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RESULTS FROM THERAPEUTIC TOUCH INTERVENTIONS IN THE NEWBORN: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

Therapeutic Touch (TT) is a contemporary approach to several ancestral healing practices. As one of the oldest vibrational therapies still in use, it is expected to act on the balancing of the human being's energy field, by the laying hands on. The hands are, therefore, vehicles of comfort, affection, support and healing. This article illustrates a systematic review of the literature (RSL), on the effects of TT in the newborn. **Objective**: To know the effect of TT in the newborn. **Methods**: We carried the research on the Online Knowledge Library platform (Biblioteca do Conhecimento Online/B-On) by researching on the available electronic databases. The articles which addressed the TT as an intervention in the newborn were included. From the 237 articles found, eight ones were selected according to the inclusion criteria previously established. **Results**: All studies demonstrated benefits of applying TT, such as calming effect after nursing procedures, because it reduces pain, reduces the motor activity, decreases the level of cortisol, facilitates feeding, suction/swallowing and thus increases weight, stabilizes vital signs, promotes rest, improves interaction with the environment and saves energy for growth and healing. **Conclusions**: The practice of TT in the newborn can contribute to his well-being, bringing him physical, psychological and spiritual benefits.

Descriptors: Therapeutic Touch, Newborn, Intervention Results.

INTRODUCTION

It was from the practices that all the knowledge was grounded, but the oldest ones are the practices of caring. Caring... this art which precedes all others, without which it would not be possible to exist, it is at the origin of all knowledge and in the matrix of all cultures [1].

The nurse, an essential element in health care, must be committed to the promotion, protection, prevention and recovery of health, whether in care, management, teaching or research. In this there is the importance of incorporating, progressively, systematic reviews in decision making, to make possible the incorporation of Scientific Evidences into practices[2].

The nurse is a caregiver. In order to give an adequate and effective response, it is necessary to act comprehensively, globally, and above all, to meet the other. There are times when conventional care is not enough. When this happens, complementary therapies, such as TT, can be (and they are) an efficient way of promoting well-being, insofar as they act to promote individual balance. Complementary therapies are a possible solution to broaden

the supply of health care[3]. The TT is not applied instead of... but rather in addition to... more and more, this is a reality in Health Institutions in Portugal. TT is a complementary treatment which does not dispense the conventional treatment, and it is carried out in parallel with other measures implemented by the health team, it's not an alternative but it has a complementary character[4].

In addition to technological advancement, which has been improving technical performance in order to ensure efficient care and effective actions to promote health, hand use has become the most powerful multipurpose tool in caring. It is an option for Nurses to act by maintaining the technical quality and offering nursing care based on love of one to another and effective in relieving pain[5].

Therapeutic touch is a non-invasive holistic method, based on the concept that the human being has an abundant energy field, which can extend beyond the skin and flows in certain patterns that are intended to be balanced[6].

Therapeutic touch is a powerful strategy of humanization, since, in addition to relieving pain and providing comfort to the newborn, it favors a closer bond between the patient and his/her relatives[7].

The initial intention of this RSL was to study the effects of TT in newborns, even during hospitalization in the maternity ward, in cases of abdominal colic, since it is very frequent in the first days after birth and constitutes a factor of suffering and anguish for the triad[8]. In an acute situation of abdominal cramps, the newborn presents signs of discomfort and suffering. If these can be minimized, or even eliminated, through TT, it is an added value in the contribution of the NB's well-being in a simple, harmonious, non-pharmacological and non-invasive way. However, due to the specificity of the subject (abdominal colic), no scientific studies were found that would serve as a basis for the elaboration of the desired RSL. Therefore, it was decided to widen the scope of the question in focus to the effect of TT in the newly regardless of the situation in which they are. As such, studies were included that referred to the effects of TT in newborns, in a more comprehensive survey. The search for evidence begins with the definition of terms or keywords[9].

Before beginning an RSL, three steps need to be considered: defining the purpose of the review, identifying the literature, and selecting the possible studies to be included. These preliminary stages are important, since they help the researchers to adjust the RSL guiding question based on available information on the topic of interest[9].

