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# Preference of Types of Oil for Oil Massage among Infant Caregivers

Dr. Abu Naser Mohammad Al-Amin[1*], Dr. Ashis Kumar Ghosh[2], Dr. Ismot Ara Zannat[3], Dr. Marufa Akter Panna[4]

[1]Assistant Professor (Pediatrics), Department of Pediatrics Hematology and Oncology, National Institute of Cancer Research & Hospital (NICRH), Dhaka, Bangladesh
[2]Assistant Professor, Department of Pediatrics Hematology and Oncology, National Institute of Cancer Research & Hospital (NICRH), Dhaka, Bangladesh
[3]Registrar, Department of Pediatrics Hematology and Oncology, National Institute of Cancer Research & Hospital (NICRH), Dhaka, Bangladesh
[4]Medical Officer, Department of Pediatrics Hematology and Oncology, National Institute of Cancer Research & Hospital (NICRH), Dhaka, Bangladesh

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***Corresponding author:** Dr. Abu Naser Mohammad Al-Amin

**Abstract** **Original Research Article**

***Background:*** Since time immemorial, most Asian cultures have practiced baby massage.[1],[2] Studies employing massage alone as a kind of tactile stimulation or massage with some type of vegetable oil revealed the effect of massage on development in preterm newborns.[1] Depending on area availability, several oil-based formulations have been utilized.[2] However, the oils utilized may range from possibly useful to potentially poisonous. ***Aim of the study:*** The aim of the study was conducted to observe the preference of different oil types among the caregivers for infant massage. ***Methods:*** This cross-sectional descriptive study was conducted at the Out Patient Department of Pediatrics, Sir Salimullah Medical College, Mitford Hospital, Dhaka, Bangladesh. The study duration was one year, from July 2010 to June 2011. All the mothers/caregivers of infants who attended Pediatric OPD of Sir Salimullah Medical College, Mitford Hospital, Dhaka during the study period were initially selected for this study. ***Result:*** The mean ±SD age of the babies was 6.04+3.97 months. The age range of the babies was 8 days-12 months. Fifty-four (37.0%) participant babies were in age group 9-12 months, 52(35.6%) babies in age group 0-4 months and 40(27.4%) in age group 5-8 months. Among the participants 82 (56.9%) babies were male and 62 (43%) babies were female. The male-female ratio is 1.3:1. Majority of the caregivers found no problem with massage oil (94.44%). Rashes developed in 3(2.08%) cases, vomiting in 2(1.39%) cases and fever in 2(1.39%) cases and cold in 1(0.69%) case. ***Conclusion:*** The study showed a preference of using mustard oil for oil massage among participants. Most of the infants received oil massage twice or thrice daily.

**Keywords**: Preference, Oil Massage, Infant Caregivers.



## INTRODUCTION

Since time immemorial, most Asian cultures have practiced baby massage [1, 2]. Studies employing massage alone as a kind of tactile stimulation or massage with some type of vegetable oil revealed the effect of massage on development in preterm newborns [1]. Depending on area availability, several oil-based formulations have been utilized.[2] However, the oils utilized may range from possibly useful to potentially poisonous [3]. Massage treatment has recently gained popularity among Western parents and professionals [2]. Evidence exists supporting the benefits of touch and massage therapy. Massage has several positive effects in terms of weight gain, better sleep-wake pattern, enhanced neuromotor development, better emotional bonding, reduced rates of nosocomial infection and thereby, reduced infant mortality [2]. In majority of studies conducted by Field, infants showed better weight gain and faster hospital discharge after receiving massage with moderate pressure [4]. The weight gain was attributed to increased vagal activity, gastric motility, insulin, and IGF-1 levels following the stimulation of pressure receptors under the skin [4, 5]. Low birth weight among infants are attributed to the increased neonatal and postnatal mortality rate [6]. So, any methods that can increase the weight of babies, and possibly increase the survivability of neonates in any way need to be researched. Weight gain is the most consistent parameter associated with massage therapy in neonates. It was observed that infants who received

