

Study to Assess the Effectiveness of Olive Oil Massage and Weight Gain among Low Birth Weight Neonates in Government Kamla Nehru Hospital Bhopal, Madhya Pradesh

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Abstract

Introduction: Nature massage babies in the womb, where contractions rhythmically squeeze and push, providing stimulation to the baby, studies show that more the babies are touched, nurtured and tenderly massaged, the happier and more balanced they grow.² Massaging the baby helps to fulfill their emotional, psychological and physical needs. It enhances the bonding, improves sleep patterns, stimulates circulation, improves digestion, facilitates food absorption results faster weight gain and by constant massaging, the infant level of stress hormones reduces as a result it improves immune function.⁴

Objectives: To assess the pre weight among low birth weight neonates to olive oil massage in experimental and control group; to compare the pre and post test weight among low birth weight neonates to olive oil massage in experimental and control group; to find out the significant association between olive oil massage among low birth weight neonates with selected demographic variables in experimental and control group.

Methodology: The research design used was a quasi experimental design. The samples for the study were chosen using quota sampling technique, 20 in experimental group and 20 in control group. Background factors of each sample were collected by interview and observation method, weight was recorded by electronic weighing machine. The setting was Government Kamla Nehru Hospital, Bhopal. Olive oil massage was done for 10 days in experimental group. Pre and post weight was recorded. Data obtained were edited, organized, analyzed by using SPSS (Version 10) and interpreted by descriptive and inferential statistics.²

Results: Gathered data were analyzed based on the objectives using inferential and descriptive statistics with SPSS (Version 10) package Level of probability <0.05 considered to be significant. There was a significant increase in weight after olive oil massage among low birth weight neonates $t = -11.964$ ($P=0.001$) in experimental group. The post test mean weight among low birth weight neonates in experimental and control group was significantly high $t=7.035$ ($P=0.001$) was significant.⁴ There was no significant association between background factors on mother and neonates and weight gain among low birth weight neonates in experimental group ($P > .005$). The t value= 4.462 ($p=0.140$) which was not significant.⁴

Conclusion: The findings of the study showed that there was a significant ($p<0.05$) weight gain in low birth weight neonates after Olive oil massage in experimental group no selected background factors had any significant association. The conclusion of the study was that olive oil massage was effective in weight gain among low birth weight neonates.

Keywords: Low birth weight; Neonate; Olive oil massage; Babies in the womb.

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INTRODUCTION

The miracle of life begins at conception and continues throughout the life span. The manifestation of this miracle is encountered during new born and infancy. Neonates' period is the crucial period for the infant who is facing many of the physiological adjustment for extra uterine existence. Normal birth weight for a healthy newborn born at term between 38-42 weeks should have an average birth weight 2.7 to 3.1 kg with a mean of 2.9 kg. Neonates born at term or post term may weigh less than 2500 gm is considered to be low birth weight babies.

WHO defines low birth weight as one whose birth weight is 2500 grm or less irrespective of the gestational age very low birth weight infants weigh 1500 gram or less and extremely low birth weight infants weigh 1000grms or less. Incidence of low birth weight is generally highest in those countries where the mean birth weight is low and as such varies from about 5% to 40% of live births. In India about two third of the infants weigh less than 2500 grams. The incidence of low birth weight baby more than 20 million are born each year weighing less than 2500 grams 5.5 pounds according to WHO for 17 percent of all birth in the developing world. A rate more than double the level in industrialized countries 7 percent infants with low birth are at higher risk of dying during the early months and years. Those who survive are liable to have an impaired immune system and may suffer a higher incidence of such chronic illnesses as diabetes and heart disease in later life.

