Original Article

Continuous and multiple waves of emotional responses: Mother's experience with a premature infant

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Abstract

Background: In recent years, there has been a rise in the number of premature births. Mothers of these newborns experience a high degree of stress over time. Since a more comprehensive understanding of this phenomenon can help the healthcare teams in detecting the deficiencies and needs of such newborns' mothers for a better and more effective intervention, the present study was carried out to describe the mothers' experiences in the area of premature birth.

Materials and Methods: The present study is a qualitative study with a content analysis approach. The data collection process included 15 semi-structured and in-depth interviews with the mothers delivering premature babies during 2012-2013 in the medical educational centers of north and northwest of Iran. A purposive sampling method was used. All the interviews were recorded, typed, and finally analyzed using a qualitative content analysis with a conventional method.

Results: Data analysis led to the extraction of continuous and multiple waves of emotional responses in mothers with premature birth. This has been revealed in mothers by the different categories of affective reactions, symptoms of anxiety, and mood disturbances including decline in performance, individual shortcomings, and mental irritation.

Conclusions: Mothers' unpreparedness and unexpected childbirth make them encounter the multiple and continuous waves of emotional responses, which will consequently lead to decline in performance, individual shortcomings, and mental irritation among them. Therefore, in order to prevent the negative and long-term consequences of such reactions, it is recommended that more attention should be given to support these mothers as the main caregivers of such infants.

Key words: Content analysis, emotional responses, mothers' experiences, premature infant

Introduction

Pregnancy is an important event in a woman's psychological development, as any problematic situation can have a negative effect on her experience.[1] The birth of a premature infant influences the natural process of infant care and mother's maternal role.[2] In the case of preterm delivery, mothers are not ready to accept their new role since the later months of pregnancy are a period in which preparation for labor and infant birth takes place; thus, those with preterm delivery lose this chance, and all their expectations and imaginations of giving birth to a healthy baby are lost.[3]

Transition to motherhood is a major evolutionary event in a woman's life, and the mothers of preterm infants undergo an abnormal transition to motherhood as an "emotional crisis" which is usually recognized by grief, loss of control, stress and anxiety, and so on and continuously goes on for days and even months in some cases after the infant's discharge.[4] Hence, it is necessary for them to reconstruct their goals to achieve a new self-concept.[5]

Latva *et al*.[6] found in their study that almost one-third of mothers experience unresolved grief until the ninth month of their baby's infancy, which indicates the continuity of trauma and stress after the premature infant's discharge from the Neonatal Intensive Care Unit (NICU).

These long-term emotions not only affect the mother's ability to respond to behavioral signs of infants, but also affect the attachment between the mother and her newborn.

Mothers with preterm infants show higher degrees of stress and anxiety as compared with full-term infants'

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mothers.[7] Also, postpartum depression has been reported in 30-60% of this group of mothers, while it has been found to be 15-30% in those with full-term neonates.[8] A number of factors such as depression and failure to comply with this event can adversely affect the quality of care for premature neonates, and the negative effects will be apparent in social,[9] cognitive, emotional, and behavioral development of infants.[10] Although the adverse effects of mothers' anxiety and depression on infants have been well documented, little attention has been paid to the mothers' emotional response.[11]

Despite the recent dramatic improvements in neonatal care programs such as Family-Centered Care (FCC), Newborn Individualized Developmental Care and Assessment Program (NIDCAP), and Kangaroo Mother Care (KMC),[12-14] it seems that a little attention has been paid to supportive aspects of their mothers, while a balance should be provided between the two in terms of attention.

With a critical look, it should be noted that performing the above-mentioned care should not only aim to ensure the infant's health but also consider the family, especially the mother's safety and welfare. On the other hand, all these developments have occurred in the NICUs, and unfortunately, they have not passed through the walls of hospitals or have not been observed in the society as well as the maternal and neonatal clinics and it seems that chronic care and support of this group of mothers has not been addressed, as compared with acute care.