massage had 21% greater weight gain. The weight gain was observed to be 47% greater in another study on preterm infants. In a review, it was summarized that massage therapy has led to weight gain in preterm infants when moderate pressure massage was provided [4]. Skin massage is a therapeutic-touching practice that has physiological and psychological benefits on newborns. Numerous researches on the benefits of massage on the skin of premature children have been conducted, with all demonstrating a beneficial effect on metabolism, birth weight, duration of hospital stay, incidence of late infection, behavior, motor development, and brain development [7]. Studies have also found positive correlation of infants' head circumference and height with regular massage. A study observed that oils that are rich in essential fatty acid (EFA), like safflower and coconut oil, triglyceride levels were higher, resulting in higher weight gain among infants [8]. As a part of neonatal skin care, most of the world uses natural oils for massaging the neonates. A Pakistani study used coconut oil for the massage of the babies, and saw an increase of 11 grams of weight on average, alongside showing much less infection rates compared to the study's control group [9]. Better skin conditions and less infections were also observed in some other studies that practiced oil massage, which was thought to be a result of the oil working as a natural killer cell to ward off viral and bacterial cells [10]. Another study proposed that the better weight gain and better skin condition can be attributed to the decreases in trans epidermal water loss, caused by the coconut oil massage [11]. Regular oil massage has also proven to decrease Hyperbilirubinemia among newborns, which is prevalent in almost 15% of the global infant population [12]. The present study was conducted to observe the preference of different oil types among the caregivers for infant massage.

## OBJECTIVE

**General Objective**

- To observe the preference of oil type used by infant caregivers

## METHODS

This cross-sectional descriptive study was conducted at the Out Patient Department of Pediatrics, Sir Salimullah Medical College, Mitford Hospital, Dhaka, Bangladesh. The study duration was one year, from July 2010 to June 2011. All the mothers/caregivers of infants who attended Pediatric OPD of Sir Salimullah Medical College, Mitford Hospital, Dhaka during the study period were initially selected for this study. Purposive sampling technique was used to select a total of 144 caregivers from the initial selection. The caregivers were interviewed with a predesigned structured questionnaire. Informed written consent was taken from each caregiver, and the study protocol was approved by the "Ethical Review Committee" of Sir Salimullah Medical College, Dhaka.

**Inclusion Criteria**

- All the mothers/caregivers of infants attending the pediatric OPD of Sir Salimullah Medical College, Mitford Hospital, Dhaka.
- Caregivers of infants who were in charge of only 1 infant each
- Caregivers who practiced oil massage
- Patients who had given consent to participate in the study.

**Exclusion Criteria**

- Caregivers of seriously ill infants
- Unable to answer the criteria question.
- Unwilling to participate in the study.

## RESULTS

The mean ±SD age of the babies was 6.04+3.97 months. The age range of the babies was 8 days-12 months. Fifty-four (37.0%) participant babies were in age group 9-12 months, 52(35.6%) babies in age group 0-4 months and 40(27.4%) in age group 5-8 months. Among the participants 82 (56.9%) babies were male and 62 (43%) babies were female. The male-female ratio is 1.3:1. Among the participants 82 (56.9%) babies were male and 62 (43%) babies were female. The male-female ratio is 1.3:1. Among the participants 82 (56.9%) babies were male and 62 (43%) babies were female. The male-female ratio is 1.3:1. Among the infants, majority (91.1%) were full-term babies, while 8.9% were preterm. Among the 144 studied babies 56.94% babies were born normally, and 43.06% born by Lower Uterine Caesarian Section (LUCS). Majority of the babies were massaged twice (38.89%) and thrice (36.81%) daily. Among the caesarian babies, 74.19% babies were given oil massage after 72 hours of birth, while among the vaginal delivery babies, only 24.4% babies were given oil massage after 72 hours of birth. Most of the studied babies (91%) were massaged with mustard oil, others with coconut oil (1.39%), sunflower oil (1.39%), Olive oil (4.17%) and baby lotion (2.08%). Majority of the caregivers found no problem with massage oil (94.44%). Rashes developed in 3(2.08%) cases, vomiting in 2(1.39%) cases and fever in 2(1.39%) cases and cold in 1(0.69%) case.

