

# Scholar Journal of Applied Sciences and Research

## Perception of Mothers on Breastfeeding, Kangaroo Method and Pre-Term Baby Development

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### Abstract

**Objectives:** To demonstrate maternal perception during the hospitalization period on breastfeeding, the kangaroo method and the development of the baby.

**Methods:** This was a cross-sectional study in which the target population was the mothers who were with their infants in the Intensive Care Unit (NICU) and the Kangaroo Nursing, at the Dona Iris Hospital and Maternity, in the city of Goiânia, using socioeconomic questionnaires and on maternal perception.

**Results:** Predominant female infants, with gestational age between 33-36 weeks, mean weight of 1747.4g. The mean maternal age was 27.72 years of age and they planned the pregnancy. According to the mothers, staying together with the mother is more important for the baby, indicating that skin-to-skin contact is the main advantage. Most were breastfeeding their baby and rated their milk production as good. And yet the age to pick up toys alone is on average 5.54 months.

**Discussion:** Studies have shown that feeling of competence comes from the participation of the kangaroo mother in the care of the baby, while mothers of the traditional method demand greater dependence and confidence in the technological equipment involved in the treatment of prematurity.

**Conclusion:** Most mothers understand the importance of breastfeeding, the kangaroo method, and the development of their babies, and are aware of the real need for preterm infants.

**Keywords:** Kangaroo-Mother care method, Breast feeding, Child development, Infant premature.

### Introduction

The kangaroo method is performed in three stages, the first and second occurring in the hospital environment and the third in the home. The first stage occurs inside the Intensive Care Unit (ICU) performing the contact of the parents with the baby and leading to the positioning of the kangaroo. The second stage occurs in the Kangaroo Unit where the mother actively participates in the care of her child under the supervision of the health team. The third occurs after early hospital discharge where the baby should remain in the kangaroo position most

### Article Information

**Article Type:** Research

**Article Number:** SJASR111

**Received Date:** 04 May, 2018

**Accepted Date:** 08 May, 2018

**Published Date:** 16 May, 2018

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**Citation:** Amaral WN, Ramos BA, Evangelista PG, Saidah TK, Saidah MK, Formiga CKMR (2018) Perception of Mothers on Breastfeeding, Kangaroo Method and Pre-Term Baby Development. Sch J Appl Sci Res. Vol: 1, Issu: 2 (07-12).

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of the day [1].

The kangaroo position is associated with the promotion of breastfeeding, contributing to the increase of the breastfeeding period and the volume of milk production. In addition, there is evidence that this position improves the bond between mother and child, promotes parental involvement by stimulating performance, promotes improved thermal regulation, physiological stability, and stimulates neurobehavioral development, resulting in benefits for sleep and pain relief for the premature newborn [2-4].

A premature birth generates many feelings for parents, such as fear and insecurity, because this event will occur at a time of greater development for both them and the newborn, which grows not only in the womb but also in the imaginary of the couple awaiting you [5]. The connection between mother and child is mainly achieved by the beginning of skin-to-skin contact, starting after birth, providing the elimination of possible pains of premature birth, returning to a state of maternal equilibrium [3,6].

Maternal emotions and perceptions about the kangaroo method are related to the feelings generated at the birth of a premature child, the mother's inability to perform her social roles, the need to stay in the hospital environment, bonding, increased confidence in care with their infants and the influence of interactions with the multidisciplinary team [7]. In this context, the study aimed to demonstrate the maternal perception during the hospitalization period on breastfeeding, the kangaroo method and the development of the baby.

## Materials and Methods

This is a cross-sectional study that observed the mothers' perception regarding breastfeeding, the kangaroo method and the development of their premature and low weight baby. This research was approved by the Research Ethics Committee of the Federal University of Goiás in February 2017. The target population was the mothers who were with their babies hospitalized in the Intensive Care Unit (NICU) and Kangaroo Nursing, Hospital and Maternity Dona Iris, located in the city of Goiânia, Goiás.

