International Journal of **Health Science**

THE MULTIDISCIPLINARY TEAM'S PERCEPTION OF PAIN IN NEWBORNS IN AN INTENSIVE CARE UNIT: AN INTEGRATIVE REVIEW

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Abstract: Introduction: Until the 1980s, pain in newborns was neglected. Currently, it is known that although pain is an individual experience, its assessment in neonates presents challenges due to the inability to communicate verbally and the influence of factors such as the experience and training of the multidisciplinary team. Objective: To carry out a literature review on the multidisciplinary team's perception of pain in newborns in Neonatal Intensive Care Units. Methodology: This is an integrative review, with a search for articles indexed in the Medline/Pubmed, Latin American and Caribbean Literature in Health Sciences (Lillacs), Scientific Electronic Library Online (SciELO) and Virtual Health Library (VHL) databases. The search was carried out in May 2024, using the descriptors: "Newborn", "Health personnel", Intensive Care Units, pain. The search strategy was based on their different combinations, using the Boolean operators AND and/or OR. The inclusion criteria were original articles in Portuguese, English and Spanish, published in the last 10 years. Paid-for studies, duplicate studies and studies such as letters to the editor, reviews, opinion articles, literature reviews, reflective studies, editorials and duplicate studies were excluded. Results: The multidisciplinary team's perception is based on signs such as facial expressions, crying and changes in vital signs, mainly heart rate and respiratory rate. There was a lack of standardization in pain assessment, a lack of institutional protocols and gaps in professional training. Conclusion: Pain management is crucial to minimizing negative impacts, highlighting the need for continuous staff training and evidence-based practices. The implementation of institutional protocols and specific tools can standardize care, reduce neonatal stress and promote better clinical outcomes.

Keywords: Newborn; Health professionals; Pain; Intensive Care Units.

INTRODUCTION

Pain in newborns (NB), infants and children was not recognized until the 1980s, so it often went untreated. It was believed that, due to the immaturity of their nervous systems, these patients were unable to feel pain. However, according to the International Association for the Study of Pain (IASP), pain is an unpleasant sensory and emotional experience associated with an actual, potential or descriptive tissue injury. It is known that the perception of pain is individual for each human being and can be identified through expressions, behaviors or reports. In neonates, this perception presents challenges, since they are unable to communicate verbally (Gimenez *et al.*,2020; Brasil, 2017).

However, recent research has revealed that pain receptors begin to myelinate as early as the 2nd and 3rd week of gestation, and pain pathways in the brain are fully myelinated from the 30th week. This suggests that neonates are able to perceive and respond to pain much earlier than previously thought (Campos, 2018).

Although Neonatal Intensive Care Units (NICUs) play a crucial role in improving NB survival, it is important to note that the environment in which these babies are cared for can be challenging. In neonatal units, excessive lighting, constant noise and invasive procedures such as venipunctures, airway aspirations, ventilatory assistance and daily manipulations are frequent and unavoidable elements. Unfortunately, these necessary practices can cause significant pain and discomfort for NBs, who have delicate and sensitive nervous systems (Novakoski *et al.*,2018, Moretto *et al.*,2019).

However, repeated exposure to pain in newborns (NB) can have serious short- and long-term consequences. Studies have shown that exposure to pain from the 16th week of pregnancy onwards can cause changes in pain sensitivity, sleep disorders, anxiety and cognitive and motor deficits in childhood (Campos, 2018).

Due to the inability to report their own pain, it should be perceived and managed by health professionals, who according to the Ministry of Health, should consider it as the fifth vital sign, and should regularly and repeatedly assess it using scales validated for this purpose. These scales include: Neonatal Facial Coding System (NFCS) and Neonatal Infant Pain Scale (NIPS), which assess the presence or absence of pain based on facial and body movements of the neonate (Brasil, 2011, Pinheiro *et al.*,2015).

However, this assessment can be influenced by factors related to the characteristics of the professionals in the multidisciplinary team, such as previous experience with neonatal pain, length of time working in neonatology and lack of specific training. Subjectivity in the assessment of pain in NBs is a challenge, especially due to the neonate's inability to verbalize and the particularities of the professionals involved (Bottega *et al.*,2014, Scherman *et al.*,2014).