**Table 1: Age distribution of studied babies (N=144)**

| Age Group | Number | Percentage |
|---|---|---|
| 0-4 months | 51 | 35.4 |
| 5-8 months | 40 | 27.7 |
| 9-12 months | 53 | 36.8 |

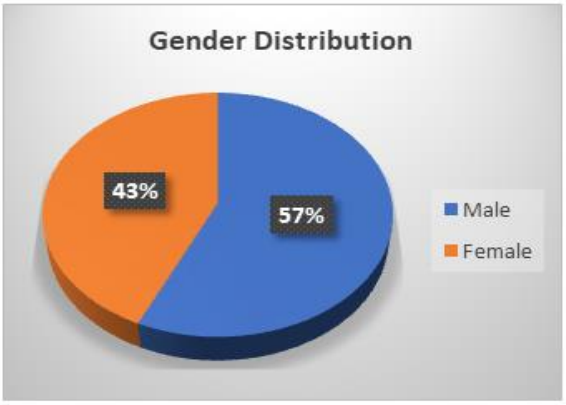


**Figure 1: Gender distribution of infants (N=146)**

**Table 2: Gestational maturity of studied babies (N=144)**

| Gestational age | Number | Percentage |
|---|---|---|
| Term | 132 | 91.6 |
| Preterm | 12 | 8.4 |

**Table 3: Mode of delivery of oil massaged babies (N=144)**

| Mode of Delivery | Number | Percentage |
|---|---|---|
| Caesarian section | 62 | 43.06 |
| Normal vaginal delivery | 82 | 56.94 |
| Total | 144 | 100 |

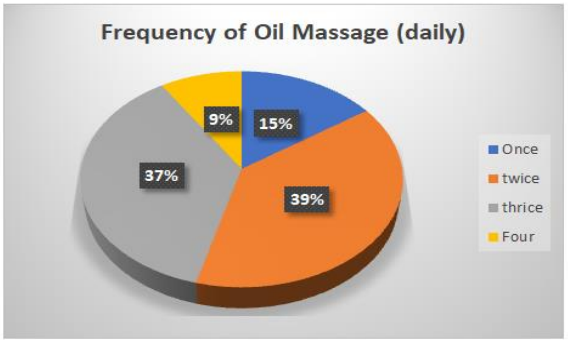


**Figure 2: Pie chart showing frequency of massage in 24 hours (n=144)**

**Table 4: Timing of first application of oil massage (N=144)**

| Timing of first application | Caesarian section babies (n=62) | | Normal Vaginal delivery babies (n=82) | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| **Immediately after birth** | 0 | 0 | 11 | 13.41 |
| **By 12 hrs** | 2 | 3.23 | 15 | 18.29 |
| **By 24 Hrs** | 4 | 6.46 | 19 | 23.17 |
| **By 48 Hrs** | 3 | 4.83 | 6 | 7.32 |
| **By 72 Hrs.** | 7 | 11.29 | 11 | 13.41 |
| **After 72 hours** | 46 | 74.19 | 20 | 24.4 |

**Table 5: Type of oil used for massage (N=144)**

| Type of oil massaged | Number | Percentage |
|---|---|---|
| Mustard oil | 131 | 90.97 |
| Coconut oil | 2 | 1.39 |
| Sunflower oil | 2 | 1.39 |
| Olive oil | 6 | 4.17 |
| Baby lotion | 3 | 2.08 |
| Total | 144 | 100 |

**Table 6: Complications identified by caregivers with oil massage of the studied babies (N=144)**

| Complications from massage oil | Number | Percentage |
|---|---|---|
| No problem | 136 | 94.44 |
| Rashes | 3 | 2.08 |
| Vomiting | 2 | 1.39 |
| Fever | 2 | 1.39 |
| Cold | 1 | 0.69 |
| Total | 144 | 100 |