It should be mentioned that the health system in Iran has been a pioneer in terms of family-centered care, kangaroo mother care, etc., and all the principles and processes of care are running in most parts of the country in association with prematurity; however, mothers have not been seriously and specifically paid attention as compared with the infants and with the development of intensive care units in the Iranian educational and therapeutic centers.[15,16] While at the same time, maintaining and improving maternal health is a priority in the basic healthcare of Iran's health system.[17] Also, paying attention to mothers has been recommended in the religious beliefs of Islam.[18]

Literature review revealed that most studies conducted on mothers with premature infants have been performed with a quantitative approach and centered around anxiety-, stress-, and tension-causing factors in mothers using a questionnaire or checklist and have been limited to the period of neonate's hospitalization in the NICU and the time of discharge.[19,20] As evident, findings of these studies with predetermined questions and specific framework cannot reflect women's experience in certain cultural, social, and family environments and different areas.

A review of literature on published works in Iran shows that there is limited knowledge available to nursing community and nurses in the NICU in terms of mothers' experience.

One of the most challenging aspects of the neonatal nursing job is helping mothers cope with the stresses associated with the birth of infant, and interventions with mothers are most effective when the nurse understands what the mother of a preterm infant is going through and can respond to her needs with empathy. Because the real experts on mothers' needs are mothers, one way to gain understanding is to listen to what these mothers say about their experiences and feelings. Unfortunately, neonatal nurses seldom have the opportunity to hear mothers' stories fully and directly. In addition, mothers may be reluctant to express their feelings while their infant is still in the hospital.[21] Also, in a few qualitative studies which have been conducted, most researchers have addressed to describing mothers' experience in terms of infants' hospitalization in NICUs.[22,23] Since the specific and different experiences of these mothers are not confined to neonates' hospitalization in NICU and they include a long-term post-discharge follow-up, it is necessary to address this issue to explain the understanding, feeling, and experience of mothers who are involved, from their own point of view at different times (birth, hospitalization, discharge, and the days and months afterward) and different places (hospital and home).

In qualitative studies, the totality of human phenomena can be achieved, and it can be the most appropriate method to study an individual's experience on social phenomena;[24] therefore, this study aimed to describe and explore the experiences of mothers with premature infants.

Materials and Methods

In order to describe mothers' experience with premature infants, qualitative method with content analysis approach and purposeful sampling were used. This method is commonly used to describe a designed phenomenon and when the existing theory or research is limited about that phenomenon.[25]

In this study, 15 mothers with preterm delivery (<37 weeks gestational age), of age ranging from 18 to 39 years and with an educational level from below high school to bachelor's degree, were selected from Shafizadeh Pediatric Subspecialty Center and Ayatollah Rouhani Educational and Therapeutic Center of Babol, Al-Zahra, and Pediatric Hospital of Tabriz [Table 1]. It should be noted that the

Table 1: Demographic characteristics of the study participants

Participant's no.	Age, years	Occupation	Education	Number of pregnancies	Mode of delivery
P1	18	Housewife	Bachelor's student	First	Cesarean
P2	22	Housewife	Diploma	Second	Vaginal
P3	23	Housewife	Bachelor's	First	Vaginal
P4	39	Teacher	Bachelor's	Forth	Vaginal
P5	30	Employee	Bachelor's	First	Cesarean
P6	29	Housewife	Diploma	Third	Cesarean
P7	32	Employee	Bachelor's	Second	Cesarean
P8	26	Housewife	Bachelor's	First	Cesarean
P9	30	Employed	Diploma	First	Cesarean
P10	24	Housewife	Lower-secondary education	First	Cesarean
P11	23	Housewife	Lower-secondary education	First	Cesarean
P12	32	Employee	Diploma	First	Cesarean
P13	27	Housewife	Diploma	Second	Cesarean
P14	20	Housewife	Diploma	First	Cesarean
P15	27	Self-employed	Diploma	First	Cesarean

centers in Babol and Tabriz include levels 1, 2, and 3 NICU and are considered the most equipped NICU centers in the country.