The question of research guiding the work presented was formulated according to the nomenclature PI (C) O:

What is the Result of Intervention (O) Therapeutic Touch (I) in the Newborn (P)?
The researcher must define his/ her question very precisely; since it is from this that everything that integrates the methodology is based[10].

A good systematic review requires a well-formulated and clear question[9].

With this RSL we intend to know if the application of TT therapy produces results in the newborn, and to produce, what they are and in what form they are manifested. It is also intended to achieve the result that TT is a non-invasive, non-pharmacological way to promote the newborn's well-being.

We analyzed the contributions of the research carried out between January 1995 and May 2016, in order to understand the effect and performance of TT and human responses (newborns). The search for evidence begins with the definition of terms or keywords, followed by search strategies, definition of databases and other sources of information to be investigated[9].

The following is a description of the methodological procedures used in this RSL, then the presentation of the results, with a reflective analysis and discussion of the same. Finally, the final considerations have arisen.

The entire document was elaborated and drafted in the Vancouver style and the *Joanna Briggs* protocol[11].

METHODS

The research for the preparation of this review had as reference the methodology recommended by the protocol of *Joanna Briggs*.

From the research question: *"What is the result of Therapeutic Touch Intervention in the Newborn?"* To answer this question, we included studies that address the application of TT in pediatrics. Thorough research and a critical appreciation of all the evidence should be undertaken[10].

In a first step, a research was carried out, through the DeCS - Descriptors in Health Sciences and the National Center for Biotechnology Information, with the objective of identifying the descriptors to be used, selecting *Therapeutic Touch*, *Newborn* and *Intervention Results* in the English language.

In a second stage, the phases of the project that led to this RSL were defined, from the definition of the starting point, to the selection of research databases, to the descriptors to be researched, to the selection of studies and analysis of the same.

The question of research was defined based on the clarification PI (C) O - **P**articipants, **I**nterventions, (**C**omparisons) and **O**utcomes, (Joanna Briggs Institute, 2014): *What was the result of intervention (O) TT (I) in the newborn (P)?*

Inclusion and exclusion criteria were developed and applied. As well as inclusion criteria, it was defined to include studies that responded to the theme, in the format of full text and accessible, published in the last 21 years, in Portuguese, Spanish or English. As exclusion criteria, it was decided to reject articles that lacked information to meet the criteria of PI[C]O - Participants, Interventions, Comparisons, Outcomes, that did not respond to the theme and studies carried out in animals. It was decided to define such a long period of time, to counteract the paucity of studies found, which could compromise the quality of the research.

Next, a research was carried out on the platform of the Online Knowledge Library (Biblioteca do Conhecimento Online/B-On), having accessed the electronic databases, Academic Onefile, Expanded Academic ASAP, Sciences Direct, MedicLatina, CINAHL Plus *with full text*, MEDLINE and Scopus®.

After the introduction of the search expression consisting of the descriptors and Boolean *Therapeutic Touch* AND *Intervention Results* AND *Newborn*, 237 results were obtained, from them 58 were repeated. The remainder was distributed in the following way by the electronic databases: Academic Onefile - 8; Expanded Academic ASAP - 9; Sciences Direct - 31; MedicLatina-13; CINAHL Plus *with full text* - 70; MEDLINE-48, Scopus®-8.

179 abstracts were read out, from them 18 were included, after selection according to the inclusion and exclusion criteria previously mentioned. After reading these 18 articles in full, it was verified that there were 10 studies that did not respond to the desired theme, and were excluded. The following figure illustrates the process of searching and selecting the articles that made up the universe of this study.

