



EFFECTIVENESS OF FREEDOM OF MOVEMENT DURING FIRST STAGE OF LABOUR

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ABSTRACT

Today, in modern obstetrics immobility as become common occurrence during labour due to risk focused management and most of the child birth is managed by the 'Active Management' of labour with many interventions. Natural Birth' generated with "Freedom Of Movement" considered as a very effective intervention to enhance the birth outcome. An experimental study was conducted among 211 primi parturient mothers who were in active stage of labour with uncomplicated pregnancy were allocated to experimental group (n=106) and control group (n=105) by using simple random sampling technique. Maternal outcome mean score among the study group primi parturient mothers was 27.99 whereas in control group it was 22.58 and the difference was 5.41 score with the calculated 't' value was 10.77 at p=0.001 level In study group fetal outcome mean score was 16.41 whereas in control group it was 14.47 and the obtained 't' value is 6.49 at p=0.001 level. There was high statistical significance found in maternal and fetal outcome between study and control group which shows that the freedom of movement intervention enhances birth outcome among the primi parturient mothers.

Keywords: Active management, Freedom of movement, Birth outcome, primi parturient mothers, maternal outcome, fetal outcome, uncomplicated pregnancy.



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INTRODUCTION

The choice of movements and position changes play a key role in determining the perception of labour pain, the mother's comfort level during birth and enhancing positive maternal and fetal outcome. During the first stage of labour, mothers who are engaged with various movements and position changes help them respond to pain in active way and shorten the duration of the first stage of labour¹Activity during labour provides distraction from discomfort and enhances a sense of greater freedom and control and provides a way to release muscle tension. In fact, women who use movements in labour report that it is effective method of relieving pain and restricting women's movements during labour may result in worst birth outcome and decreases women's satisfaction with their birth experiences.² Today in modern obstetrics most of the child birth is managed by the 'Active Management of Labour' with induction of labour, epidurals and electronic fetal monitoring and most of these whole cascade of interventions leads to complicated birth. 'Active Birth' generated with freedom of movement considered as a very effective intervention as it causes many physiological changes which contribute many benefits to the mother, baby and enhances the labour process itself. As for pain is considered, when the mother moves around and being upright during labour, experiences less pain than in lying down position and increases the chance for requiring analgesics and epidurals and these both actions are not favour for the baby to mold and descend through the pelvis interrupt the labour process may lead to prolong labour or failure to progress. The center of Disease Control and prevention in 2015 (CDC) reported that the most common diagnostic reason or indication for 50% or more caesarian is 'Failure to progress which can be caused by contractions aren't vigorous enough to dilate the cervix enough for the baby move through the vagina. Pondering to this aspect, walk and move around during labour makes the uterus muscle works more effectively.³ Movements and changing position moves the bones of the pelvis and help the baby best fit into favourable position for normal labour and by using gravity helps the baby descend down to the birth canal.⁴ Based on several evidence based clinical trials it is proved that changing positions and moving around during labor and birth offers several benefits which include gravity. There are reduced risks of aorta cava compression, better alignment of the fetus, more efficient contractions and increased pelvic outlets. More over, WHO has recommended that the use of upright position for labor and childbirth as Category-A(a practice clearly useful and effective) and the use of supine-lithotomy position as Category-B(a practice very clearly harmful, ineffective and to be eliminated from the practice)⁶ Movement such as walking helps the baby progress through the birth canal and put pressure on cervix that encourages the cervix to open as needed for the labour to progress and mothers who ambulated for significant amount of time during labour had half the rate of operative delivery.⁷ Globally, in today's scenario the birth ball has become standard equipment in many hospitals and birth centers. The sitting position on the ball, assumed similar to a squat, opens the pelvis, helping to speed up labour and gently moving on the