Massage therapy encompasses a wide variety of techniques that manipulates the soft tissue. The word massage is derived from the Latin "massa" or green massein or "masso" meaning or touch therapy is a natural and almost instructive way to care. By lightly touching, rubbing the entire body of the baby causes comfort both physically and psychologically. Nature massage babies in the womb, where contractions rhythmically squeeze and push, providing stimulation to the baby, studies show that more the babies are touched, nurtured and tenderly massaged, the happier and more balanced they grow. Massaging the baby helps to fulfill their emotional, psychological and physical needs. It enhances the bonding, improves sleep patterns, stimulates, circulation, improves digestion, facilitates food absorption results faster weight gain and by constant massaging, the infant level of stress hormones reduces as a result it improves immune function.

Need for the study

Baby massage is useful for the overall development of premature babies. Baby massage is of great help; it indeed makes the baby very active, alert and healthy. It builds a stronger bond between parent and child. Baby massage not only gives the baby love and security; but it also helps the parent to be familiar with baby's visual signs and actions. Baby massage relaxes the baby and helps them to get a good, sound sleep. Massaging the baby improves the digestive system and helps them to pass gas. A good oil massage helps them to be more flexible and even increases the blood circulation. Baby massage helps to improve the immune system and also helps to improve the skin colour of the baby. Olive oil is composed of essential fats and has many uses as a natural medicine. It comes from olive's juice and is rich in oleic acid. It is a great antioxidant with vitamin E, Polyphenols and Flavonoids. Its antioxidant action helps to prevent several diseases, such as heart related conditions and some forms of cancer. Olive Baby Massage, Oil Moisturizes infant's skin and helps to protect it from dryness. The luxurious bland of almond oil, jojoba oil and olive oil has been carefully chosen for its calming, nourishing properties. Infant Care Olive oil is one of the only safe choices for natural infant care. It works very well on the dry flaky skin condition on the scalp called cradle cap. It is also a safe and effective alternative to commercial baby oil.

Review of literature: A study conducted on infant massage on term normal babies between the age of 1 to 12 months. All the parents were advised to apply a small amount of Nourishing oil using firm but gentle strokes all over the baby. Which was followed by gentle massage. Parents were asked to bring after 7th and 14th day of massage this study observed a significant reduction in the skin dryness, improvement in the softness of the skin, and skin glow. It was noticed that the Nourishing oil was absorbed rapidly, leaving the baby skin soft with a natural, healthy glow and without any greasy after feel. These beneficial effects might have been due to the synergistic actions skin nourishing, emollient, moistening, soothing, antimicrobial, anti inflammatory and antioxidant of its ingredients. An open randomized controlled study of oil massage in 224 neonates at LTM medical college Mumbai oil Massage using coconut oil versus mineral oil among new born babies weighing between 1500 to 2000 gram and term babies weighing more than 2500 grams massage were given by a trained person from day 2 of life to 31 days. Setting premature

unit and post natal wards babies in each group were randomized to receive massage with coconut oil, mineral oil. or with placebo. Oil massage was given in prone and supine position to include head, neck, trunk and extremities. At the end of the massage kinesthetic stimulation was provided in supine position by passive flexion and extension movements of limb at each large joint massage was given up to 31 days the outcome was assessed by the Brazelton score at baseline day 7 and on 31 coconut oil massage showed a greater weight gain velocity as compared to mineral oil and placebo pre term infants receiving coconut oil massage also showed a greater length gain velocity compared to placebo group no statistically significant difference was observed in the neuro behavioral assessment between all three subgroups in term babies as well as in preterm babies.

Assumption: 1. Low birth weight babies' mothers will give consent for oil massage.

2. Oil massage will not induce any adverse effect on neonates.

Limitations: 1. Who are admitted in the hospital at the time of data collection.

2. Sample selected by convenient sampling method.

Hypothesis:

H₁: There will be a significant difference in mean weight before and after oil massage among low birth weight neonates in experimental group.

H₂: There will be a significant difference between the mean difference in weight gain between low birth weight in experimental and control group

H₃: There will be a significant association between the mean difference in weight and background factors among low birth weight neonates.

