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Olfactory Stimulation by Breast Milk Odor May Improve Behavioral Feeding in Preterm Infants: A Review

Mohadeseh Khakpour[1], Hossein Akhavan[2], Saeedeh Eshkil[3], Adeleh Khodabakhshi[4], Zari Dolatian[5], *Sara Raji[6], Maryam Soleimani Houni[7]

[1] Neonatologist, Faculty of Medicine, Mashhad, University of Medical Science, Mashhad, Iran.
[2] Pediatric Intensivist, Pediatric & Congenital Cardiology Division, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
[3] Neonatologist, Faculty of medicine, Mashhad, University of Medical Science, Mashhad, Iran.
[4] Student Research Committee, Kerman University of Medical Sciences, Kerman, Iran.
[5] Student Research Committee, Kerman University of Medical Sciences, Kerman, Iran.
[6] Student Research Committee, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
[7] Student Research Committee, Kerman University of Medical Sciences, Kerman, Iran.

Abstract

Background: The interaction between premature infants and the ectopic environment requires special care due to developmental defects in various systems of their body. In this regard, the results of various studies have introduced the stimulation of premature infants with the smell of breast milk as an effective way to improve the physiological responses caused by prematurity and reduce the problems associated with prematurity. The aim of this study was to systematically review the intervention studies of aromatherapy with breast milk on improving behavioral and physiological responses and reducing prematurity problems in premature infants.

Method: A comprehensive search of related scientific studies, published until February 2020, was conducted in scientific databases of PubMed, ISI, Web of Science, Cochrane Library, and Scopus using the following keywords: Breast Milk, Maternal Milk odor, Mother's Milk, Mother's odor, Premature Birth, Olfactive stimulation, Pain, Aromatherapy, Apnea, Preterm infant, Preterm infant pain, Infant behavior, Infant physiological response. After applying the entry and exit criteria, 14 Articles were selected.

Results: The results revealed a decrease in transition feeding days in premature infants of the intervention group in exposure to an impregnated pad with breast milk as olfactory stimulation, when compared to the control group. Based on the results, longer sucking bouts, more bursts (>7 sucking movements) and more consumed milk were reported for the intervention group during each breastfeeding session, when compared to the control group. The frequency of sucking in response to fresh breast milk was also higher than frozen breast milk, but not statistically significant (p = 0.09). There was an elevation in the high-amplitude non-nutritive sucking frequency among the preterm infants within the last three days of 14-day study after presenting the odor of the maternal breast milk for a 60-second period. Beneficial effects occurred in the hospitalized infants due to the odor of mother; they included increasing mouth movements and pacifier acceptance, calming stressed or crying infants, and relieving their pain. The infant's ability to feed increases and the duration of the first lactation decreases due to the olfactory stimulation of the breast milk odor; and the number of sucks (260.4 [95% CI = 206-315]) and suck bursts (41.0 [95% CI = 36-46]) was unexpectedly observed in group 1 (breast milk odor), as compared to group 2 (144.8 [95% CI = 87-203] versus 27.4 [95% CI = 21-34])

Conclusion: This study showed that the use of aromatherapy with the mom's milk is very effective in improving the behavioral and physiological response; and reduces the problems resulting from prematurity in premature babies. Therefore, the smell of breast milk can be used as a complementary method to accelerate the health promotion of premature infants.

Key Words: Breast milk, Feeding, Odor, Olfactory, Preterm.

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**** Corresponding Author:***

Sara Raji, Student Research Committee, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran. Email: Sara.raji.95@gmail.com

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1- INTRODUCTION

With the increase in the share of premature births, most of which require admission to the intensive care unit, the rate of high-risk births and long-term complications in the respiratory, cardiovascular and nervous systems of newborns also increases (1). About 5.9 percent of the 130 million live births worldwide include preterm births, in Iran the premature birth rate is 10 percent. Of course, the chances of survival of this high-risk group following the use of effective interventions and the development of perinatology have increased (2).

