

Maternal perceptions on the use of baby carriers in healthy full-term infants in maternity hospitals and at home: an appreciative inquiry*

Percepções maternas sobre o uso da bolsa canguru em bebês a termo saudáveis em maternidade e domicílio: uma investigação apreciativa

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ABSTRACT

Objective: to learn the perceptions of mothers on the experience of using baby carriers in healthy full-term babies, from birth to the fifth month of life. **Methods:** qualitative study, based on the methodological framework of Appreciative Inquiry, carried out with 23 mothers of full-term, healthy babies who used baby carriers in the maternity hospital and at home, in Goiânia, Goiás, Brazil. Interviews were carried out at the homes of the post-partum women. Thematic content analysis was used to analyze the data. **Results:** the mothers highlighted that using the kangaroo bag favors breastfeeding, improves the mothers' autonomy, the babies' comfort and sleep pattern, and strengthens family bonds. They also stated that it is necessary to disseminate knowledge and improve the ability to use the kangaroo bag. **Conclusion:** the use of the kangaroo bag was perceived as advantageous by mothers who made more frequent use of the strategy, but there are challenges to its adoption, including fear of accidents and perception of warmth or discomfort by mothers, which discourage its use.

Descriptors: Kangaroo-Mother Care Method; Breast Feeding; Infant, Newborn; Rooming-in Care.

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RESUMO

Objetivo: conhecer as percepções maternas sobre a experiência do uso da bolsa canguru em bebês a termo saudáveis, desde o nascimento até o quinto mês de vida. **Métodos:** estudo qualitativo, baseado no referencial metodológico da Investigação Apreciativa, realizado com 23 mães de bebês a termo, saudáveis e que utilizaram a bolsa canguru na maternidade e no domicílio, em Goiânia, Goiás, Brasil. Foram realizadas entrevistas no domicílio das puérperas. Para análise utilizou-se a Análise de Conteúdo, modalidade temática. **Resultados:** as mães destacaram que usar a bolsa canguru favorece a amamentação, melhora autonomia da mãe, o conforto e padrão de sono do bebê, e fortalece vínculos familiares. Afirmaram ainda, ser necessário difusão de conhecimento e aprimoramento na habilidade do uso da bolsa canguru. **Conclusão:** o uso da bolsa canguru foi percebido como vantajoso pelas mães que fizeram uso mais frequente da estratégia, mas enfrenta desafios para sua adoção, incluindo o medo de acidentes e percepção de calor ou desconforto pelas mães, que desencorajam seu uso.

Descritores: Método Canguru; Aleitamento Materno; Recém-Nascido; Alojamento Conjunto.

INTRODUCTION

Every human baby is born immature, with immaturity of several organs, regardless of the gestational age at birth, and is completely dependent on another person for survival soon after birth, unlike other mammals⁽¹⁾.

However, even if born in this condition, babies, like all other mammals, are born with instinctive skills, such as the ability to seek the mother's breast alone to initiate breastfeeding. This behavior, in general terms, consists in crawling on the mother's abdomen, finding the mother's breast and starting to suck⁽²⁾, which, of course, depends on being close to the mother.

Separation between mother and baby interrupts this behavior, disrupts development⁽³⁾, results in a stress response of despair, and if sustained over the long term, negatively impacts the baby's mental and physical health⁽⁴⁾. An effective and well-known intervention to reduce the separation between mother and baby and promote proper neurodevelopment of the baby is the kangaroo-mother care method.

This method, initially created to reduce overcrowding in neonatal units in Bogotá, Colombia⁽⁵⁾, spread throughout the world and was implemented in Brazil in the early 1990s⁽⁶⁾. Currently, it is considered an intervention to help achieve the third Sustainable Development Goal in the reduction of neonatal mortality and, in Brazil, it is part of a public health policy with the aim to humanize the care of preterm and low birth weight babies, in addition to reducing neonatal morbidity and mortality⁽⁶⁾.

