REVIEW ARTICLE

PHYSIOLOGICAL AND BEHAVIORAL PARAMETERS OF NEWBORNS UNDERGOING THEIR FIRST BATH IN THE HOSPITAL CONTEXT: A SCOPING REVIEW

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Highlights: 1. Postponing the newborn's first bath in the hospital setting is safe and beneficial. 2. All baths can affect the newborn's adaptation to the extrauterine environment. 3. It is beneficial for family members to participate in the newborn's first bath.

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ABSTRACT

Objective: to map the scientific productions on the physiological and behavioral parameters of full-term newborns (NB) undergoing their first bath in the hospital context. Method: Method: scoping review developed in six databases, with searches carried out in September 2022. Experimental or observational studies were included, available in Portuguese, English and/or Spanish, without time frame. The methodological guidelines of the Joanna Briggs Institute international guide and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) were followed. Results: a total of 22 studies were selected for evidence synthesis, which were published between 1981 and 2022. Crying, agitation and body temperature parameters are influenced in NB's first bath. Most studies recommended immersion bathing, postponed for 24 hours, given by health professionals in mother's room/rooming-in setting, using radiant heater after bathing. Conclusion: all baths have impacts on NB's physiological and behavioral stability. Nonetheless, postponing the first immersion bath by at least 24 hours maintains NB calmer, reduces the incidence of hypothermia, increases exclusive breastfeeding rates and skin-to-skin contact time.

Keywords: Newborn; Baths; Hospitals; Review.

INTRODUCTION

In the first hours of life, newborns (NB) are unable to regulate and maintain body temperature, due to their physiological and morphological immaturity, and therefore need time for the organism to adapt to the extrauterine environment, aligning their heart beats, gastrointestinal and kidney functions, feeding capacity, blood glucose and ventilation. In this sense, it is understood that baby's first bath can have an impact on this regulation[1-3].

The World Health Organization (WHO) recommends that newborns must not be bathed in the first 24 hours after birth. If this is not possible due to family choices, customs, or beliefs, one must wait until the cardiorespiratory vital signs stabilize and the newborn has at least six hours to live[4].

In addition, bathing must be carried out when the baby has a stabilized temperature of between 36.5ºC and 37.5ºC, as well as regular breathing and pulse, pink skin color, both central and peripheral, without signs of visceral changes, which usually takes around 24 hours. The

exception to this time recommendation is when there is a risk of infection for the baby, where bathing is carried out immediately after birth[1,3,5-6].

Bathing practices, dermatological care and other postnatal care are often dictated by culture, anecdotal experiences, and regional customs, which can interfere with cohesive and scientifically recommended practices. This shows the importance of the presence of a health professional to encourage good practices and provide health education, overcoming cultural practices, which are sometimes inappropriate, impacting the reduction of infant mortality[2-3].

In this context, controlling body temperature is a challenge for NB. Therefore, the effect of postponing the first bath depends on child's conditions, type of bath and timing, but bathing him/her too soon can cause a greater need for oxygen, tachypnea (a sign of stress), hypoglycemia, hypothermia, as well as undermining the skin-to-skin contact (SSC) and the mother-child bond, compromising Exclusive Breastfeeding (EBF)[3,7].

Newborn's body responds to external and internal stimuli through its behavioral state. These states concern baby's sleep and wakefulness, affecting the ability to control external stimuli, thus reflecting on his/her internal organization. Accordingly, bringing the bath time forward has a significant and negative impact on these organic stimuli and responses[2].

In some countries, mothers and their babies are discharged from hospital in less than 24 hours, making it difficult to monitor and assist with NB's bathing care. However, in Brazil, Ordinance nº 2.068, dated 2016, which discusses Rooming-In (RI) settings, recommends a minimum stay of 24 hours for the puerperal woman and the newborn in the health institution, enabling appropriate direct professional care regarding baby's first bath[3,8]. This panorama shows the need and relevance of mapping what has been published in the literature concerning the first bath of NB.

To this end, it is understood that identifying evidence on the topic in question can support the construction of protocols, guidelines and conducts for health professionals who provide care to NB. In this sense, the current study had the objective of mapping the production of scientific knowledge on the physiological and behavioral parameters of full-term newborns undergoing their first bath in the hospital context.

METHOD

This is a Scoping Review (SR)[9]. The methodological guidelines of the Joanna Briggs Institute (JBI)[9] international guide and the checklist of the Preferred Reporting Items for

Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) were followed[10]. The following steps were included in the development of this review: identification of the guiding question; identification of relevant studies; selection of studies; mapping of information; grouping, summarizing, and reporting of results[9].

In order to formulate the SR question, the PCC mnemonic was used, consisting of Population, Concept and Context, where P = full-term newborns; C = physiological and behavioral parameters of full-term newborns undergoing their first bath; and C = hospital[9]. The search was carried out based on the following review question: what is the production of scientific knowledge on the physiological and behavioral parameters of full-term newborns undergoing their first bath in the hospital context?

Experimental or observational studies were included, which responded to the review question, available online, with open or closed access, in Portuguese, English and/or Spanish. Methodological studies were excluded, as well as theses, editor's letters, editorials, and conference proceedings. The selection criteria, according to the PCC mnemonic strategy, were: population = healthy full-term NB; concept = physiological and behavioral parameters of the full-term NB undergoing the first bath (body temperature – NB Tº, heart rate – HR, respiratory rate – RR, oxygen saturation – $SatO_2$, variables of the environment where the bath was held, crying and sleep, and psychomotor agitation); and context: hospital, including obstetric centers, maternity hospitals, RI, and natural birth centers.

A search for references was carried out in the following databases: Latin American and Caribbean Health Sciences Literature (LILACS) and *Base de Dados de Enfermagem* (BDENF), through Virtual Health Library; Medical Literature Analysis and Retrieval System Online (MEDLINE), through PubMed; EMBASE (Elsevier); SCOPUS (Elsevier); Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Web of Science (WoS). The accesses were remote, through the CAFe of the Periodicals Portal of the Coordination for the Improvement of Higher Education Personnel (CAPES, as per its Portuguese acronym).

Specific strategies were defined for each source of information, using *Descritores em Ciência da Saúde* (DeCS), Medical Subject Headings (MeSH Terms), keywords, entry terms and CINAHL headings, combined with the Boolean operators "AND" and "OR", in order to locate the studies.

Accordingly, Table 1 shows the details of the strategies in the information sources.

Table 1 – Search strategies for scoping review.