The interaction between premature infants and the ectopic environment requires special care due to developmental defects in various systems of their body. For example, dysfunction of respiration and oxygen uptake due to prematurity (3), recurrent premature apnea (2) , weakness in physiological behaviors such as poor sucking reflex (3) , altered neonatal physiological responses such as heart rate changes, and percentage of oxygen saturation after painful treatment (4) , pain relief of premature infants have been considered (4) . In this regard, the results of various studies have introduced the stimulation of premature infants with the smell of breast milk as an effective way to improve the physiological responses caused by prematurity and reduce the problems associated with prematurity (3) . The development of the olfactory system occurs even faster in premature infants than in other senses, and this system can serve as a gateway to the miraculous effect of breast milk perfume by improving physiological responses such as increasing oxygen delivery, improving heart rate, developing the infant's sucking reflex and Reducing pain, especially following various treatments in the neonatal intensive care unit (1). In addition to the above in the development of advanced care, the soothing effect of breast milk perfume has also been considered in reducing the environmental stress caused by factors such as light and sound in NICU (5).

Human fetal olfactory receptors appear to be mature at 24 weeks' gestation and at 28 weeks' gestation protein markers appear in the nasopharyngeal epithelium, and the smell of breast amniotic fluid and breast milk can be detected in the newborn. Based on the results of clinical studies, the smell of breast milk has been introduced as a non-pharmacological stimulant with the properties of stimulating and enhancing the sucking reflex, relieving pain and sedation and improving the physiological responses of newborns. (6). Moreover, previous studies have shown the premature infant’s ability in differentiating the smell of breast milk from powdered milk. Furthermore, the extraordinary aroma-therapeutic properties of breast milk odor have been demonstrated by increasing the ability to suck and suckle and its analgesic effects are confirmed in many clinical trials, especially during blood sampling of premature infants compared to other fragrances (7). Despite studies in the form of clinical trials, we still face the lack of systematic review studies in this field. Therefore, the present study aims to systematically review the intervention studies of aromatherapy with breast milk with the purpose of investigating its effect on the improvement of behavioral and physiological responses and reducing the problems occurring in infants because of prematurity.

2- Materials and methods

English electronic resources such as ISI Web of Science, Scopus, PubMed and Cochrane Library were used systematically and with no limitation up to February 20 , 20 20, in order to carry out the present study . The following keywords were used for the search, individually and in combination: (Premature Birth) and

(Olfactive stimulation OR Milk OR Smell OR Odor). Aromatherapy) AND (physiological response OR feeds tube OR feeding OR oral feeding).

The review articles on the subject of the study were also carefully reviewed to complete the search. The search results in these five databases were merged and duplicates (with the same title and year of publication and the same author name) were removed. Two authors independently investigated the title and abstract of the articles, and the full texts were investigated when they found that the subject is related to the purpose.

2-1. Inclusion and Exclusion Criteria

Articles identified as qualified by the scores higher than 6 in the NOS scale could be included in the study in case they were human studies published in English examining the effect of aromatherapy with the smell of breast milk on the physiological responses of preterm infants in clinical trial studies; and access to the original files of the articles was provided. Another researcher re-checked the final list of the articles to ensure the accuracy of the selected studies.

Abstracts presented at conferences, articles, reviews, letters to editor, case reports and animal studies were excluded. Also, in cases where few reports of research had been published, only one of those whose information was more comprehensive, was selected; and the others were excluded. These cases were identified by controlling the similarity of the authors' team, the similarity of the center, the time period of the study, and the similarity of the statistical results.

2-2. Selection of related studies

The selection of related studies was performed by two independent individuals in two stages. In the screening stage, the titles were read first and the decision about their relevance to the objective of the present review was made. In cases of ambiguity, the abstracts were checked. The titles and abstracts of the articles were checked in line with the entry and exit criteria; in cases of suspicion, the decision making was delayed to the second stage for studying the articles' full texts. In the second stage, the full texts of the reviewed articles and articles that fully complied with the inclusion and exclusion criteria were systematically reviewed.

2-3. Data extraction

Data extraction tables were designed by the research team; and any of the articles in this study was evaluated by two researchers, the following sections were reported in **Table 1.**

2-4. Evaluating the quality of articles

The quality of the articles was assessed using the Newcastle Ottawa Scale (NOS) for group and case studies. Based on this criterion, articles that scored 6 or higher were included in the study. The minimum score in this criterion is 0 and the maximum score is 9. According to this criterion, articles that score 6 or higher are classified as good quality articles (8).