The mother were personally invited by the researcher to participate in the study and after the acceptance was given the Free and Informed Consent Form and a copy with all the steps related to the evaluation. Mothers of infants who were small for gestational age (<2,500 g) or very low (<1.5 g), preterm (<37 weeks gestational age), were considered as inclusion criteria, a both sexes, who did not present chromosomal abnormalities, congenital defects or congenital infections, in the case of double or triple gestation was considered the first twin in the sample.

An analysis of medical records was carried out, investigating maternal data to complete the anamnesis script, such as history antecedent to gestation, use of medications, maternal diseases, complications during pregnancy, examinations, type of delivery. Right after two socioeconomic questionnaires, one that evaluated

schooling, marital status, family income and other items and the second was the Economic Classification Criteria of the Brazilian Association of Research Companies, which update the criteria of socioeconomic classification with the dynamics of the Brazilian economy, which had important variations in income levels and household ownership in recent years. Finally, a questionnaire about the mothers' perception regarding breastfeeding, kangaroo method and development of their babies was applied.

For the data analysis the statistical program SPSS version 23.0 was used, evaluating mean, median, standard deviation, maximum and minimum values.

## Results

The populations of this study were the mothers who were with their babies hospitalized in the Intensive Care Unit, and the data are presented in the following tables. The table 1 shows the characteristics of the babies and the mothers (n = 85). Table 2 shows data on maternal perception about breastfeeding. Table 3 shows the maternal perception about the kangaroo method. Table 4 presents data on maternal perception of infant development.

## Discussion

This study showed predominance of female babies (50.6%), with gestational age between 33-36 weeks (54.1%) and mean weight of 1747.4g. The neonatal medical index (60%) was classified as high risk, usually hospitalized in the NICU (67.1%), with a mean hospitalization of 27.67 days, this data resembles with a study by Filho et al. which found in its sample female dominance, with a mean weight of 1,300 g, and gestational age between 31-33 weeks [8].

Regarding the maternal characteristics, the mean age was 27.72 years, declared single marital status (52.9%), and of this sample (50.6%) planned pregnancy, with cesarean delivery (61.2%). In addition, the average schooling (69.4%), the socioeconomic profile of group I (A, B1, B2) (51.8%), residing in the capital city (61.2%) predominated, and did not work outside the According to Arivabene and Tyrrell (2010), the age group among the mothers was 33, married, of the household, mostly with basic educational [9].

Regarding the perception about breastfeeding (68.2%) of the mothers were breastfeeding their children, (87.1%) reported not presenting difficulty in breastfeeding and classified their milk production as good (37.6%). The mothers intended to breastfeed on average 19.94 months and imagine that the recommended breastfeeding time is 14.99 months, most understand the meaning of colostrum (89.4%) and know about the importance of breastfeeding (95, 3%), for both mother and baby (88.2%), and consider health as the main advantage of breastfeeding for the baby (74.1%) and for the mother (32,9%).

When investigating 488 preterm infants, it was observed that the mothers participating in the kangaroo method felt greater capacity and perception about their babies [10]. And despite the extended stay they showed less stress. Authors point out that health services that practice the