Information source	Advanced search strategies	Number of retrieved references
LILACS and BDENF	(“recém-nascido” OR “criança recém-nascida” OR “crianças recém-nascidas” OR “lactente recém-nascido” OR “lactentes recém-nascidos” OR neonato OR neonatos OR “recém-nascido (rn)” OR “recém-nascidos” OR “infant newborn” OR newborn) AND (banhos OR “monitorização fisiológica” OR “regulação da temperatura corporal” OR banho OR “monitoramento fisiológico” OR “cuidados térmicos” OR hipotermia “recém-nascido” OR “mudança de comportamento” OR termorregulação OR baths OR “body temperature regulation” OR “early bathing” OR “monitoring physiological” OR “physiological monitoring” OR “body temperature regulations” OR “body temperature” OR “heat loss”) AND (db:("LILACS" OR "BDENF"))	33
MEDLINE	((“Infant Newborn” OR Newborn) AND (Baths OR “Body temperature regulation” OR “Early bathing” OR “Monitoring physiological” OR “Physiological monitoring” OR “Body temperature regulations” OR “Body temperature” OR “Heat loss”)) AND (Hospitals)	1,438
EMBASE	(‘newborn’/exp OR newborn) AND (‘bath’/exp OR bath) AND hospitals	94
SCOPUS	ALL ((“Infant Newborn” OR newborn) AND baths AND (“Body temperature regulation”))	27
CINAHL	“newborn” AND “bathing” OR “bath” AND “hospital	111
Web of Science	“newborn” AND “baths”	52
Search date: 09/13/2022. Filters: English, Portuguese and Spanish.		

It is underlined that the reference lists of articles included in the review corpus were evaluated, with the objective of identifying additional relevant studies. No time frame was defined, and duplicate articles were considered only once.

Aiming to minimize possible selection bias, the studies were selected by two reviewers, one main and one secondary. First, titles and abstracts were read. According to the selection criteria, the reviewers listed the productions independently, and then a comparison of the banks was carried out to check possible divergences, with a subsequent consensus between the parties. A third reviewer was consulted to resolve disagreements. Reference management was carried out using Rayyan software®.

In order to extract information, a form was created in the Word® text processor. The following data were considered: identification of the article (authors, title, periodical, year and language of publication), objectives, and methodological properties (type of study, sample, research instruments and evaluated outcomes); sociodemographic and clinical characteristics of the newborns (NB’s body temperature [T], heart rate [HR], respiratory rate [RR], oxygen saturation [$SatO_2$]); environment (hall/room temperature, openings), crying and sleep

parameters, psychomotor agitation related to the first bath; interventions carried out related to the first bath (aspersion bath; immersion bath in the bathtub or bucket/Japanese hot tub; swaddled immersion bath); main results and conclusions. Similarly, this step was carried out by two reviewers, with consultation of a third party in cases of disagreement. Moreover, the authors of four included studies were contacted via email, due to the impossibility of accessing the material in full, as advised by JBI[9], but no responses were obtained after waiting for two weeks.

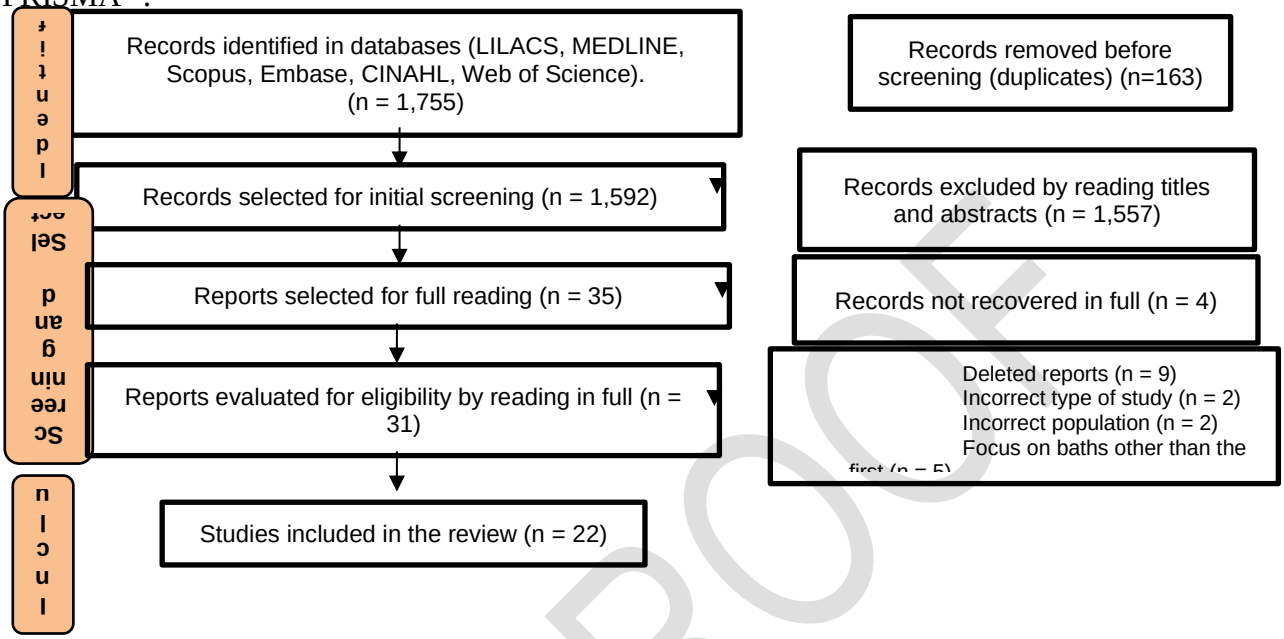
A narrative synthesis and an analysis of absolute (n) and relative (%) frequencies were carried out, and then the extracted results were compiled in charts and tables. In addition, the evidence level of the included studies was evaluated, following the JBI classification: Level 1 – Experimental research designs: 1.a) Systematic review of randomized controlled trials; 1.b) Systematic review of randomized and controlled trials and other study designs; 1.c) Randomized controlled trial; 1.d – Controlled and randomized pseudo-trials; Level 2 – Quasi-experimental designs: 2.a) Systematic review of quasi-experimental studies; 2.b) Systematic review of quasi-experiments and other study designs with less evidence; 2.c) Prospectively controlled studies of quasi-experiments; 2.d) Pre-test and post-test or retrospective historical controlled group studies; Level 3 – Observational – analytical designs: 3.a) Systematic review of comparable cohort studies; 3.b) Systematic review of comparable cohorts and other study designs with less evidence; 3.c) Cohort study with control group; 3.d) Case-control study; 3.e) Observational studies without a control group; Level 4 – Observational and descriptive studies: 4.a) Systematic review of descriptive studies; 4.b) Cross-sectional study; 4.c) Case series; 4.d) Case study; Level 5 – Expert opinion – Laboratory bench research: 5.a) Systematic review of expert opinion; 5.b) Expert consensus; 5.c) Laboratory bench research/expert opinion.

RESULTS

Through the strategies in the search sources, it was possible to identify 1,755 productions, 163 of which were duplicates and, consequently, considered only once. In the selection phase, through titles and abstracts, 1,592 productions were evaluated, 1557 of which were excluded for not meeting the selection criteria. Afterwards, 35 productions remained to be read in full. Of these, four were not found in full (all possibilities of access and contact with the authors were exhausted) and nine were excluded for the following reasons: two considered premature NB; five evaluated other baths other than the first and/or incompatible time periods;

and two were theses. To this end, the corpus of this scoping review was composed of 22 productions (Figure 1).

Figure 1 – Flowchart for selecting scientific productions for the review adapted from PRISMA[11].