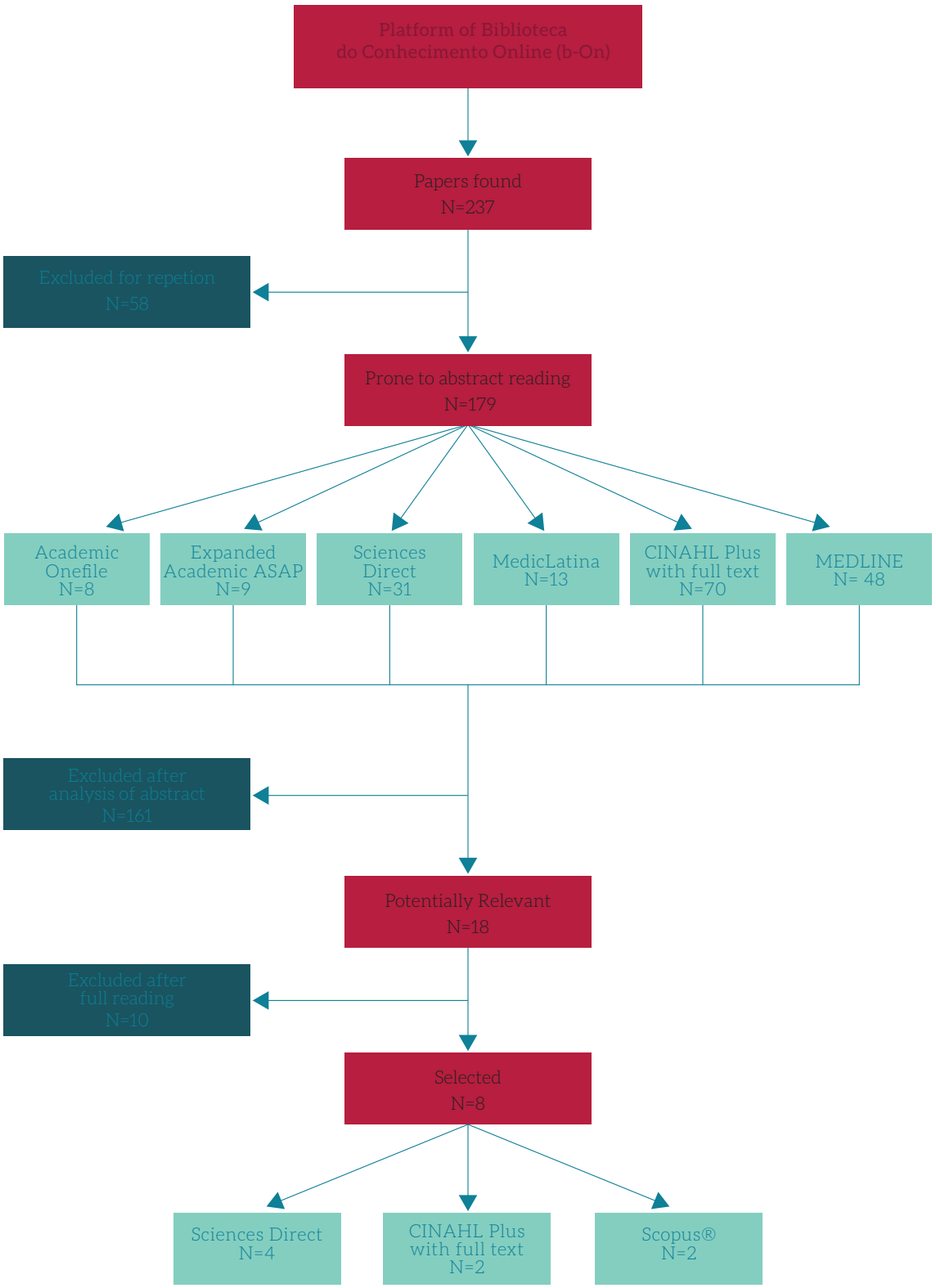

Figure 1 – Search process and selection of articles.

To complement the research previously described, *SciElo* and the Google Scholar search device were also accessed. This selection was made by search mode Boolean/phrase but did not obtain satisfactory results.

Thus, for this RSL, 8 articles will be analyzed, 4 of them selected from the database Science Direct, 2 from Scopus® and the other 2 from CINAHL Plus *with full text*.

They are presented in the following table.

