



www.bioinformation.net
Volume 22(9)

Research Article

Received September 1, 2026; Revised September 30, 2026; Accepted September 30, 2026, Published September 30, 2026

DOI: 10.6026/973206300226019

SJIF 2026 (Scientific Journal Impact Factor for 2026) = 8.478

2022 Impact Factor (2023 Clarivate Inc. release) is 1.9

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Edited by P Kanguane

Citation: Vijayabanu *et al.* Bioinformation 22(9): 6019-6023 (2026)

Impact of massage therapy in managing pain among antenatal mothers

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Abstract:

Antenatal mothers commonly experience severe pain during the first stage of labour, which may affect maternal comfort and the childbirth experience. A quasi-experimental non-equivalent control group pre- and post-test study was conducted among 60 antenatal mothers at a selected hospital in Coimbatore, Tamil Nadu, with 30 mothers in the experimental group receiving olive oil massage therapy and 30 in the control group receiving routine care. Before the intervention, 53.33% of mothers in both groups had severe pain. After olive oil massage, none of the mothers in the experimental group reported severe pain, whereas 36.66% in the control group continued to experience severe pain. Thus, data shows that olive oil massage therapy effectively reduces labour pain and may be integrated as a simple, safe and supportive non-pharmacological intervention during the first stage of labour.

Keywords: Olive oil massages therapy, labour pain, antenatal mothers, first stage of labour, pain management

Background:

Labour pain is one of the most intense forms of physiological pain experienced by women during childbirth and is frequently accompanied by anxiety, fear and emotional distress, which may adversely influence maternal and neonatal outcomes [1]. The severity of labour pain varies according to physiological, psychological, obstetric and environmental factors [2]. Although pharmacological pain relief methods are effective, they may be associated with maternal and neonatal side effects, increased intervention rates and higher healthcare costs [3]. Consequently, non-pharmacological interventions have gained considerable attention as safe, cost-effective and woman-centred approaches to labour pain management [4]. Massage, which involves systematic manipulation of the soft tissues using manual pressure and stroking, has emerged as one of the most widely practised complementary therapies during labour [5]. Previous randomized controlled trials have reported that massage significantly reduces labour pain intensity and maternal anxiety while enhancing relaxation and childbirth satisfaction [6-8]. Systematic reviews and meta-analyses further support its effectiveness in reducing pain during the latent, active and transitional phases of labour without increasing adverse maternal or neonatal outcomes [9, 10]. Vegetable oils such as olive oil are commonly used as a carrier medium for massage because they are inexpensive, widely available, well tolerated on the skin and culturally acceptable in Indian settings [11]. Despite encouraging findings, variations in massage technique,

anatomical site, duration and study setting warrant further investigation [12]. Therefore, it is of interest to evaluate the effectiveness of olive oil massage therapy in managing labour pain among antenatal mothers during the first stage of labour in a selected hospital.

Methodology:**Research approach and design:**

A quantitative research approach with a quasi-experimental non-equivalent control group pre- and post-test design was adopted to evaluate the effectiveness of olive oil massage therapy on labour pain among antenatal mothers during the first stage of labour.

Setting and population:

The study was conducted in the labour room of a selected hospital in Coimbatore, Tamilnadu, India. The target population comprised antenatal mothers admitted in the first stage of labour who met the eligibility criteria for participation.

Sample and sampling technique:

A total of 60 antenatal mothers were selected using a non-probability purposive sampling technique and allocated into an experimental group (n=30) and a control group (n=30). The experimental group received olive oil massage therapy during the first stage of labour in addition to routine obstetric care, while the control group received routine hospital care alone.

Labour pain was assessed before and after the intervention using the Modified Visual Analogue Pain Scale (MVAPS).

Data analysis:

Data were analysed using SPSS version 20.0. Descriptive statistics, including frequency, percentage, mean and standard deviation, were used to summarize demographic characteristics and labour pain scores. Statistical significance was established at $p < 0.05$.