**Table 1:** Sample characterization.

Study	Values			
	f (%)	Average ± DP	Minimum	Maximum
<b>Gender</b>	-	-	-	-
Female	43 (50.6)	-	-	-
Male	42 (49.4)	-	-	-
<b>Gestational Age (GI) weeks</b>	-	32.81 ± 2.50	24.85	36.85
24-32 weeks	39 (45.9)	-	-	-
33-36 weeks	46 (54.1)	-	-	-
<b>Weight</b>	-	1747.4 ± 427.3	825	2500
< 1.500g	27 (31.8)	-	-	-
1.501g - 2.500g	58 (68.2)	-	-	-
<b>Neonatal Medical Index (NMI)</b>	-	2.69 ± 0.83	1	5
Low risk (NMI I e II)	34 (40)	-	-	-
High risk (NMI III a V)	51 (60)	-	-	-
<b>Internment Unit</b>	-	-	-	-
Kangaroo ward	28 (32.9)	-	-	-
NICU	57 (67.1)	-	-	-
<b>Length of stay</b>	-	27.67± 21	6	127
Up to 20 days	43 (50.6)	-	-	-
> 21 days	42 (49.4)	-	-	-
<b>Values</b>				
<b>Age (years) - Avg (Min-Max)</b>	-	25.72 (15-44)	-	-
15-25 yeas f (%)	-	43 (50.6)	-	-
26-44 years f (%)	-	42 (49.4)	-	-
<b>Marital status - f (%)</b>	-	-	-	-
Single	-	45 (52.9)	-	-
Married	-	40 (47.1)	-	-
<b>Pregnancy Planning - f (%)</b>	-	-	-	-
Yes	-	43 (50.6)	-	-
No	-	42 (49.4)	-	-
<b>Childbirth - f (%)</b>	-	-	-	-
Normal	-	33 (38.8)	-	-
Cesarean	-	52 (61.2)	-	-
<b>Education - f (%)</b>	-	-	-	-
Elementary school	-	14 (16.5)	-	-
High school	-	59 (69.4)	-	-
Higher education	-	12 (14.1)	-	-
<b>Socioeconomic Profile - f (%)</b>	-	-	-	-
Group I (A, B1, B2)	-	44 (51.8)	-	-
Group II (C1, C2, D-E)	-	41 (48.2)	-	-
<b>Location f (%)</b>	-	-	-	-
Goiânia	-	52 (61.2)	-	-
Country town	-	33 (38.8)	-	-
<b>Maternal work outside the home - f (%)</b>	-	-	-	-
Yes	-	26 (30.6)	-	-
No	-	59 (69.4)	-	-

Avg= average; Min= minimum value; Max= maximum value; f = frequency; % = percentage.

**Table 2:** Maternal breastfeeding perception.

Study	Values
<b>Mother Breastfeeding - f (%)</b>	
Yes	58 (68.2)
No	27 (31.8)
<b>Difficulty in Breastfeeding- f (%)</b>	
Yes	11 (12.9)
No	74 (87.1)
<b>Classification of Milk Production - f (%)</b>	
Low	28 (32.9)
Good	32 (37.6)
High	25 (29.4)
<b>Time intended to breastfeed (Months) - Avg (Min-Max)</b>	13.94 (4-36)
<b>Recommended time to breastfeed (Months) - Avg (Min-Max)</b>	14.99 (6-36)
<b>Know the meaning of colostrum - f (%)</b>	
Yes	76 (89.4)
No	9 (10.6)
<b>Know the Importance of Breastfeeding - f (%)</b>	
Yes	81 (95.3)
No	4 (4.7)
<b>Breastfeeding is good - f (%)</b>	
For baby	6 (7.1)
For mother	4 (4.7)
For both	75 (88.2)
<b>Advantage of Breastfeeding for the baby - f (%)</b>	
Healthy	63 (74.1)
Contact Skin-to-Skin	6 (7.1)
Growth	10 (11.8)
Immunity	6 (7.1)
<b>Advantage of Breastfeeding for the Mother- f (%)</b>	
None	6 (7.1)
Healthy	28 (32.9)
Contact Skin-to-Skin	19 (22.4)
Weight Loss	14 (16.5)
Bond with baby	17 (20)
Economy	1 (1.2)
Avg = average; Min= minimum value; Max= maximum value; f = frequency; % = percentage.	

**Table 3:** Maternal perception on the kangaroo method.

Study	Values
<b>Best for Baby - f (%)</b>	
Staying at the Incubator	1 (1.2)
Staying with Mom	84 (98.8)
<b>Has Safety in Taking the Baby Home - f (%)</b>	
Yes	57 (67.1)
No	28 (32.9)
<b>Has Doubts in Handling the Baby- f (%)</b>	
Yes	15 (17.6)
No	70 (82.4)
<b>Received Guidelines on the Purpose of the Kangaroo Method - f (%)</b>	
Yes	69 (81.2)
No	16 (18.8)
<b>Benefits of the Kangaroo Method for Baby - f (%)</b>	
None	6 (7.1)
Contact Skin-to-Skin	43 (50.6)
Breath	9 (10.6)
Recovery	2 (2.4)
Safety	13 (15.3)
Weight gain	12 (14.1)
<b>Kangaroo Method Note on Maternity - Avg (Min-Max)</b>	8.82 (0-10)
<b>Recommended Method for Other Mothers - f (%)</b>	
Yes	81 (95.3)
No	4 (4.7)
Avg= average; Min= minimum value; Max= maximum value; f = frequency; % = percentage.	

