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Original Article

Contributions of the occupational therapy group to the anxiety level of mothers with premature newborns admitted in the neonatal intensive care units

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Abstract: Introduction: The high rate morbidity associated with preterm birth, which gestational period is less than 37 weeks, frequently demands the hospitalization of the newborn in neonatal intensive care units (NICUs). The period of hospitalization triggers in the parent's feelings of insecurity, sadness, stress, and anxiety. The multi-professional staff that accompanies the newborn and his family plays a key role in supporting parents. Occupational Therapists have developed comprehensive and interactive programs to help parents deal with anxiety about the baby's hospitalization in the NICU by conducting activity groups. Objective: To know the contributions of Occupational Therapy groups in the anxiety levels of mothers with preterm newborns admitted in the NICU. Method: Forty mothers of hospitalized newborns who met the inclusion and exclusion criteria participated in the study. The State-Trait Anxiety Inventory (STAI) was applied with an I-STAI scale (A-state) before and after the performance of the activity group. Finally, a Focal Group with a semi-structured interview was carried out. Results: The inventory showed reductions in scores for items such as "I feel anxious" ($p < 0.001$), "I feel nervous" ($p = 0.008$) and "I am worried" ($p < 0.001$), which was corroborated by the analysis of the mothers' report in the focal group. Conclusion: The interaction between the mothers provided by the Occupational Therapy groups and the execution of activities directed to the experienced context contribute to reducing the anxiety felt by the mothers during the hospitalization of the child in the NICU.

Keywords: *Infant Premature, Intensive Care Units Neonatal, Anxiety, Parents.*

Contribuições do grupo de terapia ocupacional no nível de ansiedade das mães com recém-nascidos prematuros internados nas unidades de terapia intensiva neonatal

Resumo: Introdução: O alto índice de morbidade associado ao nascimento pré-termo, cujo período gestacional é inferior a 37 semanas, demanda, frequentemente, a internação do recém-nascido em unidades de terapia intensiva neonatal (UTIN). O longo período de hospitalização desencadeia nos pais sentimento de insegurança, tristeza estresse e ansiedade. A equipe multiprofissional que acompanha o recém-nascido e sua família desempenha um papel fundamental no suporte aos pais. Os terapeutas ocupacionais têm desenvolvido programas abrangentes e interativos, que visam ajudar os pais a lidarem com a ansiedade decorrente da internação do bebê na UTIN por meio da realização dos grupos de atividade. Objetivo: Conhecer as contribuições dos grupos de terapia ocupacional no nível de ansiedade das mães de recém-nascidos prematuros internados na UTIN. Método: Participaram do estudo 40 mães de recém-nascidos internados que atenderam os critérios de inclusão e exclusão. Foi aplicado o Inventário de Ansiedade Traço-Estado (IDATE) com a escala parte I IDATE (A-estado) antes e após a realização do grupo de atividades. Finalmente, foi realizado um Grupo Focal com aplicação de entrevista semiestruturada.

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Resultados: O inventário evidenciou redução dos escores para itens como "sinto-me ansioso" (p<0,001), "sinto-me nervoso" (p=0,008) e "estou preocupado" (p<0,001) que foi corroborado pela análise dos relatos das mães no grupo focal. Conclusão: A interação entre as mães proporcionadas pelos grupos de terapia ocupacional e a execução de atividades direcionadas ao contexto vivenciado contribuem para reduzir a ansiedade sentida pelas mães durante a internação do filho na UTIN.

Palavras-chave: *Recém-Nascido Prematuro, Unidades de Terapia Intensiva Neonatal, Ansiedade, Pais.*

1 Introduction

Birth is defined as preterm when the gestational period is less than 37 weeks (BRASIL, 2016a), and most of these births occur spontaneously or can be induced due to complications caused by multiple pregnancies, infections or chronic diseases (WORLD..., 2015). The high morbidity rate associated with preterm birth often demands the hospitalization of the newborn in neonatal intensive care units (NICU) (SILVA et al., 2016; RIBEIRO et al., 2014), which generates the whole family, more specifically in parents, feelings such as fear, anxiety, guilt and suffering (GROSIK et al., 2013). Enduring the uncertainty of the newborn's health conditions and watching them undergo medical procedures, together with helplessness in the inability to directly assist the baby, can be traumatic for the family (MATRICARDI et al., 2012; TURNER et al., 2015; CHERTOK et al., 2014). The desire or need to stay in the hospital daily to monitor the newborn and the evolution of its treatment involves changes in the daily life of parents. The care of hospitalized baby becomes the focus of mothers and, often, the family and professional environment lose relevance (DUARTE et al., 2013).