Infants' profile

Minimum gestational age, weight, and duration of hospital stay were 28 weeks, 770 g, and 7 days, respectively, with the maximum of 34 weeks, 2700 g, and 50 days, respectively; most of the infants were males and the maximum age of neonates was 12 months at the time of interview.

Only those mothers with the experience of a premature infant and willing to express their own experience participated. They were Iranian and fluent in the Persian language. Interview locations were determined based on the participants' preferences which were mostly home, the doctors' clinics, and health centers. The mean time of interview was 50 min. Prior to the interview, the participants were given assurance that participation in the research would be optional and that the information would be used based on confidentiality rules. Written consent was also obtained from the participating mothers. Ethical approval was received from the Research Ethics Committee of Tabriz University of Medical Sciences (No. 91119). The study continued during 2012-2013 until the completion of the formation of categories and sub-categories and/or lack of any new codes or categories. The two final interviews were conducted in order to ensure data saturation.

Semi structured, in-depth, and face-to-face interviews started with a general question regarding the research question, "Please talk about the premature birth of your baby. Explain your reactions and feelings associated with premature birth," and ended with more curious and specific questions such as "Please explain more in this regard … and …" Supplementary interviews were conducted in person or by phone.

In this study, conventional content analysis was used to analyze the data. For this case, each interview was typed immediately after interviewing. Then, the interview transcripts were read and reviewed for several times. The data were then divided into meaning units in a frame of sentences and paragraphs related to the main meaning. The meaning units were repeated several times and the appropriate codes were then written for each meaning unit. The codes were categorized according to conceptual and meaning similarity. The declining trend in data reduction was present in all analysis units, main categories, and subcategories. Finally, the data were placed in the main categories which were more general and the main theme was abstracted at the end. With the addition of each interview, the analysis process was repeated in the same way. To ensure the accuracy and reliability of data, four criteria including credibility, verifiability, reliability, and transferability were used according to Lincoln and Guba.[24] In this study, member check was used in addition to long-term involvement to increase the credibility of the data. Also, after encoding, the interview transcripts were returned to the participants to ensure the accuracy of the codes and interpretations.

To control data confirmability, peer check approach was used; for this purpose, the researcher coded and categorized the data which was evaluated by the research team (nursing teachers, a neonatologist, and a psychiatrist). In terms of

codes and categories on which there was no consensus, discussion was continued to clarify the issue and to reach a consensus. Audit trail was used to control the dependability of the data. In this method, the researcher maintains the preliminary data, categories, and themes until the end of the research process. Moreover, the review and analysis of the data of the experienced individuals in the research team increased the reliability of the study. The transferability of the study also depended on the evaluation and approval of findings of the individuals in the same environment. Sampling with a maximum variance also helped in the transferability and stability of the results as well as credibility of the data.[25] Allocation of sufficient time to study and open an empathic communication with the participants was another factor that increasing the data credibility, thus, some participants considered the interview as the first opportunity to express their concerns and to drain emotionally.

Results

A total of 18 interviews were performed on 15 participants. Continuous and multiple waves of emotional responses in mothers with premature infants were the major themes extracted from the data. In terms of this context, 150 codes were obtained without overlap, and 85 codes remained after being merged to have more precise coding and facilitate the process of research. This theme was detected with three main categories including mood disorder, affective reactions, and anxiety symptoms [Table 2]. In addition to presenting the content descriptions extracted, the following sections will discuss them as well.

Continuous and multiple waves of emotional responses

This theme represents a set of emotional reactions of mothers facing the birth of premature newborn and its complications suddenly confronting them in an unexpected situation. These unforeseen events often occur rapidly and unexpectedly in a short period of time when mothers are not ready for delivery, and are associated with a feeling of surprise in mothers, because all predictions and imagination of the family about timely delivery and birth of a healthy and normal newborn vanished and they did not plan for that time. In such circumstances, mothers are faced with an influx of emotional responses. The scope of these feelings is very extensive and not limited to a particular period. It occurs successively at birth, admission, discharge, after discharge, during follow-up, and the consecutive months. According to the conditions of the newborn, the intensity of mother's emotional reactions varies. This theme has been extracted from three categories of mood disturbances, emotional reactions, and anxiety symptoms.