One of the components of kangaroo-mother care method is the kangaroo position, which consists of placing the baby close to the mother, father or other family member, in skin-to-skin contact, in an upright prone position, in an early, continuous and prolonged manner, for as long as it is pleasurable for both⁽⁵⁻⁶⁾. This position can be performed with the aid of baby carriers (such as slings, wrap-slings, among others), an apron, or clothing⁽⁶⁾.

Kangaroo-mother care method has relevance in neonatal care and its several benefits are consolidated in the literature, especially for preterm and/or low birth weight newborns, in which we highlight the reduction of morbidity and mortality, better thermoregulation, weight gain, reduction of infection rates, early initiation of breastfeeding and strengthening of the mother-baby bond⁽⁷⁻⁸⁾.

Skin-to-skin contact after birth for every newborn also promotes regulation of heart rate and breathing, helping them to better adapt to life outside the womb. It also stimulates the release of hormones to support breastfeeding and motherhood, stimulates digestion, interest in food, and promotes beneficial colonization of the baby's microbiota⁽⁸⁾.

The kangaroo position, with the use of the bag for full-term healthy babies, is not a widespread practice in Western countries, such as Brazil. Mother-baby separation is common in the West and can influence baby care, promoting distancing and suffering since birth⁽⁴⁾.

Experts in the field of the kangaroo-mother care method have recently published important recommendations for the expansion, integration, and improvement of the method's approach. Among the strategies, the practice of prolonged kangaroo care with healthy full-term infants stands out. Given the physiological, emotional, and neurological immaturity of full-term infants, and the developmental benefits of a secure, strong bonding relationship with the mother, experts recommend that the kangaroo position be practiced soon after birth for at least one hour or until the first breastfeeding is established, and continued on a frequent and prolonged basis during the postpartum period thereafter, as long as it is pleasurable for both⁽⁹⁾.

Considering the context of public policies for humanization and the various benefits and challenges related to the Kangaroo-Mother Care Method, and the absence of research conducted in Brazil on the use of kangaroo bag in full-term babies, in the hospital period and extended to home, the authors ask: What are the benefits of the use of

the kangaroo bag in a prolonged way, during hospitalization in rooming-in care and at home, for healthy full-term babies, according to the appreciation of mothers who make use of this strategy?

Thus, this study aimed to understand the perceptions of mothers about the experience of using the kangaroo bag in healthy full-term babies, from birth to the fifth month of postnatal life.

The results of this study may expand the knowledge about the use of the kangaroo position for healthy full-term infants, according to the narratives of mothers who used the kangaroo bag. The added knowledge can strengthen national and international public policies and improve the quality of care provided to the full-term babies and their families, both in rooming-in care and at home.

METHODS

This descriptive study, with a qualitative approach, used the Appreciative Inquiry as a methodological reference⁽¹⁰⁾, which proposes the exploration and discovery of something through the recognition of the best in people and things around them. The method aims to evaluate the studied object through appreciation, focusing primarily on appreciative linguistic descriptions⁽¹⁰⁾.

Appreciative Inquiry is theoretically grounded on social constructionism, which states that reality cannot be reproduced, but rather constructed. Thus, it is believed that through positive success stories, one can build successful realities⁽¹¹⁾.

To put this method into practice, a cycle of four phases is carried out, known as the 4D Cycle. The first phase is Discovery (appreciate and value what is best, time for evaluation); the second is Dream (What could be? Time to visualize results, “think big”); the third is Design (What should be? Building together) and the fourth is Destiny (sustaining what will be, the imagined future, learning and adjusting; requires the creation of an action plan)⁽¹¹⁾.

In this study we explore the first phase of the 4D Cycle, which focuses on exploring and investigating facts through affirmative stories and appreciative discourse. In this phase, discussions are held about the chosen topic, which can be conducted through interviews, storytelling, or focus groups⁽¹¹⁾. We chose to conduct individual interviews.

The guiding questions were developed based on the assumptions that underpin the Appreciative Inquiry. Then, they were discussed with researchers who had experience in qualitative research, including those based on Appreciative Inquiry, in order to improve the questions and favor the interviews in depth and quality. Thus, the following questions were asked: Tell us a little about how the experience of using the kangaroo bag with your baby has been; What has

improved in the relationship or care of the baby based on this experience? And with the family?; and, What could have been done to improve this experience?

