

ผลของรูปแบบการพยาบาลต่อความทุกข์ทรมานของมารดาที่มีทารกแรกเกิดน้ำหนักน้อย ที่เข้ารับการรักษาในหออภิบาลทารกแรกเกิดป่วย

Effects of Nursing Intervention Model on Suffering in Mothers with Low Birth Weight Infants Hospitalized in Sick Newborn Care Unit

นิพนธ์ฉบับ

Original Article

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วารสารไทยเภสัชศาสตร์และวิทยาการสุขภาพ 2565;17(1):22-28.

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บทคัดย่อ

Abstract

วัตถุประสงค์: เพื่อศึกษาผลของรูปแบบการพยาบาลต่อความทุกข์ทรมานของมารดาที่มีทารกแรกเกิดน้ำหนักน้อยที่เข้ารับการรักษาในหออภิบาลทารกแรกเกิดป่วย **วิธีการศึกษา:** การวิจัยกึ่งทดลองนี้มีกลุ่มตัวอย่างเป็นมารดาของทารกแรกเกิดที่มีน้ำหนักน้อยที่เข้ารับการรักษาในหออภิบาลทารกแรกเกิดป่วย ในโรงพยาบาลศูนย์เขตภาคตะวันออกเฉียงเหนือหนึ่งจำนวน 42 คน แล้วสุ่มอย่างง่ายเข้ากลุ่มทดลองและกลุ่มควบคุม กลุ่มละ 21 คน กลุ่มทดลองได้รับการพยาบาลตามรูปแบบการพยาบาล 4 ครั้ง ส่วนกลุ่มควบคุมได้รับการพยาบาลตามปกติ วิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณนาและวิเคราะห์เปรียบเทียบด้วยการทดสอบค่าทีแบบอิสระ **ผลการศึกษา:** เมื่อสิ้นสุดการทดลอง มารดากลุ่มทดลองมีคะแนนความทุกข์ทรมานลดลงจากก่อนการทดลอง (37.90 คะแนน) มากกว่ามารดากลุ่มควบคุม (20.76 คะแนน) อย่างมีนัยสำคัญทางสถิติ ($t = -8.43, P\text{-value} < 0.001$) **สรุป:** รูปแบบการพยาบาลสามารถลดความทุกข์ทรมานของมารดาที่มีทารกแรกเกิดน้ำหนักน้อยที่เข้ารับการรักษาในหออภิบาลทารกแรกเกิดป่วยได้ ดังนั้นพยาบาลและบุคลากรทางสุขภาพสามารถประยุกต์ใช้รูปแบบการพยาบาลนี้เพื่อลดความทุกข์ทรมานของมารดาและเพิ่มคุณภาพการดูแลมารดาที่มีทารกแรกเกิดน้ำหนักน้อย

Objective: To examine the effect of nursing intervention model on suffering in mothers with low birth weight infants hospitalized in sick newborn care unit. **Methods:** This quasi-experimental study recruited 42 mothers with low birth weight infants who met inclusion criteria from a regional public hospital in Eastern Thailand and randomly assigned them into experimental and control groups of equal size. Both groups attended the regular care. The experimental group also received 4 sessions of the nursing intervention model. Descriptive statistics and independent t-test were conducted for data analysis. **Results:** At the end of the study, the decrease in the suffering score in the experimental group (37.90 points) was greater than that in the control group (20.76 points) with statistical significance ($t = -8.43, P\text{-value} < 0.001$). **Conclusion:** The suffering among mothers with low birth weight infants receiving the nursing intervention model was relieved better than those receiving only a regular care. This intervention model should be used to relieve suffering among mothers of low birth weight infants. The nurses and health care professionals could apply this model to increase a quality of nursing care.