The separation of the baby and the interruption of the relationship between parents and newborns contribute to aggravate the already weakened family emotional state, commonly manifested by acute anxiety (TURNER et al., 2015) and increased stress levels (SAMRA et al., 2015). Parents may have anxiety even after the baby's hospitalization period, together with depressive events that may influence the future relationship with the child and impact the child's emotional, social and cognitive development (MATRICARDI et al., 2012).

Therefore, it is urgent to identify the factors associated with increased parental anxiety and to propose interventions aimed at promoting their mental health during the hospitalization period of the premature or ill newborn (ALKOZEI et al., 2014).

The multi-professional team following up the newborn and his family play a key role in providing emotional support to parents, as they are responsible for making the environment welcoming, supporting, guiding and providing the necessary information. Strategies have been used to help parents of premature infants cope with the anxiety inherent in having a baby in the NICU, such as facilitating access to support networks, including parents in the care of the baby, providing consistent clinical information, guiding and encourage skin-to-skin contact when possible and offer and encourage participation in support groups (TURNER et al., 2015; SMITH et al., 2012; BALBINO et al., 2015).

Support groups are considered resources that favor the welcoming of the family in their emotional demands. In these spaces, discussions or various activities that seek to foster the sharing of concerns, exchange of experiences, relaxation and momentary detachment from the situation faced by parents may be proposed (BALBINO et al., 2015). The activities carried out in the groups aim to develop the capacity of members to deal with the situation experienced through discussions, construction of coping strategies, inventive skills, among others. Among the support groups, there are occupational therapy groups, in which the relationships therapist-activity-members are considered an important empowering resource to achieve these goals (JOAQUIM et al., 2014; MAXIMINO; LIBERMAN, 2015).

The occupational therapy perspective in these groups is focused on the organization of the members' daily activities, inserting their conjuncture in these activities (MAXIMINO; LIBERMAN, 2015). Thus, in the context of neonatology, occupational therapists have developed comprehensive and interactive programs that aim to support parents in coping with the anxiety caused by the baby's hospitalization in the NICU through occupational therapy groups. The proposal of spaces for the performance of groups of activities enables the approximation of the individual with the other and himself, placing him in a central position and valuing his actions (MAXIMINO; LIBERMAN, 2015). The development of activities in these groups has been shown to be effective and contributes to alleviating feelings, expectations, anguish, and anxiety, as well as promoting fun and a sense of self-control (MOURADIAN et al., 2013; BALBINO et al., 2015).

Given the particularities of the situation experienced by parents during the hospitalization of the baby in the NICU, and the need to advance the incorporation of care practices that meet these needs, the aim of this study is to know the contributions of occupational therapy groups at the level of anxiety of mothers of premature newborns admitted to the Neonatal Intensive Care Unit.

2 Method

A quantitative and qualitative approach was used, as it enables the researcher to comprehend distinct and complementary knowledge fundamental to the understanding of reality from various perspectives, generating questions, doubts, enabling inter-subjective and interactive discussions to assist in the data analysis during the research (GOLDENBERG et al., 2003). Quantitative research seeks to show observable data, indicators, and trends, while qualitative research works on values, beliefs, representations, habits, attitudes, and opinions (MINAYO; SANCHES, 1993). For this study, the use of both approaches is complementary, enabling to broaden the understanding of quantitative data and vice versa, so the quantitative cut was the application of the State-Trait Anxiety Inventory (STAI) with the part I STAI scale (A-state). The qualitative cut was possible with the focus group with mothers seeking to explore the experience of mothers in their participation in the group of activities performed by occupational therapy.

The study was developed in an institution specialized in maternal and childcare, which exclusively assists the patients of the Unified Health System (SUS) and it is a reference for a population of over 400 thousand patients from the North and Northeast Health Districts in Belo Horizonte, Minas Gerais (HOSPITAL..., 2017).

Forty mothers of newborns admitted to the Neonatal Intensive Care Unit participated in the study. Inclusion criteria were mothers of preterm infants with gestational age ≤ 32 weeks and weight ≤ 1500 grams, who were hospitalized in the NICU for at least 6 days and who attended the activity group performed by occupational therapy. Exclusion criteria were mothers diagnosed with a psychiatric disorder and/or cognitive deficits; mothers who have participated in more than one group of activities of this research; mothers of babies diagnosed with neurological sequels, malformation or on therapeutic effort limit; mothers of babies hospitalized in the NICU, whether from home or from the hospital. The exclusion of these participants was because they experience other situations related to the child's clinical condition besides prematurity and low weight.