2-5. The Transition from tube to oral feeding

The first study, a randomized controlled trial, has been conducted on premature infants with required inclusion criteria randomized into four groups of control (C), incubator cover (IC), and breast milk odor (BMO), and maternal voice groups. The findings showed that the mean duration to wean from tube to oral feeding was 11.31 ± 5.34, 10.54 ± 2.26, 10.46 ± 2.28 and 9.40. 2.29 days in the C, IC, MV and BMO groups, respectively. The post-hoc analysis revealed a significant difference ($p < 0.05$) in the mean duration of weaning from tube to oral feeding between the BMO group and the other groups (9).

The second study consisted of 92 premature infants aged less than 33 weeks randomized into two groups of intervention (n=46) and control (n=46), the results of which revealed a decrease in transition feeding time by 10 days in premature infants of the intervention group in exposure to an impregnated pad with breast milk as olfactory stimulation, when compared to the control group (10).

Based on the results of another study, the transition to oral feeding was performed three days earlier in preterm infants exposed to the odor of breast milk during tube feeding; and the mean duration of their hospitalization was four days shorter compared to the control infants (11). Yet another study was designed to examine the preterm infants randomly assigned to two groups of intervention in exposure to the taste and smell of milk before each feed (n=28) and a control group with no exposure (n=23). A median interquartile range (IQR) of 13.5 days (10.0–19.0) and 15.5 (11.0–22.0) days was obtained for the infants with full enteral feeds, respectively. Moreover, the adjusted Hazard Ratio (aHR) was calculated to be 1.63 based on the survival analysis (12).

In a further study, the preterm infants born at the gestational age of 30–33 weeks were randomized into two groups. The experimental group exposed to milk-odor condition (n=7) was compared to the water-control condition (n=6). Based on the results, longer sucking bouts, more bursts (> 7 sucking movements) and more consumed milk were reported for the intervention group during each breastfeeding session, in comparison to the control group. Moreover, the duration of hospitalization was longer for the control group, the median equal to 55.5 days for the control group versus 43 days for the experimental group (13).

In one of the studies, the preterm infants were exposed to the odor of breast milk while gavage feeding. In comparison to the control group, the preterm infants transitioned to oral feeding 3 days earlier. Moreover, the mean hospitalization time of these infants was 4 days shorter (11).

2-6. Olfactory stimulation by breast milk odor on behavioral feeding

One study reported an elevation in the high-amplitude non-nutritive sucking frequency within phase II for the fifth day, in the corrected time. According to this ratio of 1-to-6 days, no elevation was found in the high-amplitude sucking frequency within phase II. There was no sucking on 3 of the 6 days (days I, 2, and 11). There was an elevation in the high-amplitude non-nutritive sucking frequency among the preterm infants within the last three days of the 14-day study after presenting the odor of the maternal breast milk for a 60-second period (14).

A study was performed on 32 newborns with gestational ages of 28-32 weeks in two groups. Both groups were stimulated within the first five minutes of gavage, three times a day, for ten days consecutively. The outcomes for the nonnutritive sucking (NNS) with breast milk odor were a lower postmenstrual age at the first oral feeding, independent oral feeding, and discharge from the hospital; but no impacts were observed on their daily weight gain and final weight at discharge. Beneficial effects occurred in the hospitalized infants due to the odor of the mother, including increasing mouth movements and pacifier acceptance, calming stressed or crying infants, and relieving pain (15).

The research units of another study were premature infants (n=92) in two groups of case (n=46) and control (n=46), the results of which showed more effectiveness of the maternal breast sucking initiated over a shorter time in the study group than in the control group. The infant's ability to feed increased and the duration of the first

lactation decreased due to the olfactory stimulation of the odor of breast milk (16).

In another study, group 1 received fortified breast milk odor (n=15) and group 2 received formula odor (n=15). The infant's nose was exposed to milk odor (orthonasal exposure) by a special modified pacifier to test the observation, and the control odor was water. Group 1 experienced an increase in the suck bursts following the nutrient odor with a statistically significant borderline (46.6 bursts / 10 min with odor [95% confidence interval (CI) = 39-54] versus 35.4 bursts / 10 min without odor [95% CI = 28-43]). Furthermore, an overall increase in the number of sucks (260.4 [95% CI = 206-315]) and suck bursts (41.0 [95% CI = 36-46]) was observed in the experimental group (breast milk odor), when compared to the control group (144.8 [95% CI = 87-203] versus 27.4 [95% CI = 21-34]) (17).