Results:

Table 1 shows the frequency and percentage distribution of the demographic variables. In both groups the majority of mothers were aged 23 to 32 years, were illiterate (60% and 73.33%), were vegetarian (50% and 56.66%), were housewives (43.33% and 50%) and had a family income below Rs. 10,000 per annum (83.33% and 76.66%). Most mothers had not rested during the last month of pregnancy (56.66% and 40%), reported regular walking as their antenatal activity (56.66% and 40%) and

remained lying down during the first stage of labour (73.33% and 60%). The two groups were broadly comparable on all demographic variables. **Figure 1** shows that distribution of labour pain among antenatal mothers before and after olive oil massage therapy in the experimental and control groups ($N = 60$). In the pre-test, both groups presented an identical pain profile, with 53.33% of mothers in each group experiencing severe pain and 46.67% experiencing moderate pain. Following the intervention, none of the mothers in the experimental group reported severe pain; 26.66% reported no pain, 26.66% reported mild pain and 46.66% reported moderate pain. In the control group, which received routine hospital care alone, 36.66% of mothers continued to experience severe pain and 63.33% experienced moderate pain, with no mother reporting the absence of pain or mild pain. The shift towards the lower pain categories was therefore observed only in the group that received olive oil massage therapy.

Table 1: Frequency and percentage distribution of demographic variables of experimental and control group subjects

Sl. No.	Demographic Variables	Experimental Group (n=30)		Control Group (n=30)	
		f	%	f	%
1	Age (in years)				
	18-22 years	3	10	3	10
	23-27 years	15	50	13	43.3
	28-32 years	10	33.3	12	40
	32-35 years	2	6.66	2	6.66
2	Education				
	Illiterate	18	60	22	73.3
	Literate	12	40	8	26.7
3	Diet				
	Vegetarian	15	50	17	56.7
	Non-vegetarian	7	23.3	7	23.3
	Mixed	8	26.7	6	20
4	Occupation				
	Heavy workers	10	33.3	10	33.3
	Moderate workers	0	0	0	0
	Sedentary workers	7	23.3	6	20
	Housewife	13	43.3	15	50
5	Family income (per annum)				
	Below Rs. 10,000	25	83.3	23	76.7
	Rs. 25,000 and above	5	16.7	7	23.3
6	Human support towards delivery				
	Family	22	73.3	16	53.3
	Husband	8	26.7	14	46.7
7	Antenatal check-up				
	Regular (at least 3 antenatal visits)	17	56.7	15	50
	Irregular (less than 3 antenatal visits)	13	43.3	15	50
8	Rest during last month of pregnancy				
	Intermittent rest	8	26.7	10	33.3
	Complete rest	5	16.7	8	26.7
	No rest	17	56.7	12	40
9	Activities performed during antenatal period				
	Breathing exercises	10	33.3	7	23.3
	Antenatal exercises	0	0	3	10
	Regular walking	17	56.7	12	40
	Any other	3	10	8	26.7
10	Previous hospitalization				
	Yes	12	40	10	33.3
	No	17	56.7	20	66.7
11	State of activities during first stage of labour				
	Lying down	22	73.3	18	60
	Walking	5	16.7	4	13.3
	Any other	3	10	8	26.7
12	Self-reported ability to tolerate pain				

Very good	16	53.3	14	46.7
Good	10	33.3	13	43.3
Poor	2	6.66	3	10
Very poor	2	6.66	0	

N = 60 (Experimental Group n = 30, Control Group n = 30)

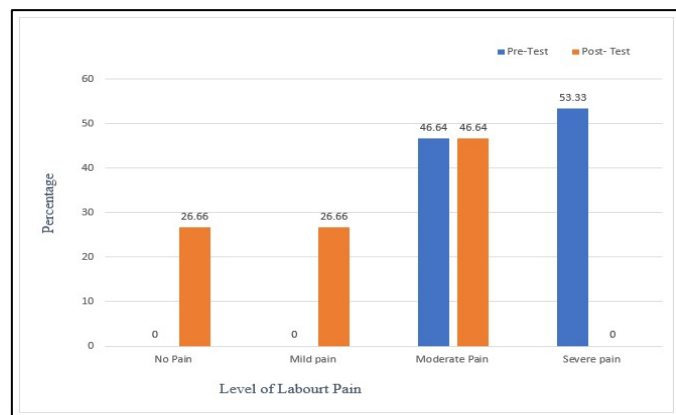


Figure 1: Indicates that pre-test and post-test score of labour pain in experimental group

Discussion:

The present study showed that olive oil massage therapy produced a marked reduction in labour pain among antenatal mothers during the first stage of labour. Following the intervention, none of the mothers in the experimental group reported severe pain and 26.66% reported no pain at all, whereas 36.66% of mothers in the control group continued to experience severe pain. The direction and magnitude of this shift are comparable to those reported by Pawale and Salunkhe [13], who studied back massage among primipara mothers, admitted to an Indian tertiary care centre and recorded significantly lower post-test pain scores in the massage group than in mothers receiving routine care alone. A similar benefit was described by Şanlı and Güngör Satılmış [14], who's randomized controlled trial of foot massage showed reduced visual analogue pain scores during labour, fewer negative behavioural responses during delivery and shorter second and third stages of labour. The site, timing and technique of massage appear to influence the degree of relief obtained. Shahbazzadegan and Nikjou [15] compared massage administered at different degrees of cervical dilatation and found that pain and anxiety scores were reduced most when massage was commenced early in the first stage, which corresponds to the schedule followed in the present study. Turkmen *et al.* [16] reported that ice massage applied to the SP6 acupressure point reduced labour pain and anxiety while improving labour comfort and Unalmis Erdogan *et al.* [17] observed that low back massage lowered perceived birth pain and increased maternal satisfaction. Labrecque *et al.* [18] similarly found that non-pharmacological approaches directed at the lumbosacral region relieved low back pain during labour. Taken together, these reports indicate that sustained manual pressure over the lower back and sacrum, the technique used in the present study, is a consistently effective site of application. Massage also appears to influence the wider course of labour

and not pain intensity alone. Bolbol-Haghighi *et al.* [19] showed in a randomized controlled trial that massage therapy shortened the duration of labour and Sananpanichkul *et al.* [20] reported that one hour of court-type Thai traditional massage significantly reduced the duration of both the first and second stages. Mortazavi *et al.* [21] found that massage therapy combined with the presence of a birth attendant reduced pain and anxiety and improved maternal satisfaction, suggesting that part of the benefit arises from continuous supportive presence rather than from manual pressure alone. Norhapifah *et al.* [22] likewise recorded significant reductions in both labour pain and anxiety following shiatsu massage, reinforcing the view that the psychological component of therapeutic touch contributes materially to the analgesic effect observed in the experimental group. The mechanism underlying these findings is likely to be multifactorial. Rhythmic stroking stimulates large-diameter cutaneous afferents and, in keeping with gate-control theory, attenuates the transmission of nociceptive impulses arising from the uterus and lower back. Concurrent muscle relaxation, improved local circulation and endorphin release further diminish pain perception, while the accompanying reduction in maternal anxiety interrupts the fear-tension-pain cycle. The use of olive oil as the massage medium may contribute additionally by reducing friction and permitting smoother and deeper strokes and it is inexpensive, well tolerated on the skin and culturally acceptable in Indian settings. Certain limitations should be acknowledged. The quasi-experimental design with non-probability purposive sampling and a single-centre sample of 60 mother's limits generalisability, blinding of participants was not feasible and the outcome was confined to self-reported pain intensity without follow-up of labour duration, mode of delivery or neonatal outcomes. Larger randomized controlled trials comparing olive oil with other carrier media and reporting maternal and neonatal outcomes alongside pain scores are therefore warranted. Notwithstanding these limitations, the present findings support the integration of olive oil massage therapy into routine intrapartum nursing care as a simple, economical and non-invasive measure for reducing labour pain and improving the childbirth experience. A similar study conducted by Patyal *et al.* Sacral massage was found effective to reduced pain and increase satisfaction [23]. Sethi and Barnabas concluded in her study that back massage had impact on pain level. Therefore, it was concluded that back massage was effective to reduce the level of pain [24]. Sade and Özkan (2025) concluded that massage intervention that applied in this study reduced labor pain, but it did not affect the duration of labor and the satisfaction levels of the women [25]. Yamasaki *et al* (2026) showed that massage therapy in the early postpartum period is effective in alleviating unpleasant symptoms [26].

Conclusion:

Olive oil massage therapy administered during the first stage of labour produced a marked reduction in labour pain among antenatal mothers. Data shows that none of the mothers in the experimental group reported severe pain following the intervention. Olive oil massage is a simple, safe, economical and non-invasive nursing intervention that can be integrated into routine intrapartum care to reduce labour pain and improve the childbirth experience.

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