ball greatly reduces the pain of contractions.⁸ With the ball on the floor or bed, the mother can kneel and lean over the ball, encouraging pelvic motion which can aid a posterior baby in turning to the correct anterior position, thus allowing labour to progress more quickly. This position is wonderful for a mother who is having back labour caused by a posterior position.⁹ Notelovitz stated that the baby will find it easier to be born if the mother was in semi sitting position and combination of the muscular action of the womb, mothers pushing effort and the gravity is the powerful one¹⁰. Most of the women are giving birth in health-care facilities, usually in lying down position on the bed. Unfortunately, the use of these horizontal birth positions is rooted in convenience for doctors, not based on research evidence. A literature with regard to movements and position changes during labour reviewed by Cochrane evidenced based review (APRIL 2003) meta-analysed 21 studies ,examining 3,706 births stated that women who walk and move around during active stage of labour shorten the duration of labour about an hour, 17% less likely to seek pain relief, facilitate foetal descend, there by stimulate dilation, reduces oxytocic infusions and caesarean deliveries¹¹. Many centuries labouring women choose to remain mobile and upright. But in today's scenario immobility throughout the labour process become a common practice. For many women 'restriction to movement' is believed as high risk management intervention that make the mother connected with intravenous therapy, foetal monitoring, epidural anaesthesia, oxygen and suction devices and restrict the labouring women confined to bed. All of these highly developed technology care are necessary for high risk women to maintain optimal birth outcomes, the sense of normality should be maintained at least for low risk women. National survey of child bearing experiences in united states depicts that 71% of women said not walked around and most reason they gave was they were 'connected to things' (67%), due to pain medication(32%) and told not to walk(28%).¹² study was recently conducted among 2,000 women who had given birth by the National Childbirth Trust (NCT) in the UK in March 2003-4 provides convincing evidence that most laboring women what they need is more space in birthing environment.¹³ Therefore It is highly recommended that units to adopt flexible policies with respect to maternal position in labour and birth, so that women can choose the most comfortable positions. Moreover in developed countries many hospitals today provide amenities like birth ball, rocking chair, beanbags, tubs or showers, stretching ropes, furniture and safe place to walk in birth suite in order to make women stay out of bed and enhance the sense of control and satisfaction .But in developing countries like India these options are lacking or unavailable in birth centers and hospitals. This issues on freedom of movement during labour depicts that need for an hour to be discussed and analyzed to make the birth "as nature intended" adding accompanying feeling of empowerment, wellbeing with child birth.

MATERIALS AND METHODS

A quantitative experimental post test only control group design was adopted for the study which was conducted

in Thambaram Government general hospital at Chrompet in Chennai, Tamil Nadu State, India. The researcher obtained formal written Permission from Directorate of Medical and rural health Services, Chennai, Joint Director of health services Kancheepuram and Chief Senior Civil surgeon Medical Officer from Government General Hospital, Tambaram. The research proposal was approved by the institutional ethics committee of SRM University, Kattankulathur, Kancheepuram District, Tamil Nadu, India. In all cases, informed consent was obtained from each subject. A total of 240 primi parturient mothers were selected by Simple random technique (lottery method). After admitting in the labour ward for delivery, initial screening was done by using checklist which described the criteria that the samples need to pose for the participation in the study was done. The inclusion criteria for sample selection are primi parturient mothers at gestational age 37 to 40 weeks with initial cervical dilation $>/$ 3cm with single fetes with cephalic presentation and who had normal vitality. parturient mothers who were receiving analgesics, induced by medical or surgical method, had rupture of membrane, had history of pregnancy complication such as pregnancy induced hypertension, gestational diabetic mellitus, antepartum haemorrhage, labour complication like cephalo pelvic disproportion, malpresentation and malposition those who have family history of premature labour, those who have medical complications like Diabetes mellitus, Asthma and Hypertension are excluded from the study. Then samples that fulfilled the inclusive criteria were randomly selected per day as per admission. Thus with the same procedure, the desired sample size 120 was selected for both study and control group. 120 primi parturient mothers in control group were selected as a first group, followed by the study group to avoid preconceived ideas and to prevent contamination of the samples. Once the required control group sample selection was completed and study group 120 samples were selected. The total number of dropout cases in study group was 14 and in

