



Studying the Effect of Education and Implementation of Evidence-Based Nursing Guidelines on Parents' Satisfaction in NICU

Zahra Salehi¹, Jamileh Mokhtari Nouri*², Seyyed Mohammad Khademolhoseyni³,
Abas Ebadi⁴

¹Behavioral Sciences Research Center (BSRC), Nursing Faculty, Baqiyatallah University of Medical Sciences, Tehran, Iran

^{2,3,4}Assistant Professor, Nursing Faculty, Baqiyatallah (AJ) University of Medical Sciences, Tehran, Iran

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ABSTRACT

Aims: evidence-based nursing guidelines is a valuable source in increasing quality of clinical implementation and parents' satisfaction as one of the most important reliable and valid tools for assessing quality of cares. This study is done with the aim of "determining the effect of evidence-based nursing guidelines implementation on satisfaction of the parents of the hospitalized infants in NICU (Neonatal Intensive Care Unit)".

Method: this two-group clinical trial study is done in one of the hospitals of Tehran on one hundred parents of hospitalized infants in NICU in 2013. Before and after performing the program of guidelines education, parents' satisfaction was measured by a researcher-made standard questionnaire and data were analyzed by SPSS19 statistical software and by using descriptive and inferential statistic.

Findings: scores of parents' satisfaction before intervention regarding nursing cares was 55.62 (7.779), medical cares: 50.82 (7.54), welfare services: 44.46 (5.456), total satisfaction: 154.16 (17.75) that was in the relatively satisfied level and after intervention regarding nursing cares: 79.2 (8.729), medical cares: 62.66 (6.39), welfare services: 51.06 (3.956) and regarding total satisfaction: 196.68 (14.86) that was in excessively satisfied level ($P=0.0001$).

Conclusion: performing evidence-based nursing guidelines promotes parents' satisfaction of hospital services; therefore it is recommended to the authorities and managers of the hospitals and educational centers of the health care services to put education and implementation of evidence-based nursing guidelines in the priority of their work plans.

KEY WORDS: evidence-based guidelines, nursing, parents' satisfaction, NICU

INTRODUCTION

Patient's evaluation of the received health cares is called satisfaction; satisfaction is a complex set of patient's needs, expectations and experiences of the received health services. Many experts consider the level of patients' satisfaction of the hospital services as one of the most important indexes of efficacy and quality of the provided services in different wards and they believe that a satisfied patient is a key to success for every hospital. Because of this, managers of the hospital consider meeting needs and attracting patient's satisfaction and improvement as the main precondition of their duties and design hospital aim along with customer's (patient's) aim [1].

Patient's satisfaction is considered as a reliable and valid tool for assessing cares quality in the recent decade which is also true about hospitalized infants in intensive care units. Considering neonatal period, parents as the infant's supporter are present in health care system, so they are the representative of their infants' ideas [2].

NICU is a part of a hospital that is considered for providing health and care services to "sick" or "premature" infants. In this unit different medical measures and interventions are doing for the infants [3].

The first NICUs were made with the aim of treating critically ill infants. Providing necessary heat for the infants, isolating the infant of the contaminated environment outside the womb, preventing infection, and specific nutrition, easy and rapid access to the specialized medical equipment and specialists and staff are among the most important factors that prepare the environment for hospitalizing and treating infants in this unit [4].

Considering critical features governing this unit and special conditions of the infants, different factors can influence parents' satisfaction that many of these factors are probably not considered in other units. Parents' satisfaction in an intensive care unit such as NICU due to special conditions of the infants, complexity of the devices and critical conditions can show correct implementation of the services to the high extent [5]

Evidence-based nursing is considered as using the results of the best studies along with knowledge, proficiency, clinical experiences or integration of clinical skills with the best foreign clinical education achieved

from the systematic researches and also paying attention to the patient's values in providing care, also evidence-based nursing is considered as putting the patient's interest in the priority through clinical decision-making by using the best evidences [6].