The sample calculation defined in Equation 1 was performed to establish the number of mothers needed for the study (SANTOS, 2017). The universe (N = 280) was considered to be the annual average of mothers with babies admitted to the NICU who met the inclusion criteria from 2014 to 2016. Adopting the 95% confidence level in a Gaussian distribution (Z = 1.96), a conservative estimate of the expected proportion p = 50% and sampling error e = 0.05 endorsed in the literature, the sample number n of 161 mothers for a period of one year was obtained. Therefore, proportionally to the 3-month interval of the research, the sample size resulted in 40.2 mothers. To this value, 10% as an estimate of losses was added.

$$n = \frac{N.Z^2.p.(1-p)}{(N-1).e^2 + Z^2.p.(1-p)} \quad (1)$$

Where "n" is the sample size, "N" is the universe, "e" is the sampling error and "p" is the expected proportion.

The hospital has a total of 185 beds and, for the care provided to the premature or sick baby, the Neonatal Intensive Care Unit (NICU) is highlighted with 51 beds and a multidisciplinary team to assist the newborn and family during hospitalization (BRASIL, 2017). In 2016, approximately 1,043 newborns were admitted to the HSF Neonatal Units, of which 375 (36%) were premature with gestational age ≤ 32 weeks and 323 (31%) with birth weight ≤ 1500 grams. For the mothers of these babies, the institution provides full-time stay conditions, including feeding and follow-up by the multi-professional team (HOSPITAL..., 2017).

Data collection was performed from July to October 2017. Mothers who met the inclusion criteria were identified by consulting the NICU bed listing, and they were informed daily of hospitalizations of newborns, available at the registry of neonatology. As soon as it was verified that there was a minimum number of 5 mothers who met the inclusion criteria, data collection was scheduled.

The data collection comprised 4 moments: 1) application of the State-Trait Anxiety Inventory (STAI) with the part I STAI scale (A-state); 2) Performance of the activity group; 3) Application of the State-Trait Anxiety Inventory (STAI) with the part I STAI scale (A-state); 4) Focus Group.

In the first moment, the State-Trait Anxiety Inventory (STAI) part I STAI-STATE was applied (BIAGIO et al., 1997) to measure the anxiety level of mothers before the activity group was performed. The STAI was adapted for the Brazilian population, proving to be valid and reliable (BIAGIO et al., 1997). It is also self-applicable and contains two scales to measure two different concepts of anxiety. The anxiety trait, A-trait, consists of 20 statements that require the individuals to describe what they generally feel, and the state of anxiety, A-state also has 20 statements, but instructions require the individual to indicate what they feel about a certain moment. To fill in the IDATE instrument, the participant must indicate one of the four alternatives, indicating their feelings about anxiety: absolutely not; a little; enough; and very much (on the A-state scale); almost never; sometimes; often; almost always (on the A-dash scale) (BIAGIO et al., 1997).

The second moment was the performance of the activity group coordinated by an occupational therapist, and all groups followed the format described below: the coordinator and the participant's presentation and then it was proposed to perform an activity that consisted of making an EVA sign with the baby's name. The coordinator provided various colored EVA molds and sheets, hot glue, scissors, marker pen, colored glue, paper, preacher and instructed the group participants on how to make the baby's nameplate. After the activity was performed, the group was closed.

In the third moment, the STAI-STATE (BIAGIO et al., 1997) was applied again to measure the anxiety level of the mothers after the activity group was performed. The fourth moment consisted of the focus group, which allowed the interaction and exchange of experience among the participating mothers, promoting conditions to deepen the theme of the study as indicated by different authors (MINAYO, 2013; SEHNEM et al., 2015). The focus group was conducted by the researcher, using the guiding questions presented in Table 1, and with the participation of a second researcher as an observer and responsible for synthesizing the end of each group.

All mothers included in the study who participated in the activity group and answered to the STAI were invited to participate in the focus group. At the end of the data collection, 9 focus groups were performed, totaling 40 participants. Focus groups lasted an average of 1 hour and 30 minutes and took place in a hospital meeting room to ensure privacy and tranquility for participants. It was organized at a time that allowed the participation of mothers without prejudice to the activities performed by them in the care of the newborn.

For the analysis of quantitative data obtained through the STAI, categorical variables were considered as absolute and relative frequencies and numerical variables were considered as mean ± standard deviation (SD). Numerical variables were submitted to the Shapiro-Wilk normality test. Comparison of mean scores before and after participation in occupational therapy groups was performed using Wilcoxon and t-Student tests for paired samples. The analysis was developed using the free program R version 3.3.2 and a significance level of 5% was adopted.