Given the importance of the subject, the aim of this study is to analyze the multidisciplinary team's perception of pain in NBs in NICUs. By gaining a better understanding of this issue, it will be possible to alert professionals to the importance of assessing pain in neonates and thus provide better quality care to NBs in NICUs.

METHODOLOGY

This study is an integrative literature review, which analyzes recent studies to guide future research, allowing the identification of up-to-date knowledge on the subject. Its purpose is to provide a comprehensive overview to aid decision-making, optimize clinical practice and highlight gaps for further research. This study was carried out in the following six stages: elaboration of the guiding question, literature search, data collection, analysis of the included studies, discussion of the results and presentation of the integrative review.

After delimiting the study and the objectives to be achieved, the triggering question was formulated, using the PICo strategy for non-clinical research, with "P" being the population, "I" being the interest, and "Co" being the context of the investigation in question (Chart 1). Thus, following the first phase for its elaboration, the following research question was adopted: What is the multidisciplinary team's perception of pain in newborns in Intensive Care Units?

Acronym	Definition	Application
P	Population	Multidisciplinary team
I	Interest	Perception of pain in newborns
Co	Context	Intensive Care Units

Table 1: Application of the PICo strategy.

The bibliographic survey was carried out in May 2024, in the following data sources: Scientific Electronic Library Online (SciELO), Medline/Pubmed, Latin American and Caribbean Literature in Health Sciences (Lillacs), and Virtual Health Library (VHL). The search used descriptors in Health Sciences (DeCS) and Medical Subject Headings (MeSH): "Newborn", "Health personnel", Intensive Care Units, pain. The search strategy was based on their different combinations, using the Boolean operator AND and/or OR in the respective data sources. Once the articles had been selected, it was possible to construct the PRISMA flowchart with the identification, screening, eligibility and inclusion data of the studies. The inclusion criteria were: studies available in full with a focus on the subject, in Portuguese, English and Spanish, with a time limit of the last 10 years. Studies such as: letters to the editor, reviews, opinion articles, literature reviews, reflection studies, editorials and duplicate studies were excluded. Among the titles searched according to the descriptors, 243 articles were obtained. However, after applying the inclusion and exclusion criteria, 167 studies remained, which were reduced to 30 after reading the titles. Finally, after reading the articles in full, assessing their eligibility and relevance to the research topic, 7 articles remained (Figure 1).

The data was organized by constructing a table showing: the year of publication of the study, the journal in which it was submitted, the title of the article, the names of the authors, the objectives and the classification according to the level of evidence, which ranks publications according to external evidence based on seven levels, according to the American Academy of Family Physicians (AAFP). Level I - systematic reviews of randomized clinical trials with meta-analysis; II - randomized clinical trials; III - non-randomized controlled studies; IV - cohort or case-control studies; V - cross-sectional or descriptive studies; VI - case reports or case series; VII - expert opinion or expert consensus.

It was not necessary to obtain approval from a Research Ethics Committee to carry out the study, as this is an integrative review that used publicly accessible data sources as a means of research. However, it is worth inferring that the ethical precepts regarding structuring, references and regulations were maintained.
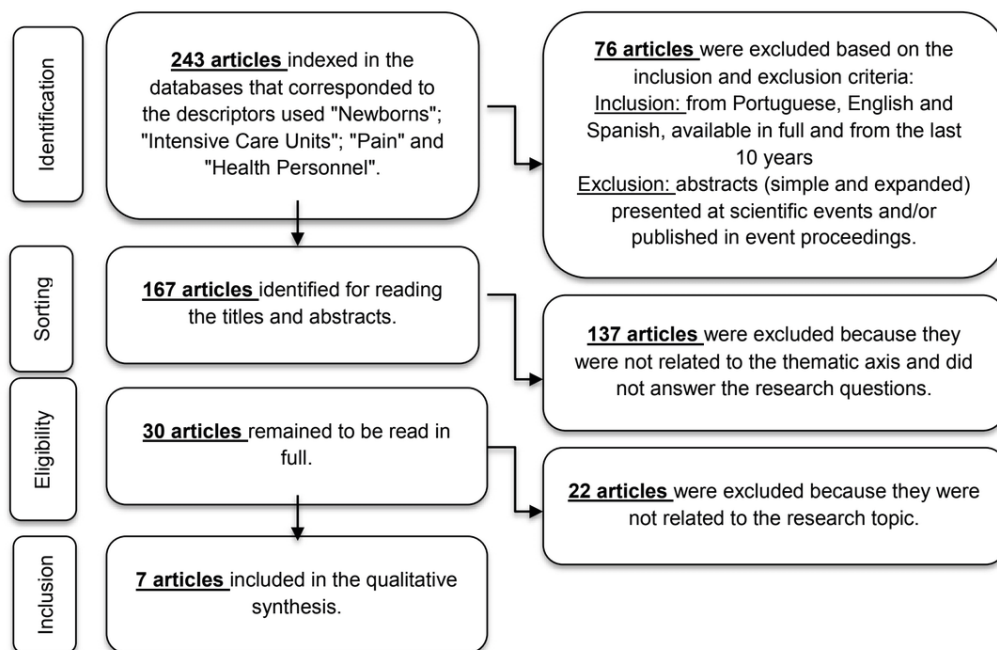
Figure 1: Flowchart for selecting articles for the Integrative Review based on PRISMA ADAPTED.