3- DISCUSSION

Due to the advancement in technologies, the survival of premature infants has increased viability (18-21). Despite this improvement, premature infants suffer from abnormal growth and neurological defects; and have high rates of asthma, cerebral palsy, abnormal cognitive function, lack of access to college, and behavioral problems in later years (22-28). Therefore, the current challenge for specialists in the neonatal intensive care unit is not only their survival, but also the support of facilitating optimal growth and development of infants. According to the results of the reviewed articles, inhaled aromatherapy is one of the common methods of complementary medicine that can be effective in reducing some physiological responses (29, 30). Inhaling the scent can shift the autoimmune balance towards sympathetic superiority and consequently calm the person (31, 32). Also, after absorbing the volatile molecules of the scent through the nasal mucosa, the chemical signals go to the olfactory bulb, the amygdala and the limbic system (33). In babies, the role of the olfactory system is of particular interest because at birth, it is more developed than the other sensory systems such as vision systems (34). Research shows that both preterm and term infants can remember and recognize odors related to the environment inside the uterus and their mother and distinguish these odors from other odors (35). They can also be within 4 to 15 days after birth, distinguishing between their mothers' body odor and the body odor of other mothers (36). These maternal olfactory stimuli calm the baby. Studies show that maternal olfactory stimuli such as breast milk odor, amniotic fluid odor and maternal body odor can be used during the mother's absence to calm and soothe the baby's pain (34, 37). Human babies can smell the milk of their mothers from the first days (37). According to the reviewed studies, olfactory stimulation with breast milk affects some physiological parameters of the baby. Yildiz et al. (2011), Rymbvlt et al. (2007), and Khodagholi et al. (2018) reported that premature infants, when fed by gavage with the smell of breast milk were stimulated to oral feeding earlier than the control subjects tended; and in addition, the average duration of stay in the hospital was shorter among them(11, 38, 39) . Also, because of the olfactory function of preterm infants, odors have a significant effect on infant nutrition, as Valentin et al. (2018) showed in their study that odor is important in infant nutrition and stimulation of odor with vanilla can lead to the faster transfer from gavage to oral feeding (38). In a study conducted by Jibreili et al. (2016) on the effect of breast milk odor on venous blood sampling pain in preterm infants, it was shown that the use of breast milk odor can be effective in controlling pain in painful procedures such as venous blood sampling in premature infants (40).

Table-1: Data extraction table from clinical trial studies

Consequences/Results	Scale/Indicator measurement	Type/Duration Intervention	Inclusion and exclusion criteria	Study population	Type of study	First author / year / country
The post-hoc analysis revealed a significant difference (p <0.05) in the mean duration of weaning from tube to oral feeding between the BMO group and the other groups.	Immaturity follow-up form, premature follow-up form, evaluation of the effect of intervention on nutritional status, oxygenation, heart rate, respiratory status	Aromatherapy with breast milk once a day for 3 hours, listening to the mother's voice three times a day for 30 minutes, covering the incubator with a cloth	Preterm infants 30- 34 weeks, at least Apgar score apgar > 6 g 1000<Weight Absence of congenital anomalies, absence of intracranial hemorrhage and hyperbilirubinemia / Exclusion criteria : Lack of the mentioned conditions	136 preterm infants from 34 to 30 weeks, the mother's voice (34 infants), the breast (33), the cover of the incubator (31), control (32)	Controlled randomized trial	Alemdar / 2019 Turkey (8)
A median interquartile range (IQR) of 13.5 days (10.0–19.0) and 15.5 (11.0–22.0) days was obtained for the infants with full enteral feeds, respectively. Moreover, the adjusted Hazard Ratio (aHR) was calculated to be 1.63 based on the survival analysis.	Evaluation of the initial outcome with the ability to tolerate intestinal nutrition with volume CC / Kg / 24 h 120 And secondary consequences : risk of death, intestinal perforation, intraventricular hemorrhage, sepsis, Arterial duct retention, premature retinopathy, weight gain and tube-independent feeding	Odor stimulation with a linen cloth soaked in breast milk and the baby's taste with a cotton swab soaked in breast milk, unpasteurized and non-donated breast milk	Premature infants less than 29 weeks old, not receiving regular 2 -hour feeding for more than 24 hours Exclusion criteria: weight less than the tenth percentile, the presence of a major anomaly at birth	51 preterm infants with gestational ages less than 29 weeks, the intervention group (28 children) and control group (23 children)	Randomized controlled clinical pilot	Beker / 2017 Australia (11)