control group was 15 due to various reasons such as fetal distress, meconium stained amniotic fluid, failure to progress needed augmentation and pain medications below 7 cm cervical dilatation and uncooperative mothers to follow intervention Demographic data was collected with Structured Questionnaire included 14 items and the study group was provided Movements and positions like walking, swaying on birth ball, rocking with rocking chair and semi sitting position. Each of these movements was provided for 10 minutes with 5 minutes rest period during which the mother can assume any comfortable position. This set of intervention was given 3 times with 15 minutes interval between each other, starts from 3 to 7 cm dilatation. The mother receives hospital routine care along with the intervention. The 3 set of intervention was provided to the study group from 3cm cervical dilatation and during this period the investigator monitored the labour process by structured tool which comprises of 10 items which includes maternal pulse, respiration, B.P, pain, discomfort level, contraction pattern, cervical dilatation, cervical effacement, station and fetal heart rate with observational checklist and partograph. Once the intervention was completed and the investigator assessed the labour outcome which consist of Type of delivery and perineum status, Pain, Duration of first stage of labour, contraction pattern, delivery of placenta and membrane, use of analgesics, augmentation with oxytocin, duration of second stage of labour, spontaneous rupture of membrane, Presence of hypotension, Presence of hypotension by using observational checklist, WHO partograph, and delivery records. Fetal outcome included presence or absence of foetal distress, APGAR Score at first minute, APGAR Score at fifth minute, Presence of birth trauma, Admission to NICU as measured by APGAR scoring and observational checklist. The investigator also monitored the major complications arises during labour, puerperium and neonatal period.

Table 1
Assessment of labour process

S.No	Variables	Score
1.	Pulse (As per American heart association) Normal(60-100beats/mt)	2
	Abnormal(<60/,>100 beats/mt)	1
2	Respiration(As per American lung association) Normal(12-20 breaths per minute)	2
	Abnormal(<12/>20 breaths per minute)	1
3	Blood pressure(As per American heart association) Normal-systolic B.P 90-120,diastolic 60-80) mm of hg	2
	Abnormal (systolic B.P <90/>120,diastolic(<60/>80)	1
4	Pain (As per numerical pain intensity scale) No pain (0)	3
	Mild (1-3)	2
	Moderate (4-6)	1
	Severe (7-10)	0
5	Discomfort level (As per observational checklist) Mild discomfort (0-6)	3
	Moderate discomfort(7-14)	2
	Severe discomfort (15-20)	1
6	Contraction pattern (WHO partograph guide line) Mild (last for <20 seconds)	1
	Moderate (last for 20-40 seconds)	2
	Severe (last for 20-40 seconds)	3
7	Cervical dilatation(As per WHOpartograph guidelines) Normal (1cmdilatation/ hour)	2
	Abnormal (<1cm/ hr or> 1.5 cm/ hr)	1

8	Cervical effacement	2
	Normal(20-40%)	
	Abnormal (</>20-40%)	
9	Station	2
	Normal(+1,+2)	
	Abnormal (-1,0)	
10.	Fetal heart rate	2
	Normal(110-160beats/minute)	
	Abnormal(>160/<110 beats per minute)	

**Scoring: Total items is 10, maximum score -23, minimum score – 10
0-5 = Poor process, 6-14 = Fair process, 15-23 =Good process**

**Table 2
Assessment of labour outcome**

S.No	Variables	Score
1.	Type of delivery	3
	a. Normal vaginal delivery	
	b. Forceps/ vacuum	
2.	Duration of labour	3
	a. < 12 hours	
	b. 12-14 hours	
3.	Perineum	3
	a. Intact	
	b. Episiotomy	
4.	Pain	3
	a. Mild	
	b. Moderate	
5.	Contraction pattern	3
	a. Effective	
	b. Moderately effective	
6.	Delivery of the placenta and membrane	3
	a. Spontaneous and complete	
	b. Assisted and complete	
7.	Use of analgesics	3
	a. Nil	
	b. Need during second stage	
8.	Augmentation with Oxytocin	3
	a. Nil	
	b. Need during second stage	
9.	Duration of second stage of labour	3
	a. Below 1-2 hours	
	b. 2-3 hours	
10.	Spontaneous rupture of membrane	2
	a. Present	
	b. Absent	
11.	Hypotension requiring intervention	1
	a. Yes	
	b. No	
12.	Estimated blood loss	2
	a. Below 500 ml	
	b. Above 500 ml	

**Scoring interpretation: Total items 12 total score 33
1-12 = Poor outcome, 13-22 = Fair outcome,
23-33 = Good outcome**

**Table 3
Assessment of fetal outcome**

S.No	Variables	Score
1.	Presence of fetal distress	4
	a. Not present	
	b. Mild	
	c. Moderate	
2.	APGAR SCORE at first minute	4
	a. 9-10	
	b. 7-8(Mild asphyxia)	
	c. 4-6(Moderate asphyxia)	
	d. 0-3(Severe asphyxia)	1