Studies have shown that nurses whose actions are based on scientific evidences could make better decisions, provide care with higher quality, decrease patient's hospitalization period and cost and provide better efficacy for the patient and the organization, also these nurses could respond patients professionally and have better self-esteem and stronger professional identity. because of this, in recent years, there was high emphasis on evidence-based care as a way for promoting care standard and also improving health services was emphasized by the health system policy makers [7].

Evidence-based nursing guidelines are important tools for increasing quality of nurses' clinical work. One of the most important indexes to measure quality of the provided care to the infant is studying parents' satisfaction. Latour *et al.*, in 2009 reported high level of nurses, parents and physicians' satisfaction due to performing evidence-based nursing cares in NICU [8].

Marit *et al.*, (2010), after performing development program of evidence-based care in NICU with assessing nurses' view and needs regarding evidence-based implementation reported: "nurses believe that if clinical practices are done based on research evidences, care quality and parents' satisfaction will be increased"[9].

Nowadays, infants' parents' satisfaction in NICU is very important as one of the basic measures in determining care services quality and systems that provide services have to pay more attention to parents' satisfaction and put that in their systems priorities. Studies of Sabrina *et al.*, (2011) showed that promoting care quality in NICU can increase parents' satisfaction [10].

Considering daily increase of premature, low birth weight and critically ill infants in the country and development of NICU, parents' satisfaction can influence in improving care quality of the infant. Therefore this study is done with the aim of assessing the effect of education and implementation of evidence-based nursing guidelines on the parents' satisfaction in NICU.

METHODS

This two-group clinical trial study was done in one of the hospitals of Tehran on one hundred parents of the infants hospitalized in NICU in 2013. Before the beginning of the study, permission of doing the study was taken from Baqiatallah Medical University researches committee, also necessary information was given to parents participating in the study about the aims and method of the study, arbitrary participation in the study, confidentiality of the information and also the possibility of calling off the study at every time that they will.

Sampling method for the parent's infant was through non-probability and purposive method; it was done by referring to NICU, parents who had the Infants, less than 37 weeks gestation, no long-term complications of the disease, infants without congenital anomalies or syndromes and weight infants less than 2500 grams were selected for the study. Parents who had infants during treatment were in crisis mode excluded from the study.

Initially, the level of parents' satisfaction of the provided services was measured by a researcher-made questionnaire. This two-part questionnaire included parents' demographic information including: age, gender, education level, income and.... In the second part of the questionnaire, measuring satisfaction of the parents of the hospitalized infants included 3 parts: welfare services: 12 items, nursing cares: 19 items, and medical cares: 16 items and every one of the items was measured based on Likert scale; very satisfied (score 5), satisfied (4), relatively satisfied (3), dissatisfied (2), really dissatisfied (1) and nothing (0). The lowest and the highest score of every area were respectively including: welfare services: 13-65, nursing cares: 19-95, medical cares: 16-80.

Tools validity was evaluated via assessing quality of face validity, qualitative determination of content validity, Content Validity Ratio (CVR), Content Validity Index (CVI) and structural validity through doing exploratory factor analysis. For determining tools reliability, the questionnaire was filled with 15 mothers and noticing Chronbach's alpha =0.96, the questionnaire reliability was in appropriate level.

Then evidence-based nursing guidelines regarding infants and the method of using and recording guidelines that were according to the nursing process procedures were taught to the staff in two four-hour educational workshop by the supervisor and the importance of performing these guidelines was emphasized. Education content includes explanation and definition of evidence-based nursing guidelines, explanation and definition of nursing process procedures and its chart method, explaining about all the types of nursing process procedures recording sheets, nursing care paper and discharge paper. To resolve probable problems in recording forms, again one session was held to resolve problems in the next two weeks. The researcher controlled recordings by his permanent presence and the corrections were done by the help of the research team members and the nurses were given feedback. Two months after education and implementation of the guidelines, again parents' satisfaction was evaluated by the infant's discharge time questionnaire and the results of before and after intervention were compared.

