ARTIGO ORIGINAL

Levantamento de conteúdos para fundamentação do ensino dos efeitos psico-comportamentais da massagem para bebês

Study of the psychological and behavioral contents that are the foundation for the teaching of massage for babies

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RESUMO
Dentre os muitos efeitos produzidos pela massagem, esta pode ser utilizada como agente modificador de comportamento, por exemplo, servindo como fator de integração entre pais e filhos. Com objetivo de selecionar conteúdos para o ensino dos efeitos psico-comportamentais da massagem para bebês em uma população de mães leigas, foi realizada uma revisão bibliográfica dos últimos trinta anos. A seleção do material foi realizada considerando-se somente os textos escritos com base em estudos realizados com um mínimo de rigor científico e que ofereciam dados obtidos em populações humanas. Dentre os conteúdos encontrados, a melhora da interação e o fortalecimento do vínculo do bebê com quem realiza a massagem, é um fator reconhecido praticamente por todos os autores, seguido pela diminuição dos níveis de estresse da mãe e da criança. Outros efeitos são pouco conhecidos tanto em situação acadêmica quanto em situação informal, merecendo destaque na sua divulgação.

PALAVRAS-CHAVE
massagem, lactente, comportamento, relações mãe-filho.

ABSTRACT
Among the many effects produced by the massage, a noteworthy one is that it can function as a behavior modifier, such as working as an integration factor between parents and children. Aiming at selecting psychological and behavioral contents that are the foundation for the teaching of massage for babies in a population of lay mothers, a literature review comprehending at least thirty years was carried out. The selection of the material was carried out considering only the texts based on studies performed with a minimum of scientific criteria and that offered data obtained from human populations. Among the studies that were found, the improvement of the interaction and the strengthening of the baby’s bond with the person giving the massage is a factor recognized practically by all of the authors, followed by the decrease of the child’s and mother’s stress levels. Other effects are little known in both academic and in informal situations, warranting their disclosure.

KEYWORDS
massage, babies, behavior, relations.

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INTRODUCTION

Massage is defined as a group of maneuvers, usually performed with the hands on the external tissues of the body, with the aim of producing therapeutic effects. It affects all the circulatory, musculoskeletal, neurological as well as the immunological system.

Additionally, the massage can produce psychological-behavioral effects such as improving or strengthening the parent-child bonding and interaction.

In the Far East, the massage for babies is very commonly used. The technique is transmitted from mother to daughter, with the aim of providing security and confidence to the baby, which, according to the culture of the region, is devoid of the protection supplied by the mother’s womb after birth.

Frédéric Leboyer brought the knowledge of one of these techniques to the West. It is called Shantala (the name of the Hindu mother who massaged her baby and allowed Leboyer to photograph her) and it is the most widely known and disseminated (if not the only one) technique for massaging babies among the lay population. However, there are other techniques, such as the “South Asia massage” and the classical massage adapted for babies (including the “butterfly touch” technique). Nevertheless, all of them use classical massage maneuvers associated to the mobilization of body segments with therapeutic objectives.

In Brazil, the teaching of massage for babies, in academic situations as well as in situations when healthcare procedures are taught to the population, does not have a strong association either with healthcare schools or the habits and traditions of the people. Nonetheless, the benefits of such conduct are relevant from the point of view of the neuromotor, physical and emotional development of the child as well as of the development of a strong and stable mother-child relationship.

Aiming at selecting contents for the teaching of the psychological and behavioral effects of massage for babies in a population of lay mothers, a literature review encompassing at least thirty years was carried out.

METHODS

The literature review was carried out at the Library of the School of Medicine of the University of São Paulo in five databases (Cochrane, Scielo, Medline, LILACS and PsycINFO), as well as in the informal literature. Thirteen keywords were used: massage, effects, babies, mother-baby, interaction, relationship, behavior, development, psychological effects, physical therapy, teaching and psychology. This search led to a small number of publications, as shown in Chart 1.

When considering different periods of time, one can conclude that the texts found between 1976 and 1986 were very scarce and were frequently related to experiments in animals who were isolated from their mothers or from the contact with others of the same species. Montagu, in his book Touching: On the Human Significance of Skin, describes several similar experiments. As they had no data related to experiments with humans, these texts were rejected. Texts with an exclusive physiological focus or description of techniques were also excluded.

From 1996 on, a larger number of studies were carried out, evaluating the psycho-behavioral effects of the massage, following a minimum of scientific criteria, and thus, they were included in this literature review. This production became more intense from the year 2000 on.

The informal literature yielded two booklets and 4 magazine articles describing some massage and mobilization maneuvers of the Swedish or Shantala techniques, without however, mentioning the effects or references for reading, and therefore, they were also excluded from this review.