Mood disturbances

The mothers who participated in the study experienced different emotions with the features of feeling of performance failure, mental irritation, and a sense of personal failure, from the incident (strained labor and birth) until infant discharge and even thereafter.

When mothers are under pressure in a stressful and critical situation, anxiety, stress, and negative forces resulting

Table 2: The process of obtaining theme from categories, sub-categories, and codes

Codes	Sub-categories	Categories	Theme
Feeling of inability in taking care of the baby Lack of self-reliance and confidence in taking care of the baby	Feeling of lack of efficacy		
Feeling of guilt and blame Self-blaming Feeling of shame in front of husband Feeling of being responsible and guilty	Feeling of failure and delinquency	Mood disturbances	
Helplessness and despair Discomfort of being compared to others and judged by others Despair	Mental irritation		Continuous and multiple waves of emotional response
Mother's continuous, long-term, and secret crying Grief for a lost dream of having a healthy baby Being disturbed		Affective reactions	
Mother's repeated concerns Fear of the infant's future Unpredictability of infant's condition and probability of adverse events Ongoing stress from the time of discharge to subsequent follow-ups		Symptoms of anxiety	

from this situation will have an effect on mothers' abilities, leading to the loss of control and subsequent decline in their efficacy and performance, which reflect in them as a feeling of inability in taking care of an infant, feeling of failure, low self-reliance, and lack of confidence in relation to infant care.

"*I'm afraid to hug my baby. I really said to her, 'Don't give it to me.' Because it was too little, when I placed it on my chest, her/his nail got to my clothes. I became more afraid, I thought s/he would fall from my hands.*" (Participant 7)

"*Aside from all these days, the most difficult thing is when you go home with the baby; you feel that you don't know anything about it.*" (Participant 9)

This feeling existed in primiparous and multiparous mothers and it was not related to the mother's experience of having a child. Also, the mothers preferred the infants to stay longer in the hospital to be provided with more complete and reliable care.

"*I was stressed out that maybe I could not keep it. 'Would it be better for him/her to stay here?,' I repeatedly said to myself this way. 'It would be better if s/he stays here for a couple of more days.' I always thought that s/he would grow better each half an hour here.*" (Participant 9)

"*I don't know why I preferred him/her to stay more at the hospital. It was better for him/her to be monitored; I'm afraid of taking him/her home causing him/her problem, as s/he is premature; cessation of breathing … rejection of milk ….*" (Participant 3)

Another feature and event of the continuous waves and multiple emotional responses theme in the mothers of premature infants is mental irritation. The analysis of the participants' experiences showed that mothers were affected by the behaviors and reactions of some relatives and friends after hospital discharge and returning home without the infant results in tension and distress. Blaming, judging, and heavy glances regarding premature infant and preterm delivery hurt mothers. Mothers with a history of preterm labor suffered from unpleasant reactions of entourages more than the other mothers.

"*After delivery, when my relatives came, they blamed me for having another preterm delivery and not taking care of myself properly. All eyes were on me. It was really hard. They all looked at me in different ways …. There is too much talk when you have a complete rest as if you have a disability; they all blamed me.*" (Participant 6)

After discharge and taking the infant home, mothers face some undesirable behaviors of entourages who compare the premature infant with mature newborns of relatives and friends.

Helplessness, disappointment, and desperation were the other emotional reactions of mothers because they felt unable to rescue their infants. For example, they felt helpless because of their inability to protect their infants during painful procedures performed in hospitals or clinics. The peak of these responses was when the infant was admitted at NICU and it diminished when the infants were discharged and gained partial recovery.