Of the 22 (100%) selected scientific productions, 20 were published in English (90.9%) and 2 in Portuguese (9.1%). A total of 12 surveys were carried out in the United States of America (USA) (54.5%)[12-23], 3 in Brazil (13.6%)[1,24,25], 2 in Canada (9%)[26,27], 1 in India (4.5%)[28], 1 in Turkey (4.5%)[29], 1 in Sweden (4.5%)[30], 1 in Lebanon (4.5%)[6] and 1 in Uganda (4.5%)[31]. The years of publication of the productions ranged from 1981 to 2022. The studies in question brought together a total sample of 45,781 NB.

Below, in Table 2, there are other characteristics of the selected productions, in descending chronological order.

Table 2 – Publication date, title, study design, sample, research instrument, evaluated outcomes and evidence level of studies included in the scoping review.

Nº	Publication date/ Authors	Study design, sample (n), research instruments	Evaluated outcomes	EL*
1	08/17/2022 Priyadarshi M. et al.[28]	Design: Systematic Review - intervention trials and observational studies. Sample: 16 studies (2 trials and 14 observational studies) involving 39,020 newborns. Instruments: Database.	Neonatal mortality, systemic infections, hypothermia, hypoglycemia, and exclusive breastfeeding (EBF) rates.	2.b
2	02/01/2021 Anderson J.[23]	Design: Randomized controlled clinical trial. Sample: 900 medical records, 450 before implementing the protocol for postponing NB's first bath for 24 hours and 450 after it.	Incidence of hypothermia after bathing.	1.c

		Instruments: Thermometer.		
3	09/14/2020 Mardini J. et al.[6]	Design: Randomized prospective study. Sample: 125 NB in total, divided into groups. Group 1 included newborns taking their first bath at 2 h of age (n=51). Groups 2 (n=51) and 3 (n=23) were formed by newborns undergoing their first bath at 6 and 24 hours of age, respectively.	There was a possible association between postponing the first bath and age at first SSC, incubation time and newborn's state (calm, vigorous crying, and drowsy).	2.c
4	03/01/2020 Long K. et al.[22]	Design: Retrospective observational comparative study on before and after implementing a bathing protocol postponed for a minimum of 12 hours. Sample: 1,463 in total. Cohort A 564 mothers-babies; Cohort B 468; Cohort C 431. Instruments: Data extracted from medical records – The three cohorts were compared and then the protocol was applied.	EBF rates.	3.e
5	01/01/2020 Lima R. O. de. et al.[1]	Design: Randomized controlled clinical trial. Sample: 33 full-term newborns. Instruments: In order to check physiological variables (MAP, RR, HR and SaO_2 and temperature), a Dixtal brand monitor with pediatric adapter was used. The Sleep and Wakefulness Status Assessment Scale was used. In order to perform the first bath, hospital's standard acrylic crib was used, after asepsis with chlorhexidine and/or 70% alcohol solution. An aquatic thermometer model zls-1270 was used. For the control group, the bath was carried out by the rooming-in nursing team and the Standard Operating Procedure (SOP) was used.	Manifestation of crying and sleep time after bathing. The control variables related to NB were: gestational age; weight at birth and before bathing; weight loss; pain; saturation; vital signs; environmental temperature; water temperature; bath time; and body care time after 24 hours of birth.	1.c
6	01/01/2020 Lund C, Kuller J, Durand DJ. [21]	Design: Randomized cohort study. Sample: 100 NB. Instruments: Bath with water or with water and liquid soap for babies. Two consecutive measurements of each parameter were obtained at two anatomical sites, the forearm and below the sternum. Johnson & Johnson's Head-to-Toe™ was used, which was already used at the institution.	Skin barrier function (transepidermal water losses, pH and stratum corneum hydration) in two evaluation sites: forearm and sternum.	3.c
7	04/01/2019 Gözen D. et al.[29]	Design: Randomized controlled experimental research. Sample: 73 NB. The control group (39 babies) received a bath 24 hours after birth and the intervention group (34 babies) 48 hours after birth. Babies in both groups were dried with the first towel and then wrapped in a second dry towel, and a cap was placed on to prevent hypothermia and minimize any minor loss of fluid.	Body temperature and skin humidity level.	1.c
8	04/01/2019 Chamberlain J. et al.[20]	Design: Retrospective pre-post-quasi-experimental literature review, before and after implementing a 24-hour postponement protocol, minimum of 6 hours. Sample: 660 in total, 330 records were reviewed before implementation, 330 records were reviewed after implementation.	EBF rates, glycemic and thermal stability, and weight loss.	2.d
9	09/01/2018 Kelly PA. et al.[19]	Design: Non-randomized quasi-experimental study. Sample: 75 NB, divided into three groups, who received the bath at 3, 6 and 9 hours of age. Instruments: Axillary temperature was measured with a digital thermometer, and skin temperature was measured with a thermographic camera.	Axillary and skin temperature.	2.c
10	01/01/2018 Suchy C. et al.[18]	Design: Evidence-based practice study – Quasi-experimental on the impact of a new protocol for the first bath of NB, a minimum postponement of 12 hours. Sample: Medical records of 1,205 NB, 322 pre-implementation and 883 post-implementation.	Temperature and EBF.	2.d
11	12/01/2017 Brogan J, Rapkin G.[17]	Design: Retrospective documentary study before and after the implementation of an evidence-based protocol recommending a	Temperature and EBF rates.	4.a