Based on the information obtained from the collected literature material, the following text was prepared.

Psycho-behavioral effects of the massage for babies

We are currently submitted to an overload of environmental stimuli (lights, sounds, colors), which increase the levels of tension in our bodies, causing what is called stress.

According to some authors,2,8,22,25 the baby is not immune to the stress, as during the pregnancy it was in an environment where light, sound and temperature were practically constant, as well as being all the time protected by the contact with the mother’s womb. At birth, the baby is removed from the mother’s womb and is submitted to a totally foreign environment, with new stimuli and sensations.

According to Brêtas, the baby can be affected by stress even before the birth, due to the levels of stress-related hormones present in the mother’s bloodstream, which can cross the placental barrier.

It is known that massage results in relaxation and creates a change in the emotional state. Normally, internal feelings such as tension, stress and anxiety are replaced by serenity and peacefulness.

Most relationships between two people tend to be one of physical contact, especially between parents and children. Except for rare cases, such as rejection or depression that might occur in the post-partum period, parents like to have physical contact with their babies since birth, to hold and cuddle as well as to play with them. The baby thus depends on the parents and needs such stimulation in order to have a healthy development. The beneficial effects of this physical interaction have been broadly demonstrated in the literature.

According to Bowlby, there is a complementarity between the baby’s and the caregiver’s behavior. The family, especially the mother, who recognizes the child’s dependence and adapts

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<th>Chart 1</th>
<th>Reference material found on massage for babies.</th>
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<td>Books</td>
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F = literature found and S = literature selected
to its needs, offers the opportunity for the baby to progress in the sense of integration, of the accumulation of experiences, i.e., of development\textsuperscript{10}.

It is important to stress that it is through the mother (father)-baby interaction that the complex and significant process during which mother (father) and child influence each other and mutually stimulate, including a continuous and reciprocal action and response dialogue that is affectively motivated\textsuperscript{22} can be understood. The mother/father must be understood as the person who exercises the maternal/paternal function, and therefore they are not necessarily the biological mother/father\textsuperscript{4}.

As normal children need physical contact with the mother, those who present some type of pathology, such as diseases that result in mental or physical impairment, need in addition to care and attention, adequate stimulation so they can reach a neuropsychomotor development that is as close as possible to normal. The massage can be used in parallel with other resources (physical therapy, speech therapy, psychology, etc) in order to attain such objective\textsuperscript{27}.

Children with Down’s syndrome or cerebral palsy can, for instance, respond less intensively to other people’s contact. In addition to behavior alterations caused by the pathology, most of the time the child’s responses to the parents (smiles, motor responses, etc) are present, but are less intense, which is not reinforcing for the parents. This less intense response can decrease the interaction behavior between parents and children, such as playing with the baby or holding the child’s hands, establishing a vicious circle of low reinforcement with decreased stimulation, i.e., the parents start giving less attention to the baby.

For these babies with special needs, all perceived attention, all stimulation and all the attention are fundamental for their development. The massage can be used as a therapeutic means that will intervene in this vicious circle, working as tool for the parents to reinstate the physical and emotional relationships with the child.

A study presented by Escalona\textsuperscript{13} describes the experience of 20 children with autism, aged 3 to 6 years, who received massage. The children’s parents were trained by a physical therapist to massage their children during 15 minutes, every night before going to sleep, for a period of 30 days. The parents from the control group read stories to their children during the same period. The results suggested that the children who were massaged showed a decrease in the stereotyped behavior and demonstrated a better social relationship during the playing activities performed and those observed at school, as well as sleep pattern improvement when compared to the group who was not massaged. There was likely a decrease of the anxiety levels in these children, caused by the massage.

According to Cassar\textsuperscript{4}, hyperactive children usually end up feeling frustrated, rejected by their peers and depressed and they present low self-esteem and self-confidence. The author recommends the massage to produce relaxation, reduce muscular fatigue and satisfy their need for physical contact and proximity, as well as to reduce stress levels.

Giannotti used the massage with malnourished children and children aged 3 to 6 years who presented a rude behavior and aggressive relationship with their peers in daycare. The results obtained were the rapid recovery of the malmoured children and decrease of the aggressive behavior and even the substitution of this aggressiveness by a more affectionate one, as well as concentration improvement in these children at the activities proposed at daycare\textsuperscript{16}.