This study is part of a larger matrix study in which 109 mothers were initially selected in a rooming-in care unit. All participating mothers had vaginal deliveries between January and March 2016, in a public maternity hospital in the municipality of Goiânia, state of Goiás, and were hospitalized with the baby in a rooming-in care unit for at least 48 hours after delivery. The babies were born at term (≥ 37 weeks gestation), healthy, and had skin-to-skin contact with their mother within the first hour of life. All babies received kangaroo bags for free, which was similar to a sling, made of three strips of cold mesh, donated by the nongovernmental organization *Bebê Canguru* (bebecanguru.com). As soon as they received the kangaroo bag, they were instructed as to the proper way to use it, through monitoring the first time of use and the provision of an informative brochure.

Between April and May, the 109 mothers were contacted by telephone to assess the frequency of use of the kangaroo bag and between the months of June and July 2016, when the babies were between the 4th and 5th month of postnatal life, they were interviewed during home visits. Those who used the kangaroo bag more and less frequently (respectively: three to four times a week and up to a maximum of six times since delivery) were included in this research.

Twelve mothers who did not answer the phone to schedule a visit after three consecutive attempts, on different days and shifts, one mother who moved to another State, and another who refused to receive a home visit were excluded.

Considering that babies have a greater need for the use of the kangaroo bag in the first three months of life, due to their extero-gestation⁽¹²⁾ and that, in case of a maternity leave, the period of greater possibility for the mother to stay full time with the child is approximately four months, we defined the data collection period with the mothers between the 4th and 5th month of the baby's postnatal life.

From the theoretical saturation of the data collected in the interviews, held in the respective homes of the postpartum women, 23 participants were included. Saturation was verified from the convergence of the meanings expressed by mothers about the use of the kangaroo bag and the recurrence of the meanings contained in the interviews. The interviews were recorded in two digital audio devices, after the mothers' consent, and were later transcribed by the same researcher.

Appreciative Inquiry “does not privilege any particular analytical approach”⁽¹⁰⁾, thus, we anchored the entire data analysis process in its assumptions and opted for Bardin's thematic content analysis technique⁽¹³⁾ runs through the phases of pre-analysis, exploration of the material, and treatment of the results obtained, including interpretation.

First, we proceeded to the recognition of the data through a floating reading of all interviews, and then to the identification and organization of similar excerpts and of an appreciative nature of the mothers' speeches in units of meaning consistent with the objective of the study. As no previous categories of analysis were established, from the grouping of the units by convergence of themes, we arrived at subcategories called secondary axes, which were regrouped and originated three central axes that represent the structure of the phenomenon studied.

During data analysis, we tried to come closer to the theoretical assumptions of Appreciative Inquiry, creating dialogs between the data from the descriptions of the participating mothers and constructs that guide this framework. To preserve the identity of the participants, we used the designation M as for mothers, and numbers for each one of them, thus indicating M1, M2, and so on, as the sources of the speeches.

This study was approved by the Research Ethics Committee of Hospital das Clínicas, at Universidade Federal de Goiás, as per CAAE: 49230615.0.0000.5078 and opinion number: 1.314.944. After agreeing to participate in the research, all mothers signed an informed consent form and received a copy of the term. Minors signed the informed consent form, and had their legal guardians sign a guardian's informed consent form, thus meeting the standards of Resolution No. 466/2012 of the National Health Council.

RESULTS

Of the 23 mothers interviewed, 16 lived with the father of the baby and, of these, 10 were in a consensual union. Most were primiparous, had a mean age of 24.7 years, had studied up to high school, were employed, and reported a monthly family income of one to two minimum wages.

All had vaginal deliveries and received prenatal care, and 19 had had more than six consultations. The babies were mostly male (12), with a mean birth weight of 3,260g, gestational age of 38 weeks and two days, and APGAR index equal to eight in the first minute and nine in the fifth minute.