METHODOLOGY

Research approach: An evaluative research was considered as an appropriate research approach for the present study.

Research design: The research design in this study was a quasi experimental design.

Variables under study: Independent variable: Olive oil massage

Dependent variable: Weight gain.

Population: Target Population in this study the

target populations were low birth weight neonates.

Accessible population: In this research the assessable populations were low birth weight neonates admitted in Kamla Nehru Government Hospital, Bhopal, MP.

Sample and sampling technique

Sample: Low birth weight neonates who were admitted in the Kamla Nehru Hospital Bhopal were the samples for present study.

Sample size: Samples size was 40 (20 in experimental group and 20 in control group).

Sampling technique: The quota sampling technique was used to select the Low birth weight neonates who were admitted in the Kamla Nehru Hospital Bhopal As per the tentative schedule of data collection, the investigator has selected the Low birth weight neonates conveniently after informed consent.

Inclusion criteria

1. Neonates who are at the age of 0-1 month.
2. Who were admitted at the time of data collection

Exclusion criteria

1. Neonates weight less than 1.5 kg and more than 2.5 kg.
2. Neonates who were sick or medically unfit.

Tool preparation

The tool is written device that a researcher uses to collect the data. After careful and detailed review of literature. The researcher prepared and developed an interview /and observation schedule as tool for present study.

Development of tool:

The research instrument consists of three sections:

Section-I: Background Data of Mother

Section-II: Background factors of neonates.

Section-III: Observation schedule on weight of neonates.

Section-I Consisted of selected factors such as age of mother, religion, type of family, educational background, income of the family, Hb status of the mother, nature of work, weight gain by the mother during pregnancy type of delivery

Section-II Consists of factors of neonates such as gestational age, age in days, sex, birth weight,

and condition of the baby at birth, type of feeding, number of feeds / day.

Section-III Consisted of a grid to assess the effect of weight gain among low birth weight neonates of the timing of the olive oil massage.

Validation of the tool: The tool described by the researcher was sent along with the request for validation to 7 experts including 2 pediatricians, and 5 nursing experts. The experts were requested to check for the relevance, sequence, adequacy of language of the tool. The tool was modified according to expert's opinion. The items with 100% agreement were included in the tool. A few items were modified and retained in the tool. The validity of observation by investigator was established from an expert therapist.

Reliability: The reliability of the instrument was established by inter-rater reliability. The tool was administered to 10 individuals simultaneously by 2 nursing personnel and the tool was found to be reliable for the study. The obtained r value was 0.99

Feasibility of the study: The investigator conducted a Pilot study.

Pilot study: Feasibility of study was done among 10 infants who were low birth weight neonates after obtaining permission from the authority. The setting was at Kamla Nehru Government Hospital, Bhopal (MP). It helped the researcher to ascertain the feasibility of the designed methodology. These neonates were not included in the main study.

DATA COLLECTION PROCEDURE

Data were collected from Kamla Nehru Government Hospital, Bhopal (MP) prior permission was sought and obtained from authorities Neonates were selected using purposive sampling method neonates from NICU were the study samples. Based on sample selection criteria purposive sampling method was used. The study purpose and methods were explained to each mothers informed consent was obtained 20 low birth weight neonates were

selected in experimental group and 20 in control group. Background data was collected by interview method pre test weight was observed 20 neonates in experimental group were given olive oil massage 5ml/kg of body weight massage for 15 minutes both in the morning and evening. Daily weight was recorded once a day in the morning and recorded in the grid before oil massage weight was recorded by ward staff to prevent bias by the researcher. Massage was done for 10 days for each neonate.

Plan for data analysis: The data were edited, coded and entered in excel sheet. The data were analyzed using SPSS version 10. A probability of less than 0.05 was considered to be significant. The data was analyzed as follows:

1. Background Data were analyzed using descriptive statistics.
2. Test was used to test the difference between the weights among neonates in the experimental control group.
3. Association between mean difference in weight and the Background factors in experimental group was analyzed using Linear Regression.

