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BREASTFEEDING AS AN INFANT PAIN RELIEF STRATEGY: SYSTEMATIC REVIEW

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ABSTRACT

Pain has negative repercussions in the infant, so it is crucial to understand the efficacy of non-pharmacological strategies for pain relief, such as breastfeeding.

Objective: To evaluate the efficacy of breastfeeding as a strategy to relieve pain in the infant.

Methods: Research conducted at platform EBSCO and B-on, using the descriptors in Health Sciences in the English language: infant, pain management, breastfeeding, using the intersection between them through the boolean operator "and". Considering the search delimiters and the inclusion and exclusion criteria, a sample of 4 articles was obtained.

Results: Breastfed infants experienced less pain, compared to infants who were only on the mother's lap, infants who were given a breast-milk substitute, or infants undergoing therapeutic massage, but for infant's subject to the administration of 25% dextrose oral solution, the pain experience was identical.

Conclusions: The studies analyzed are unanimous in their results, considering breastfeeding as an effective strategy in the relief of pain in the infant.

Descriptors: Infant; pain management; breastfeeding.

INTRODUCTION

Pain is described by the International Association for the Study of Pain (IASP) as an unpleasant multidimensional experience, involving not only a sensory component but also an emotional component, which is associated with a concrete or potential tissue injury[1]. In 2003, pain was instituted as the 5th vital sign by the General Directorate of Health[2].

However, pain in pediatrics continues to be undervalued, despite the evidence that the nerve pathways required for this experience have been fully developed since the 28th week of gestation, and that the child perceives pain from birth[3].

The underestimation of pain in the child is partially due to the lack of a specific pain-specific biological marker, incomplete knowledge of its pathophysiology and the subjectivity of pain in the child, and has as a consequence an inadequate management of pain relief strategies[4].

Inadequate management of pain prevention and relief strategies will prolong the stress response in the child, adversely affecting recovery, and modifying the future response to pain[5].

With regard to the population study, the infant, not being able to verbalize his pain, is considered an obstacle to the recognition of pain by health professionals.

Thus, other non-verbal manifestations of pain in the infant should be recognized, with the most frequent being: crying, closed eyes with raised eyebrows, marked nasolabial grooves, arching of the trunk, agitation, location and protection of the painful area, alteration sleep and wake and feeding periods, and physical signs (tachycardia, tachypnea and arterial hypertension)[4].

Nurses, given that diagnostic or therapeutic procedures are the most common cause of pain in children who use health services, should prevent and treat pain resulting from such procedures, recognizing that non-pharmacological interventions are an important pain relief alone or as a complement to pharmacological treatment[6].

As a non-pharmacological intervention for pain relief in infants, breastfeeding is addressed, which, in addition to the recognized nutritional and affective benefits[6], covers several principles of pain relief, such as proving a sweet solution, distraction and physical contact[7]. In potentially painful procedures, such as vaccination, several studies have shown that the breastfeeding child cries for less time and has the lowest score on the pain rating scales[7].

Thus, and taking into account the repercussions of pain on the child, especially in the infant, it is important to promote strategies for pain relief, such as breastfeeding, but for this, it is necessary to first realize its effectiveness.

METHODOLOGY

Scientific evidence leads to the construction of a critical and constructive reflection on nursing practice, contributing to its development in favor of quality of care[8]. Nurses should reflect, evaluate and modify their clinical practice, based on the knowledge acquired by the systematic research in the health area, adopting an evidence based practice, this research should be done through a systematized format, in order to obtain reliable data[8].

In the present study, the mnemonic method participants, intervention, comparison and outcomes (PICO) were used to define the research question: What is the efficacy of breastfeeding as a strategy to relieve pain in the infant? As such, the objective was to evaluate the efficacy of breastfeeding as a strategy for pain relief in the infant.

A research was carried out on the EBSCO and B-on platform, and all available databases were selected using the descriptors in Health Sciences (DeCS edition 2017)[9] in the English language: infant, pain management, breastfeeding, using intersection between them through the Boolean operator "and".

They were established as search delimiters: articles with full text; published within a time frame from 2011 to 2017; in Portuguese, English and Spanish.

Inclusion criteria were: primary studies that presented the effectiveness of breastfeeding as a strategy to relieve pain in the infant. And, the exclusion criteria were: non-primary studies; studies where the population was not infants; studies that did not present results on the efficacy of breastfeeding as a strategy to relieve pain in the infant.