"*As a mom, I was very sad because it is not clear that your child will stay alive or not, we were just looking at the nurses behind the windows, they were working hard.*" (Participant 3)

Most of the mothers ascribed the incident to themselves as the one who was responsible and, therefore, suffered from stress-induced feelings of guilt, fault, and blame. Also, the feeling of remorse and regret for their past performance during pregnancy was also one of the other emotional reactions of mothers who indicated various reasons such as having a history of preterm birth and fertility problems, being under mental and physical pressures, and so on.

"*It's my fault; if I had cut down on stress and did not make myself that busy with work, this wouldn't have happened.*" (Participant 4)

Mothers felt guilty when they saw their babies struggling between life and death, being forced to endure sufferings and painful procedures only for little hope of life.

In contrast, some mothers attribute this event to God's will and had never experienced such feelings.

"*I don't think of myself as guilty for everything happens in God's will; thank God s/he is healthy; I would feel guilty if s/he had a defect.*" (Participant 12)

Affective reactions

The participants in the study who were suddenly affected by preterm delivery and premature infant, as well as by immediate admission of the newborn at NICU had experienced great discomfort and sadness. In such circumstances, they noticed the critical situation of their newborns who must be transferred to another ward or hospital. Prolonged, repeated, and silent crying of mothers was the reaction that most mothers experienced from the incident until breastfeeding and embracement. The sorrow of losing and dreaming about delivery of a healthy infant is another emotional reaction of mothers in the early days of newborn premature birth. They were waiting for a normal and healthy baby.

"*When I first saw it, I screamed and cried, I was crying every night in those 17 days when my child was in the hospital. It was too small and black; it was clear that s/he was a fetus. It was terrible; I did not think that s/he could survive; I was worried all the time.*" (Participant 15)

"*When I saw my baby, her breathing was so bad, I became so upset, I was crying so much and I wept, I wasn't expecting such baby.*" (Participant 7)

Symptoms of anxiety

The mothers who participated in the study had unexpectedly faced termination of the pregnancy and prematurity of the infant. They had also experienced stress and worry because of doubtful survival of the infant in the hospital and the potential complications of prematurity remaining in the future years. Mothers' concern is a function of the time variable for which the continuum begins at birth and continues with admission and even after discharge and survival of the infant. The primary concern of most mothers is the survival of infants.

"*The only fear and worry I had been for the baby; I was praying to keep the baby alive; I was worried that s/he would not survive.*" (Participant 1)

"*The concern with whether the baby can survive or not! I was always saying to myself, 's/he is going to die; s/he won't survive; I can't bring him/her up; s/he will die.' Then I was stressed out for possible defects as s/he was premature.*" (Participant 9)

Gradually, overtime, on improvement of infant's health conditions, the type of mothers' concern about the survival of the infant changed to expecting weight gain and growth. After discharge, these concerns were focused on uncertainty of the infant's future health because of prematurity complications and neurodevelopmental disorders, infant readmission or need for surgery, or other therapeutic and diagnostic reasons.

"*Although she had been discharged a long time ago, I was still afraid as she was born prematurely. I call a doctor even when she coughs, I always cared. I was frustrated and stressed out. A healthy baby doesn't have such problems. She is now 7 months old.*" (Participant 5)

The range of stress and anxiety has been different in mothers participating in the present study, as it had been experienced only at the time of delivery and infants' birth and the mothers' stress and anxiety diminished after they heard about their infants' relatively good health during their short stay in the hospital. Most mothers indicated ongoing stress and anxiety every time, which was associated with a probability of breathing problems and cerebral conditions.

"*Once they'd told me the baby was healthy, I did not care about the weight or anything; my only concern was my baby's health.*" (Participant 2)

"*Being under pressure and stress is intolerable; stress that any bad event threatening the baby any moment puts one under pressure.*" (Participant 6)

Mothers with a history of preterm labor experienced more anxiety symptoms, which are related to the old memories and the residual effect of them.