Qualitative analysis of the data obtained in the focus group was performed through content analysis, thematic modality (BRAUN; CLARKE, 2006). The focus groups were transcribed by the researcher in their entirety, following the reading of the reports. Then, the research objective and familiarization with the data were resumed. During this process of exploration of the material, the predominant ideas were classified into specific themes related to the studied phenomenon, constituting a thematic categorization (BRAUN; CLARKE, 2006). After identifying all relevant extracts and categorizing them, the data could be related to the research question and discussed based on the

Table 1. Guiding questions from the focus group with the mothers of NICU infants who participated in the activity group.

Questions:
1- How was for you to participate in the activity group during your baby's stay in the Neonatal Intensive Care Unit? Why?
2- What has the activity group provided you with having a baby in the Neonatal Intensive Care Unit?
3- Choose a word that describes what you are feeling after participating in the activity group
4- Would you recommend this group to other mothers? Why?

topic in the literature (BRAUN; CLARKE, 2006; MINAYO, 2013).

The study was approved by the Ethics and Research Committee of the institution under Opinion 2,092,683. All research participants were informed about the procedures and objectives of the study and signed an informed consent form. The participants were identified with the letter "M" followed by the numerical code referring to the order of participation in focus groups to preserve anonymity.

This study sought to meet the criteria of reliability and validity. The researcher was inserted in the study area and had the previous contact with the mothers, which allowed knowing the situation experienced by them and aspects related to their life history, which was important when the focus groups were held. Data triangulation was used in the data analysis strategy. At the end of data collection, two researchers read the material, performed the analysis, categorization, and agreement of the defined themes. Subsequently, the categories were validated by an external expert with knowledge about the object of study and experience in qualitative research. Also, this research was carried out with a detailed record of all stages of the study procedure, analysis of qualitative data concomitant with its collection, analysis of mothers with different perceptions and social contexts, theoretical basis for the construction of the research and the use of multiple analysts and observers to review survey results (ULLRICH et al., 2012).

3 Results

During the data collection period, 55 mothers met the criteria to participate in the study, 2 of them did not sign the informed consent form and 13 did not attend the group in a timely manner (before the baby was discharged from the NICU). The final sample consisted of 40 mothers, and the sample characteristics are described in Table 2.

There was no significant difference between the total STAI score before and after the participation of occupational therapy groups ($p > 0.05$). The analysis of the total score alone is insufficient to conclude the effectiveness in reducing anxiety levels. The questionnaire used had a total of 20 items, 10 of them understood as positive feelings and the others as negative feelings. Hypothetically, before the tests, negative feelings could reach a maximum value while negative feelings could reach a minimum value. After the test, this result could be inverted and result in no relative difference between the scores. Therefore, the individual quantitative evaluation of the items is fundamental in the interpretation of the results. Evaluating by item, according to Table 3, the reductions in the scores after participating in the groups for "I am worried about possible problems" ($p = 0.007$), "I feel anxious" ($p < 0.001$), "I feel nervous "($p = 0.008$) and "I'm worried" ($p < 0.001$) were highlighted. Increased scores after group participation were observed for the items "I feel calm" ($p = 0.002$), "I feel safe" ($p = 0.037$), "I feel rested" ($p = 0.001$), "I feel at home" ($p = 0.002$), "I feel relaxed" ($p < 0.001$), "I feel satisfied" ($p = 0.049$), "I feel happy" ($p = 0.003$) and "I feel me well" ($p = 0.007$). The individual assessment of each item of the instrument showed that the occupational therapy group was effective in improving participants' feelings in 90% of the items.

The analysis of the content extracted from the focus group allowed the construction of two categories: **Repercussions of the occupational therapy group: maternal feelings and perceptions; and Activity as a resource in the monitoring of mothers of premature babies.**

The category **Repercussions of the occupational therapy group: maternal feelings and perceptions**

Table 2. Characterization of mothers and newborns participating in the study. Belo Horizonte, 2017.

Variables	n=40
Mother's age (years old)	29.68 ± 6.03
Marital status	
Friend	14 (35%)
Married	21 (52.5%)
Single	5 (12.5%)
Education level	
Elementary school	5 (12.5%)
High school	30 (75%)
Higher education	5 (12.5%)
Birth weight (grams)	1,033.8 ± 256.2
Number of pregnancies	
One	24 (60%)
Two	10 (25%)
Three or more	6 (15%)
Number of deliveries	
One	24 (60%)
Two	12 (30%)
Three or more	4 (10%)
Number of abortions	
None	35 (87.5%)
One	5 (12.5%)
Gestational age (weeks)	28.98 ± 2.03
Prematurity History	5 (12.5%)

Table 3. Escores do IDATE antes e após a participação das mães nos grupos de atividade. Belo Horizonte, 2017.