		24-hour postponement for bathing, taking place in mother's room through immersion. Sample: not specified.		
12	12/01/2013 Preer G. et al.[16]	Design: Documentary and retrospective study. Sample: 714 NB from electronic medical records (348 pre-intervention and 366 post-intervention).	Intra-hospital EBF. Incidence of BF initiation.	4.a
13	12/01/2009 Pugliesi VEM. et al.[25]	Design: Case-control and retrospective study. Sample: 194 newborns were included, 98 in the bath group (in the delivery room) and 96 in the control group. Instruments: digital thermometer and pulse oximeter.	Body temperature, HR, RR, MAP, $SatO_2$ (evaluated by pulse oximeter); Time interval between delivery and admission to the destination and the presence of respiratory distress.	3.d
14	01/01/2008 Cunha ML da. et al.[24]	Design: Randomized Masked Clinical Trial. Sample: 112 newborns, the control group with 56 newborns (neutral soap) and the experimental group with 56 newborns (chlorhexidine liquid soap). Instruments: Liquid chlorhexidine soap or neutral soap, a cotton swab moistened with distilled water and rubbed 10 times on the right armpit in the same 2 cm^2 area, 5 times vertically and 5 times horizontally. Three samples were collected from the skin of the right armpit for culture, before bathing, 30 min after bathing and 24 h after bathing.	Cutaneous colonization of Staphylococcus aureus (SA).	1.c
15	01/01/2005 Bergstrom A, Byaruhanga R, Okong P.[31]	Design: Randomized Controlled Clinical Trial. Sample: 249 NB in total, 126 in the experimental group (60 minutes postpartum) and 123 in the control group (2 hours postpartum). Instruments: Infrared thermometer was used to measure the temperature of the eardrum. Rectal temperature was measured using a digital thermometer for 3 min.	Hypothermia (temperature less than or equal to 36.5°C). Early breastfeeding.	1.c
16	01/01/2004 Bryanton J, Walsh D, Barrett, M, Gaudet D.[27]	Design: Randomized controlled trial. Sample: 102 NB in total, 51 NB in the experimental group (bathtub) and 51 NB in the control group (sponge). Instruments: Mercury thermometer; Cord Rating Scale (redness, smell, dryness, and infection of the umbilical cord stump); Brazelton Neonatal Behavioral Assessment Scale (1999).	Body temperature measured in the armpit. Umbilical cord stump healing. Child contentment.	1.c
17	01/01/2004 Medves JM, O'Brien B.[26]	Design: Randomized controlled trial Sample: 101 NB in total, 55 NB in the intervention group (by parents in the room) and 56 NB in the control group (in the nursery by nurses). Instruments: Mercury thermometer.	Body temperature, measured in the armpit, and ear temperature.	1.c
18	01/01/2003 Behring A, Vezeau TM, Fink R.[15]	Design: quasi-experimental study. Sample: 51 NB in total, 24 NB for the experimental group (bath with 1 hour of life) and 27 NB for the control (bath with 4 to 6 hours of life). Instruments: Digital thermometer.	Body temperature, measured in the armpit.	2.c
19	01/01/2000 Varda KE, Behnke RS.[14]	Design: Randomized quasi-experimental study. Sample: 80 NB in total, 40 NB in Group 1 (bath with 1 hour of life) and 40 in Group 2 (with 2 hours). Instruments: Disposable digital thermometers.	Body temperature, measured in the armpit.	2.c
20	07/01/1996 Penny-MacGillivray T.[13]	Design: Randomized controlled trial. Sample: 97 NB in total, 49 NB in the control group (bath with 1 hour of life, average 61'means of 61 min) and 48 NB in the experimental group (bath atwitch 4 hours of life, mean of 252 min). average of 252'). Instruments: Rectal probe.	Body temperature measured in the rectum.	1.c
21	01/01/1995 Anderson GC, Lane AE, Chang HP.[12]	Design: Pilot study. Sample: 20 NB.	Body temperature, measured in the armpit.	3.e

		Instruments: Digital thermometer (Becton Dickinson Model 403001; Franklin Lakes, NJ), and room temperature was measured with a standard thermometer (Taylor; Fletcher, NC).		
22	12/19/1981 Henningsson A, Nyström B, Tunnell R.[30]	Design: Quasi-experimental study. Sample: Divided into two groups, 118 from Group 1 (bathed), and 114 from 2 (washed), totaling 232 NB in the first step. In the second, 165 NB were selected, 80 who were bathed (Group 1) and 85 who were washed.	Signs of infection. Rectal temperature. Manifestation of crying during and after bathing.	2.c

* Evidence level, according to JBI.

According to Table 2, there is a predominance of studies published in 2019 and 2020, with three articles in each (n=3; 13.6%), with a randomized controlled trial design (n=8; 36.6%). The main evaluated outcomes were body temperature (n=15; 67.5%) and EBF (n=6, 13.6%). Moreover, most studies belong to evidence level 1.c (n=8; 36.6%).

It was found that four studies (18.1%)[1,6,27,30] evaluated behavioral parameters (crying and agitation) of NB, two[1,27] using Brazelton's (1999) six-state behavioral scale. Another survey[6] evaluated vigorous crying, drowsy, and calm conditions, and an investigation[30] checked the appearance of crying during and after the first bath.

Next, in Table 3, there are data on the sociodemographic and clinical characteristics of NB, bathing environment, interventions carried out, type of bath, main results and conclusions. It was noticed that most studies recommended an immersion bath (n=13, 59%), postponed for at least 24 hours (n=5, 22.7%), carried out by health professionals (n=7, 31.8%), in mother's room/rooming-in (n=10, 45.45%), using a radiant heater after bathing (n=6, 27.2%).

Table 3 – Sociodemographic and clinical characteristics of newborns, bathing environment, interventions carried out, type of bath, main results, and conclusions.

Nº	Publication date/ Authors	Bathing environment	Interventions carried out, Type of first bath	Main results, and conclusions
1	08/17/2022 Priyadarshi M. et al.[28]	Not specified.	Not applicable.	Bathing postponed for 24 hours or more can reduce neonatal mortality and hypothermia when compared to baths given within a shorter period of time. Bathing was related to an increase in EBF rates, which, when postponed for 6 hours, reduces the risk of hypothermia and hypoglycemia.
2	02/01/2021 Anderson J.[23]	The water temperature ranges from 36.7ºC to 39.9ºC.	Immersion bath in the bathtub, delayed for at least 24 hours, in parents' room, carried out by them, ideally lasting less than 5 minutes, ensuring total immersion of the back, and placing NB under a radiant heater after it. Newborn's hair is washed over the bathtub, with the baby wrapped in a dry towel or blanket, and then placed in the heater again. Parents were prepared and encouraged for the procedure. The temperatures of NB were evaluated at the following moments: before and immediately after bathing; 30, 60 and 120 minutes after the procedure; and, finally, every 8 hours until hospital discharge.	It was possible to analyze the lower incidence of post-bath hypothermia (T<36.5ºC) after implementing the intervention, being 9% before (sponge bath) and 1% after it. It was concluded that postponing the first immersion bath carried out by parents, in addition to promoting parental involvement in the care of NB, contributed to the lower incidence of post-bath hypothermia.
3	09/14/2020 Mardini J. et al.[6]	The water temperature ranges from 36.7ºC to 39.9ºC.	Immersion bath in the bathtub, postponed for at least 24 hours, in parents' room, carried out by the parents, ideally lasting less than 5 minutes. Newborn's hair is washed in the bathtub, with the baby wrapped in a dry towel or blanket. After the first bath, skin temperature was measured every 2-3 h for 24 h. An evaluation of baby's general condition was made by two experienced midwives to classify each baby as calm, drowsy or vigorously screaming.	Postponing NB's first bath for more than 12 hours has benefits that go beyond reducing the risk of hypothermia, and the consequent need for an incubator, but also with regard to NB's behavioral state, reducing the incidence of vigorous crying; provided the permanence of the vernix caseosa, which promotes protection and hydration for baby's skin; and the last benefit was the satisfaction on the part of mothers, who were able to participate in the first bath and were able to create bond with their babies through SSC, which can consequently help with EBF.
4	03/01/2020 Long K. et al.[22]	Not specified.	The bathing routine before the intervention was to bathe NB within the first two hours of life, while the intervention recommended a postponement of at least 12 hours. The bathing method at both evaluation times was the same.	EBF rates did not produce significant percentage changes between groups: for A, it was 74.1%; while, in B, 70.7%; and, in C, 79.4%. Even so, nurses reported an improvement in the quality of breastfeeding.
5	01/01/2020 Lima R. O. de. et al.[1]	In RI at the bedside, with a room temperature of 26ºC.	Bath performed at least 24 hours after birth for all babies. The intervention was carried out by the nursing professional. Start by wrapping the baby with a sheet, leaving the head and neck out, washing the face with a little soap and water, drying the head and face, and removing the dryer. Then, the baby is placed in the bathtub in a ventral position, fully immersed up to chest height to be soaped in the water. Baby's position is changed from ventral to dorsal, thus performing hygiene on the chest, umbilical cord stump and abdomen. Maintain it immersed for 8 to 10 minutes, performing light movements in the water. Then, NB is wrapped in a ventral position, and finally it is dressed.	It was possible to notice that the intervention group slept for approximately 180 minutes, cried less during the procedure and newborns' pain scale assessment was lower than the control group. The mean bath time in the control group was 8.7 minutes; and in the intervention group, it was 14.7 minutes. The intervention has benefits for baby's behavioral state; however, from the perspective of vital signs and other clinical indicators, no real response was obtained differentiating the control group from the intervention group.