RESULTS

Organization of the data: The data collected were edited, tabulated, and analyzed interpreted and findings obtained were presented in the form of tables, and diagrams under the following sections.

Section-I: Data on Back ground factors of the mothers.

Section-II: Data on Back ground factors of low birth weight neonates.

Section-III: Data on weight gain of neonates in experimental and control group.

Section-IV: Data on association between mean difference in weight and background factors among neonates in experimental group.

Section-I: Data on Background Factors of the Mothers.

Table 1: Frequency and percentage distribution of mothers regarding background factors

Selected Factors	Experimental (n=20)		Control (n=20)		g2	Sig.P
	Freq.	%	Freq.	%		
Age of the mother						
a. 15-24 years						
b. 25-34 year	14	70	11	55	0.960	P=327
c. 35-44 years	6	30	9	45		NS

Religion						
a. Hindu	14	70	16	80	0.533	P=766 NS
b. Muslim	3	15	2	10		
c. Christian	3	15	2	10		
Educational back ground						
a. Illiterate	6	30	1	5	0.706	P=188 NS
b. Primary	6	30	6	30		
c. Secondary	4	20	6	30		
d. Collegiate	4	20	7	35		
Anemic Status of the mother						
a. Normal	9	45	9	45	0.733	P=693 NS
b. Mild	6	30	6	30		
c. Moderate	5	25	5	25		
d. Severe	0	0	0	0		
Weight gained during pregnancy						
a. >10Kg	10	50.0	14	70	0.921	P=337 NS
b. <10Kg	10	50.0	6	30		

Section II: Data on Back ground factors of low birth weight neonates

Table 2: Frequency and percentage distribution of neonates regarding selected background factors

						n=40
Selected Factors	Experimental		Control		χ^2	Sig.P
	(n=20)		(n=20)			
	Freq.	%	Freq.	%		
Gestational age of the neonate at birth.						
a. <37 weeks	10	50	5	25	2.667	P =102
b. ≥37 weeks	10	50	15	75		NS
Age of the neonate						
a. 0-6 days	11	55	17	85.0	4.286	
b. 7-14 days	9	45	3	15		
Sex of the neonate						
a. Male	13	65	14	70.0	0.11	P=736
b. Female	7	35	6	30.0		NS
Condition at birth						
a. Apgar (4-6/ minit)	8	40	2	10.0	5.2	P=0.07
b. Apgar 7-10/ mimt)	12	60	18	90.0		NS
Birth order						
a. 1st child	14	70	12	60	1.231	(P=540) NS
b. 2nd child	6	7	7	35.0		
c. 3rd child	0	0	1	5.0		

Section III A: Data on weight gain of neonates in experimental and control group

Table 3.1: Mean range, SD, mean difference and 't' value on pre and post test weight among low birth weight neonates in experimental group. n=20

Weight	Mean	Range	SD	Mean difference	't' value
Pre-test	1.9566	0.74	0.2322	0.1529	-11.964
Post-test	2.1095	0.915	0.2255		P=(0.001)

Section-III B: Data on weight gain of neonates in experimental and control group

Table 3.2: Mean difference and 't' value regarding weight among neonates in experimental and control group.

n=40

P Groups	N	Mean difference	SD	Difference Inmean	"t" value P
Experimental Group	20	0.1529	0.0571	0.098	7.035
Control Group	20	0.0549	0.0248		P=(0.001)

Section IV: Data on association between mean difference in weight and background factors among neonates in experimental group.

Table 4: Linear regression regarding the mean difference in weight and background factors among low birth weight neonates in experimental group.

