi N, Zolfaghari M, Mehran A, azizkhani L. The Effect of Virtual Education on Neonatal Nurses' Caring Ability at the Neonatal Intensive Care Unit. J Pediatr Nurs. 2017; 3(3):32-9. [In Persian]
19. Jafari Mianaei S, Alaei Karahroudi F, Rasouli M. Study of the impacts of rehabilitation program on mothers with premature hospitalized infants. J Educ Ethics Nurs. 2013;1(1):2-37. [In Persian]
20. Heidari H, Hasanpour M, Fooladi M. Stress management among parents of neonates hospitalized in nicu: a qualitative study. J Caring Sci. 2017;6(1):29-38.
21. Hasanpour M, Alavi M, Azizi F, Als H, Armanian AM. Iranian parent-staff communication and parental stress in the neonatal Intensive Care Unit. J Educ Health Promot. 2017; 6: 49.

22.ARZANI A, Valizadeh L, zamanzadeh V, Mohammadi E. Mothers' Experiences of Caring for Prematurely Born Infants: Growth Sparks in the Face of Caregiver Burden. J Qual Res Health Sci. 2014; 3(3):217-29. [In Persian]
23.Sveen J, Andersson G, Ekselius L, Sjöberg F, Buhrman B, Willebrand M. Internet-based information and self-help program for parents of children with burns: Study protocol for a randomized controlled trial. Internet Intervent. 2015;2(4):367-71.
24.Hoifodt RS, Lillevoll KR, Griffiths KM, Wilsgaard T, Eisemann M, Waterloo K, et al. The clinical effectiveness of web-based cognitive behavioral therapy with face-to-face therapist support for depressed primary care patients: randomized controlled trial. J Med Internet Res. 2013;15(8):e153.
25.Hamzekhani M, Hamidzade A, Vasegh Rahimparvar SF, Montazeri AS. Effect of computerized educational program on self-efficacy of pregnant women to cope with childbirth. J Knowledge Health 2014;19(1):13-20. [In Persian]
26.D'Souza SRB, Karkada S, Lewis LE, Mayya S, Guddattu V. Relationship between stress, coping and nursing support of parents of preterm infants admitted to tertiary level neonatal intensive care units of Karnataka, India: A cross-sectional survey. J Neonatal Nurs. 2009;15(5):152-8.
27.Zamanzadeh V, Valizadeh L, Mohammadi E, Zahed Pasha Y, Arzani A. Experience of Mothers with Premature Infants from Separation. J Babol Univ Med Sci. 2014; 16(6):16-25. [In Persian]
28.Dudek-Shriber L. Parent stress in the neonatal intensive care unit and the influence of parent and infant characteristics. Am J Occup Ther. 2004;58(5):509-20.
29.Sanjari M, Shirazi F, Heidari S, Salemi S, Rahmani M, Shoghi M. Nursing support for parents of hospitalized children. Issues Compr Pediatr Nurs. 2009;32(3):120-30.