6	01/01/2020 Lund C, Kuller J, Durand DJ. [21]	Room with radiant heater. Water with a mean temperature of ±38.33ºC (101ºF).	Swaddled immersion bath in both groups, with an age range between 20 and 91 minutes at the time of completion. One group with water only, and the other with liquid soap. The babies were bathed by a professional in less than 5 minutes, without disturbing the vernix caseosa. They were dried with a heated blanket and placed under a heater for 10 minutes.	There was a decrease in pH, loss of transepidermal water and humidity in the stratum corneum as a result of the first bath, not necessarily influenced by the use of liquid soap for babies in the bath or not. Accordingly, both can be equally recommended, depending more on family preference.
7	04/01/2019 Gözen D. et al.[29]	Room was not specified. Environmental temperature between 26 and 27ºC, local humidity of 40-60%, water temperature between 37-38ºC.	The same technique for carrying out newborn's first bath was applied in both groups, except for the moment in life at which it was held (24h or 48h of life). NB was undressed, the perineum was cleaned, and wrapped in a towel. His/her eyes were the first parts to be cleaned, then his/her nose, ears and the rest of his/her face. Then, the baby is immersed up to his/her shoulders in water, being bathed for a maximum of 5 minutes. After that, removed from the water and dried with a towel. All of them were then wrapped in a second towel, which was dry, and a cap. Ten minutes later, temperature and humidity were assessed again, and then returned to the mothers. Skin humidity assessment was carried out in the following areas of newborn's body: forehead, abdomen, forearm, and proximal region of the leg, using a transepidermal water loss assessment.	There was no significant difference, but it was possible to determine in the tenth minute post-bath that the intervention group showed higher hydration/humidity results than the control group; however, both showed similar changes (at different levels). What may have helped with the high incidence of post-bath hydration is the fact that one of the assessments was immediately after bathing, that is, the newborn was still damp from the bath water, even though he/she had been dried with a towel. Nonetheless, in the assessment 10 minutes later, it was possible to establish that babies bathed 48 hours after birth showed more hydration in the tenth minute, which suggests that postponing bathing for 48 hours is beneficial for skin development. The group that received a bath within 48 hours of life had a higher body temperature than the control group (24 hours), 10 minutes post-bath.
8	04/01/2019 Chamberlain J. et al.[20]		Before and after the intervention, the way the procedure was carried out remained the same, except for the moment of completion, which is postponed for 24 hours in the new protocol, unless there is a contraindication. The new protocol includes the recommendation of skin-to-skin contact for one hour postpartum. If there was meconium or blood in the hair, the recommendation was to clean off the excess with a comb and put on a hat. If there was any blood or meconium on the skin, the professional would clean the excess with a tissue damp with just water, avoiding removing the amniotic fluid.	After intervention, a significant decrease in NB capillary blood glucose levels (≤ 45mg/dl) and in their frequency of checks was detected. It also reduced weight loss: the manifestation of neonatal exhaustion, due to the cold: and the incidence of post-bath hypothermia. EBF rates did not change. Parents were satisfied with the new practices, teams' workload was not changed, and there were no reports of infections or cross-contamination. An increase in the level of comfort in newborns was detected. Postponing bathing proved to be beneficial for reducing rates of hypothermia and hypoglycemia and for giving more time and opportunity for the family to create bond with the baby.
9	09/01/2018 Kelly PA. et al.[19]	In mother's room. Thermostat set to 22.2ºC (mean of 22.4ºC) 1 hour before the procedure. Bath water at 37.8ºC.	The crib/bathtub was positioned at the foot of mother's bed. A small amount of mild baby soap was used. NB was held in the prone position and an infrared photo was taken assessing his/her posterior torso temperature. The sponge bath was used in the trunk-to-head direction (head last), without disturbing the vernix caseosa. After washing the body, NB was wrapped in a blanket, and then baby's hair was washed and dried with the same blanket. He/she was then dressed in a diaper, a cap, and a clean dry blanket.	Significant differences in axillary temperatures were identified between the groups, but they were not clinically relevant. Regarding skin temperature, no relevant differences were identified. Temperature drops (both) were present in all groups in relation to the temperature before bathing. The mean skin-to-skin contact time (SSC) after bathing was 69.4min, and 34 mothers breastfed at some point during SSC.
10	01/01/2018 Suchy C. et al.[18]	In mother's private room.	Immersion bath postponed for at least 12 hours postpartum.	There were no significant changes in exclusive breastfeeding rates at hospital discharge (mean of 70%, and an overall mean of non-exclusive breastfeeding of 92%) or hypothermia after implementing the protocol, and

