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Effectiveness of Transcutaneous Electrical Nerve Stimulation (TENS) Application on Pain and Behavioural Responses of Primigravid Women during the First Stage of Labour in a Selected Hospital at Mangalore

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ABSTRACT

Background: Childbearing is a creative process is a challenge that may place the body at risk. The pregnant woman undergoes tremendous hormonal and physical changes prior to birth. That leads to severe pain and discomfort. Labour pain and method to relieve it are major concerns of childbearing women and their families. Various pain relieving measures are available. The National Birthday Trust Survey was conducted in the UK suggested that Transcutaneous Electrical Nerve Stimulation (TENS) can be used for labour pain management.

Material & Methods: A quasi experimental research (pre-test – post-test control group design) was used for this study. The sample consisted of 60 full-term primigravid women in a selected hospital at Mangalore, l were randomly assigned to experimental group and control group (N = 30 + 30 = 60). Tools used were structured observational checklist and visual analogue scale.

Results: There was no significant difference in the pre-test behaviour response scores of primigravid women in both groups ($t_{58} = 0.66$, $p > 0.05$) whereas significant difference was found in the pre-test and post-test behavioural responses scores of primigravid women in the experimental group ($t_{29} = 20.46$, $p < 0.05$).

Friedman's test computed showed significant difference among area-wise behaviour responses score of primigravid women in both groups ($\chi^2 = 43.12$, $p < 0.05$; $\chi^2 = 40.73$, $p < 0.05$).

There was no correlation between the degree of pain and behavioural responses pre-test score of primigravid women between the groups ($r = 0.15$, $p > 0.05$; $r=0.13$, $p > 0.05$).

There was significant difference in the experimental group among the pre-test and post-test score of the degree of pain ($t_{29} = 10.14$, $p < 0.05$).

There was association between age and behavioural responses score of primigravid women in the experimental group ($\chi^2_{(3.84)} = 5.208$, $p < 0.05$) at 1 df.

Interpretation

The result shows that TENS is an effective non-pharmacological method for pain relieving during first stage of labour.

Conclusion: TENS is a simple, non-invasive, non-pharmacological, cost-effective alternative method that can be used in labour without any adverse effect on the mother and newborn.

Keywords: TENS; full-term primigravid women; degree of pain; behavioural responses.

NEED FOR THE STUDY

As an expectant mother reaches her due date, a concern that looms large in her mind is the pain that she will experience during labour. Childbirth is a significant, though stressful event. A woman who is able to cope with the stress of labour tends to feel more satisfied

During labour the body is required to perform hard physical work for long periods of time under stress and the intensity of the pain is caused by stimulus. This stimulus may cause tissue damage. The cause of pain is due to the stretching of the structure

adjacent to the uterus including ganglia. This disturbs cutaneous nerve distribution of T_{10} to L_1. Pain of cervical dilatation and stretching is referred to the back through the sacral plexus[1]. We know that pain is inevitable particularly in primipara women. Analgesia is used for blocking pain impulses to the brain by increasing fibre transmission or by stimulating the local release of endorphin.

Pharmacological measures are complicated like pethidine causes drowsiness and distressing hallucinations and dysphoria, which can interfere with the mother's concentration on her own coping techniques that leads to hypotension and respiratory depression on 20 to 40% of women who experience effective pain relief. . Epidural anaesthesia is now widely used and its demand is more in obstetrical units. Anaesthetists are required for this. It can give rise to neurological complications, urinary retention as well as headache also can occur. Increased incidence of long term backache following epidural anaesthesia is very common.

Non-pharmacological pain relief measures like TENS alleviate pain, to prevent the mother from becoming unduly tired. TENS stimulates the production of natural endorphins and enkephalins, and also their ability to impede increasing pain stimuli. By using TENS many husbands are able to assist and support their wives during labour. Walsh (1999) reported that partners feel a purposeful role. A reduction in the demand for pethidine was also found. TENS was designed to relieve pain by sending gentle electrical impulses through the skin to the nerve. This suppresses pain by blocking the pain signals before they reach the brain. By providing with TENS it will give relief of pain as well as relaxation to the mother during labour. It shortens the duration of labour. By applying the TENS people will be motivated towards the use of TENS. Use of analgesic and its side effects can be prevented by the application of TENS. Cost is affordable; it is less than the analgesic[2].