Year	Journal	Title	Authors	Results	Level of evidence
2017	Anna Nery School	Attitudes of healthcare professionals regarding the assessment and treatment of neonatal pain.	CHRISTOFFEL, Marialda Moreira et al.	Professionals reported assessing pain through body movement, facial mimicry and vital signs. Others assessed pain together with vital signs. Professionals report that there is no protocol establishing the frequency of this assessment.	V
2017	Journal of the USP School of Nursing	Nurses' knowledge and practices regarding pain management in newborns.	COSTA, Taine et al.	Of the 51 nurses interviewed, 33.3% said there was a protocol for assessing and managing pain and 41.2% said there wasn't. 34.7% said they never use the scale to assess pain. 34.7% answered that they never use a scale to assess pain. 70.6% said they didn't know which type of scale was used in their service. 35,3% reported that pain was not assessed.	V
2019	Cadernos Saúde Coletiva	Evaluation of the perception of pain in newborns by health professionals in the neonatal unit.	MARQUES, Ana Claudia Garcia et al.	The professionals reported perceiving the NB's pain mainly through facial expressions, crying and also changes in heart rate, saturation and breathing.	V
2019	Brazilian Journal of Pain - BrJP	Pain as the fifth vital sign: nurse's practices and challenges in a neonatal intensive care unit.	BARROS, Marcela Milrea Araújo; LUIZ, Bruna Viana Scheffer; MATHIAS, Claice Vieira.	Of the 11 nurses interviewed, all recognize that NBs can feel pain. Crying and facial expressions are the most common manifestations used to perceive pain. Changes in vital signs are also perceived. The absence of protocols and the non-use of pain assessment methods were reported.	V
2021	Brazilian Journal of Pain - BrJP	Knowledge of the neonatal intensive care unit nursing team about newborn pain.	MOURA, Dayana Mourato; SOUZA, Talita Pavarini Borges.	Of the 44 professionals interviewed, 100% said that NBs feel pain. All agreed that pain alters the melody of crying. 38 reported that there are protocols for assessing pain. More than half of the professionals reported that there is no training on the subject of pain in NBs at the institution.	V
2024	Text & Context-Nursing	Multidisciplinary team's knowledge, attitude and practice in pain management in a Neonatal Unit.	MEREDY, Mayara da Rocha et al.	Of the 37 professionals interviewed, 94.6% understood the existence of pain in NBs. Crying, countenance (faces of pain) and changes in HR were mentioned as parameters for assessing pain. 97.3% of the professionals said they knew and used a pain assessment scale, with the NIPS being the most frequently mentioned.	V

Chart 2: Articles selected for the integrative review.

RESULTS AND DISCUSSION

The study sample consisted of 7 primary scientific articles on the perception of the multiprofessional team on pain in newborns, published in journals between 2014 and 2024. However, with regard to the content exposed, selected and included in the review, after thorough reading and analysis of the results, they were synthesized into categories for discussion of the research.

The perception of pain in NBs is widely recognized by the studies analyzed, with a consensus among the authors that signs such as crying, facial expressions and changes in vital signs are key indicators. Brewer and Baccei (2020) point out that pain plays an essential role in protecting against tissue damage, being processed by nociceptive pathways from the spinal cord to the brain. However, although the perception of pain is unanimous among health professionals, the way it is assessed and managed varies significantly between studies.