**Table 4:** Maternal perception on the development of baby.

Study	Values
<b>Vision Developed at Birth - f (%)</b>	
Yes	19 (22.4)
No	66 (77.6)
<b>Hearing Developed at Birth - f (%)</b>	
Yes	59 (69.4)
No	26 (30.6)
<b>Beginning of Touch Sensitivity - f (%)</b>	
In Pregnancy	67 (78.8)
When to be born	9 (10.6)
After Birth	9 (10.6)
<b>Age to Pick up Toys (Months) - Avg (Min-Max)</b>	5.54 (2-24)
<b>Age to Sit Alone (Months) - Avg (Min-Max)</b>	7.39 (4-18)
<b>Age to Crawl (Months) - Avg (Min-Max)</b>	8.95 (4-36)
<b>Age to Walk (Months) - Avg (Min-Max)</b>	12.95 (8-48)
Avg= average; Min= minimum value; Max= maximum value; f= frequency; % = percentage.	

kangaroo method, mothers in skin-to-skin contact with their premature baby present higher milk yield when compared to a control group. In addition, they observed that abandonment of lactation was more frequent among mothers who did not use the method [11].

Regarding the kangaroo method, the mothers reported that it is more important for the baby to stay with the mother than the incubator (98.8%), feel safe to take the baby home (67.1%), have no doubts about how to handle babies (82.4%), received maternity guidelines on the kangaroo method (81.2%), believe that the greatest advantage of the method is skin-to-skin contact (50.6%), still evaluated the caguru method of maternity with note 8,82, and would recommend it to other mothers (95.3%). A study revealed that participating in the kangaroo method gave mothers the knowledge about the premature child as well as active participation as a caregiver [12]. Data that complement the study by Martins and Santos (2008), demonstrated that feelings of competence comes from the participation of the kangaroo mother in the care of the baby, while mothers of the traditional method demand greater dependence and confidence in the technological equipment involved in the treatment of the premature [13].

Regarding the development of the baby, the mothers understand that the baby does not present the vision developed at birth (77.6%), but has developed hearing at birth (69.4%), and that touch sensitivity is initiated in gestation (78.8%). On the motor development milestones, they believe that the baby starts picking toys alone at 5.52 months, sit alone at 7.39 months, crawl at 8.95 months and start walking at 12.95 months.

In the context of the motor development of the babies, the maternal perception about the evolution of the child is essential, since there is a difference between the motor development of the premature children in relation to

the term children, being of fundamental importance an evaluation of the motor function for the better understanding and early intervention [14]. At four months a baby holds objects, supports the head, beginning the process of rolling. By the fifth month she can roll though that she cannot keep her balance when sitting. Between 07 and 08 months the developments of the locomotors and neurological system already allow the child to sit without support. From 9 to 11 months, the child is expected to be able to crawl alone and to walk with the help of an adult. At the end of the first year of life, between 11 and 14 months, most children can walk without the help of another person. Initially, it was with support and assistance from third parties and subsequently independent [15].

For babies who do not show motor development at the right time, sensory stimulation is performed by the physiotherapist. And even with all the difficulties evidenced by the mothers about the development of the premature baby in the home and their insecurity with this kind of care, it is perceived that they have the sensitivity to understand their child and observe what it needs [16].

The maternal experience with the daily care of the babies promoted the construction of a love relationship. In their statements, the mothers affirmed that the pleasure of knowing that when breastfeeding the child contributed to its growth and development was undeniable [17]. The preparation of the parents / family of preterm infants to perform care has a fundamental importance in the development of the child, by giving them more confidence [18].

From the mothers' point of view, it was noted that despite a situation different from the one planned by them, most understand about the importance of breastfeeding, the kangaroo method and the development of their babies and are aware of the real need of preterm infants. In this way it is essential that the multidisciplinary team identifies the family as a system for a care planning that includes the feelings expressed by the mother and her appreciation. It is essential to incorporate the integrality of humanized care into the health services, in order to implement the actions and pillars of the kangaroo method with the mother / baby binomial.

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