คำสำคัญ: มารดา, ความทุกข์ทรมาน, รูปแบบการพยาบาล, ทารกแรกเกิดน้ำหนักน้อย, การดูแลทารกแรกเกิดป่วย

Keyword: mother, suffering, nursing intervention model, low birth weight infants, sick newborn care

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Introduction

Low birth weight is a major cause of death and a significant cause of long-term loss of human potential among survivors all around the world. Complications of low birth weight in infants are the single largest direct cause of neonatal deaths, responsible for 35% of the world's.¹ A small proportion (10% to 20%) of Very Low Birth Weight (VLBW) infants are born with severe neurodevelopmental handicaps such as blindness, cerebral palsy, or Intelligence Quotient (IQ) in the mentally deficient range.² A larger number also shows more subtle deficits, including learning disabilities and behavioral problems. Indeed, VLBW children have been found to exhibit a variety of behavioral problems, such as attention deficit disorder, hyperactivity, excessive shyness and withdrawal,

and social problems.^{3,4} Additionally, VLBW infants are medically fragile, and may suffer from many complications, including respiratory distress syndrome, intra-ventricular hemorrhage (bleeding in the brain), and retinopathy of prematurity.⁵ They often continue to experience physical health problems that may require frequent medical visits and re-hospitalization in the early years of life. This may limit their participation in regular childhood activities, which may in turn affect their development of social skills. These infants can also be challenging interaction partners for their parents, due to their fragility, irritability, and lack of responsiveness to their social environment. Many mothers feel emotional distress following the birth of a VLBW infant, and this may affect

maternal behavior. Maternal anxiety, assessed while the infant was hospitalized in the Neonatal Intensive Care Unit (NICU), has been associated with less effective maternal behavior in early infancy and in toddlerhood.⁶ Low birth weight infants can be an intensely stressful, confusing and difficult time for mothers and families.⁷ Mothers can have feelings of fear about their infant's condition or doubt their ability to care for the child. Mothers may also experience anger or grief, or they may blame themselves and experience intense guilt.

Suffering has been defined as the state of severe distress associated with events that threaten the intactness of the person.⁸ Suffering is considered an individualized, subjective and complex experience including physical, psychological, social, and spiritual. It is primarily characterized by a person's assigned situation or perceived threat as an intensely negative meaning. This meaning involves the loss, or perceived loss of one's integrity, autonomy, and real humanity.⁹ Similarly, Wright (2017) stated suffering is physical, emotional, or spiritual anguish, pain, or distress.¹⁰ The lengthy hospital stays required by most VLBW infants and the separation from their parents that ensues can provoke suffering in mothers about their infant's health and uncertainty regarding their ability to parent their fragile infant.

A recent study in Thailand revealed that suffering among parents of children with leukemia arose when they perceived that their child had more physical suffering.¹¹ These parents perceived that their children suffered from infection, painful procedures, and side effects of treatment such as fatigue, nausea and vomiting. Parents who observed suffering in their children increased more suffering. Moreover, changes might have been occurring in the family members' roles. Parents had to deal with routine daily tasks. They had their roles extended in the context of caregivers in hospital and at home.⁹ When parents were suffering from the illnesses of their children, those illnesses had significant impact on both parents and their children. Moreover, another study of suffering of the mothers with low birth weight infants hospitalized in a sick newborn care unit, stated that the characteristics of mother's suffering including anxiety/stress, sadness, sleeplessness, and no appetite, the causes of mothers' suffering including fear of complications and death of infants and the factors affected mothers' suffering including infants-health condition and family support.¹²

Suffering impacts mothers and infants such as mothers might feel anger and depression that influences negative

feelings and a declining sense of emotion and joy in life.¹³ Consequently mothers are unable to maintain relationships with family members and other people as mothers experience well-being and a quality of life that decreases.^{14,15} Concerning the impact on children, mothers have emotional problems and poor quality of life leading to ineffective provision of care for their children.¹⁶ Mothers are unable to manage with life cycle tasks and caregiving roles. Similarly, mothers' suffering can decrease the well-being of low birth weight infant and other children in the home.

The nursing intervention model was developed based on the Family Nursing Intervention Program¹⁷ and Illness Belief Model¹⁸ and situational analysis. The Illness Belief Model is a model for advanced practice that challenges constraining illness beliefs that increase illness suffering and promotes facilitating beliefs that enhance healing. The family nursing intervention model consisted of the following five steps: 1) Building trusting relationship between the researcher and mothers, 2) Creating a context for changing and uncovering illness belief about low birth weight infants and exploring illness beliefs of low birth weight infants, 3) Promoting facilitating beliefs and challenging constraining belief and promoting facilitating belief about low birth weight infants and illness, 4) Affirming family strengths and competence in care management and distinguishing change, and 5) Inviting reflections and feedback about the interventions.