Data were analyzed through SPSS19 statistical software and by using descriptive statistic (average and standard deviation) and inferential statistic (independent t and chi-square tests).

Findings

Findings before the intervention showed that most of the parents; women (96%) had the average age of 29.60±5.97 in the age range of 18-40 years old, the highest age frequency: 50% was related to age range of 28-37 years old, with one child (46%), diploma (40%), housewife (94%), 500000-1000000 salary (74%) and regarding residence; 78% were living in Tehran and 22% in other cities. Most of the infants were admitted in the morning shift (54%), 92% did not have the experience of the previous hospitalization and most of them (96%) had armed forces insurance and the hospitalization duration was 24.88±5.50 days.

But findings after intervention showed that; most of the parents; women (100%) had the average age of 28.94±6.71 in the age range of 18-42 years old, the highest age frequency: 48% is related to the age range of 18-27 with one child (58%), education higher than diploma (58%), housewife (56%), 500000-1000000 salary (78%) and regarding residency; 52% were living in Tehran and 48% were living in other cities. Most of the infants were admitted in the evening shift (42%), 92% did not have the experience of previous hospitalization and most of them (76%) had the armed forces insurance and the hospitalization duration was 14.34±3.10 days.

Totally , the average of satisfaction scores before intervention regarding nursing cares was 55.62 (7.779), medical cares: 50.82 (7.54), welfare services: 44.46(5.456), total satisfaction:154.16 (17.75) and the average of satisfaction scores after intervention regarding nursing cares was 79.2 (8.729), medical care:62.66 (6.39), welfare services:51.06 (3.956) and regarding total satisfaction:196.68 (14.87) that there was significant statistical difference via statistical independent t-test in all the areas (table 1).

Comparing relative frequency distribution of the level of parents’ satisfaction in every area in the two groups showed that; in the before intervention group, the highest percentage of satisfaction is regarding medical area was 85.94% and in the after intervention group, the highest percentage of satisfaction of the nursing area was 100% (table 2).

Results of the study about parents’ satisfaction before intervention regarding welfare services showed that the lowest level of satisfaction was related to the quality of the food and the highest level of satisfaction was related to treatment costs and insurances and regarding nursing cares; the highest satisfaction level was related to gentle and quiet behavior with the infant and the lowest level of satisfaction was related to educating changing diapers and baby shower. Regarding medical cares, the highest level of satisfaction was related to on time presence in the emergency cases and the lowest level of satisfaction was related to providing necessary education during discharge.

Results of the study regarding parents’ satisfaction after intervention in the area of welfare services showed that the lowest level of satisfaction was related to quality of the food and the highest level of satisfaction was related to adequate time for parent-infant meeting and regarding nursing cares, the lowest level of satisfaction was related to decreasing parents’ anxiety and stress. Regarding medical cares, the lowest level of satisfaction was related to explaining truth about the infant’s situation, the highest level of satisfaction was related to the permission of participation and cooperation in taking care of the infant.

Table 1: comparing the average of parents’ satisfaction of every area in the two groups

Group	Control group		Intervention group	Independent t-test
	Area	Average(standard deviation)	Average (standard deviation)	
	Welfare	44.46(5.456)	51.06 (3.956)	t = -6.925 df=98 P=0.000
	Nursing	55.62(7.779)	79.2 (8.729)	t = -14.259 df=98 P=0.000
	Medical	50.82 (7.54)	62.66 (6.39)	t = -8.467 df=98 P=0.000
	Total	154.16 (17.75)	196.68 (14.87)	t = -12.98 df=98 P=0.000

Table 2: comparing relative frequently distribution of the parents' satisfaction level of every area in the two groups

Group Area	Group before intervention		Group after intervention	
	The highest percent	The lowest percent	The highest percent	The lowest percent
welfare	84.62	26.92	96.15	61.54
Nursing	67.11	19.74	100	60.53
Medical	85.94	18.75	100	51.56
Total	76.06	21.80	98.28	59.80

DISCUSSION

The results of this study showed, education and implementation of evidence-based nursing guidelines had positive effect on parents' satisfaction in NICU.