Table 1 - Summary of the sample studies

Study	Authors (Year), Country	Design, Purpose of the study	Participants	Method, Interventions	Results
E1	Talton, Cynthia (1995) USA	Literature review.	N=9 references	Studies that addressed the touch as a complementary therapy in health.	The gentle touch in neonatology calmed babies before and after procedures and facilitated their feeding, leading to earlier weights by gaining weight more easily.
E2	Field, Tiffany (2010) USA	Literature review.	N=109 references	Recent research analysis on the touch on human care.	Premature babies had lower cortisol levels after being on their respective mothers' lap.
E3	Hanley, Mary (2008) USA	It is a qualitative, descriptive-exploratory study. It explores the nature of the use of therapeutic touch (TT) in preterm infants and describes a treatment process based on TT for this population.	N=5 Nurses who practiced therapeutic touch to preterm infants during several years of experience	Telephone or face-to-face interviews with written narratives that describe the use of therapeutic touch by nurses in preterm infants.	The infants who have TT had more controlled heart and respiratory rates, had more ability to rest, improved coordination in sucking, swallowing and breathing, as well as a better ability to interact with the environment. The nurses described that in some infants they felt changes in energy field patterns - more coherent and more integrated.
E4	Harrison, Lynda (2001) USA	Literature review.	N=66 references	Studies that addressed the effects of touch and massage on preterm infants admitted to Neonatal Intensive Care Units.	The gentle touch has immediate effects like: it reduces the levels of motor activity and suffering, which the author says it can promote comfort. It has no harmful effects on heart rate or oximetry, which suggests safety in the application to these babies. It reduces apnea, improves oximetry, improves and promotes gains in development. However, the author states that some children may react badly to touch.

Table 1 - Summary of the sample studies

Study	Authors (Year), Country	Design, Purpose of the study	Participants	Method, Interventions	Results
E5	Shu, Shao-Hui [et al] (2013) Taiwan and The United Kingdom	It is a randomized and controlled study. To determine the effectiveness of bonding and heel heating of newborns in response to pain for heel bite.	N=25 Newborns from a district hospital in Taiwan	Three groups were formed: one a control group, one in which newborns were bandaged and another in which the heel was heated. Heart rate, oximetry, and pain were evaluated through NIPS and the duration of crying. An increased heart rate and decreased oximetry were considered to indicate reactivity to pain, and that a longer duration of recovery of these values indicated a greater pain recovery.	The decrease in oximetry was higher in the bandaging group; The increase in the NIPS value in the control group was significantly higher than in the packing group; Recovery in heart rate was longer in the control and wrapping groups than in heel warming; The crying duration in the control group was higher in the remaining two groups.
E6	Ozdemir, Funda e Tufekci, Fatma (2013) Turkey	It is an experimental study. To evaluate the effect of contact with the mother's odor, flexion position (alternation of decubitus with U-shaped cushion) in the growth and duration of hospitalization in preterm infants.	N=97 Premature babies in a Neonatal Intensive Care Unit	Three groups were formed: the contact with the mother's odor, the flexion and the control. Babies were monitored until discharge And anthropometric data were recorded.	There were significant differences between the experimental and control groups In terms of weight, height and length, and this difference was associated with the mother odor contact group (infants with higher weight at discharge but in Length, there was not difference). The duration of hospitalization was lower in the experimental groups.

Table 1 - Summary of the sample studies

Study	Authors (Year), Country	Design, Purpose of the study	Participants	Method, Interventions	Results
E7	Bigsby, Rose (2010) USA	Literature review.	N=20 references	Studies that refer the support interventions for the child neurobehavioral development.	Skin-to-skin contact or Kangaroo Technique maintains thermos-regulation, improves sleep, reduces reactivity to invasive procedures such as the heel prick, and conserves energy for growth and healing, not only for full-term babies but also for low-birth-weight infants who require ventilatory support. The Kangaroo Technique improves the mother's sense of well-being and it is associated with higher cognitive and motor levels in the Bayley Scales of Infant Development. Another intervention in painful procedures is the snuggling or restraint. The presence of parents during invasive interventions promotes the baby's comfort, especially if the parent is holding him or her.
E8	Bond, Cherry (2002) The United Kingdom	Literature review.	N=86 references	Studies that addressed the Positive Touch as intervention for infants admitted to Neonatal Intensive Care Units (NICU).	Containment can be a way to provide stability for the baby in the NICU, and it makes parents to be confident. The Kangaroo technique facilitates sensory development and promotes the mother-child relationship. Providing restraint during techniques and examinations promotes the comfort and well-being of the baby (for example in a bending position), Or it allows the baby to grab a finger, or part of a blanket. Providing rest periods during invasive procedures or providing pacifiers or something to suck are other interventions.