				it is not possible to relate the type of bath to thermal instability or a decrease in breastfeeding rates.
11	12/01/2017 Brogan J, Rapkin G.[17]	In mother's room. Water with a temperature between 37.7ºC (100ºF) and 39.9ºC (103.9ºF), given in a bathtub in mother's room.	The intervention involves postponing bathing (immersion) for at least 24 hours of life. The team used gloves to handle the babies before bathing and parents were instructed on the technique for bathing their children, being encouraged to carry out the procedure in less than 5 minutes. Disposable towels and supplies were taken to mother's room. Parents bathed their children and then positioned them under radiant heaters. They used a dry towel or blanket after bathing, wrapping NB and then washing their hair in the bathtub. Then, the team placed the babies back in the heater to achieve post-bath normothermia.	The incidence of hypothermia decreased in the post-intervention group (sponge bath 30% experienced hypothermia, in contrast to 19% in the immersion bath). In a retrospective review, in the pre-intervention group, 93% of NB received breast milk and 76% were exclusively breastfed (EBF). After the intervention, the numbers were 94% on breast milk nutrition and 75% on EBF (in the second group, there were 20% fewer births).
12	12/01/2013 Preer G. et al.[16]	The rooms underwent modifications, with sinks specially designed for bathing the baby being installed.	Postponement of NB's first bath for at least 12 hours of life (mean bath time of 13.5 hours). Babies were bathed by nurses or a care assistant at the hospital room sink. Parents participated in the bath and then the newborn was placed skin-to-skin with the mother, father, or family member.	Before postponing bathing, babies were bathed with a mean of 2.4 hours of age. Subsequently, the babies were bathed at a mean of 13.5 hours of age. In-hospital breastfeeding rates (EBF) increased from 32.7% to 40.2% ($p< 0.05$) after postponing bathing. Postponement in bathing the newborn was associated with a greater likelihood of initiating breastfeeding and increased intra-hospital breastfeeding rates. The intervention improved EBF rates due to the following factors: postponing bathing mitigates the risk of hypothermia and hypoglycemia, which are more susceptible in the first hours; reduces the separation time between mother and baby; and increases contact time.
13	12/01/2009 Pugliesi VEM. et al.[25]	Delivery room. The temperature in the delivery room was maintained at around 26°C and the water temperature between 36-37°C (measured by a thermometer before immersing NB).	With a mean duration of between 5 and 10 minutes, the bath was carried out by the father and assisted by the nurse, in a crib with enough water to immerse NB up to the neck. The newborn was bathed between 15 and 30 minutes after birth, without soap, so that residues of blood, meconium and secretions were removed, and the vernix was maintained. Next, NB was dried completely, wrapped in towels, and maintained next to the mother in a heated crib until the end of the delivery process (intervention group). In the control group (bath performed after the third hour of life), the newborn received the same care in the delivery room, with the exception of the bath.	A longer time elapsed between birth and admission to the neonatal unit (95±27 and 79±29 minutes; $p<0.001$) and a higher breastfeeding rate in the delivery room were observed among NB in the bath group (90.8% versus 56 .8%, $p<0.01$). No differences were observed between the two study groups in relation to the evaluated cardiorespiratory parameters. All 194 studied NB were admitted to the normal nursery, without respiratory distress, and there were no admissions to the neonatal ICU or ICU in the studied sample. The breastfeeding rate (91% and 57%; $p<0.001$) and the time in the delivery room (95±21 and 79±29 minutes, $p<0.001$) were significantly higher in the bath group.
14	01/01/2008 Cunha ML da. et al.[24]	Room with radiant heater.	The groups received the admission bath between 1 and 1.5 hours after birth. All newborns were bathed under a radiant heater with a sponge. Control group: received neutral liquid soap. Experimental group: received a bath with chlorhexidine liquid soap. The face was washed first and then dried. Subsequently, the scalp was washed with a damp gauze pad and soap and then rinsed with warm water and dried. The same procedure was applied to the neck, abdomen and back. Finally, the genitals and buttocks were washed with wet gauze and soap and then	Skin colonization with S. aureus before bathing was similar in both groups ($p=0.44$). The results of the second collection showed a significant difference ($p=0.017$) in the colonization rate between the groups. There was a reduction in S. aureus colonization in NB in the experimental group and greater colonization in the control group. In the third collection, 24 hours after the first bath, a lower prevalence of colonization was observed in the experimental group, with a significant difference ($p=0.021$). The first bath with chlorhexidine liquid soap is safe and reduces colonization by S. aureus on newborn's skin for a period of 24 hours, without impact on

			dried. Three samples were collected (before bathing and 30 minutes and 24 hours later) from each person.	the occurrence of sepsis in a scenario of low prevalence of neonatal infection.
15	01/01/2005 Bergstrom A, Byaruhanga R, Okong P.[31]	It does not specify the environment. Warm water (boiled mixed with tap water, measured before immersing the baby).	Experimental group: NB bathed for 1 minute, 1 hour after birth, in warm water. After bathing, NB were dried with a towel and placed in skin-to-skin contact (SSC). Control group: NB not bathed after birth and placed in SSC. Four temperature measurements were taken: immediately after drying and weighing, 60 min postpartum (before bathing), 70 and 90 min postpartum.	Bathing newborns in the first hour after birth resulted in a significant increase in the prevalence of hypothermia at 70 and 90 minutes postpartum, despite the use of heated water and the application of the skin-to-skin method. There was no neonatal mortality. Other than the bathing procedure, no factors potentially predisposing to hypothermia have been identified. In the study, it was possible to observe newborn's satisfaction with SSC and the bond/closeness that this brings to the mother-baby binomial.
16	01/01/2004 Bryanton J, Walsh D, Barrett, M, Gaudet D.[27]	Bath at an environmental temperature of 22ºC, without draughts, using radiant heaters. Water at a temperature between 17.8º and 18.8º.	Intervention group: immersion bath, performed by nurses. Control group: sponge bath, where the baby was placed on a flat and protected surface and was washed with a soft cloth soaked in water; the body parts were washed, dried, and covered immediately. Bathing times ranged from 2 to 24 hours after birth. The time for each bath was approximately 10 minutes.	Tub-bathed babies experienced 0.2°C less temperature loss during both baths than sponge-bathed babies. Tub-bathed babies had significantly higher post-bath temperatures for both baths than sponge-bathed babies, with a mean duration of 0.2°C (SD = 0.3) higher. No significant differences were found between groups regarding cord healing scores. Tub-bathed babies were significantly more satisfied than sponge-bathed babies for both baths. Tub-bathed babies had significantly less temperature loss (p = 0.00) and were significantly more satisfied (p = 0.00) than sponge-bathed babies.
17	01/01/2004 Medves JM, O'Brien B.[26]	Bedside baths in the nursery. Water temperature of 38ºC and environmental temperature of 27ºC for both groups. Windows and doors maintained closed.	Intervention group: immersion bath carried out by NB's parents, at the bedside, assisted by nurses, without using a post-bath heater, performing SSC. Control group: immersion bath performed by nurses. The mean bath time ranged from 10 to 20 minutes. Newborn's temperature was monitored on five occasions: before bathing (time 1), after washing the face and hair (time 2), after 30 seconds of immersion in the bathtub (time 3), immediately after drying (time 4) and 1 hour after bathing (time 5).	No difference in NB's temperature was detected regarding the type of bath. 38 NB had less than 36ºC; and, of these, 20 were bathed by their parents and 18 in the control group. There was a greater drop in temperature in cases of NB bathed in the nursery. Bathing does not need to be held far from mother's bed. The difference in temperature between the groups can also be attributed to the fact that mothers stayed in the recovery room for 2 to 4 hours before going to their rooms, while their children were admitted to the nursery approximately 1 hour after they were born.
18	01/01/2003 Behring A, Vezeau TM, Fink R.[15]	Incubator with radiant heater. Air temperature: 24.6ºC; water temperature: 37.2ºC.	Intervention group: newborns bathed within 1 hour of birth (mean of 68.1 min). Control group: at 4 to 6 hours of life (mean of 253.6 min), the newborn was bathed under the radiant heater; dressed in hat, shirt, diaper and two blankets obtained from the clothes heater unit; and placed in an open crib. Axillary temperature measured immediately before and after bathing, 1 hour and 2 hours after it, for control and experimental babies. Baths performed by nurses.	Axillary temperatures measured at four different times did not differ significantly (p>0.005) between babies bathed within 1 hour of birth and those bathed between 4 and 6 hours after birth. Flexibility is recommended at bath time according to the characteristics and stability shown by the newborn and the family's wishes. The conclusions regarding temperature are that the bath times do not affect the thermoregulation of NB.
19	01/01/2000 Varda KE, Behnke RS.[14]	Nursery with space heater. Water	Group 1: bath given within 1 hour after birth by nursery professionals. Group 2: bath given in the 2nd hour after birth by nursery professionals (it does not specify the professional category). Maximum duration of each bath is 10 minutes. After bathing, NB were placed under a radiant	At 10, 20, or 60 minutes after bathing, no significant differences were found in the temperatures of newborns bathed 1 hour after birth compared to newborns bathed 2 hours after birth. At 10 minutes after bathing, 88% of