The search in the databases was carried out from November 2017 to January 2018. A total of 67 articles were obtained from the search conducted in the mentioned databases, with the selected descriptors and taking into account the search delimiters, of which, after reading and excluding repeated articles, 9 were selected from the 9 articles, after a more detailed analysis, 5 articles were excluded because they did not answer the research question, leaving a total of 4 articles selected.

To the 4 articles selected, an evaluation of the methodological quality was carried out, through the application of the respective grids of The Joanna Briggs Institute (JBI). JBI developed rigorous theories, methodologies and processes for the critical evaluation and synthesis of evidence, evaluating its applicability through standardized tools, ensuring that only methodological quality evidence was included[10].

It was considered that for the studies studied to be included in this systematic review, 70% of the items contained in the respective JBI evaluation grid should be identified.

RESULTS EXTRACTION AND DISCUSSION

The articles included in this review were published between 2103 and 2017 and are all randomized trials. Participants in all studies are infants, ranging from 1 to 12 months of age.

In the following table (Table 1) the data extracted from the analyzed studies are presented, for a better perception, the table is divided in: title of the article, author/year, sample, research method, interventions/phenomena of interest, population/sample, study objective and results obtained by the authors of the studies.

Table 1 – Data collection of analyzed studies.

	Article Title	Author/Year	Country	Sample	Research Methods	Intervention/Phenomena of Interest
A1	"Effectiveness of Breast Feeding on Pain Perception During Vaccination among Infants"[11]	Chittaluri V, Rani S (2017)	India	200 infants divided into 2 groups, 100 in each group.	Experimental, controlled and randomized study.	Group 1: were breastfed 5 minutes prior to vaccination, and maintained during and after the procedure. Group 2: control group, remained on the mother's lap.
	Study Purpose	To evaluate the efficacy of breastfeeding in the perception of pain during vaccination in infants between 1 and 6 months of age.				
	Results	Infants in group 1 presented a significant reduction in pain perception during vaccination, relative to group 2.				
A2	"Breastfeeding for acute pain control on infants: a randomized controlled trial"[12]	Zurita-Cruz J, Rivas-Ruiz R, Gordillo-Álvarez V, Villasis-Keever M (2017)	Mexico	144 infants divided into 3 groups, 48 in each group.	Clinical, controlled and randomized study.	Group 1: they were breastfed 2 minutes before vaccination. Group 2: A breast-milk substitute was offered two minutes prior to vaccination. Group 3: control group.
	Study Purpose	To determine the efficacy of breastfeeding in pain control after vaccination, when compared to breast milk substitutes and the non-application of any pain control strategy, in infants between 2 and 6 months of age.				
	Results	The group undergoing breastfeeding had less crying time and lower scores on the pain intensity scale compared to the other 2 groups. While between group 2 and group 3 there was no significant difference in the duration of crying or in the evaluation of the pain scale.				

Table 1 – Data collection of analyzed studies.

	Article Title	Author/Year	Country	Sample	Research Methods	Intervention/Phenomena of Interest
A3	"A comparative study on vaccination pain in the methods of massage therapy and mothers' breast feeding during injection of infants referring to Navabsafavi Health Care Center in Isfahan"[13]	Esfahani M, Sheykhi S, Abdeyazdan Z, Jodakee M, Boroumandfar K (2013)	Iran	96 infants divided into 3 groups, 32 in each group.	Randomized clinical trial.	Group 1: control group. Group 2: subject to breastfeeding during vaccination. Group 3: The investigator kneaded the foot/palm of the infant's hand for 60 seconds prior to vaccination.
	Study Purpose	To compare vaccine-related pain in infants, 6 and 12 months of age, undergoing therapeutic or breast-feeding massage during the procedure.				
	Results	Pain was significantly lower in the group who breastfed during vaccination than in the other two groups. The pain was also lower in the therapeutic massage group, relative to the control group.				
A4	"Comparison of analgesic effect of direct breastfeeding, oral 25% dextrose solution and placebo during 1st DPT vaccination in healthy term infants: a randomized, placebo controlled trial"[14]	Goswami G, Upadhyay A, Gupta N, Chaudhry R, Chawla D, Sreenivas V (2013)	India	120 infants divided into 3 groups, 40 in each group.	A randomized placebo-controlled study.	Group 1: breastfed 2 minutes prior to vaccination and during the procedure. Group 2: 2 ml of 25% dextrose oral solution was given by syringe 2 minutes prior to vaccination. Group 3: 2 ml oral distilled water was given by syringe 2 minutes prior to vaccination.
	Study Purpose	To compare the analgesic effect of breastfeeding, 25% dextrose solution and placebo during vaccination in infants between 6 weeks and 3 months of age.				
	Results	The duration of crying time was significantly lower in the group who breastfed and in the group in which the 25% dextrose solution was given compared to the group in which distilled water was administered.				