"*I was not afraid in delivering my first child, even though s/he had severe reflux, but now, I'm too scared, my husband says that is because of losing our previous child. Now my mom bathes my child.*" (Participant 15)

Another source of maternal stress is worrying about the infant's sufferings during the follow-up examinations, and follow-up–induced stress that augments in terms of intensity between examinations is the other source of maternal stress.

"*Premature babies have their own problems; let alone the problems; the stresses… for example, when you go to the ophthalmologist or for thyroid examination or check-ups, they're all stressful.*" (Participant 6)

"*You should take the baby again a few weeks later; these weeks hardly pass; I couldn't sleep a wink last night. I can't even stand today as I am quite stressed out.*" (Participant 8)

Discussion

In the present study, in terms of the experience of mothers delivering premature infants, the main theme of continuous and multiple waves of emotional responses was conceptualized and abstracted within the categories of mood disturbances (diminished performance, feeling of failure and delinquency, and mental irritation), affective reactions, and anxiety symptoms.

Preterm delivery and premature infant birth is a traumatic experience for most mothers and is accompanied with a source of grief and stress.[4] Unexpected birth and adverse events, as well as the hard labor will affect mothers' experience and understanding on delivery and subsequently on confidence and early interactive behavior with the baby.[26] Mothers participating in this study underwent various emotional responses at different periods. In this line, in a mixed method study by Brown *et al.*,[27] it has been

found that mothers of preterm infants experience significant emotional distress at least for the first month after delivery; lack of mothers' preparation in this unexpected event has been a source for the onset of emotional responses. Affleck *et al*.[28] found that even after 6 months of discharge from the hospital, some mothers had distressful memories of hospitalization of their newborn.

Davis *et al*.[29] have also pointed to the fact that maternal distress is associated with parental ability and infant health status and that such an emotional distress leaves impact on mothers' success in breastfeeding.[30]

Mothers' mood disturbance affects their mental health, leading to failure and delinquency in taking care of infants; for instance, Boykova *et al*.[31] have indicated that most of the post-discharge follow-ups specific to these infants are not performed and most parents are confused with this duty following discharge.

Ballantyne *et al*.[32] investigated the rate of parents' participation in the follow-up programs during the first year after discharge in a number of hospitals in Canada; in spite of 81.5% participation in NICU post-discharge follow-up programs, most did not participate in the first session, 62% of whom had no particular reason for it. Not all mothers pursued post-discharge follow-up programs to prevent the consequences of developmental problems. Thus, mothers' needs should be identified from the beginning at intensive care units and some strategies should be employed to overcome obstacles such as lack of access to follow-up. Similar to our study, transition to home under any condition has been reported to be challenging and stressful for most mothers in Ballantyne *et al.*'s study. Doubt in self-ability and lack of self-reliance in taking care of infants were among the points expressed by mothers at the time of discharge. They felt they were not able to take care of premature infants at home and were dependent on the medical staff. High rate of infant readmission is also indicative of this point, as Salimi *et al*.[33] showed that about 7% of infants with early discharge are re-admitted in the first 4 weeks after discharge.

The feeling of delinquency for giving birth to a premature infant was the other disturbance experienced by mothers. In Wigert *et al*.'s[34] study also, mothers had experienced such feelings. Feeling of guilt and blame in mothers is considered a potential risk factor in infants' care. It has been found by Willis *et al*.[35] that such a feeling related to infants' disease and hospitalization can stop breastfeeding during or after hospital discharge. Grief, crying, and feeling of helplessness were the affective reactions of mothers in this study, which should be taken into consideration since mothers' unresolved grief about premature infant birth can lead to insecure attachment between the mother and infant, and mothers with resolved grief after preterm birth are 2.9 times as likely to have securely attached infant as compared with those with unresolved grief.[4] In our study, mothers' symptoms of anxiety have been in the form of follow-up related stress, concern about the consequences of infants' physical immaturity and lack of predictability of infants' status, and the possibility of an anytime adverse event, which are consistent with the findings of Dacherti's[36] study in which mothers' concern with infants' health has been mentioned to be the greatest source of stress.