APGAR SCORE at fifth minute			
3.	a.	9-10	4
	b.	7-8(Mild asphyxia)	3
	c.	4-6(Moderate asphyxia)	2
	d.	0-3(Severe asphyxia)	1
Presence of birth trauma			
4.	a.	Nil	4
	b.	Caput succedaneum	3
	c.	Cephalhematoma	2
	d.	Other injuries	1
Admission to NICU			
5	a.	Yes	1
	b.	No	2

Scoring interpretation-Total items are 5 and total score is 18.
 1-6 (below 33%) = Poor outcome, 7-12(34-67%) = Fair outcome,
 13-18(68-100%) = Good outcome

RESULTS

Table 3
Frequency and percentage distribution of socio demographic variables among
primi parturient mothers in study and control group

Socio Demographic variables		Group				Chi square test
		Study group (106)		Control group (105)		
		n	%	N	%	
Age	18 -22 yrs	22	20.8%	22	21.0%	$\chi^2=0.01$ P=1.00 DF=3
	23 -27 yrs	42	39.6%	42	40.0%	
	28 -32 yrs	32	30.2%	31	29.5%	
	33 -35yrs	10	9.4%	10	9.5%	
Religion	Hindu	63	59.4%	60	57.1%	$\chi^2=0.27$ P=0.87 DF=2
	Christian	23	21.7%	26	24.8%	
	Muslim	20	18.9%	19	18.1%	
Education	Uneducated	4	3.8%	9	8.6%	$\chi^2=4.46$ P=0.49 DF=5
	Primary school	21	19.8%	23	21.9%	
	Middle school	25	23.6%	27	25.7%	
	Secondary school	36	34.0%	30	28.6%	
	Higher Secondary school	5	4.7%	7	6.7%	
Occupation	Graduate	15	14.2%	9	8.6%	$\chi^2=2.03$ P=0.57 DF=3
	Homemaker	51	48.1%	49	46.7%	
	Self employed	18	17.0%	21	20.0%	
	Private employee	32	30.2%	26	24.8%	
Type of work	Govt. employee	5	4.7%	9	8.6%	$\chi^2=0.01$ P=1.00 DF=2
	Sedentary work	47	44.3%	47	44.8%	
	Moderate work	54	50.9%	53	50.5%	
Residence	Heavy work	5	4.7%	5	4.7%	$\chi^2=0.76$ P=0.38 DF=2
	Rural	21	19.8%	16	15.2%	
Type of family	Urban	85	80.2%	89	84.8%	$\chi^2=1.99$ P=0.37 DF=2
	Nuclear family	88	83.0%	79	75.2%	
	Joint family	14	13.2%	21	20.0%	
Support system	Extended family	4	3.8%	5	4.8%	$\chi^2=0.61$ P=0.43 DF=1
	Family support	97	91.5%	99	94.2%	
Information on freedom movement	Self help group	9	8.5%	6	5.8%	$\chi^2=0.87$ P=0.34 DF=1
	Yes	16	15.1%	21	20.0%	
Source of information	No	90	84.9%	84	80.0%	$\chi^2=4.95$ P=0.18 DF=3
	Radio and T.V	7	6.6%	9	8.6%	
	Relatives	4	3.8%	12	11.4%	
	Health care workers	95	89.6%	84	80.0%	

Table 4
Comparison of post interventional frequency and percentage distribution of labour
process among primi parturient mothers of study and control group

Labour process		Group				Chi square test
		Study group(106)		Control group(105)		
		n	%	n	%	
Pulse	Abnormal	1	0.9%	2	1.9%	$\chi^2=2.40$ P=0.12 DF=1
	Normal	105	99.1%	103	98.1%	
Respiration	Abnormal	1	0.9%	4	3.8%	$\chi^2=1.87$ P=0.17 DF=1
	Normal	105	99.1%	101	96.2%	