Previous studies reported the results of the nursing intervention model derived from Illness Belief Model. The interventions reduced the patients suffering from hemodialysis and families suffering from taking care of the patients.¹⁹ In another research stated that the effect of the Illness Beliefs Model can reduce the families suffering from taking care of the end stage cancer patients.²⁰ One research examined the usefulness of a family nursing intervention model. The family nursing intervention model enhanced the competence of families experiencing HIV/AIDS to manage care of family members, obtained new meaning and purpose, improved family interaction, embraced facilitating beliefs and changed constraining beliefs, and recognition of the family's strengths.¹⁷ Moreover, another study found that this family nursing intervention program could apply for cerebrovascular disease patients after discharge from the hospital family caregivers in order to family adaptation.²¹ Therefore, this nursing intervention model might reduce the suffering of mothers with low birth weight infants.

This study aimed to investigate how to decrease mother's suffering with low birth weight infant and examine the effect of nursing intervention model on suffering among mothers of low birth weight infants hospitalized in sick newborn care units. Consequently, this intervention model could help nurses understand and recognize ways to ease the suffering of mothers with low birth weight infant. Specifically, the study compared the changes of suffering scores of the two groups after the intervention. It was hypothesized that the decrease of suffering scores in the experimental group was greater than that in the control group.

Methods

This quasi-experimental study used a two-group pretest posttest design. Participants were randomized to either the experimental or control group of equal size. The participants were 44 mothers with low birth weight infants hospitalized in a regional public hospital in Eastern Thailand. The inclusion criteria included mothers with low birth weight infants at the Sick Newborn Care Unit, where mothers were 20 years old and over, able to communicate in Thai language, and willing to participate in the study. The participants were excluded from the study if they could not complete participation in the nursing experimental intervention process.

The sample size was determined via power calculation based on the mean scores of the previous study.¹⁹ With an effect size of 0.60, a test power at 0.80, and α at 0.05, the sample size of 44 mothers of low birth weight infants, 22 each for the experiment and groups, was needed.

Research instruments

The instruments included 1) data collection tool consisting of demographic characteristics and the mothers' suffering questionnaires and 2) the intervention.

The mothers' suffering questionnaire was modified from the work of Nanna and colleagues (2012).¹⁹ This 36-item self-report instrument was composed of 6, 11, 10, and items of physical, psychological, social and spiritual symptoms, respectively. For physical symptoms, items were, for example, pain, nausea, shortness of breath, dry mouth, and lack of appetite. The respondent was asked to indicate how often they experienced the symptoms during the last 7 days with the response ranging from 0 "a little, i.e., a few days or 1 – 3 days" to 1 "quite a bit, i.e., most days or 4 – 6 days," 2 "very

often," and 3 "everyday." For each symptom that was present, the respondent was also asked to indicate how much it bothered or distressed them with the response ranging from 0-not at all, to 1-a little, 2-quite a bit, and 3-very much. With a possible total score of 0 – 108 points, higher scores indicates higher level of suffering.

This modified mothers' suffering questionnaire was examined for item content validity index (I-CVI) by three experts in the areas of maternal and child nursing and instrument development. Internal consistency reliability was tested on 20 mothers with characteristics similar to the study participants. The modified questionnaire was found to have acceptable content validity with an I-CVI of 0.92 and acceptable internal consistency reliability with a Cronbach's alpha coefficient of 0.86.

For the intervention, the experimental nursing intervention model was developed based on the family nursing intervention program¹⁷ and the Illness Belief Model¹⁸ and situational analysis. Participants in the experimental group participated in the nursing intervention model as the program of 4 sessions. Each session lasted 45 - 60 minutes and was conducted every week for 4 weeks (Figure 1). The control group received only the regular care. The nursing intervention model was composed of 5 steps. For the first to fourth sessions which were held on weeks 1 to 4, respectively, step 1, steps 2 – 4, steps 1 – 5, and steps 4 – 5 were implemented, respectively. The participants in the experimental group completed the pre-test on at the start of the first session and the post-test at the end of the fourth session; while those in the control group did so on the dates similar to the experimental groups.