On the day of the home visit (between four and five months of the baby's life), only six babies were on exclusive breastfeeding, and the average duration in the group was three months of exclusive breastfeeding.

Of the 23 mothers interviewed, 12 used the kangaroo bag frequently (three to four times a week), mainly during the first three months of the baby's life, and 11 used it less frequently; with few attempts to use it; and up to a maximum of six times since leaving the maternity hospital.

At the time of the meeting between the researcher and the mothers/other family members present at home, we sought to value the maternal experience with the use of the kangaroo bag, according to the principles of the Appreciative Inquiry. Figure 1 shows the three central axes and secondary axes that emerged from the interviews.

Chart 1 presents the central axes, the aspects of the analysis, and the representative speeches of the mothers.

Figure 1. Central axes and their respective secondary axes, which made up the data analysis

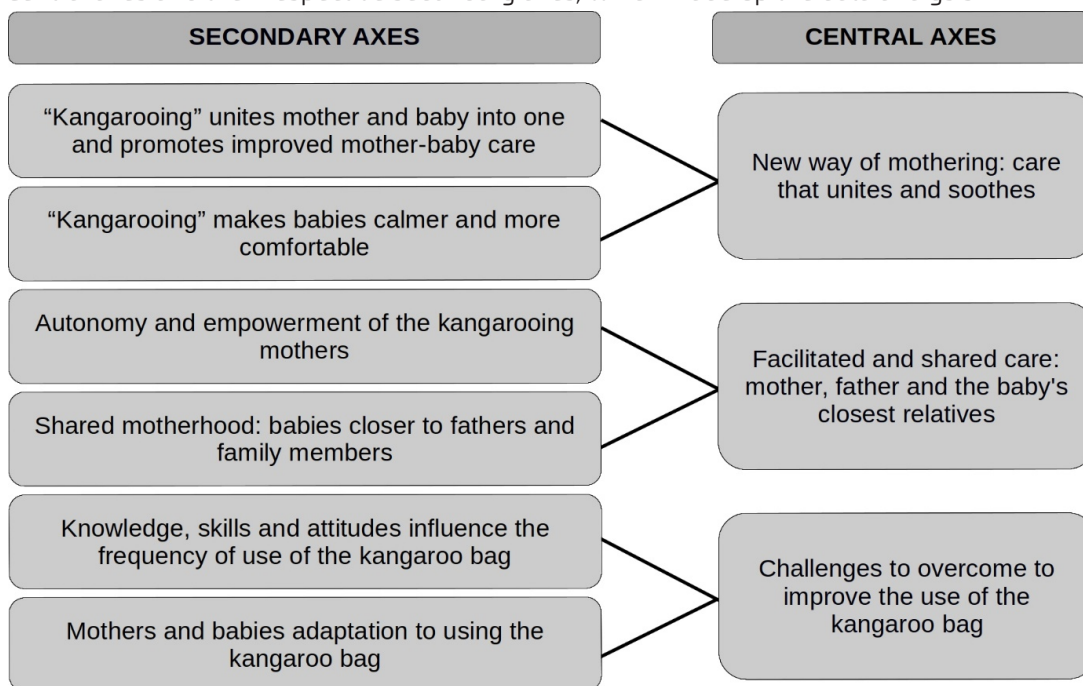


Chart 1. Central axes, aspects of analysis and representative statements that emerged from the interviews with the mothers about the use of the kangaroo bag, Goiânia-GO, 2016

(continue)