RESULTS

From the articles selected, we found eight that fulfilled the inclusion criteria. In relation to the level of scientific evidence, three have high scientific quality and five are literature review. The studies by Ozdemir, Funda and Tufekci, Fatma (2013) and Shu, Shao-Hui [et al] (2013), are experimental studies with non-random groups and are considered Level II. The study by Hanley, Mary (2008), is a non-experimental study, and is considered Level IV. The remaining five studies, Talton, Cynthia (1995), Field, Tiffany (2010), Harrison, Lynda (2001), Bigsby, Rose (2010) and Bond, Cherry (2002) are literature reviews with descriptive and qualitative studies and Expert Reports, and are considered Level V.

All the studies analyzed in this RSL show that TT brings benefits to the newborn with incidence on: feeding; Weight increase; Vital parameters; Sleep and rest; Decreased pain; Interaction with the environment; Adaptation to ventilatory support; Sensory development and mother-child relationship.

Several types of TT were identified that could be applied to infants in the studies included in the present RSL: the gentle touch[12,13], the lap[13], the bandage[16, 18], the contact with the mother's odor[17], the Kangaroo Technique[18, 19], beyond the touch referred by the authors as Therapeutic[14] but which was not specified.

Talton[12], in a literature review that brought together studies that approached touch as a complementary health therapy, reports that the gentle touch applied in neonatology calmed babies before and after nursing procedures and facilitated their feeding, leading to discharge faster for gaining weight easily.

Field[13], in a recent research analysis of the touch on human care, concludes that preterm babies had lower cortisol levels after being on their mothers' lap.

Hanley[14], through interviews with 5 experienced nurses, conducted a study to explore the nature of TT use in preterm infants. As a result, TT infants had more controlled heart and respiratory rates, were able to rest, improved coordination in suction, swallowing, and breathing, as well as an improved ability to interact with the environment. The nurses also described that in some infants they felt changes in energy field patterns - more coherent and more integrated.

Harrison[15], in a literature review that brought together studies that addressed the effects of toot and massage on preterm infants admitted to Neonatal Intensive Care Units, notes that the gentle touch has immediate effects such as: it reduces motor activity and suffering, which the author says it can promote comfort. It has no harmful effects on heart

rate or oximetry, which suggests safety in the application to these babies. It reduces apnea, improves oximetry, improves weight gain and promotes development gains. However, the author states that some children may react badly to touch.

Several authors[16] have carried out a study to determine the efficacy of heel infusion and heating of the newborn in the response to pain during heel prick. Heart rate, oximetry, pain through NIPS and duration of crying were evaluated. An increased heart rate and decreased oximetry were thought to indicate reactivity to pain. They concluded that the decrease in oximetry was higher in the bandaging group; The increase in NIPS value in the control group was significantly higher than in the bandage group; Cardiac frequency recovery was more time consuming in the control and wrapping groups than in heel warming; The crying time in the control group was higher than in the remaining two groups.

Ozdemir[17] performed a study to evaluate the effect of contact with the mother's odor, position of flexion (alternation of decubitus with U-cushion) in the growth and duration of hospitalization in premature babies. Infants were monitored until discharge and anthropometric data were recorded. It was concluded that there were significant differences between the experimental and control groups in terms of weight, height and length, and this difference was associated with the contact group to the mother's odor (Infants with higher weight at discharge but at the level of length there were not differences). The duration of hospitalization was lower in the experimental groups.

Bigsby[18], in a literature review that gathered studies on supportive interventions for child neurobehavioral development, has shown that skin-to-skin contact or Kangaroo Technique maintains thermoregulation, improves sleep, reduces reattachment to invasive procedures such as a heel prick, and conserves energy for growth and healing, not only for full-term babies but also for low-birth-weight infants who require ventilatory support. Another intervention in painful procedures is the snuggling or restraint. The presence of parents during invasive interventions promotes the baby's comfort, especially if the parent is holding him or her.