The five steps of the nursing intervention model were as follows. **Step 1** was defined as building trust relationships between the researcher and mothers through introductions to each other and informing them of the objectives and length of the meetings. The researcher asked participants about family health assessment and drew a family genogram, family attachment and ecomap which is a graphic portrayal of mother and family relations. **Step 2** involved creating a context for changing and uncovering illness belief about low birth weight infants and exploring illness beliefs of low birth weight infants. The researcher encouraged the participants to discuss their knowledge and belief about low birth weight infants and illness, to tell their illness narrative and explored their beliefs about their experience of low birth weight infants. These experiences included illness, suffering, providing care for the

infants, impact of low birth weight infants and illness on family functioning together with solving problems relevant to family participation. The researcher listened intentionally with a nonjudgmental attitude to the expressed mother illness beliefs. The researcher also showed respect for the mother as an expert on their illness experiences.

In **step 3**, the researcher promoted facilitating beliefs and challenged constraining belief and promoting facilitating belief about low birth weight infants and illness. Three strategies were used. The first strategy was inviting the participants to reflect about the outcomes of relieved suffering which they practiced. For example; “What expectations do you set for alleviating suffering?,” “What are the barriers in alleviating suffering?,” and “In what way are you satisfied with your ability to care for your child?” The second strategy involved offering a new solution. The researcher provided the theoretical knowledge and research evidence which could offer the participants a chance to accept new ideas or new strategies to relieve suffering. The third strategy was encouraging the participants to plan to choose as often suffering strategy or method.

Step 4 included affirming family strengths and competence in care management and distinguishing change. The mothers were encouraged to find their family’s strengths, explore the change that family members observed in each other, explore the effects of change on various family members, and invite explanations of the change. The mothers were also encouraged to realize their own competency and resources when caring for their low birth weight infants and illness. The mothers were told that the changes could differentiate the change and cause of change. The researcher asked the participants to explain the change of suffering. For example, “What are the outcomes resulting from relieving suffering?” In assessing the impacts occurring from the changes, the researcher invited the participants to assess the impacts of the change of suffering. For example, “How do you feel about the change in your ability to relieve suffering?”

A more comprehensive example of subsequent work from step 2 to step 4 was as follows. Based on the step 2 concept, creating a context for changing and uncovering illness belief about low birth weight infants and exploring illness beliefs of low birth weight infants was implemented. If the mothers believed that they gave birth to a low birth weight infant, in the future, the child could become a small, stunted, and often sick. In the third step, the researcher would change the beliefs that

hinder this belief. However, if it was found that the mothers’ suffering could be relieved by the husband or family support, the researcher would promote and encourage such support. On the other hand, if the mothers did not feel hopeless, the researcher would consider that as the family strength and affirm such strength with the mothers. This is consistent with fourth step of the intervention.

In **step 5**, it was about inviting reflections and feedback about the interventions. The researcher invited the participants to reflect and feedback on their suffering regarding low birth weight infants and illness. The participants then summarized strategies that they would like to apply in order to relieve suffering.

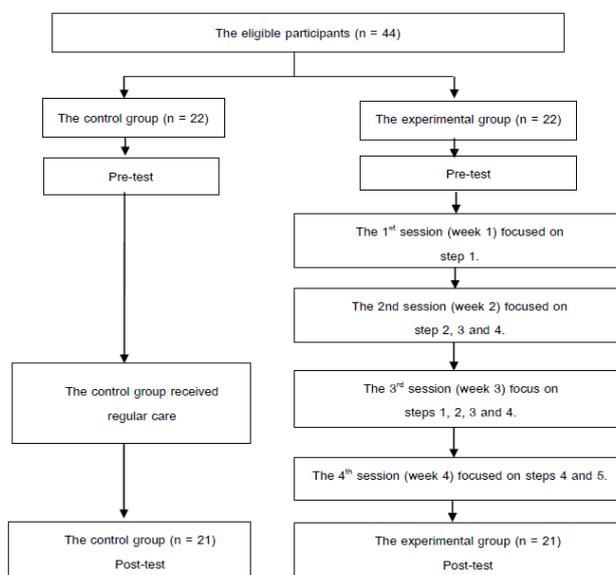


Figure 1 Study profile.

Note: One participant in each group did not complete their participation and was excluded from analysis.

Ethical considerations

This study protocol was approved by the Ethical Review Committee of Burapha University (approval number: 29/2560; approval date: September 29, 2017) and by the ethics committee of the regional public hospital (approval number: 75/60/O/h3; approval date: December 13, 2017). After approval, the researcher approached the prospective participants. The procedures of the study were fully explained and introduced. Consent was obtained from each participant prior to participation in the study. Anonymous and confidential procedures were performed to record participant information. Obtained data were kept in a secured place with the access only was given to the research team.