Central axes	Aspects of the analysis	Representative speeches
New way of mothering: care that unites and soothes	The strengthening of contact and bonding; greater knowledge of the baby and breastfeeding	<p><i>There is greater attention, maternity is cozier (...) the great advantage of this [use of the kangaroo bag] was the contact, the closeness, the affection, the intimate contact (M3)</i></p> <p><i>(...) it seems that the child is closer to us, right? As if it were inside our belly again (M23)</i></p> <p><i>So, because when I put the kangaroo, he already knew exactly the way he was going to stay. He was already towards this breast here (...) because he already took the breast and was already sucking, you know? (M9)</i></p>
	The babies were calmer, cried less, and slept better	<p><i>He cried for an hour straight without stopping. Then I put the kangaroo on the third day, in 5 minutes, 7 minutes he stopped crying (M2)</i></p> <p><i>Besides everything I think she is a child who is very calm, very quiet, without any agitation (M3)</i></p> <p><i>At night she slept much better when I used [the kangaroo] during the day (...) if I slept with her in the kangaroo, then she slept a lot, then she spent the whole night sleeping and only woke up to breastfeed (M7)</i></p>
	Relieves colic, provides comfort and safety for both	<p><i>It relieved her colic when I put the kangaroo on. I think it must be warm, her little belly on mine... (M7)</i></p> <p><i>He is calmer, it gives him a sense of security, for me too (...) when I go out, I go out with him, I go for a walk with him on the street, if I put him in the kangaroo, I see that he is safer, he is more comfortable (M5)</i></p>
Facilitated and shared care: mother, father and the baby's closest relatives	More convenience at home and when leaving home, resulting in more autonomy and independence for mothers	<p><i>Cleaning the house, washing the dishes, I used it a lot inside the house (M8)</i></p> <p><i>I bathed quietly, did my things quietly, while the baby was in the kangaroo with his father (M2)</i></p> <p><i>It makes it easier for you too, because the baby is here, and you have your hands free to do anything (M17)</i></p> <p><i>So now I took him to go to the supermarket, I took him to the clinic... to bring him here to the clinic, to go to the bakery, to go out early in the morning, you know? The kangaroo mommy with the baby kangaroo inside (M17)</i></p> <p><i>The times I took a bus I put him in the kangaroo, it is even easier for us to get in (...) I had a free hand. I didn't even need the others to give me a seat to sit on, I just held it (M1)</i></p>
	Improved baby-family contact, reinforcing the bond	<p><i>My husband came home from work, I put the kangaroo on him. He (the father) liked it so much that he didn't want to take it off (...) (M2)</i></p> <p><i>But, with her other aunt that already uses it (the kangaroo bag), so I think it helped, right? She likes her aunt more. She knows her, I think, she recognizes her smell. So, I think it helped to bring her closer to her aunt (M7)</i></p> <p><i>Yes, she [the grandmother] loved it. Sometimes she even did that, the nights he slept little, then in the morning she would go out with him with the sling, and I would stay home sleeping (M12)</i></p>

Chart 1. Central axes, aspects of analysis and representative statements that emerged from the interviews with the mothers about the use of the kangaroo bag, Goiânia-GO, 2016

(conclusion)

Central axes	Aspects of the analysis	Representative speeches
Challenges to overcome to improve the use of the kangaroo bag	Need to improve skills and knowledge in handling the kangaroo bag	<i>I tried everything, but I couldn't (...) I asked (help) from my mother and my aunt. Then they couldn't put it on (...) we brought the whole family to help me use it, but we couldn't (M11)</i> <i>Training, right? Train people to tie the sling, that would be good (...) for example, in the course given in the maternity hospital (in the prenatal care), inside the course, sling tying classes, these things, it would be good, to know in general about the sling and its use (M12)</i> <i>(...) because she was smaller, soft, I was afraid of hurting her leg, of hurting her neck (M14)</i>
	Relationship between climate and kangaroo bag use	<i>Because the only problem is that he was born at a very hot time, it was very hot here. Now it's not, now you can use it at home because the weather is a little cooler, but here the good thing is to choose a cool sling (M12)</i> <i>Ah, I'm very hot and since it is tied here, and tied here, but I liked it, the baby feels very comfortable (M17)</i>
	Fussy or nervous babies and mothers use the kangaroo bag less frequently	<i>After we came home, she did not stay much... I do not stay very quiet, right? I keep moving, cleaning the house, doing the laundry, taking care of her (M14)</i> <i>She was always nervous (...) every time I, the times, the few times I put it on, she was kind of moving, she didn't want to stay in that position, so that's why I stopped using it (M18)</i>

DISCUSSION

The mothers who used the kangaroo bag most often reported that this experience provided a change in their lives, revealing a new vision of caring, a new form of “mothering”, with benefits for the baby, mother and family.