The results of our study are also in agreement with the findings of Jubinville *et al*.'s[37] survey; using the Stanford Acute Stress Reaction Questionnaire, it has been observed in their cohort prospective study that 28% of mothers had high levels of acute stress in 7-10 days after preterm birth, which continued up to the first month. Symptoms of depression have been similarly observed in 43% of these mothers up to the first month. High stress and anxiety in mothers leave negative effects on mother–infant relationship, whereas stress reduction in mothers contributes to more sensitivity of mothers to infants' behavioral signs and increased interactions.[7] On the other hand, premature infants are very sensitive and vulnerable to stress- and anxiety-associated behaviors of parents.[6] In Holditch-Davis and Miles' research, family and individual factors, experience of pregnancy and childbirth, infant's disease and treatment and hospitalization in intensive care unit, prognostic concern and consequences of prematurity, loss of parental role, and interacting with medical team were the sources of stress in mothers with infants admitted to NICU.[21]

Continuity and varying severity of stress has been among the features of anxiety symptoms in the present investigation, which has not been reported in previous studies, as most qualitative studies conducted in this regard had been limited to the NICU;[22,23] therefore, the emergence of the theme "continuous and multiple waves of emotional responses" can be due to the wide range of time allocated to infants (from birth to the first year) at admission, discharge, and follow-up. Ongoing stress followed by tension in mothers express their need of support at different ages and conditions of infancy.

Valizadeh *et al*.[38] reported that mothers of preterm infants, in order to go through the process of grief and sorrow caused by premature birth and hospitalization and also in the transition from NICU to home, need to get enough support.[39]

Meanwhile, the study of Rahiminia *et al*.[40] conducted in Iran showed that nurses' behavior indicated an acceptable

support to mothers in terms of predicted grief and sorrow based on Fordham's scale in NICU; however, there are no coherent and systematic supportive programs for mothers with infants hospitalized in these wards. It should be noted that the nurses' behavior was reported up until the time of infants' discharge from the hospital in this study, while mothers' problems with premature infants are not limited to hospital stay and they are in need of long-term support even after their infants are discharged from the hospital.

Infant health and survival are directly related to the quality and continuity of care, and studies indicate the buffering (neutralizing) role of mothers in terms of problems arising from infants' diseases and chronic disorders.[41] Thus, regarding the importance of the issue and prematurity-caused complications in these infants, designing special programs focusing on supporting this group of mothers seems to be essential. Through effective communication and adequate care of infants, nurses can also play a great role in reducing mothers' stress and anxiety.

According to the findings of the present article, it should be noted that survival of these infants can be accompanied by a heavy care burden in infancy and mothers' mental suffering. Since mothers are burdened with family management responsibilities in Iranian culture, they should be paid special attention as one of the partners in infants' health care. It is also recommended that nurses in NICUs and neonatal and pediatric clinics identify the signs and symptoms of post-traumatic stress disorder, acute stress disorder, and affective reactions in contact with mothers, to be able to perform the possible interventions required for the mothers of these infants.

Conclusions

Infant prematurity exposes mothers to continuous and multiple waves of emotional responses such as mood disturbances, affective reactions, and symptoms of anxiety originating from complications of prematurity. Identifying the components of this experience can help the healthcare team (nurses) to design specific supportive programs in this line based on mothers' different experiences and needs – programs that can assist mothers to cope actively with this event and can be used as a guide in all maternal and neonatal healthcare centers and not only in the NICU. Through designing a number of programs, the power of parents' group with the mentioned experience should also be used. In actuality, the results of this study are the reassertion of family-centered care in the NICU, and long after it.

Given the fact that the present research has been conducted in the north and northwest of Iran, it is recommended that the research be repeated in other geographic areas with different customs and cultures to find the experiences of mothers with premature infants, as it would help the healthcare system in providing more effective services. It is proposed that a process through which mothers resolve their grief after preterm birth be also identified and investigated.

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