Bond[19], in a literature review that gathered studies addressing Positive Touch as an intervention for infants admitted to Neonatal Intensive Care Units, notes that contention may be a way of providing stability for the infant interned in the NICU, and enables parents to gain confidence by facilitating sensory development and promotion of the mother-child relationship.

Thus, in general, it can be concluded that the Therapeutic Touch has beneficial effects for the baby:

- Soothing before and after procedures[12], decreases pain[16], reduces motor activity[15,18], decreases cortisol level[13]; It facilitates feeding[12], sucking/deglutition[14] and consequently weight gain[12,17]; It stabilizes the vital signs[14,15]; Promotes rest[16]; Facilitates the mother-child relationship[19]; Improves interaction with the environment[14]; Promotes sensory development[19]; It conserves energy for growth and healing[18].

The effects/benefits found in the studies refer to the physical, psychological and spiritual dimensions of the baby.

CONCLUSIONS

The research was carried out for TT effect in the newborn, regardless of his condition, due to the lack of studies which shows evidence of TT intervention in abdominal cramps.

There are more and more studies about other ages of the human being's life, but with newborn there is an enormous lack that conditions the evidence of what is perceived by the "common sense": the welfare provided by the TT. Here is the suggestion to carry out more studies about this therapy, to value and to give visibility to its beneficial effects on the individual, whatever his age.

More and more, the researches about the use of TT have been developed to demonstrate the effectiveness of the intervention in reducing signs and symptoms related to various diseases[20].

Thus, it is concluded that TT shows the following benefits in the baby: it has a calming effect before and after procedures[12], decreases pain[16], reduces motor activity[15,18], decreases level of cortisol[13], facilitates feeding[12], suction/deglutition[14] and, consequently, weight gain[12, 17], stabilizes vital signs[14], promotes rest[16], facilitates the mother-child relationship[19], improves interaction with the environment[14], promotes sensory development[19] and conserves energy for growth and healing[18].

The studies analyzed for this RSL, all of them, are unanimous in the benefits that the TT brings to the child and, consequently, to their parents, as they relax after feeling their children comfortable and well-being provided by a non-invasive and non-pharmacological therapy, as the case of TT is.

Touch has been related to one of the most important forms of non-verbal and can send positive and negative messages to people. Touch can convey feelings of sympathy, interest, concern, and acceptance, safety, contributing to the reduction of anxiety, and providing physical and psychological well-being[21].

REFERENCES

1. Colliére, M. Cuidar... A primeira arte da vida. 2 ed. Camarate: Lusociência; 2003.

2. De-la-Torre-Ugarte-Guanilo MC; Takahashi RF; Bertolozzi MR. Revisão sistemática: noções gerais / Systematic review: general notions / Revisión sistemática: nociones generales. Revista Da Escola De Enfermagem Da USP [serial on the Internet]. (2011), [cited June 4, 2016]; (5): 1260. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342011000500033

3. Policarpo M. Integração das medicinas alternativas e complementares no Plano Nacional de Saúde. (2012), [cited June 5, 2016]; Available from: https://repositorio.iscte-iul.pt/handle/10071/4909

4. Sá, AC. Toque Terapêutico como Assistência Complementar de Enfermagem. Acta Paul. Enf. 1998; Volume 11: p73-76.

5. Ignatti, C; Silva, ASL; Santos, LB; Souza, MAQB. Toque Terapêutico: nova opção no Cuidar de Enfermagem. I Simpósio Internacional de Ciências Integradas da Unaerp Campus Guarujá.

6. Pacheco, SCC; Viegas, SMFSM; Rosa, ZMM. Toque Terapêutico – fundamentação e aplicabilidade em enfermagem. Nursing Edição Portuguesa Nº 224. 2007.

7. Ramada, NCO; Almeida, FA; Cunha, MLR. Toque terapêutico: influência nos parâmetros vitais de recém-nascidos. Einstein. 2013; Volume11:421-5.