This new way of “mothering” is in line with the theory of exterogestation, initiated by Ashley Montagu, which reiterates the immature birth of any baby, regardless of their gestational age, due to the immaturity of some organs (such as the brain) and their development⁽¹²⁾. This theory demonstrates the importance of having someone close to the baby for life maintenance and for their development.

Since the human being is born immature, there is a need for “a gestation outside the womb”, such as a fourth trimester of gestation. Hence, the kangaroo bag can help in the process of adaptation to extra-uterine life, as it happens with marsupials, such as kangaroos⁽¹²⁾.

Babies have a specific calming response when carried by their mothers, with a rapid decrease in heart rate, reduced movement, and reduced crying. This is because the parasympathetic nervous system relaxes the baby's body, reducing their heart rate, calming them, and causing them to stop crying; and the cerebellum, which controls movement,

causes babies to adjust physically, for example by bending their legs toward the person carrying them. As a consequence, the mother also calms down and improves her relationship with the baby⁽¹⁴⁾.

The reduction in crying reported by mothers has also been described in another study conducted in Spain, in which babies who had skin-to-skin contact with their mothers for the first 90 minutes after birth cried less than those who were only in their cribs. The authors suggest that the baby's initial cry in the immediate postpartum period is related to the separation from the mother's body and serves to seek to reestablish closeness with the mother. They also reinforce that the most appropriate place for a healthy baby after birth is close to the mother's body⁽¹⁵⁾.

As for the newborn's sleep, it is known that babies in the kangaroo position can stay longer in deep sleep when compared to those held in their mother's arms⁽¹⁶⁾.

Another positive aspect of the use of the kangaroo bag, very prevalent in the mothers' statements, was the relief of the baby's colic. Colic causes discomfort and crying, resulting in concern and anxiety for parents. The kangaroo position, through mother-baby interaction, promotes a reduction in the typical irritability cause by infant colic, excessive crying, as well as an increase in the duration of sleep⁽¹⁷⁻¹⁸⁾.

Mothers emphasized that the use of the kangaroo bag brought greater contact, proximity, affection and more knowledge about the baby. Touch and physical contact between mother and baby are essential for bonding, as well as bodily, visual, vocal and facial expressions are fundamental in the mother-child interactive process, resulting in the establishment and strengthening of affective bonds⁽¹⁸⁾.

Contact with the baby is always invigorating, whether in the first moments of life or during the course of life. Skin-to-skin contact at birth aids the success of breastfeeding in the first hour of life and exclusive breastfeeding thereafter⁽¹⁹⁾.

The care shared with fathers and other family members can help mothers face the difficulties at the beginning of the puerperium and throughout the baby's life, making motherhood more pleasurable and less tiring. In addition to making the father feel more present in the care of the child⁽²⁰⁾.

Parents of preterm infants admitted to neonatal units, who have used the kangaroo bag, say the device has helped them achieve and better understand their parenting role⁽²⁰⁾. Helped by contact and closeness, they became active agents in the baby's care, providing confidence in the parenting roles, excitement and happiness for the new role of being a father (feeling the baby's smell and warmth, seeing their baby soothe with their touch/presence)⁽²⁰⁾. Moreover, "father-kangaroo" contact can reduce the stress of these parents⁽²¹⁾.

The baby's constant contact with their parents promotes attachment and prevents the release of toxic stress, which is defined as the prolonged activation of stress responses in the body that can occur as a result of abuse or neglect during childhood, when in the absence of adult protection⁽⁴⁾.

Skin-to-skin contact regulates child stress through biological indicators such as the autonomic nervous system, heart rate variability, cortisol, and oxytocin⁽²²⁾.

These data reinforce the importance of not separating mother and baby and the need to keep family members close to mother-baby dyad, starting at birth and during hospitalization in rooming-in care units.