Variables	Before	After	p-value
I feel calm	2.53 ± 0.88	3.03 ± 0.92	0.002[W]
I feel safe	2.48 ± 0.82	2.68 ± 0.76	0.037[W]
I am tense	1.93 ± 0.94	1.75 ± 1.01	0.386[W]
I'm sorry	1.20 ± 0.56	1.53 ± 1.06	0.087[W]
I feel comfortable	2.55 ± 0.93	2.75 ± 0.81	0.256[W]
I feel disturbed	1.53 ± 0.91	1.28 ± 0.64	0.169[W]
I am concerned about possible problems	2.40 ± 0.93	1.98 ± 0.86	0.007[W]
I feel rested	1.83 ± 0.81	2.40 ± 1.03	0.001[W]
I feel anxious	2.78 ± 0.95	1.83 ± 0.96	<0.001[W]
I feel at home	1.70 ± 0.88	2.13 ± 0.94	0.002[W]
I feel confident	3.10 ± 0.81	2.95 ± 0.93	0.172[W]
I feel nervous	2.05 ± 0.93	1.55 ± 0.88	0.008[W]
I'm agitated	1.78 ± 0.86	1.53 ± 0.93	0.104[W]
I feel a nervous wreck	1.70 ± 0.91	1.40 ± 0.84	0.072[W]
I feel relaxed	1.85 ± 0.70	2.60 ± 0.98	<0.001[W]
I feel satisfied	2.65 ± 0.92	2.93 ± 0.86	0.049[W]
I am worried	2.65 ± 0.98	1.80 ± 0.82	<0.001[W]
I feel overflowing and confused	1.85 ± 1.03	1.50 ± 0.85	0.120[W]
I feel happy	2.53 ± 0.88	2.93 ± 0.89	0.003[W]
I feel good	2.55 ± 0.85	2.93 ± 0.83	0.007[W]
Total	43.60 ± 5.42	43.42 ± 6.39	0.827[T]

The p-values refer to the tests of [W]Wilcoxon and [T]t-student for paired samples.

highlight the feelings experienced by mothers after participating in the occupational therapy group. The participants expressed that the group enabled them to distract themselves as they are distanced, even momentarily, from the problems they faced, alleviating concerns about the newborn admitted to the NICU.

> *Because we have the group here, as they say, I know each one has a problem here, but it can be distracting. As it is said, it was fun, I liked it and I think it's good for us, just for you to take the focus off the problems out there is another thing. This is fun, it is painting, it is playing. I liked it* (M5).

> *I liked it because it distracted me a little and soothed our thoughts, which is just there in them and with a concern about how they are. I liked it because it distracted me* (M8).

The sense of relief provided by the participation in the occupational therapy group was expressed by the participants and was associated with decreased anxiety, distress, stress, and tension. The state of tranquility, lightness, calm and peace was also reported by the mothers after the group:

> *Because it relieves tension, it takes away some anxiety, it takes away some of the anguish we feel about being with the baby in the ICU. It helps a lot* (M40).

> *And the group is good that it relieves stress from the ICU because only those little noises of devices already bother* (M11).

> *It makes us lighter, calmer. I distracted a little from that environment that we are all day* (M34).

The reports allowed knowing that the occupational therapy group promoted interaction and the exchange of experience and the possibility of taking care of themselves:

> *Ah! I think it's very good because we distract. We have a moment like this to take some of our concerns, right! And it strengthens our lives day by day* (M24).

> *I think that if it wasn't for this group, we would go to one side. So I would at least recommend why, take your focus off, too! We also have to think a little about ourselves, forget about the problems a little, if not also we get sick. So, I think this group here and what we are doing handicraft or even, we talk, listen, right! So, I think this is like learning and a moment for us, so we can forget a little bit out there* (M5).

The category **Activity as a resource in monitoring mothers of premature babies** highlights the repercussions of performing the activity on the welfare state of the participants. Reports showed that mothers are happy and motivated to make something for the baby and arouse the maternal belief that everything will be okay with the baby.

> *For me too, it was a satisfaction that I was doing something for my son. Right? And we are doing it for our son. So it's even quieter and with a happy heart* (M1).

> *It brought me more confidence because we came here and we got together and we did something that was for the baby, right! It brings confidence that everything will work out. From the moment we start doing something, right! It feels like this so we don't lose hope* (M16).

> *We can try to put in the drawing and express the feelings, right!* (M30).