Among the deprivation situations, or situations of little physical contact, is that of high-risk premature infants, born after less than 37 weeks of gestation and whose birth weight is < 1,000 g; these infants will be placed in the Neonatal Intensive Care Unit (NICU), where they will be kept away from physical contact with their parents and also without adequate stimulation. These babies are usually susceptible to apnea and bradycardia, symptoms that can be caused or exacerbated by stress. Studies have shown that premature babies submitted to massage and mobilization develop better in these situations (greater weight gain, higher level of attention, lower number of apnea and bradycardia crises and low cortisol levels – which is a stress marker, better oxygen consumption and better bonding with the parents) than those who received the standard nursery care\textsuperscript{16,19}.

A study carried out by Field and cols.\textsuperscript{14} used massage in twenty (20) premature newborns during 10 days. Another group of twenty premature babies did not receive massage. The infants’ mean age was 31 weeks of gestation and mean birth weight was 1,280 g. At each session, the babies were placed in the prone position and received massage with moderate pressure for one minute in each one of the body regions, i.e., head, face, neck and shoulders, back, legs and arms. After that, with the babies in the supine position, passive mobilization of the limbs was performed.

Among the results obtained, it was observed that the babies who received the massage presented weight gain of 8 g/day or 47% more in comparison to those who were not massaged, considering that both groups received the same formula or number of calories. They were awake and active most part of the time during an observation period of 45 minutes at the end of the treatment program. They demonstrated a more mature habituation, orientation and motor behavior and behavior state variation assessed by the Brazelton scale. They were hospitalized six days less than the non-massaged babies, presenting a mean cost reduction of US$ 3,000 per baby at the hospital where the study was carried out\textsuperscript{14}.

Another study was carried out with premature children at the NICU: of these, 13 children received two daily massage sessions and were carried in-arms twice a day; 10 children received the routine NICU care. All of the children were premature, born at 28 to 34 weeks of gestation and presented no clinical complications in addition to prematurity. Although there was no significant difference regarding the amount of calories ingested by both groups, the children who received massage presented 42% more weight gain than the control group. Furthermore, the massaged children were more serene and less irritable\textsuperscript{15}.

The study by Dieter examined the effects of five days of massage therapy on weight gain and sleep/awake behavior of hospitalized stable premature infants. The study group (n=16, mean gestational age of 30.1 weeks; mean birth weight =1,359 g) received massage plus passive limb mobilization for three daily periods of 15 minutes. The control group (n=16, mean gestational age of 31.1 weeks;
mean birth weight = 1,421 g) did not receive massage. The results of this study allowed the authors to conclude that healthy, low-risk premature children presented more weight gain and slept less with only 5 days of massage therapy, in contrast with results reported in other studies after 10 days of intervention16.

In the last years, touching (physical contact) has been systematically used as a powerful tool in the recovery of premature babies. The Tac-Tic (Touching and Caressing, Tender in Caring) technique stimulates the development of the premature infant’s immunological system with a series of 22 touches.

The method does not act on the muscles as a massage, but on the nervous terminations of the skin, increasing the production of beta-endorphin, a natural pain-killer produced by the body and reducing the pains and stress of birth. Additionally, it increases the immunoglobulin levels in the blood and stabilizes the cardiovascular responses. Consequently, the removal of the tube that feeds the baby occurs earlier and the duration of the stay in the incubator and hospitalization are shortened14,17.

The person who performs the massage benefits as much as the one receiving it. It is not surprising that mother and babies alike feel a mutual pleasure and proximity at such times. The massage does not only help the baby to sleep, but also improves the parents’ sleep, an unexpected and welcome benefit during a period generally characterized by sleep deprivation and drowsiness19.

According to Fritz, a couple tends to have a better relationship with their newborn baby after they learn how to massage the baby, due to the increase in serotonin and oxytocin levels and decrease in cortisol levels in the parents17. Walker describes that the observations carried out in children devoid of physical contact with the parents, in general, have shown that these children present higher levels of anxiety and other correlated dysfunctions31.

A study carried out with a group of 34 primiparous mothers, with a mean of 9 weeks post-partum that were identified as being depressed according to the Edinburgh Postnatal Depression Scale (EPDS), were randomly distributed into a massage group and a control group. In the massage group, a significant improvement regarding the mother-baby interaction was observed at the end of the study, suggesting that the practical learning of massage for babies by the mothers is an effective treatment to develop the mother-baby bonding in mothers with postpartum depression26.

Brêtas analyzed the perception of the mothers who participated in a therapeutic group of massage for babies about the experiences, benefits and changes in the babies’ behavior. The mothers reported on the improvement of contact and relationship with the babies, and the mothers’ interest in learning massage techniques to acquire more knowledge about the baby and how to stimulate the baby adequately17.

Advising the parents and making them aware so they can recognize the significance of the children’s motor responses are fundamental, as described by Montagu: “... the study of mammal, monkey, ape, and human behaviors clearly shows that touch is a basic behavioral need, much as breathing is a basic physical need; that the dependent baby is destined to grow and develop, receiving nurturing, maternal touch and sustaining that form of touch with others throughout its life. When the need to touch is not fulfilled, it will result in an abnormal behavior”20.