Data collection procedures

At the sick newborn care unit in the selected regional public hospital in Eastern Thailand, researchers invited the eligible participants to participate in the study and replaced the mothers who declined until the sample size of 22 mothers was reached for each group. The experimental group received the nursing intervention model while the control group received the regular care. All sessions of the nursing intervention model were conducted in a meeting room at the sick newborn care unit. During the experimental process, one family in each group did not complete their participation and was excluded from the analysis.

The participants were verbally informed of their right to withdraw from the study at any time or choose not to answer any research questions without any implications for treating or caring of their children. Informed consent was obtained. The researcher took part in the process of data collection. The instruments for baseline assessment (pre-test data) were distributed. After finishing the pre-test, the participants were placed into groups and scheduled for the intervention. These sessions were arranged at the meeting room of the sick newborn unit.

Data analysis

Descriptive statistics were performed to analyze the demographic data. Independent t-test was conducted to compare the mean score of the two groups at pre-test. The difference of pre-test and post-test scores of each group was tested using independent t-test or Mann-Witney U test as appropriate. Statistical significance was set at a type I error of 5%. All statistical analyses were conducted using the software program SPSS version 23.

Results

Of the 44 mothers randomized, two mothers, one of each group, did not complete the study and were excluded from analysis. Of the 42 mothers completing the study, mean age in the experimental and control groups were comparable (30.95 ± 5.25 and 29.00 ± 6.01 years old, respectively). All mothers were Buddhist in both groups. The majority of participants in experimental group had secondary school education (28.6%) while the majority the control group had high school or associate degree education (38.1%). The majority of both groups were married (95.2% for both). The

average monthly family income in the experimental group was slightly higher than that in the control group (17,095.24 and 14,690.48, respectively). More number of the mothers in the experimental group were employees (71.4%) compared with 66.7% in the control group. In terms of the low birth weight infants, there were more female infants in the control group than in experimental group (61.9% and 52.4%, respectively). The majority of infants in the experimental group (57.1%) were in the range of 1,501 – 2,000 grams, while 42.8% in the control group were in 1,001 – 1,500 grams.

Table 1 Demographic characteristics of mothers with low birth weight infants (N = 42).

Characteristics	N (%)	
	Control group (n = 21)	Experimental group (n = 21)
Mothers		
Age (years)		
Mean \pm SD	29.00 \pm 6.01	30.95 \pm 5.25
Range	17 - 39	20 - 38
Marital status		
Married	20 (95.2%)	20 (95.2%)
Divorce/separated	1 (4.8%)	1 (4.8%)
Education level		
Primary school	0 (0%)	5 (23.8%)
Secondary school	9 (42.9%)	6 (28.6%)
High school / associate degree	8 (38.1%)	5 (23.8%)
Bachelor degree	4 (19%)	5 (23.8%)
Occupation		
Employees	14 (66.7%)	15 (71.4%)
Commerce	2 (9.5%)	4 (19%)
Self-employed	0	1 (4.8%)
Housewife	5 (23.8%)	1 (4.8%)
Monthly income (Baht)		
Mean \pm SD	14,690.48 \pm 4106.32	17,095.24 \pm 5,204.85
Range	9,000 - 25,000	10,000 - 25,000
Infants		
Infant's gender		
Male	8 (38.1%)	10 (47.6%)
Female	13 (61.9%)	11 (52.4%)
Infant's body weight (grams)		
<1,000	2 (9.5%)	1 (4.8%)
1,001 - 1,500	9 (42.8%)	5 (23.8%)
1,501 - 2,000	4 (19%)	12 (57.1%)
2,001 - 2,500	6 (28.6%)	3 (14.3%)

At pre-test, the average in suffering of the mothers in experimental group (89.28 ± 9.41 points) was slightly higher than that in the control group (84.09 ± 9.69 points) with no statistical significance (P -value > 0.086) (Table 2). After the intervention, the average of the suffering score of the experimental group decreased from 89.29 to 51.38 points at post-test resulting in a decrease of 37.90 (SD = 7.58); while the decrease in the control group was only 20.76 (SD = 6.24) points. As a result, the two decreases of suffering scores from the two groups were statistically significant (P -value < 0.001).

Table 2 Comparisons of mean scores of suffering between the experimental and control groups (N = 42).