The results obtained emerged from a free reading of the articles selected, and only those that addressed the efficacy of breastfeeding as a strategy for pain relief in the infant were extracted.

Through the analysis of the results obtained, breastfeeding is an effective strategy for the relief of pain in the infant.

In study A1, infants who had undergone breastfeeding prior to, during, post-vaccination experienced moderate pain during the procedure, whereas infants in the control group who were in the mother's neck experienced severe pain. Pain was assessed by the researchers through the Modified Behavioral Pain Scale (MBPS) and by the mothers through the Visual Analogue Scale (VAS).

In study A2, infant pain was assessed by assessing crying time and applying a pediatric pain scale (Wisconsin Pediatric University Hospital Scale). It was found that the infants in group 1 who were subjects breastfeeding for 2 minutes prior to vaccination had less crying time and a lower score on the pain intensity scale compared to the infants in group 2 who were offered a breast milk substitute 2 minutes before the procedure and the infants of group 3, to whom no intervention was performed.

In study A2, comparing infants in group 2 with those in group 3, did not present significant difference in duration of crying or in the evaluation of pain scale.

Regarding the A3 study, infants were divided into 3 groups: in group 1 they were breastfed during vaccination, in group 2 a therapeutic massage was performed by the investigator on the foot or palm of the hand of the limb where it was later administered the vaccine for 60 seconds, and group 3 was the control, in the 3 groups the infants were hugged by the mothers.

In the A3 study, pain, which was assessed by the Neonatal Infant Pain Scale (NIPS), was significantly lower in the group who breastfed during the vaccination, compared to the other two groups. Regarding massage therapy, although not as effective in pain control as breastfeeding, it has been found to also provide some relief of pain in the infant as compared to the assessment of pain in the control group.

Study A4 compares the efficacy of breastfeeding in managing infant pain with the administration of 25% oral dextrose solution and oral placebo (distilled water) administration. In this study the infants were divided into 3 groups: in group 1 they started breastfeeding 2 minutes before vaccination and maintained during the procedure, in group 2 oral solution of 25% dextrose (2 ml per syringe) was administered 2 minutes before the procedure, and in group 3 distilled water was given orally (2 ml per syringe) 2 minutes before the procedure.

In study A4, the pain was evaluated by the duration of crying after administration of the vaccine. The duration of crying time was significantly lower in the group of infants who were breastfed and in the group of infants where the 25% oral dextrose solution was administered compared to the group in which oral distilled water was administered. When compared to breastfeeding with oral 25% dextrose solution administration, there is no significant difference in pain control in the infant.

CONCLUSIONS

Child pain is a current problem, as such, prevention and relief strategies, has been the subject of several studies, either evaluating the effectiveness of specific pharmacological and non-pharmacological strategies or comparing their effectiveness.

Thus, and considering that pain prevention and relief, especially during potentially painful procedures, is a nurse's responsibility, there should be a concern in the implementation of pharmacological and non-pharmacological measures whenever possible, that allow an effective control of pain in the child.

In the present review of the literature, the objective of evaluating the efficacy of breastfeeding as a strategy for pain relief in the infant was reached, once the PICO question was initially formulated.

The studies analyzed are unanimous in their results, considering breastfeeding as an effective strategy for the relief of pain in the infant. Regarding its effectiveness compared to other strategies, one study concludes that breastfeeding is more effective than massage therapy, and another study, which is equally effective at 25% dextrose oral solution.

In view of these results, it is concluded that breastfeeding, besides providing comfort through contact with the mother, is an effective, natural, innocuous and accessible strategy for the relief of pain in the infant.

Thus, it was intended to contribute to the valorization of non-pharmacological strategies for pain relief, and for nurses, as health professionals, to acquire and update knowledge, based on scientific evidence, about the efficacy of breastfeeding as strategies for relief of pain in the infant.

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