After analyzing the combination of test and control observations, an overall increase in the number of sucks (260.4 [95% CI = 206-315]) and suck bursts (41.0 [95% CI = 36-46]) was observed in group 1, when comparing to group 2 (144.8 [95% CI = 87-203] versus 27.4.	Record the effect of the intervention in two 10-minute shifts in 24 hours	Odor stimulation with sterile gas impregnated with 200 µl of fortified breast milk, impregnated gas impregnated with water	Existence of connection of nasal feeding tube to stomach From tube All babies in the intensive care unit Exclusion criteria : Existence of major anomalies and neurological disorders	29 preterm, 29-36 weeks, the smell of breast milk (14 babies), odor formula (15 infants)	Clinical Trial	Bingham / 2003 America (16)
A decrease in transition feeding time by 10 days was observed in premature infants of the intervention group in exposure to an impregnated pad with breast milk as olfactory stimulation, when compared to the control group.	Checklist for recording the demographic characteristics of mother and baby (2011) The duration of hospital discharge	Olfactory stimulation with a cotton cloth soaked in the K Q of Q of the of the mother at a distance of 1.5 2 cm of meters of the the the the baby in 4 times during gavage	Inability or weakness in the sucking reflex, stable cardiopulmonary status, minimum Apgar score apgar > 6 g 1000<Weight Exclusion criteria : presence of congenital malformations, intracranial bleeding and hyper Hyperbili	92 preterm, 28-33 weeks, Intervention group (46 infants) Control group (46 infants)	Trial Yi wing of the the crash of control	Iranmanesh / 2014 Iran (9)
Beneficial effects occurred in the hospitalized infants due to the odor of the	Checklist for recording infant weight gain in the second week of study and time of	Olfactory stimulation with a cotton cloth soaked in the of the mother	Initiation of gavage, stable cardiopulmonary status, minimum Apgar score apgar > 6	32 Preterm infants 28-33 weeks, Intervention group (16 infants) ,	Trial Yi wing of the the crash of control	Khodagholi / 2018 Iran (14)

mother. They included increasing mouth movements and pacifier acceptance, calming stressed or crying infants, and relieving pain.	discharge, length of stay in the intensive care unit, registration of the beginning of the first oral feeding	are 3 2 cm of meters of the one of the children in 5 minutes beginning gavage	g 1000<Weight Exclusion criteria : presence of congenital malformations, intracranial bleeding Hayprbyly hyper, bronchopulmonary dysplasia, sepsis, necrotizing enterocolitis, need for mechanical ventilation	Control group (16 infants)		
There was an elevation in the high-amplitude non-nutritive sucking frequency among the preterm infants within the last three days of the 14-day study after presenting the odor of the maternal breast milk for a 60-second period.	Recording the state of sucking reflex using a saccometer for 3.5 minutes during 60 minutes of gavage	Odor stimulation with sterile gauze impregnated with breast milk for 60 seconds per day during gavage	Healthy female infants, 31 weeks, minimum birth weight 1750 g, Apgar score first 7 minutes and fifth 9 minutes Exclusion criteria : Absence Bronchopulmonary dysplasia and cerebral hemorrhage, non-addiction and maternal infection HIV	30 baby girls No control group	Trial Yi wing of the chance of making	Meza / 1998 America (13)
Longer sucking bouts, more bursts (> 7 sucking movements) and more consumed milk were reported for the intervention group during each breastfeeding session, when compared to the control group	Viewing and recording the intervention with The use of a Handheld data collector device, video recordings of breastfeeding behaviors, weighing the baby immediately before and after breastfeeding	Odor stimulation with the smell of breast milk in 7 children, Use water in 6 children (control group) for 120 seconds for 5 consecutive days	Stability of the cardiopulmonary system, spontaneous respiration, absence of congenital anomalies, intraventricular hemorrhage, mother's tendency to breastfeed Receive donated milk for the first 8 to 10 days	13 preterm infants 33 to 30 weeks, Intervention group (7 infants) Control group (6 infants) 5 baby boys, 8 baby girls	Trial Yi wing of the chance of making	Raimbault / 2006 Flanders ((12)