Blood pressure	Abnormal	1	0.9%	4	3.8%	$\chi^2=1.87$ P=0.17 DF=1
	Normal	105	99.1%	101	96.2%	
Contraction pattern	Ineffective	18	17.0%	34	32.4%	$\chi^2=11.46$ P=0.003** DF=2
	Effectively	47	44.3%	50	47.6%	
Cervical dilatation	Abnormal	7	6.6%	16	15.2%	$\chi^2=4.04$ P=0.04* DF=1
	Normal	99	93.4%	89	84.4%	
Cervical effacement	Abnormal	6	5.7%	8	7.6%	$\chi^2=0.32$ P=0.56 DF=1
	Normal	100	94.3%	97	92.4%	
Station	Abnormal	7	6.6%	16	15.2%	$\chi^2=4.04$ P=0.04* DF=1
	Normal	99	93.4%	89	84.4%	
Pain	Severe	12	14.0%	25	24.0%	$\chi^2=8.69$ P=0.01** DF=2
	Moderate	53	52.0%	55	56.0%	
	Mild	35	34.0%	20	20.0%	
Discomfort	Severe	11	10.4%	20	19.0%	$\chi^2=9.72$ P=0.01** DF=2
	Moderate	52	49.1%	59	56.2%	
	Mild	43	40.6%	22	21.0%	
Fetal Heart Rate	Abnormal	1	0.9%	2	1.9%	$\chi^2=0.34$ P=0.55 DF=1
	Normal	105	99.1%	103	98.1%	

* significant at $P \leq 0.05$ ** highly significant at $P \leq 0.01$

There was highly statistical significant difference found in contraction pattern ($\chi^2=11.46$), pain ($\chi^2=8.69$), discomfort ($\chi^2=9.72$) at $P \leq 0.01$ level of significance and significant difference found in both cervical dilatation and station ($\chi^2=4.04$) at $P \leq 0.05$ level of significance. There was no statistical difference found in parameters such as pulse, respiration, B.P, cervical effacement and fetal heart rate.

Table 5
Comparison of Post interventional mean and standard deviation of labour process score between study & control group of primi parturient mothers
N=211

	Labour process		Student's Independent t-test
	Mean	SD	
Study group	21.56	1.37	t=20.71 P=0.001*** DF=98
Control group	17.28	1.56	

*** very high significance at $P \leq 0.001$

In posttest the mean and standard deviation value of study group was 21.56(SD=1.37). But in control group it was improved only 17.28(SD=1.56) and the difference found between study and control group was 4.28. The calculated 't' value was 20.71 at $P=0.001$ level significant. This comparison was analyzed using student's independent t-test and observed there is a high significant difference found in labour process between the groups.

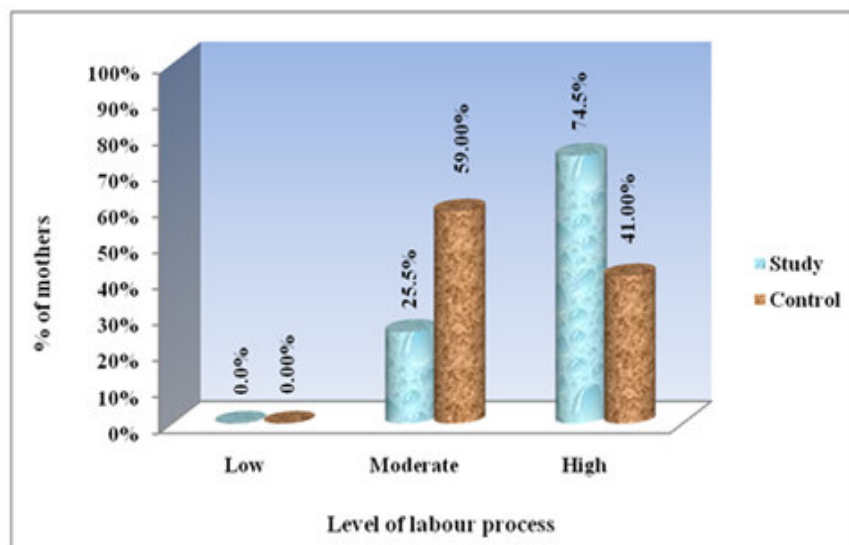


Figure 1
Comparison of level of labour process score between of Study and control group of primi parturient mothers

Table 6
Comparison of Post interventional frequency and percentage distribution of labour outcome between study and control group of primi parturient mothers