## DISCUSSION

Massaging the newborns gas been an effective method of neonatal therapy among many parts of the world for centuries. It is especially effective among the pre-term neonates, but there are limited studies on the effects of massage therapy on full term neonates as well. Oil massaging in infants have observed benefits like enhanced body growth, mental development, and enhanced sleep, while also decreasing the possible risk factors for newborns, like hyperbilirubinemia, colic, and reflux [13]. One of the major problems faced by caregivers is sleep difficulties, which is more common among the 1st month of life [4]. An Israeli study observed improved sleep and increased melatonin levels among infants after continuous massage for 2 weeks [14]. Some studies have observed different benefits from using different types of oil for massage, but none of the studies were conducted to see the clear

correlation or difference of benefits from using different types of studies. Most of the studies had one primary oil used by the caregivers. The present study was conducted to observe the preference of oil type used by the infant caregivers of our demographic. For the better understanding of this study, only the caregivers who were in charge of one infant each, and no more, were interviewed for this study. The mean ±SD age of the babies was 6.04±3.97 months with male-female ratio of 1.3: 1. Among the infants, 56.94% had normal vaginal delivery, while 43.06% had delivery after caesarean section. In the present study, over 90% of the babies were full term, while only 8.9% were pre-term babies. This might be due to the selection criteria, where infants who were seriously ill or of low birth weight were excluded from the study. Among the caesarean section infants, 74.19% were given oil massage after 72 hours of birth. None of the caesarean babies were given oil massage immediately after birth. This might be a result of the mode of delivery for those infants, as infants of caesarean section are kept under observation during the primary hours after birth. Among the normal vaginal delivery babies, 75.60% were given oil massage within 72 hours of birth and 13.41% immediately after birth. This was similar to multiple studies where oil massage was given to a large portion of study infants immediately after birth [3, 15]. The present study found that most of the babies (75.70%) were massaged for two or three times a day. These findings were in agreement with the findings of another study by Mullany [16]. In their study, they found that oil was usually applied two or three times a day in 80% babies. Alam *et al*., (2008) also found that oil massage to the babies was applied two or three times a day [15]. In the present study, majority of the infants were given oil massage using mustard oil. Olive oil was used for 6 infants, while sunflower oil and coconut oil was used for 2 infants each. Mustard oil has been a primary choice of tropical oil used for oil massage in most of the Asian continent [17]. Especially in India, Nepal and Bangladesh, mustard oil is used for body massage by infants and grown ups alike during the winter, to keep the body warm. It also helps in improving the blood flow of the body. The second most common oil used was olive oil, but it was only used for 4.17% of the infants. This might be due to the fact that despite the benefits of olive oil, it is extremely expensive and unavailable for most of the population. 94.44% of the infants faced no problems after regular oil massage. The remaining few participants faced complications like rashes, vomiting, fever and cold, but the incidence rate was much lower.

***Limitations of the Study:***

The study was conducted in a single hospital with small sample size. So, the results may not represent the whole community.

## CONCLUSION& RECOMMENDATION

The study showed a preference of using mustard oil for oil massage among participants. Most of the infants received oil massage twice or thrice daily. The present study did not have any control group. A study with proper control group and complications and use of different types of oil and relative complications that may arise need to be conducted for better understanding of oil massage and the effects of different forms of oil used in infants.

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**Conflict of interest:** None declared