	Recording the time between the start of the intervention and the start of independent infant feeding, daily weighing of the baby until discharge from the hospital	Odor stimulation with odor test kits Sniffin stick In the form of Use the olfactory pen for 10 seconds at a distance of 2 cm from the baby's nose	Steady state of vital signs without the need for mechanical ventilation or CPAP, Partial or complete feeding by gavage, Exclusion criteria : no congenital anomalies, neurological disorders, gastrointestinal disorders, no cerebral hemorrhage	135 preterm infants over 27 weeks in gestational age , Rose group (46 infants), Vanilla group (49 infants), and Placebo group (40 infants)	Randomized controlled cohort	Schriever / 2018 Germany
The preterm infants were exposed to the odor of breast milk while gavage feeding. In comparison to the control group, the preterm infants transitioned to oral feeding 3 days earlier. Moreover, the mean hospitalization time of these infants was 4 days shorter.	Newborn demographic profile, registration Form, recording the length of hospital stay and time of discharge from the hospital, Recording baby weight during hospitalization, recording baby weight during gavage-to-oral feeding, and baby weight at discharge	Odor stimulation with a pad soaked in breast milk at a distance of 2Cm The baby's nose coincides with the start of gavage feeding Perform the intervention every day in three feedings until the possibility of oral feeding	Absence of swallowing reflex based on neonatal examination, minimum birth weight 1000 g, Apgar apgar > 6 Stability of vital signs, absence of congenital anomalies, cerebral hemorrhage and hyperbilirubinemia Exclusion criteria : respiratory distress syndrome, bronchopulmonary dysplasia, chromosomal abnormalities, neonatal seizures, positive culture of sepsis or meningitis	80 preterm babies 28-34 weeks, Intervention group (40 infants) , control group (40 babies)	Experimenta l clinical trial	Yildiz / 2011 Turkey (10)

Table-2: Newcastle – ottawa quality assessment scale: Randomized Clinical / Clinical Trial

Questions	Studies									
	Alemdar et al; (2019) (8)	Ali Ahmad et al; (2019) (15)	Beker et al; (2003) (11)	Bingham et al; (2003) (16)	Iranmanesh et al; (2014) (9)	Khodagholi et al; (2018) (14)	Meza et al; (1998) (13)	Raimbault et al; (2006) (12)	Schriever et al; (2018) (37)	Yildiz et al; (2011) (10)
1. Was the true randomization used for assignment of participants to treatment groups?	YES	YES	YES	No	YES	YES	No	YES	YES	YES
2. Was allocation to treatment groups concealed?	YES	YES	YES	No	No	No	No	No	No	No
3. Were treatment groups similar at the baseline?	YES	YES	YES	YES	YES	YES	No	YES	YES	YES
4. Were participants blind to treatment assignment?	No	No	No	No	No	No	No	No	YES	No
5. Were those delivering treatment blind to treatment assignment?	No	No	No	No	No	No	No	No	YES	No
6. Were the outcome assessors blind to treatment assignment?	No	No	No	YES	No	YES	No	No	No	No
7. Were the groups treated identically (except for the intervention of interest)?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
8. Was the follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
9. Were the participants analyzed in the groups to which they were randomized?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
10. Were the outcomes measured in the same way for all treatment groups?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
11. Were the outcomes measured in a reliable way?	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
12. Were the appropriate statistical analyses performed?	YES	YES	YES	YES	YES	YES	No	YES	YES	YES
13. Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?	YES	YES	YES	No	YES	YES	No	YES	YES	YES

Other physiological criteria of premature infants such as respiration rate and blood oxygen saturation in these infants indicate their health status and changes in them are very important and the first sign of change in their health (41). In their study, Pourian et al. (2015) revealed that exposure of premature infants to the odor of breast milk affects their respiration and oxygen saturation in their blood and reduces the infant's need for oxygen therapy (3).

Birth weight is one of the criteria for measuring the health status of communities, so that low birth weight is one of the most serious health problems in the world and is one of the important causes of mortality and complications in infancy. According to the studies, weight gain of premature infants is one of the important indicators of their survival (42). Pouraboli et al. (2015) showed that premature infants who are stimulated by the smell of breast milk start breastfeeding in a shorter period of time and their weight gain is much more appropriate than other premature infants (43). Ali Ahmad (2019) also concluded in his research that premature infants who are stimulated by the smell of breast milk started breastfeeding sooner, leading to better weight gains and shorter lengths of hospital stay (44).

4- CONCLUSION

Overall, the results indicated that the use of aromatherapy with mother’s milk is very effective in improving the behavioral and physiological responses and reducing the problems resulting from prematurity in premature babies. Therefore, the smell of breast milk can be used as a complementary method to accelerate the health promotion of premature infants.

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