8. Saavedra MAL, Costa JSD, Garcias G, Horta BL., Tomasi E, Mendonça R. Incidência de cólica no lactente e fatores associados: um estudo de coorte. J. Pediatr. (Rio J.) [Internet]. 2003 Apr [cited 2016 June 10] ; 79(2): 115-122. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0021-75572003000200005&lng=en

9. Sampaio RF, Mancini MC. Estudos de revisão sistemática: um guia para síntese criteriosa da evidência científica / Systematic review studies: a guide for careful synthesis of the scientific evidence. Brazilian Journal Of Physical Therapy [serial on the Internet]. (2007), [cited June 4, 2016]; (1): 83. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-35552007000100013

10. Vilelas J. Investigação:Um Processo de Construção do Conhecimento. 1.º ed. Lisboa: Edições Silabo; 2009.

11. The Joanna Briggs Institute. Joanna Briggs Institute Reviewers' Manual: 2014 edition. The Joanna Briggs Institute: Adelaide.

12. Talton C. Touch -- of all kinds -- is therapeutic. Rn [serial on the Internet]. (1995, Feb), [cited June 4, 2016]; 58(2): 61-64 4p. Available from: http://www.sciencedirect.com/science/article/pii/S0273229711000025

13. Field T. Touch for socioemotional and physical well-being: A review. Developmental Review [serial on the Internet]. (2010, Jan 1), [cited June 4, 2016]; 30367-383. Available from: http://www.sciencedirect.com/science/article/pii/S0273229711000025

14. Hanley M. Clinical article: Therapeutic Touch With Preterm Infants: Composing a Treatment. Explore: The Journal Of Science And Healing [serial on the Internet]. (2008, Jan 1), [cited June 4, 2016]; 4249-258. Available from: http://fulltext.study/article/2690789/Therapeutic-Touch-With-Preterm-Infants-Composing-a-Treatment

15. Harrison L. Research: The use of comforting touch and massage to reduce stress for preterm infants in the neonatal intensive care unit. Newborn And Infant Nursing Reviews [serial on the Internet]. (2001, Jan 1), [cited June 4, 2016]; 1235-241. Available from: http://www.prematurity.org/baby/comforting-touch1.html

16. Shao-Hui S, Ying-Li L, Hayter M, Ruey-Hsia W. Efficacy of swaddling and heel warming on pain response to heel stick in neonates: a randomised control trial. Journal Of Clinical Nursing [serial on the Internet]. (2014, Nov), [cited June 4, 2016]; 23(21/22): 3107-3114 8p. Available from: https://www.ncbi.nlm.nih.gov/pubmed/24476226

17. Özdemir FK, Tüfekci FG. The effect of individualised developmental care practices on the growth and hospitalisation duration of premature infants: The effect of mother's scent and flexion position. Journal Of Clinical Nursing [serial on the Internet]. (2014, Nov 1), [cited June 4, 2016]; 23(21-22): 3036-3044. Available from: https://www.ncbi.nlm.nih.gov/pubmed/24251955

18. Bigsby R, Lee Y. Neonatal screening and supportive interventions to promote neurobehavioral development. Medicine And Health, Rhode Island [serial on the Internet]. (2010, May 1), [cited June 4, 2016]; 93(5): 139-141. Available from: http://connection.ebscohost.com/c/articles/50987750/neonatal-screening-supportive-interventions-promote-neurobehavioral-development

19. Bond C. Regular Articles: Positive Touch and massage in the neonatal unit: a British approach. Seminars In Neonatology [serial on the Internet]. (2002, Dec 1), [cited June 4, 2016]; 7477-486. Available from: http://www.sciencedirect.com/science/article/pii/ S1084275602901491

20. Vasques, CI; Santos, DS; Carvalho, EC. Tendências da pesquisa envolvendo o uso do toque terapêutico como uma estratégia de enfermagem.
Acta Paul. Enf. 2011; Volume 24: p 712-4.

21. Silva, MJP; Silva, A; Cruz, CAS; Almeida, JDL. Entendendo o Toque Terapêutico. Revista Brasileira de Enfermagem. 1991; Volume 44: p. 69-73.

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