N=211

Labour outcome	Group				Chi square test	
	Study group(106)		Control group(105)			
	N	%	N	%		
Type of delivery	Caesarean section	14	13.3%	21	21.20%	$\chi^2=3.601$ P=0.01** DF=2
	Forceps/ vaccum	3	2.9%	6	5.71%	
	Normal vaginal delivery	93	87.73%	78	74.2%	
Duration of labour	>14 hours	32	30.2%	52	49.5%	$\chi^2=16.95$ P=0.001*** DF=2
	12-14 hours	21	19.8%	29	27.6%	
	< 12 hours	53	50.0%	24	22.9%	
Perineum	Tear	0	0.0%	3	2.9%	$\chi^2=27.08$ P=0.001*** DF=2
	Episiotomy	15	14.2%	46	43.8%	
	Intact	91	85.8%	56	53.3%	
Pain	Severe	0	0.0%	13	12.4%	$\chi^2=18.83$ P=0.001*** DF=2
	Moderate	60	56.6%	86	81.9%	
	Mild	43	40.6%	26	24.8%	
Contraction pattern	Less effective	27	25.5%	44	41.9%	$\chi^2=11.42$ P=0.01** DF=2
	Moderate effective	14	13.2%	21	20.0%	
	Effective	65	61.3%	40	38.1%	
Delivery of the placenta and membrane	Manually delivered	0	0.0%	2	1.9%	$\chi^2=2.40$ P=3.00 DF=2
	Assisted and complete	1	0.9%	2	1.9%	
	Spontaneous and complete	105	99.1%	101	96.2%	
Use of analgesics	Need after 7 cm dilatation	28	26.4%	37	35.2%	$\chi^2=17.02$ P=0.001*** DF=2
	Need during second stage	10	9.4%	28	26.7%	
	Nil	68	64.2%	40	38.1%	
Augmentation with oxytocin	Need after 7 cm dilatation	32	30.2%	48	45.7%	$\chi^2=14.51$ P=0.001*** DF=2
	Need during second stage	22	20.8%	32	30.5%	
	Nil	52	49.1%	25	23.8%	
Duration of second stage of labour	Above 3 hours	11	10.4%	14	13.3%	$\chi^2=0.56$ P=0.75 DF=2
	2-3 hours	25	23.6%	26	24.8%	
	Below 1-2 hours	70	66.0%	65	61.9%	
Spontaneous rupture of membrane	Absent	24	22.6%	36	34.3%	$\chi^2=3.51$ P=0.06 DF=1
	Present	82	77.4%	69	65.7%	
Estimated blood loss	Above 500 ml	1	.9%	2	1.9%	$\chi^2=3.74$ P=0.06
	Below 500 ml	105	99.1%	103	97.16%	

** highly significant at $P \leq 0.01$ *** very high significance at $P \leq 0.001$

Table 7
Comparison of post interventional frequency and percentage distribution of fetal outcome among study and control group of primi parturient mothers

N=211

	Group				Chi square test	
	Study		Control			
	n	%	n	%		
Presence of fetal distress	Severe	12	11.3%	22	21.0%	$\chi^2=21.87$ P=0.001*** DF=3
	Moderate	8	7.5%	11	10.5%	
	Mild	20	18.9%	40	38.0%	
	Not present	66	62.3%	32	30.5%	
APGAR SCORE at first minute	0-3	0	0.0%	0	0.0%	$\chi^2=10.83$ P=0.01** DF=3
	4-6	2	1.9%	7	6.6%	
	7-8	28	26.4%	45	42.9%	
	9-10	76	71.7%	53	50.5%	
APGAR SCORE at fifth minute	4-6	0	0.0%	6	5.7%	$\chi^2=6.43$ P=0.04* DF=2
	7-8	4	3.8%	5	4.8%	
	9-10	102	96.2%	94	89.5%	
	Other injuries	0	0.0%	0	0.0%	
Presence of birth trauma	Cephalhaematoma	2	1.9%	5	4.8%	$\chi^2=1.97$ P=0.37 DF=3
	Caput succedaneum	30	28.3%	24	22.8%	
	Nil	74	69.8%	76	72.4%	
Admission to NICU	No	3	2.8%	9	8.6%	$\chi^2=3.24$ P=0.07 DF=1
	Yes	103	97.2%	96	91.4%	

Table 8
Comparison of post interventional mean and standard deviation of labour outcome between study & control group of primi parturient mothers