		temperature: 36.7ºC.	heater for 10 minutes until they reached a Tº of 36.7ºC. Tº measured before the admission bath and at 10, 20 and 60 minutes after bathing.	newborns bathed 1 hour after birth were below their pre-bath temperature when compared with 93% of newborns bathed 2 hours after birth.
20	07/01/1996 Penny-MacGillivray T.[13]	Intervention and control groups with bedside bath, with air temperature between 20.0°C and 25.0°C.	Intervention group: bath performed immediately after the end of the admission physical examination. Control group: bath performed 4 hours after birth. It does not specify the type of bath, as these are carried out by nurses. Rectal temperatures were recorded during newborn's admission examination, immediately before bathing, immediately after bathing, 1 hour after bathing and 2 hours after bathing.	No significant differences in rectal temperatures were found between groups during the admission assessment examination, before bathing, immediately after bathing, 1 hour after bathing or 2 hours after bathing. Healthy full-term newborns with a rectal temperature higher than 36.5°C can be bathed immediately after the admission assessment examination. Early bathing may reduce the risk of transmission of bloodborne pathogens to perinatal care professionals.
21	01/01/1995 Anderson GC, Lane AE, Chang HP.[12]	It does not specify the location; water with approximately 37.6ºC and 38ºC was used.	The bath was given by two research nurses and generally given in mother's postpartum room or in newborn's recovery room or nursery, if there was no postpartum room available. They were bathed with liquid soap and a soft tissue/diaper. The soap bottle was placed in the water to heat while the bathtub was filling. The procedure time was timed. Baby's temperature (armpit according to institution's standard), environmental temperature and water temperature were assessed and recorded immediately before bathing. The newborn was undressed and immersed in the bathtub. He/she was washed gently with a small amount of soap and a tissue suitable for the procedure. Then, he/she was quickly removed from the water, wrapped in a dry towel, and dried without using friction. The wet towel was then exchanged for two dry blankets, and the baby was dressed in t-shirt, cap, and diaper. The temperature was then measured. Finally, the NB was positioned on his/her mother's chest (in some cases, covered by more blankets).	The mean temperature in the 20 babies was 36.8°C (98.2°F) pre-bath and 36.7°C (98.0°F) post-bath. The mean change was -0.1°C (-0.2°F) and was not significantly different (p=0.1453). In five of the last six babies, the temperature was measured again 30 minutes after bathing and was 36.5°C --- 0.3°C (97.7°F +- 0.6°F). The warmer water used for the last nine babies was well tolerated; three of these babies actually gained heat, with a mean duration of 0.2°C (0.4°F). Parents became more positive regarding the intervention once they saw their children being able to relax. It was found that babies who were fussy before bathing were not fussy after it. The study suggested that it is best for the newborn not to be separated from his/her mother and maintained under heaters in nurseries to prevent post-bath heat loss.
22	12/19/1981 Henningsson A, Nyström B, Tunnell R.[30]	Not specified.	Upon admission to the ward, all babies in Group I were bathed in a bathtub filled with warm water. Baby's entire body was immersed in the water and his/her skin was cleaned by hand. Non-medicated soap was applied to the skin folds with a facial flannel. Immediately afterwards, the baby was wrapped in a large towel and dried. All babies in Group II were washed with facial flannel and non-medicated soap and were not given a bath. Immediately after washing, the baby was wrapped in a large towel and dried. The group that was bathed received it in a bathtub with warm water; and, in order to simulate home conditions, the temperature was not exactly controlled. The bath was held using immersion and cleaning by hand, with the help of a flannel and non-medicated soap in the folds. After bathing in the bathtub, he/she was bathed with warm running water. After that, the baby was wrapped in a large towel and dried. Samples were collected from NB's umbilical cord stumps on the third day of life.	The study recommends that the vernix caseosa be removed to avoid skin irritation, as well as amniotic fluid meconium and bleeding, making a wet procedure after birth completely unavoidable for skin hygiene. The authors mention that babies cry when they are cleaned through vigorous rubbing. The study confirmed the impression that cleaning with a towel makes the newborn uncomfortable and increases heat loss. Few infections, none of them serious, occurred in both groups. Bacterial colonization of the umbilical cord stump on the third day of life was similar in both groups. Rectal temperatures dropped further, and more babies cried during washing than during bathing. Accordingly, bathing the baby after birth makes him/her calmer, quieter and more comfortable than washing and causes less heat loss. Clinical signs of infection and rates of bacterial colonization are no greater after bathing than after washing.

DISCUSSION

Through this SR, it was possible to map evidence on the physiological and behavioral parameters of NB undergoing their first bath in the hospital context. There was a heterogeneity of bathing methods and evaluation methods. Regarding the ideal time after birth for the first bath, the results differ, a fact that may be related to the size of the research and the available evidence according to the period where they were investigated.

Research carried out in the USA in 2003[15] approached bathing, comparing it with one, four and six hours of life, and concluded that the age of NB did not impact post-bath body temperature, which is in line with a study carried out in 2018[18]. In addition, authors[25] highlight that bathing in the first hour of life allowed more contact time with parents and did not interfere with newborn's extrauterine adaptation.

A study[14] carried out in 2000 concluded that NB can be bathed after less than two hours of life, and another carried out in 1996 speaks of less than four hours[13], provided that their temperature is 36.5ºC or more; and can also reduce the risk of pathogen transmission to perinatal care professionals[13]. On the other hand, there is research from 1995[12], which compared bathing in the first two hours of life and in the first four hours, concluding that those bathed earlier had a greater loss of body temperature.

In addition, research developed in the USA in 2018[19] suggests six to nine hours of postponing the first bath, and two other investigations suggest twelve hours of time to carry it out[16,22]. Furthermore, most studies in this scoping review, as well as the most recent ones, highlight the importance of postponing 24 hours to carry out this care[1,6,20,23,28]. Furthermore, some authors[29] recommend that babies be bathed 48 hours after birth, as those who received the intervention during this period had greater skin hydration, which was beneficial for their development.

Among the benefits/reasons for the recommendations to postpone NB's first bath, one can mention: lower incidence of hypothermia, need for a post-bath incubator/heater for shorter periods, calmer NB during or after the procedure, longer time of deep sleep after bathing, increased EBF rates and quality of breastfeeding, greater family bonding and SSC time, less thermal and glycemic instability, greater neonatal and family satisfaction, and greater skin hydration[1,16,17,19,21,27,29,31].

Still regarding the recommended time for bathing, it is important to highlight that there are exceptions, such as in cases of mothers with the Human Immunodeficiency Virus (HIV), viral hepatitis or chorioamnionitis, due to the risks of transmission to the baby. In these cases, it is recommended to bathe immediately after birth, with running

water, removing all secretions and/or blood, and bring back NB to their mothers in the shortest possible time[3,32,33].