Recent studies carried out by some authors such as Brazelton6, Bettelheim5, Lebovici21, Bowlby1 and Klaus & Kennell18, on the capacities and skills of the newborn and the baby, showed that they are equipped with a potential for physical, mental and emotional development. During the long period of childhood dependence, the baby can develop and use all this potential, in a complex way, to learn and organize its thoughts. This is carried out depending on the experiences that the baby acquires from the world surrounding it. The newborn’s capacity for the behavior is located in the central part of the brain (mesencephalus) during the first three months of life. The upper center of the brain (cortex) is only performing a monitoring and storage role.

Each stimulus received increases the baby’s experience and, as the newborn’s nervous system is largely dependent on these stimulation-response systems, many stimulus repetitions contribute to the “learning” or “conditioning”6.

The tactile stimuli perceived by the tactile receptors on the skin or the tissue immediately below the skin, similarly to sensory impulses, are conducted by afferent nervous fibers and projected into the somatic sensory areas, in the cortex.

The somesthetic cortex is responsible for our capacity to feel the skin when it is touched in different parts of the body, and the perception of the degrees of pressure, texture of materials and the orientation awareness of the different parts of the body in relation to others (static posture) and the conscious awareness of the frequency of movement in the different parts of the body (kinesthesia)6.

Through the description of the main psychomotor development stages, the importance of affectivity and human relationships for the child’s development is verified. The communication that is established between the child and its environment represent one of the main factors of development23,27.

The physical intimacy of the relationship established between mother and baby is compared to a symbiosis20. The privileged moments of this symbiosis are evident at breastfeeding, during the massage, during the bath and diaper changing; but mainly at the two first ones, when the child is very close to the mother’s body and can feel her warmth, the touch of her skin and her smell, as well as hear her voice and look at the mother’s face. According to Fritz, the massage provides a logical and organized approach to the sensory stimulation, which is important for babies, as part of their development is to learn how to classify and organize sensory stimulation15.

According to Le Boulch and Brazelton, contrariwise to what Freud suggested, the physical contact is more important than food in the mother-child relationship. The handling of the child during the massage, during the bath and hygiene give the child cutaneous sensations. According to the authors, the first expression of the child is translated by the cutaneous exchange, but when sight and hearing mature, the newborn seeks communication through these organs206.

The syndrome of maternal deprivation, which consists in the effects caused by a minimum amount of maternal care, undoubtedly
involves significant sensory deprivation, among other factors. The skin of these children usually shows to be extremely pale and lacks tonus, as well as presenting several other disorders. In his book, Montagu cites the reports by Patton and Gardner on children who had suffered the syndrome of maternal deprivation and shows how deeply these children’s development had been affected (physically as well as mentally). In a situation of maternal deprivation, the bone development of a 3-year-old child was only half the bone development of a normal child14.

As it has been shown, it is clearly possible to perceive that the results of massage applied to babies are more than just a calming effect and the improvement of the mother-child relationship, which is the generally known outcome of this intervention; this means that there is a large amount of knowledge that needs to be disclosed.

ANALYSIS AND DISCUSSION

Based on the literature review, Chart 2 shows the different categories of behaviors that resulted from applying massage to babies.

Based on the literature review of the subject, one can observe that the massage for babies and children is a technique that has been increasingly used and disseminated. Another factor that is quite common is to associate the expression “massage for babies” exclusively to Shantalla, thereby ignoring other techniques.

In the last decades, this subject has been researched and the academic production has increased, although it is not disclosed to the population. A large amount of information is still empirical, with no scientific proof.

CONCLUSION

Based on the literature review on the psycho-behavior effects of massage for babies, one can observe that the academic production on the subject, although limited, has been growing in the last years and that the studies have shown clinical and social relevance.

Among the psycho-behavior effects that are most often reported are the better interaction and strengthening of the bonding between the child and the person performing the massage and the decrease of stress levels. The other effects have been described recently and are little known. Therefore, further studies for the disclosure of such knowledge are necessary.

We believe that the dissemination of the teaching of massage for babies, based on its psycho-behavior and physiological effects11, which is not the focus of the present study, but is fundamental for the understanding of the potential of this resource, can result in the popularization of a simple and low-cost intervention tool1 in order to stimulate, prevent or adequate different aspects of the behaviors involved in the development of the baby as well as in the development of the mother-child relationship. This becomes an educational action which, in addition to facilitating the handling of the baby, can bring observable benefits, and sometimes measurable ones, for the normal child or the one with special needs.

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