The results of our study before intervention is in consistent with the studies of Shirley *et al.*, (2012) [11] and the results of the findings, before intervention in the study of Zamani *et al.*, (2013)[12] which assessed the effect of performing evidence-based nursing guidelines on the level of satisfaction of the patients suffering from acute coronary syndrome, hospitalized in CCU.

In all of these studies, the level of satisfaction was in the moderate or low level, while the results before intervention are not in consistent with the study of Ebrahimnia *et al.*, (2010) [13] and Lee *et al.*, (2008) [14]. In these studies, the level of patient's satisfaction of the nursing services is reported high which is in contrast to our findings.

It can be because of increased knowledge of the patients about their rights and health cares and consequently increase of their expectations of the health services system. From the other side, this issue may have been related to the decreased quality of the provided services for example equipment such as; telephone, television, food, tea or treatment and insurances costs or enough treatment equipment of the unit etc.

After intervention results were in consistent with the findings of the study of Sables-Baus *et al.*, (2012) [15] which assessed the effect of performing evidence-based cares on independent oral feeding of the infants hospitalized in NICU.

Solhaug *et al.*, (2010) assessed the results of performing personal development care program in NICU [9]. Weiss *et al.*, assessed the effect of parent-infant relationship with an intervention in NICU in 2009 [16], Glicman (2010) assessed the relationship between patient's satisfaction and following clinical guidelines [17], results of after intervention findings of Zamani *et al.*, (2013), studying the effect of evidence-based nursing guidelines implementation on the level of cardiac patients' satisfaction [12] the study of Habich *et al.*, (2010) which showed that performing pain management guidelines for the children have positive effect on patients or their parents' satisfaction [18] and Latour *et al.*, in 2009 reported high level of parents' satisfaction due to performing evidence-based nursing cares in NICU [8].

Regarding the level of parents' satisfaction of the welfare area before intervention; the lowest level was related to quality of the unit food, and the highest level was related to treatment costs and insurances, may be it is because of that most of the patients had armed forces insurance and did not pay high cost. Regarding parent's satisfaction of the welfare area after intervention; the lowest level was related to the quality of the unit food and the highest level was related to adequate time of parent-infant meetings, may be it can be said that educating nurses about the importance of parents' participation in taking care of the infant has increased their satisfaction [19].

Regarding the level of patients' satisfaction of nursing area; in the present study, the achieved scores in different areas of satisfaction showed significant relationship between before and after intervention groups, in a way that scores of all the areas specially nursing area have been increased remarkably and it shows that performing evidence-based nursing guidelines has considerable effect on increase of parents' satisfaction. Patients' satisfaction level of nursing area before intervention was like this; the highest satisfaction level was related to gentle behavior with the infant and lowest satisfaction level was related to education infant's diaper change and shower which is probably because of insufficient attention of the nurses to education.

The lowest level of patients' satisfaction of the nursing area after intervention was related to satisfaction of education infant's shower and the highest level of satisfaction was related to parents' decreased stress and anxiety. Probably, providing necessary educations to the parents regarding the way of taking care of the infant caused them to have less stress and anxiety. There are many studies in this regard, such as; Melnyk *et al.*, (2009) extended the use of self-regulation theory to parents of children and premature infants with critical illness who were hospitalized. Guided by this theory, one component of the COPE program provides audiotaped and matched written information

to the parents regarding their premature infants' physical and behavioral characteristics, which was expected to strengthen parents' beliefs about their ability to understand and predict their premature infants' cues and behaviors. Strengthened parental beliefs were expected to then lead to less parental stress, anxiety, and depression (the emotional outcome of coping) and promote positive parent-infant interaction (the functional outcome of coping) [20], Chiu et al., (2009) [21], Tooten et al., (2012) [22] and Jafari Minayee et al., (2013) in a clinical trial study on premature infants' mothers with performing parents' empowerment program which was a multi-stages educational program. They achieved this important point that creating empowerment opportunities is an appropriate method for decreasing stress and anxiety of the parents with premature infants [23].