4 Discussion

Hospitalization of premature newborns in the NICU contributes to the mother's emotional imbalance. The long period of hospitalization, the need to adapt to the hospital routine and the distance from home and the rest of the family, associated with moments of uncertainty regarding the child's health, arouse feelings of sadness, anguish, helplessness, failure, tiredness and anxiety in mothers (VERONEZ et al., 2017; CONTIM; RANUZI, 2017). In this context, interventions using activity groups that promote living with other mothers play an important role in alleviating this state and facilitating coping with problems (CONTIM; RANUZI, 2017). However, the participation of mothers in these groups is not integral. The calculation was performed considering the annual universe of mothers of preterm infants with gestational age ≤ 32 weeks and weight ≤ 1500 grams who were admitted to the NICU for at least 6 days to account for a representative sample of the number of mothers engaged in occupational therapy groups. The result of the sample calculation indicated that 40 mothers interviewed during the information collection period are sufficient to provide statistically representative data. As there were no references to the number of losses in previous similar studies at the institution, an amount of 10% was estimated. However, the results showed that this estimate was inadequate. In fact, 55 mothers were approached and met the criteria to participate in the study. Two of them did not sign the informed consent form and 13 did not attend the group, which represents a percentage of losses equal to 27%. Although the loss was higher than estimated, the expected number of participants was not compromised.

Through STAI, State Anxiety obtained a statistically significant difference, verifying that anxiety is the predominant feeling in mothers with premature babies hospitalized in NICU. It also stressed that State Anxiety seems to be related to the situation in periods of crisis, presenting a momentary trend of the data. In another study investigating the prevalence of anxiety symptoms conducted with two groups of premature mothers and mothers of full-term babies, 75% of mothers of premature babies had clinically relevant anxiety symptoms and 50% had depression, while in mothers of full-term infants, 65% did not manifest any of these symptoms (FAVARO et al., 2012). Similar results were found in this research, in which the STAI scores (A-state) before the mothers' participation in activity groups presented high values for feelings of worry, anxiety, and nervousness. These findings indicated that prematurity can negatively impact mothers' mental health.

It is believed that the use of activity groups as an instrument of occupational therapy intervention provides the creation of health promotion spaces and fosters resources for nonverbal expression of impulses and symptom relief (LIMA et al., 2013). The groups create an opportunity for members to share their feelings, as well as adding people who face similar situations. This mutual support between mothers who share the same situation reinforced the bonds of friendship and softened the adaptation of hospital routines (CONTIM; RANUZI, 2017). Therefore, it is clear from the studies of the aforementioned authors and from the excerpts from the focus group of this work, that the interaction with other mothers provided by the occupational therapy groups is an important transformative agent regarding the extravasation and venting of feelings, strengthening them to cope with everyday problems. Concomitantly, the execution of activities directed to the experienced context was also effective in alleviating anxiety. Also, the participation in the group showed a possibility to take care of themselves during the baby's hospitalization in the NICU, since the mothers' priority has been to attend to their child's

needs. According to Corrêa-Cunha et al. (2013), the activities performed in these groups provide opportunities for play and smile, momentarily disconnecting mothers from problems. It also resumes the feeling of being useful as they are learning or making something for their children. Joaquim et al. (2014) also addressed the importance of performing the activity itself, as it subjectively brings the mother and baby closer, creates emotional openness for him and strengthens the bond that may be weakened due to physical distance.

The analysis of the mothers' reports in the focus group and the results obtained by the STAI Inventory (A-state), after performing the activities, corroborated the importance of the role of this intervention in the well-being of these mothers, evidencing an improvement of the feelings experienced by the participants after the activities are performed. Also, mothers expressed satisfaction with the activity performed in the occupational therapy group. The calm state, relaxation, satisfaction and well-being reported by the mothers are in line with the growth of the STAI score after participation in the group and increased, respectively, from (2.53 ± 0.88) to (3,03 ± 0,92), (1,85 ± 0,70) to (2.60 ± 0.98), (2.65 ± 0.92) to (2.93 ± 0.86) and (2.55 ± 0.85) to (2.93 ± 0.83). Decreasing scores for feelings of anxiety, tension, and worry are also consonant with the perceptions of the focus group participants who showed the respective decreases: (2.40 ± 0.93) to (1.98 ± 0.86), (1.93 ± 0.94) to (1.75 ± 1.01) and (2.40 ± 0.93) to (1.98 ± 0.86). Thus, concomitant with the qualitative evaluation of the interview, the results of the scores by variables are a safe indicator to measure the improvement of the anxiety context of these mothers.