Group	N	Mean	SD	d	SD	t [†]	df	P-value
Experimental group	21							
Pre-test		89.28*	9.41	37.90	7.58			
Post-test		51.38	8.35			-8.43	40	< 0.001
Control group	21							
Pre-test		84.09*	9.69	20.76	6.24			
Post-test		63.33	6.95					

* Comparison of pre-test scores between the two groups, $t = -1.76$, $df = 40$, $P\text{-value} = 0.086$.

† Comparison of the decreases from pre-test to post-test (d) between the two groups.

Discussions and Conclusion

The nursing intervention model using in this research was designed to reduce suffering in mothers with low birth weight infants hospitalized in sick new born care unit. The results indicated that this model can relieved suffering in mothers with low birth weight infants. This developed intervention model was based on the Family Nursing Intervention Program¹⁷ Illness Belief Model¹⁸ and situational analysis. It helped the researchers to design an appropriate program that fits with problems, needs, and attitude of the mothers with low birth weight infants.

The nursing intervention model started with the researchers building a trust relationship, giving information about objectives, activities and duration of the meetings. Activities at the meetings involved using the nursing intervention model to encourage the mothers to talk about their beliefs, the illness of low birth weight infants and their problems.

Asking questions about the illness beliefs of low birth weight infant and their illness helped the researcher to understand and make a clinical judgment about which illness beliefs were facilitating or constraining.²² These increased the researcher's ability to offer useful information for families' adaptation to the infant's illness. Additionally, asking questions about mothers' strengths and competencies and the successful ways they cared for their low birth weight infants stimulated mothers to describe the mother difficulties. For example, if the factors that could relieve the mothers' suffering were the husband or family support or the mother prays and making merit, the researcher would support these as good things. Moreover, if the mother hoped that the child would recover from the illness and gain weight, the researcher would take it as a family strength. This is the fourth step to confirm the family's strengths. The researchers then could distinguish family strengths and recourses to provide cares and plan

appropriate interventions for the mothers with low birth weight infants.

Encouraging and inviting mothers to explore the changes that occurred with the mothers also enhanced and hopefully maintained the changes in their beliefs and behaviors. Moreover, the mothers were inquired about their suffering and asked questions of why the suffering had occurred and how it could be endured. These questions about suffering were usually about the meaning of their suffering. Additionally, the process of nursing intervention model involved a trusting therapeutic relationship which is essential in any work. It is especially important in working with mothers of low birth weight infants where there is frequently distrust of health care providers and fear of judgment. The researcher listened intentionally with compassion and had a nonjudgmental attitude about symptoms of their infants, thus creating a context for healing.

The researcher accepted the expertise of the mothers in their experience of illness, which also enhanced the researcher-mother relationship. The researcher's own professional knowledge and expertise about how to relieve suffer and manage illness, particularly, low birth weight infant with illness, was offered through ideas and information from prevailing theories and her own research experiences. All these efforts by the researcher likely helped the mothers to make the best decisions about their infant's illness and promote healing.^{23,24}

Moreover, offering commendations for the mothers were also useful. It enabled the mothers to reflect on their own competencies that led to increased self-confidence, self-esteem, and decreased emotional distress.^{18,25} Inviting mother reflections and feedback about the interventions helped the mothers with low birth weight infant realize their strengths and resilience that was often forgot.

The offering of research evidence or other important individual also provided the mothers with an opportunity to select the options that were congruent with the mothers' biopsychosocial-spiritual structures.²² All these activities then helped the mothers to understand the context of suffering and their own ability to change their attitude and finally succeed in relieve their suffering. This nursing intervention model therefore was found to promote mother healing and competence in caring for a mother with low birth weight infants by alleviating the mother suffering and diminishing emotional distress in the family.

In conclusion, this study contributes further ideas and a knowledge transfer of the nursing intervention model which can be used to relieve suffering in mothers or parents experiencing low birth weight infants. With the specificity of the described and employed interventions, and the valuable feedback from the mothers with low birth weight infants about how their suffering was alleviated, nurses can contribute the developed knowledge to intervene and relieve the suffering in these families. However, some parents had limited time to visit their children since the sick newborn care unit allows parents with two hours of visit. Additionally, the further study this nursing intervention should be tested among parents whose children have other illnesses in order to provide quality care for children and contribute to family well-being.

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