The highest level of parents' satisfaction of the medical area before intervention was related to their on time presence in the emergency cases and the lowest level of satisfaction was related to providing necessary education during discharge.

Different studies have shown that; providing necessary education during discharge is an essential issue during discharging of an infant from NICU, it is because of that most of the parents during infant's discharge from NICU are worried about their infant's situation and they may be dubious regarding their ability in taking care of the infant, that part of their anxieties can be decreased through correct educations and guidelines [24, 25].

Also Fumis (2008) believe that interaction of parents with physicians in NICU has remarkable effect on parents' satisfaction [26].

Remarkable percentage of the parents' complaints of the physicians is due to lack of clear explanation about diagnosis and the infant's situation, using unfamiliar medical terms, lack of providing necessary education and lack of friendly relationship with the parents [27].

Dierssen-Sotos' studies (2009) showed that some factors such as appropriate relationship with the patient and his/her family and gentle and respectful behavior increase parents' satisfaction. Positive relationship between caring behaviors and patient's satisfaction show that nurses and physicians spend more time for direct care of the infant and they pay attention to parents' emotional matters and they play an important role in parents' satisfaction and it helps more compliance of the parents of the educations and improvement of the infants' situation [28].

the lowest level of parents' satisfaction of the medical area after intervention was related to saying the truth about the infant's situation since parents were very eager to achieve correct information about their infant's situation. Paying attention to the parents and patients' needs for what they want to know, increase their satisfaction of the hospital services. Parents want to obtain information about their infant's situation, any advance in treatment and the done tests and treatments [29].

The highest level of satisfaction was related to the permission of participation and cooperation in taking care of the infant. When mother takes care of her premature infant, sense of participation is strengthening in her and she is more confident. Active involvement of parents in taking care of the infant improves parents' ability to facilitate their infant's evolution during hospitalization and after discharge and decreases infant's hospitalization duration in NICU. Also decrease of economic cost and the risk of nosocomial infections are among its other remarkable benefits. There are many studies indicating positive effects of parents' participation and empowerment in taking care of the premature infant [5].

Carol et al., (2009) in a clinical trial study on 68 premature infants' mothers with the aim of assessing the effect of educational program of mother-infant interaction, reported some results such as; decrease of anxiety and stress and increase of mother-infant attachment [30].

Wielenga et al., (2006) assessed parents' satisfaction by performing care program of infants' personal development in NICU on two groups of parents. Results of the study indicated increased level of satisfaction in intervention group in some issues such as; permission of participation and cooperation, mental and emotional support and decrease of anxiety and stress [31] which are in consisten with our study.

Among treatment team, nurses have an important role regarding parents' education, since they are in close and permanent contact with parents of the hospitalized infants; nonetheless, nowadays we see that nurses and health team members pay less attention to this important role of themselves.

Conclusion

Totally, findings of this study showed that educating evidence-based nursing guidelines and using them increase parents' satisfaction. Evidence-based care has an important role in improving quality of nursing cares since due to update care policies and procedures, it's a remarkably creative, innovative and wise method. Therefore by considering the role of quality of health cares in increasing level of the health society and increasing patients' satisfaction as the customers of health centres, it is recommended to the managers of the health centres and hospitals to put educational workshops and conferences, education and implementation of evidence-based guidelines taken from the best update research evidences on their agenda.

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