One of the limits of this study was that it was performed with mothers of babies over 18 years old, so it is not possible to know the repercussions of the intervention with adolescent mothers. Thus, the results should not be extrapolated to this age group. The fact that 60% of mothers participating in this study are primiparous may reflect the increased level of anxiety. Another aspect refers to studies involving family members of children with neurological disorders associated with prematurity and low weight to investigate the repercussions of this intervention with this group.

5 Conclusion

Although quantitative data showed no significant difference in the total STAI score before and after participation in occupational therapy groups, the occupational therapy group proved to be an important resource to be used in the follow-up of mothers of hospitalized infants at the Neonatal Intensive Care Unit. The occupational therapist develops significant activities, which in this case consisted of making an EVA sign with the baby's name, which acts as an instrument for promoting physical, mental or social well-being. The activity group facilitated the exchange of experiences and the expression of feelings in mothers who experience the situation of having a child hospitalized, allowed a self-care moment and allowed to perform an activity related to their life context.

In this sense, the interaction between mothers provided by occupational therapy groups and the execution of the activity of making an object for the baby, activity directed to the experienced context, contributed to reducing the anxiety felt by mothers during their child's hospitalization in the NICU.

The results of this study indicated the need to deepen the theme of using the occupational therapy group in the follow-up of these mothers, especially regarding its long-term repercussions. Also, the impact of occupational therapy groups on the anxiety levels of primiparous mothers compared to multiparous mothers whose babies are admitted to the Neonatal Intensive Care Unit is another point that can be studied.

References

ALKOZEI, A.; MCMAHON, E.; LAHAV, A. Stress levels and depressive symptoms in NICU mothers in the early postpartum period. *The Journal of Maternal-Fetal & Neonatal Medicine*, London, v. 27, n. 17, p. 1738-1743, 2014.

BALBINO, F. S. et al. Grupo de apoio aos pais como uma experiência transformadora para a família em unidade neonatal. *Escola Anna Nery Revista de Enfermagem*, Rio de Janeiro, v. 19, n. 2, p. 297-302, 2015.

BIAGIO, A. M. B.; NATALÍCIO, L.; SPIELBERGER, C. D. Desenvolvimento da forma experimental em português do Inventário de Ansiedade Traço-Estado (IDATE), de Spielberger. *Arquivos Brasileiros de Psicologia Aplicada*, Rio de Janeiro, v. 29, n. 3, p. 31-44, 1997.

BRASIL. *Informações de Saúde (TABNET), Estatísticas vitais*. Datasus, 2016. Disponível em: <http://datasus.saude.gov.br/>. Acesso em: 10 set. 2016.

BRASIL. *Cadastro nacional de estabelecimentos de saúde*. Datasus, 2017. Disponível em: <http://cnes.datasus.gov.br/pages/estabelecimentos/ficha/hospitalar/3106200026794/>. Acesso em: 12 fev. 2017.

BRAUN, V.; CLARKE, V. Using thematic analysis in psychology. *Qualitative Research in Psychology*, London, v. 3, n. 2, p. 77-101, 2006.

CHERTOK, I. R. A. et al. Review of interventions to reduce stress among mothers of infants in the NICU. *Advances in Neonatal Care*, Philadelphia, v. 14, n. 1, p. 30-37, 2014.

CONTIM, D.; RANUZI, C. Dificuldades vivênciadas por mães de recém-nascidos prematuros durante a permanência prolongada em ambiente hospitalar. *Revista de Enfermagem Atenção Saúde*, Uberaba, v. 6, n. 1, p. 31-38, 2017.

CORREA-CUNHA, E. F. et al. Intervenções com mães de bebês prematuros: um estudo de grupo focais. *Clínica e Cultura*, Sergipe, v. 2, n. 2, p. 80-90, 2013.

DUARTE, E. D. et al. Grupos de apoio às mães de recém-nascidos internados em unidade neonatal. *Revista Rene*, Ceará, v. 14, n. 3, p. 630-638, 2013.

FAVARO, M. S. F.; PERES, R. S.; SANTOS, M. A. Avaliação do impacto da prematuridade na saúde mental de púerperas. *Psico-USF*, Bragança Paulista, v. 17, n. 3, p. 457-465, 2012.

GOLDENBERG, P.; MARSIGLIA, R. M. G.; GOMES, M. H. A. G. *O clássico e o novo tendências, objetos e abordagens em ciências sociais e saúde*. Rio de Janeiro: Editora FIOCRUZ, 2003.

GROSIK, C. et al. Identification of internal and external stressors in parents of newborns in intensive care. *The Permanente Journal*, Portland, v. 17, n. 3, p. 36-41, 2013.