Labour outcome	Student's Independent t-test		N=211
	Mean	SD	
	Study group	27.99	
Control group	22.58	3.16	t=10.77 P=0.001*** DF=209

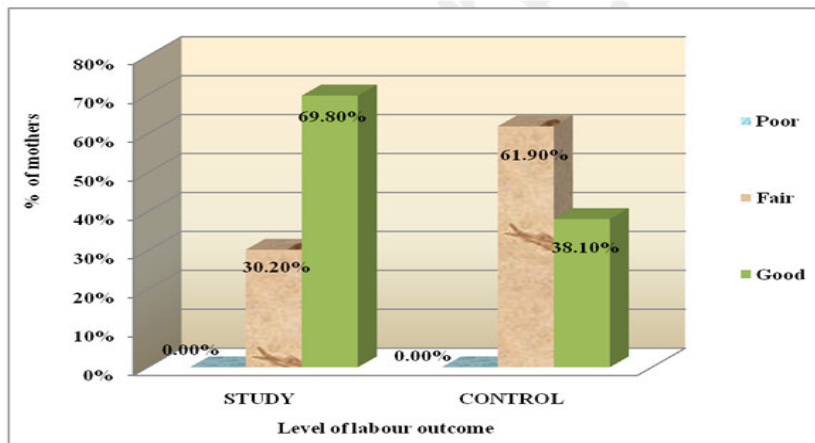


Figure 2
Comparison of overall labour outcome score among study and control group of primi parturient mothers

Table 9
Comparison of post interventional mean and standard deviation score of fetal outcome between study & control group of primi parturient mothers

	Maternal satisfaction		Student's Independent t-test		
	Mean	SD	t	P	DF
Study group	16.41	2.04	t=6.49	P=0.001***	DF=209
Control group	14.47	2.29			

*** high significance at $P \leq 0.001$

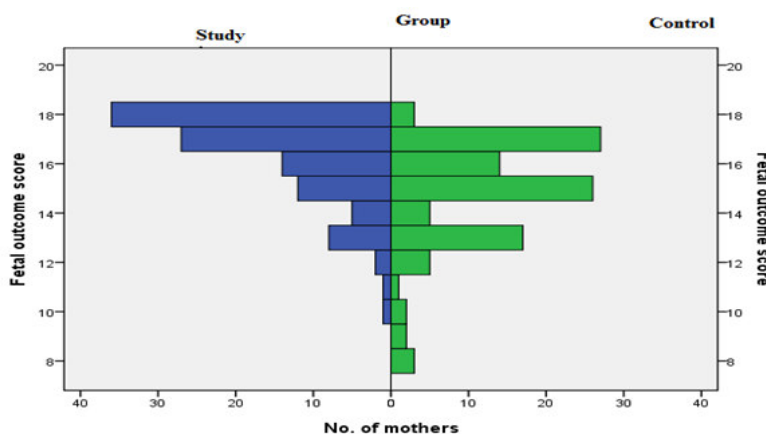


Figure 3
Comparison of Fetal outcome score between study and control group of primi parturient mothers

DISCUSSION

The overall about process mean value of study group was 21.56(SD=1.37) and the mean value of control group was 17.28 (SD=1.56) and obtained 't' value was 20.71. There was a very high significance difference found between study and Control group at $p \leq 0.001$ level. Maternal outcome regards to labour process findings supported by a study done by Rossim et.al.¹⁴ They evaluated women's motives for using techniques to aid them during labor reported that, among the women who adopted the vertical position, the majority did so in response to pain and found relief in these positions and concluded that women in labor try to find different positions as a way of relieving anxiety and pain and consequently increasing comfort. Simkin¹⁵ also has

defended the opinion that rhythmic movements during labor may modify the dimensions of the pelvis and facilitate rotation and descent of the fetus. These movements have also been widely used since antiquity. comparison of labour outcome between study and control group showed that there was very high statistical significance difference found in variables such as, duration of labour, perineum status, pain, use of analgesics, and augmentation with Oxytocin at $p=0.001$ level. Type of delivery and contraction pattern were highly significant at $p=0.01$ level. Interestingly none of the mother in experimental group had tear perineum, severe pain and manually delivered placenta where as in control group 3% of mothers had perineal tear, 12.4% mothers had severe pain and 2% of mothers were delivered placenta by manually or assisted method. This