**Ethical approval:** The study was approved by the Institutional Ethics Committee

## REFERENCES

1. Arora, J., Kumar, A., & Ramji, S. (2005). Effect of oil massage on growth and neurobehavior in very low birth weight preterm neonates. *Indian pediatrics*, *42*(11), 1092-1100.
2. Kulkarni, A., Kaushik, J. S., Gupta, P., Sharma, H., & Agrawal, R. K. (2010). Massage and touch therapy in neonates: the current evidence. *Indian pediatrics*, *47*(9), 771-776.
3. Ahmed, A. N. U., Saha, S. K., Chowdhury, M. A., Law, P. A., Black, R. E., Santosham, M., & Darmstadt, G. L. (2007). Acceptability of massage with skin barrier-enhancing emollients in young neonates in Bangladesh. *Journal of health, population, and nutrition*, *25*(2), 236.
4. Field, T., Diego, M., & Hernandez-Reif, M. (2010). Preterm infant massage therapy research: a review. *Infant behavior and development*, *33*(2), 115-124.
5. Field, T., Diego, M., Hernandez-Reif, M., Dieter, J. N., Kumar, A. M., Schanberg, S., & Kuhn, C. (2008). Insulin and Insulin-Like Growth Factor 1 (IGF-1) increased in preterm neonates. *Journal of developmental and behavioral pediatrics: JDBP*, *29*(6), 463.
6. Basirimogadam, M., Karbandi, S., Mohammadzadeh, A., & Esmaili, R. (2005). The effect of touch on preterm infants hospitalized in the NICU take days. *J Med Sci Health Serv Gonabad*, *11*, 30-35.
7. Bond, C. (2002, December). Positive touch and massage in the neonatal unit: a British approach. In *Seminars in neonatology* (Vol. 7, No. 6, pp. 477-486). WB Saunders.
8. Solanki, K., Matnani, M., Kale, M., Joshi, K., Bavdekar, A., Bhave, S., & Pandit, A. (2005). Transcutaneous absorption of topically massaged oil in neonates. *Indian pediatrics*, *42*(10), 998.
9. Salam, R. A., Darmstadt, G. L., & Bhutta, Z. A. (2015). Effect of emollient therapy on clinical outcomes in preterm neonates in Pakistan: a randomised controlled trial. *Archives of Disease in Childhood-Fetal and Neonatal Edition*, *100*(3), F210-F215.

10. Ang, J. Y., Lua, J. L., Mathur, A., Thomas, R., Asmar, B. I., Savasan, S., ... & Shankaran, S. (2012). A randomized placebo-controlled trial of massage therapy on the immune system of preterm infants. *Pediatrics*, *130*(6), e1549-e1558.
11. Nangia, S., Paul, V. K., Deorari, A. K., Sreenivas, V., Agarwal, R., & Chawla, D. (2015). Topical oil application and trans-epidermal water loss in preterm very low birth weight infants—a randomized trial. *Journal of tropical pediatrics*, *61*(6), 414-420.
12. Garg, B. D., Kabra, N. S., & Balasubramanian, H. (2019). Role of massage therapy on reduction of neonatal hyperbilirubinemia in term and preterm neonates: a review of clinical trials. *The Journal of Maternal-Fetal & Neonatal Medicine*, *32*(2), 301-309.
13. Field, T. (2018). Infant massage therapy research review. *Clinical Research in Pediatrics*, *1*(2), 1-9.
14. Ferber, S. G., Laudon, M., Kuint, J., Weller, A., & Zisapel, N. (2002). Massage therapy by mothers enhances the adjustment of circadian rhythms to the nocturnal period in full-term infants. *Journal of Developmental & Behavioral Pediatrics*, *23*(6), 410-415.
15. Alam, M. A., Ali, N. A., Sultana, N., Mullany, L. C., Teela, K. C., Khan, N. U. Z., ... & Winch, P. J. (2008). Newborn umbilical cord and skin care in Sylhet District, Bangladesh: implications for the promotion of umbilical cord cleansing with topical chlorhexidine. *Journal of perinatology*, *28*(2), S61-S68.
16. Thatte, N., Mullany, L. C., Khatry, S. K., Katz, J., Tielsch, J. M., & Darmstadt, G. L. (2009). Traditional birth attendants in rural Nepal: knowledge, attitudes and practices about maternal and newborn health. *Global public health*, *4*(6), 600-617.
17. Darmstadt, G. L., Mao-Qiang, M., Chi, E., Saha, S. K., Ziboh, V. A., Black, R. E., ... & Elias, P. M. (2002). Impact of topical oils on the skin barrier: possible implications for neonatal health in developing countries. *Acta Paediatrica*, *91*(5), 546-554.