Selected back ground factors	Standardized Co-efficient Beta	't' Value	Sig.(P)
Age of the mother	2.753	4.462	0.140
Religion	2.330	2.547	0.137
Type of family	2.878	4.571	0.156
Income of the family	3.875	3.997	0.262
Anemic status of the mothers	2.121	-5.057	0.124
Type of delivery	-0.273	-0.408	0.753
Gestational age of the neonate	-0.825	-1.097	0.471
Age of the neonate in days	-3.219	-3.976	0.157
Sex of the neonates	-1.238	-2.502	0.243
Birth weight of the neonates	1.925	2.615	0.233
Total number of feeds	-1.173	-1.881	0.311

TESTING OF HYPOTHESIS

H₁: There will be no significant difference in mean weight before and after oil massage among low birth weight neonate in experimental group

Table 3.1 shows the Mean, Range, SD, Mean deviation and 't' value regarding the pretest and overall post test weight among low birth weight neonates. The obtained overall post test mean weight 2.10955 (SD=0.2255) was more than the pretest mean weight 1.9566 (SD=0.2322). The obtained mean difference was 0.1529 and 't' value -11.964 P=(0.001). Therefore the null hypothesis H01 was rejected

H₂: There will be no significant difference between the mean difference in weight gain among low birth weight neonates in experimental and control group.

The obtained mean difference of weight is 0.1529 (SD=0.0571) in experimental group was more than the control group M=weight 0.0549 (SD=0.0248) in control group. There was a significant difference in the mean difference between experimental and

control group. Therefore, the null hypothesis H02 was rejected.

Summary

- Majority of mothers in experimental and control group were in the age group of 15-24 years, belong to Hindu, nuclear family below poverty line, were moderate workers, had less than 10 Kilograms weight gain during pregnancy, had L.S.C.S delivery, had normal Hb during pregnancy.
- Majority of neonates in experimental control group were more than 37 weeks gestation, less than 6 days of age, male infants, Apgar 7-10/ mins Birth order 1st child. Birth weight between 2001-2005 grams, had expressed breast milk pallada feed, and had initiation of feed between ½ - 2 hours after.

CONCLUSION

The findings of the study showed that there was a significant (p<0.05) weight gain in low birth weight

neonates after Olive oil massage in experimental group no selected background factors had any significant association. The conclusion of the study was that olive oil massage was effective in weight gain among low birth weight neonates.

DISCUSSION

The results of the study were discussed according to the findings of the study.

Finding 1: Post test mean weight after olive oil massage in experimental group there was a significant increase in weight after olive oil massage among low birth weight neonates $t = -11.964$ ($P = 0.001$) in experimental group.

- Post test mean weight after olive oil massage in experimental group was significant there was an increase in the mean weight after olive oil massage $t = 11.964$ ($P = 0.001$). The above findings were supported by the studies conducted by Douret v. et. al., (2008) reported that there was a significant increase in weight gain and neurobehaviours development in pre term infants with multimodal stimulation and cutaneous application of vegetable oil.

Finding 2: Findings on post test weight among experimental and control group. It was inferred that neonates in experimental group significantly improved weight after olive oil massage.

- Post test mean weight in experimental group was more 0.1529 control group 0.0549. There was a significant difference in post test mean, post test mean was 0.1529, there was significance $t=7.035$ ($p=0.001$). The above findings were supported by the studies conducted by Sankaranarayana et. al (2005) reported that there was significant increase in weight after oil massage in experimental group than those of control group those who did not.

Finding 3: Findings on association between the mean differences in weight gain among low birth weight neonates and selected factors among experimental group. It was inferred that there was no significant association between the mean difference in weight gain and background variables among neonates in experimental group Olive Oil massage was independently effective to increase

weight of neonates.

- There was no significant association between background factors among low birth weight mothers and neonates P value was $P > 0.5$.

RECOMMENDATIONS:

The present study recommends the following in different areas:

- A similar study can be conducted in large group of low birth weight neonates.
- A longer period of intervention can be studied for more reliability and effectiveness.
- It can be practiced in the community settings and hospital setting.

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