HOSPITAL SOFIA FELDMAN. *Indicadores hospitalares*. Belo Horizonte, 2017. Disponível em: <http://www.sofiafeldman.org.br/indicadores-hospitalares/>. Acesso em: 29 jan. 2017.

JOAQUIM, R. H. V. T.; SILVESTRINI, M. S.; MARINI, B. P. R. Grupo de mães de bebês prematuros hospitalizados: experiência de intervenção de Terapia Ocupacional no contexto hospitalar. *Cadernos de Terapia Ocupacional da UFSCar*, São Carlos, v. 22, n. 1, p. 145-150, 2014.

LIMA, E. M. F. A.; OKUMAB, D. G.; PASTOREC, M. D. Atividade, ação, fazer e ocupação: a discussão dos termos na Terapia Ocupacional. *Cadernos de Terapia Ocupacional da UFSCar*, São Carlos, v. 21, n. 2, p. 243-254, 2013.

MATRICARDI, S. et al. Mothers are not fathers: differences between parents in the reduction of stress levels after a parental intervention in a NICU. *Foundation Acta Pediatrica*, Oslo, v. 102, n. 1, p. 8-14, 2012.

MAXIMINO, V.; LIBERMAN, F. *Grupos e Terapia Ocupacional:* formação, pesquisa e ações. São Paulo: Summus, 2015.

MINAYO, M. C. S. *O desafio do conhecimento:* pesquisa qualitativa em saúde. São Paulo: Hucitec, 2013.

MINAYO, M. C. S.; SANCHES, O. Quantitativo-qualitativo: oposição ou complementariedade? *Cadernos de Saúde Pública*, Rio de Janeiro, v. 9, n. 3, p. 237-262, 1993.

MOURADIAN, L. E.; DEGRACE, B. W.; THOMPSON, D. M. Art- based occupation group reduces parent anxiety in the NICU: amixed-methods study. *The American Journal of Occupational Therapy*, Rockville, v. 67, n. 6, p. 692-700, 2013.

RIBEIRO, C. V. et al. Siginificados da prematuridade para mães de bebês internados em unidade de terapia intensiva neonatal. *Revista de Enfermagem da UFPE on-line*, Recife, v. 8, n. 1, p. 3106-3111, 2014.

SAMRA, H. A. et al. Effect of skin-to-skin holding on stress in mothers of late-preterm infants a randomized controlled trial. *Advances in Neonatal*, Philadelphia, v. 15, n. 5, p. 354-364, 2015.

SANTOS, G. E. O. *Cálculo amostral*: calculadora on-line. 2017. Disponível em: <http://www.calculoamostral.vai.la>. Acesso em: 10 maio 2017.

SEHNEM, G. D. et al. Utilização do grupo focal como técnica de coleta de dados em pesquisas: relato de experiência. *Ciência, Cuidado e Saúde*, Maringá, v. 14, n. 2, p. 1194-1200, 2015.

SILVA, R. M. M. et al. Vivências de famílias de neonatos prematuros hospitalizados em unidade de terapia intensiva neonatal: revisão integrativa. *Revista de Enfermagem do Centro Oeste Mineiro*, Divinópolis, v. 6, n. 2, p. 2258-2270, 2016.

SMITH, V. C. et al. Coping with the neonatal intensive care unit experience parent's strategies and views of staff support. *The Journal of Perinatal & Neonatal Nursing*, United States, v. 26, n. 4, p. 343-352, 2012.

TURNER, M. et al. The assessment of parental stress and support in the neonatal intensive care unit using the Parent Sress Scale-Neonatal Intensive Care Unit. *Women and Birth*: Journal of the Australian College of Midwives, Amsterdam, v. 28, n. 3, p. 252-258, 2015.

ULLRICH, D. R. et al. Reflexões teóricas sobre confiabilidade e validade em pesquisas qualitativas: em direção à reflexividade analítica. *Revista de Administração da PUCRS*, Porto Alegre, v. 23, n. 1, p. 19-30, 2012.

VERONEZ, M. et al. Vivência de mães de bebês prematuros do nascimento a alta: notas de diário de campo. *Revista Gaúcha de Enfermagem*, Porto Alegre, v. 38, n. 2, p. 1-8, 2017.

WORLD HEALT ORGANIZATION. *National, regional and worldwide estimates of preterm birth*. Geneva: WHO, 2015. Disponível em: <http://www.who.int/mediacentre/factsheets/fs363/en/>. Acesso em: 10 set. 2016.

Author's Contributions

All authors contributed equally to the design of the article and approved the final version.