As for the physiological parameters of NB, most investigations evaluated body temperature after bathing, which correlated the incidence of hypothermia with the advance of the first bath[6,17,19,20,23,27,28,31]. Conversely, investigations[13-14] have linked the advance of bathing with less loss of temperature. Five other studies[1,15,18,25,26] did not produce significant conclusions on the impact of the first bath on NB's temperature.

In addition to temperature, other physiological parameters were evaluated, such as heart and respiratory rates, oxygen saturation, mean arterial pressure, respiratory distress, weight loss and umbilical cord stump healing[1,25,27,30]. In addition, two investigations checked the impact of the first bath on glycemia[20,28], and both found a relationship between postponing the bath for 24 hours and greater glycemic stability in NB, thus reducing the incidence of hypoglycemia and the frequency of necessary checks.

When looking at the panorama of research that evaluated the behavioral states of NB, it is important to mention that the Brazilian Ministry of Health[34] recommends that the behavioral state of each NB be respected, and if he/she is sleeping, he/she should not be woken up. In this sense, more recent research identified in this review[1,6] argues that the first bath intervention should be immersion and postponed for 24 hours, which can contribute to increasing the duration of deep sleep and reducing neonatal pain and vigorous crying after bathing. Another study[27] linked bathing in the bathtub with greater neonatal satisfaction. Moreover, the immersion bath reduced crying during the procedure, maintaining NB calmer[30].

It was noted a predominance of recommendations in terms of holding immersion baths in the bathtub/crib[1,6,12,16,17,21,23,25-27,30,31]. Three studies[13,19,24] used only the sponge bath, without comparison with other methods, and therefore it is not necessarily a recommendation for the method.

Even though there are no significant discrepancies between the conventional immersion bath and the swaddled one, the Brazilian Ministry of Health recommends the latter, which often maintains NB calmer by referring to the intrauterine environment, reducing excessive tactile stimuli, providing adequate growth and development, besides the fact that it promotes easier containment and use of the kangaroo position during the procedure. Nonetheless, for it to be carried out, the team must be trained, mainly to avoid prolonging the bath, loss of water and body temperature of the baby, as well as excessive and inappropriate stimuli to NB[34].

The concern on EBF is considerably recent, being researched in six articles[16-18,20,22,28]. Two linked postponing bathing with increased EBF rates[16,28]. Although a survey carried out in the USA in 2020[22] did not notice percentage changes in EBF rates, it brought positive reports from the team of professionals regarding improving the quality of breastfeeding. Accordingly, it is possible to establish an indirect relationship between EBF and the first bath, as postponing it avoids interruption of SSC and provides greater opportunity for creating bonds between mothers and babies and increases the possibility of breastfeeding.

There are studies that recommend that parents carry out the first bath[6,17,23,26], a practice that contributed to greater bonding between parents and less loss of body temperature. Only one survey[26] detected less loss of temperature in NB bathed by their parents when compared to the practice developed by professionals, although a small sample was evaluated. Another six investigations recommend that nursing professionals carry out the first bath[1,12,13,15,18,21].

Still regarding the bathing technique, some productions specified the direction/order for bathing NB, recommending washing the head/face/hair first and then the rest of the body[1,23-24,29]. However, other authors recommended washing the trunk and limbs first, and the head and hair later[17,19].

The research that mentioned the duration of the procedure is in line with the recommendations of the Brazilian Ministry of Health, suggesting a time between 5[6,17,21,23,29] and 10 minutes[25,27]. Only one[1] recommended a mean of 15 minutes, since its intervention encourages the professional/caregiver to massage NB while immersed.

Regarding the appropriate environment for NB's first bath, most recommend that it be in mother's room/RI[1,6,12,14,16-19,23,26]. Carrying it out in the room provides family participation, reduces newborn's exposure to different environments (and consequently temperatures) for the procedure to be performed, reduces the distance between the baby and his/her relatives, as well as enabling post-bath SSC as an alternative for providing thermal stability and recovering the pre-bath temperature. Authors[14,26] argue that bathing does not need to be carried out far from mother's bed, as it avoids interruption of family contact and facilitates education regarding care for parents and caregivers.

Still on SSC, two articles highlighted the recommendation of post-bath practice for thermal stabilization of NB[19,26]. In addition, the use of a post-bath heater is also recommended, since it helps NB to reach normothermia or the temperature they had before bathing[12,17,21,23,25,27].

Regarding the use of hygiene products in the first bath, a study carried out in the USA compared soap suitable for babies and bathing with just water, showing that there are no significant differences for one or the other to be recommended; therefore, both are equally recommended, depending more on family preference[21]. Another study, which addressed types of soap and impacts on the pH of NB' skin, proved that, even though there were minimal differences between common liquid soap and the one specific for NB, it was possible to evaluate that using the latter promoted more hydrated skin, less peeling, erythema, and skin changes[35].

Regarding the recommended water temperature for bathing, recommendations were found to be a mean of ±37.8ºC, ranging between 36ºC and 39.9ºC[1,12,14,15,19,21,23,25,26,29]. The environmental temperature recommended by four articles was between 26ºC and 27ºC[1,25,26,29], but it was between 22ºC and 24.6ºC in two other publications[15,27]. A study conducted in 2018[7] argues that environmental temperatures below 25ºC already predispose NB to heat loss and are related to the manifestation of moderate to severe hypothermia, recommending an environmental temperature between 25ºC and 27ºC. Some authors mentioned the openings of the environments, and all recommend that they be maintained closed, without wind currents, for greater possible control over the environment. This panorama corresponds with the recommendations of the Brazilian Ministry of Health, which brings temperatures between 23ºC and 26ºC, with doors and windows closed[34].

Finally, even though all steps for the development of a quality scoping review were respected, it is understood that this study showed as limitation the difficulty of accessing some selected productions for reading in full, making it necessary, after the exhaustion of possibilities, exclude them. Furthermore, the comparison between some studies was hampered by the lack of agreement in the bathing intervention, as well as the difference in samples, making further inferences impossible.

CONCLUSION

It was observed that physiological parameters must checked regularly and immediately before and after the procedure; and, if changed or unstable, one must avoid carrying out the first bath in the first hours of life. Temperature was the focus of investigations in this scoping review, as bathing can significantly impact newborn's body temperature, especially in the first hours after the procedure. Newborn's behavioral state

must also be respected; and, if sleeping, one must wait for him/her to wake up spontaneously before bathing.

From the evidence found here, it is inferred that postponing newborn's first bath in the hospital context is a safe practice, as it brings benefits, particularly in terms of greater bonding between family members, longer skin-to-skin contact time, higher rates of exclusive breastfeeding and/or early breastfeeding. Nonetheless, regarding the minimum age to carry out this practice, there is still no consensus in the pertinent literature, with older surveys recommending bathing in the first hours of life, while more current studies advocate postponing a minimum of 24 hours. The only exceptions to the postponement recommendations are cases involving risk of infection, for which baths are carried out as early as possible.

In this sense, it is understood that all baths can affect newborn's adaptive process to the extrauterine environment, and it is important to follow the recommendations for physiological and behavioral parameters, in order to respect the most opportune and stable moment, that is, stable vital signs, behavioral responses consistent with the performed stimuli. The presence and participation of family members in the procedure also proved to be beneficial.

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