result clearly depicted that freedom of movement brought positive labour outcome among experimental group of mothers. There was no significant difference found in delivery of placenta and membrane, duration of 2nd stage of labour, spontaneous rupture of membrane and estimated blood loss. These results are supported by a study on influence of maternal mobility on duration of active phase of labour which was done by Bio.Eliane, Bitter. Roberto Eduardo¹⁶ shows that the good performance of maternal mobility has positive influences on labour process; it increases tolerance to pain, avoids the use of analgesics drugs during labour, and improves the evolution of dilatation and reduces the duration of the active phase. Comparison of Mean and Standard Deviation fetal outcome score revealed that, in study group Mean score was 16.41(SD=2.04) whereas in control group it was only 14.47(SD=2.29) and the obtained 't' value is 6.47 at p=0.001 level, so there was a high statistical significance found in fetal outcome between study and control group and the difference mean value was 1.74 score between these groups which showed that the freedom of movement intervention net benefit on fetal outcome among the study group of primi parturient mothers. This study findings is also supported by a study done by M.MAbitol¹⁷ on Supine position in labor and associated fetal heart rate changes among a group of 902 laboring patients, 126 (14%) demonstrated late decelerations. Of the 126, 24 (19%) patients demonstrated late decelerations in the supine position only. These occurred during uterine contractions and were associated with reduced femoral arterial blood pressure and amplitude of the capillary pulse of the big toe Regarding the association of level of labour outcome among study group, there was a significant association found with age ($\chi^2=10.92$) at p=0.01 level, type of work ($\chi^2=6.98$) at p=0.03 level, gestational age ($\chi^2=7.76$) at p=0.05 level. Middle Age, moderate workers and 39 weeks completed weeks of gestational age mother had good outcome than others. There was no significant association found on maternal outcome with other demographic variables among the study group of primi parturient mothers. With regards to association of level of fetal outcome, there was a high significance association found on fetal outcome with age ($\chi^2=12.75$) at p=0.001 level, type of work ($\chi^2=6.64$) at p=0.04 level among the study group. Middle Age, moderate workers had more good fetal outcome than others. Middle Age, moderate workers are having more good fetal outcome than others.

Limitations

1. Due to the constrain in getting permission of setting for the study the present study was conducted in one setting. It would have been better if the sample could be selected and study could be conducted in different similar settings
2. The attrition rate was 11.6% in the study group and 12.5% in control group was present though the investigator calculated the sample size with attrition

rate of 25% the investigator could have taken more samples

3. The investigator had no control over the extraneous variable like source of information.
4. Though the intervention was reduced to 3 sets which took for minimum three hours to provide intervention the investigator felt that it might be better it might be reduced to 2 sets.

CONCLUSION

The study concludes that freedom of movement during the first stage of labor facilitated positive outcomes including decreased pain; good maternal-fetal circulation; decreased length of labor; enhanced fetal descent through the pelvis, thus facilitating labor progress; decreased caesarian sessions and enhance the overall satisfaction with childbirth indicates that mothers who practice freedom of movement had above said positive outcomes compare to those who did not perform freedom of movement. More over freedom of movement intervention is simple and cost effective and it can be practiced in hospital and community set up. This study results can provide a framework for implementing beneficial movements and position changes during labour and this can be encouraged to be used as a non- pharmacological intervention to enhance labour outcome and prevent complications. Midwives who play a key role in caring laboring women can instruct the mothers about freedom of movement during first stage of labour and helping women to select positions of comfort that can also facilitate labor progression and safe delivery and it ultimately enhances satisfaction with child birth.

Recommendations

- As a result of this study, it is recommended that the freedom of movement is a very simple and cost effective intervention to enhance the labour outcome and reduces the incidences of operative delivery. So the Government can and health care policy makers can include movements and position changes as a part of mode of intervention during intrapartum care and they can make it as a policy by changing the frame work or set of the birth centers
- A comparative study can be done on freedom of movements on maternal and fetal outcome among primi and multi parturient mothers.
- A comparative study can be done on different movements and positions among different groups to assess the efficacy..
- It is also recommended that to conduct Qualitative in Combination with Quantitative to explore the maternal satisfaction of mother who practices movements and position during labour.

CONFLICT OF INTERST

Conflict of interest declared none.

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