Marques *et al.* (2019) point out that professionals mainly use behavioral signs, such as facial expressions and crying, as well as changes in heart and respiratory rate. However, the authors warn of the limitations of this perception in intubated NBs, who often do not manifest pain in a typical way. This aspect is corroborated by Meredy *et al.* (2024), who also indicate crying and vital signs as the main assessment parameters. Moura and Souza (2021) extend this analysis by including tremors in the extremities and temperature changes as potential signs of pain, suggesting a more detailed approach by professionals.

Another point highlighted is the lack of standardization in pain assessment. Costa *et al.* (2017) report that a significant proportion of professionals do not use scales for measurement, and this lack of objective tools is confirmed by Barros, Luiz and Mathias (2019), who show that there are no institutional protocols in the western Amazon region. Similarly, Christoffel *et al.* (2017) and Bonato, Dezordi and Rebelato (2024) reinforce the lack of regulation in clinical practice, despite recognizing the importance of assessing pain.

Professional training is a critical challenge, as evidenced by Moura and Souza (2021), who show that most professionals have never participated in training related to neonatal pain, even though they recognize the importance of assessment scales. This gap in training contributes to the inadequate use or lack of application of objective methods for measuring pain, as evidenced in the studies by Barros, Luiz and Mathias (2019) and Costa *et al.* (2017). The absence of protocols and the lack of technical training for professionals compromise the effectiveness of neonatal pain management, with potentially negative consequences for the neuropsychomotor development of NBs.

In addition to the pain perception variables mentioned by the authors, it is important to consider the clinical conditions of the NB that can influence the manifestation of pain and the ability of professionals to identify these signs. As indicated by Marques *et al.* (2019), intubated neonates may not express pain in the traditional way, such as crying, which makes it difficult to assess pain in these patients. This aspect suggests that professionals need a more sensitive and differentiated approach, capable of identifying more subtle signs, such as changes in physiological behavior (for example, variations in ventilation or oxygenation parameters), which may be related to pain, but which are not evident through traditional signs.

Another important variable is the hospital environment and the infrastructure available for pain assessment. Barros, Luiz and Mathias (2019) mention that, despite the identification of signs of pain, many professionals do not use standardized scales for assessment, which suggests a lack of adequate resources or a lack of

familiarity with these instruments. The lack of institutional protocols may also be a reflection of the lack of public policies aimed at improving clinical practice in neonatal care, with a direct impact on the quality of care provided. This is reflected in a clinical practice which, although it recognizes NB pain, fails to measure or treat it effectively, due to the lack of appropriate tools.

Finally, it is suggested that continuous training and the implementation of institutional protocols are fundamental to improving the management of neonatal pain. Moura and Souza (2021) warn that, despite the recognition of pain scales, many professionals do not participate in specific training, which limits the application of these methods in clinical practice. This is worrying because, without adequate and continuous training, professionals may have difficulties in recognizing and treating pain appropriately, resulting in adverse impacts on NB development. The implementation of continuing education programs on neonatal pain, with a focus on early recognition and appropriate management, is essential to improve the quality of care and ensure that neonates do not suffer unnecessarily.

Therefore, from the results presented, it is possible to see that, despite the recognition of pain manifestations in NBs and the importance of their proper management, there are still significant gaps in the application of protocols and in the training of health professionals. These factors compromise the quality of care and increase the risks to the neuropsychomotor development of neonates. The need to integrate institutional protocols, pain assessment tools and continuous training of the multi-professional team is essential to ensure that neonatal pain is treated effectively and individually, contributing to the clinical recovery and long-term well-being of NBs.

CONCLUSION

In the perception of the multi-professional team, pain in NBs admitted to the NICU is recognized by variables such as crying, facial expressions and changes in vital signs, especially heart rate. However, the lack of standardized protocols and the limited application of assessment scales compromise the proper management of pain, increasing the risks to the neuropsychomotor development of neonates.

In addition, early and efficient pain management is crucial to minimizing negative impacts, highlighting the need for continuous team training and evidence-based practices. The implementation of institutional protocols and specific tools can standardize care, reduce neonatal stress and promote better clinical outcomes.

This study contributes to expanding knowledge on the subject and reinforces the importance of further research to improve the perception of the multi-professional team and encourage the use of pain assessment scales. These measures aim to improve neonatal care and minimize the short-, medium- and long-term consequences for this vulnerable population.

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