In a study conducted in Italy with mothers of healthy full-term babies who used the kangaroo bag during the first month of life, for at least one hour daily, the authors found that the use favored bonding and intimate contact, helped understand the baby's needs, and was useful for breastfeeding, going out and during household chores. As for the reasons for not using the bag for the suggested time, mothers reported the fact that the baby cried when placed in the kangaroo and that they felt a little uncomfortable⁽²³⁾.

Despite the guidance provided, in our study, mothers reported the lack of knowledge as the main obstacle to not use or have difficulty with the use of the kangaroo bag, as it generated insecurity and fear of dropping or hurting the baby. It must be recognized that some types of kangaroo bags can cause an accident when not used properly. In the

United States, 51 injuries were reported from January 1990 to September 1998 related to the use of baby carriers. Among the injuries, 38 (74.5%) involved head trauma and eight (15.7%) facial trauma due to falls, with 11 (22%) requiring hospitalization⁽²⁴⁾.

Some criteria to avoid injuries should be highlighted, such as using an appropriate product that is compatible with the baby's age, size and weight; the product condition, without rips and repairs, with adequate durability; and knowing how to use the product, how to place the baby properly in the carrier, in a way that is comfortable for both mother and child⁽²⁴⁾. Another necessary point of attention is to observe if the babies' nose and mouth are free, so as not to hinder breathing, thus avoiding suffocation.

This reinforces the need for guidance and monitoring of babies who use kangaroo bags and other baby carriers, as we sought to do in our study. Many health professionals are unaware of the benefits of using the kangaroo bag, besides not knowing how to teach the correct way to put it on. It is of fundamental importance to train not only mothers, but also health professionals. Among these professionals, nurses stand out as the professionals who promote care comprehensiveness and who are in constant contact with mothers in maternity hospitals and primary care units⁽²⁵⁾.

As suggested by one of the study participants, one way to disseminate knowledge about the use of the kangaroo bag is to insert it as a topic in prenatal groups, which should be coordinated with health, maternity hospital and basic unit managers, to train professionals who offer the course. In addition to improving the dissemination through various means of communication, making quality information accessible to all pregnant women and their families is also important.

A limitation of the present study was the frequency of guidance to mothers on the use of the kangaroo bag, which was performed only once in the maternity hospital, with the use of an informative brochure and demonstration of the use of the bag.

Nevertheless, in this study, the use of the Appreciative Inquiry methodological framework facilitated the dialogue and allowed for fluidity in the interviews, thus enabling greater extraction of successful experiences regarding the use of the kangaroo bag.

The use of this methodology allowed mothers to reflect and describe their experiences. They could think about the strengths of the practice and what could have been done to improve the use of the kangaroo bag. Thus, as the method itself states, the interview was also a form of intervention, allowing the mothers to have a greater understanding of the lived experience, with openness to change for an even more successful future experience.

CONCLUSION

The use of the kangaroo bag in healthy full-term babies after birth and at home was perceived as a new way of mothering, which can be shared with other family members, but still faces challenges to its full use, which can be overcome. Among the benefits perceived by mothers who used the Kangaroo-Mother Care Method more frequently (three to four times a week), the following can be mentioned: it contributes to making the baby calmer and more comfortable; reduces colic and improves sleep; provides mothers with more autonomy and security; and increases the family bond. The intimate and constant contact with the mother facilitates breastfeeding, attachment, and maternal bonding.

Cultural and social aspects regarding the importance of attachment and contact with the baby must be changes so the use of the Kangaroo-Mother Care Method is widespread. Even though it is a simple and low-cost strategy, it is still not widespread in Brazil for healthy full-term babies.

The Kangaroo-Mother Care Method can contribute to the baby's development and improvement of the maternal and family relationship. Finally, we hope that more mothers, fathers, and family members can benefit from the closeness with their babies through the use of the kangaroo bag during hospitalization in rooming-in care and at home. We recommend that assessment and intervention studies regarding the Kangaroo-Mother Care in full-term and healthy babies be conducted so that we can generate evidence regarding this practice.

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