From the experience of the investigator, it has been found that, administration of sedative & analgesic leads to less bearing down effect on the mother and increased respiratory distress in the neonates. Above all she is not able to experience the thrill of giving birth to a baby. This motivated the investigator to find out the effectiveness of TENS application for pain relief during labour.

MATERIALS AND METHODOLOGY

In this study, a quasi experimental research approach was used and the subjects were selected by purposive sampling method and assigned randomly .The research design selected for this study was pre-test – post-test control group design.

The study was conducted in a general hospital in Mangalore with 1050 beds after approval of the institutional ethics committee. Population is the entire aggregation of cases that meet a designed set of criteria[3], in this study comprised of primigravid women in the first stage of labour. Sample consists of experimental group: 30 parturient primigravid women in the first stage of labour who receive TENS application. Control group 30 who do not receive TENS. Who met inclusion criteria i.e. Primigravid women with 38 weeks to 40 weeks gestation in first stage of labour. Cervical dilatation 3 cms to 7 cms as per vaginal findings

Observation checklists were used to collect the data in both groups. The tool was developed after review of literature on relevant topics, discussion with experts and based on the experience of the investigator preparation of the blueprint as well as content validity also carried out.

Pre-testing and reliability of the tool were carried out among 10 primigravid, the tool was found to be clear and understandable. Inter-rater reliability was used to find out the reliability of the observation checklist. Correlation was computed using Karl Pearson's coefficient of correlation formula Reliability of the observation checklist to assess the

behaviour responses of primigravid women was found to be 0.817, which proved that the tool was reliable.

The tool consisted of two parts- 1: An observation checklist with two parts

Baseline proforma _ Structured observational checklist

2: Visual analogue pain assessment scale (VAS)

Data collection was done in the labour room Formal written permission was obtained from the administrator before data collection. The purpose of the study was explained to the subjects and written informed consent was obtained. Their responses were assured confidentiality. TENS was shown to them and its functions and effectiveness were described. Electrodes were applied and the TENS was given to them. They were asked to switch on whenever they experienced pain. Constant encouragement and support were given to primigravid mothers by the investigator during the first stage of labour. Behaviour responses of women were assessed during the first stage of labour by the investigator using observational checklist 5 times with the interval of 45 minutes. The primigravid women and obstetrician appreciated the TENS application.

ETHICS: Ethical committee permission was taken.

RESULTS

The data in Table 1 show that 73% in experimental group and 80% in control group were housewives.

Duration of contraction both groups 40% had 30 to 40 seconds. Most of the subjects in experimental group (63%) and 37% in control group had 3-4 cms dilatation of cervix.

Table 1: Frequency and percentage distribution of women in both groups according to their baseline characteristics. N = 60

Sample characteristics	Experimental Group frequency (percentage)	Control Group frequency (percentage)
Occupation		
Housewife	22 (73)	24 (80)
Technical	3 (10)	2 (7%)
Any other	5 (17)	4 (13)
Duration of contraction		
20 – 30 seconds	2 (7)	8 (27)
30 – 40 seconds	12 (40)	12 (40)
40 – 50 seconds	16 (53)	10 (33)
Dilatation of cervix		
2 – 3 cms	6 (20)	9 (30)
3 – 4 cms	19 (63)	11 (37)
4 – 5 cms	5 (17)	10 (33)

Table 2 and Figure 1 shows that the post-test ogive lies right to the pre-test ogive over the entire range showing that the post-test score were higher than the pre-test behavioural responses score. Differences in achievement between pre-test and post-test responses are shown by distances separating the two cumulative frequency curves at 50th percentile which ranges from 20 to 52.25 of its median. This implies that most of the primigravid mothers scored high in post-test

Table 2: Frequency, cumulative frequency and percentage of experimental group's pre-test and post test behavioural responses. N = 30

Responses score	Pre-test			Post-test		
	F	C/F	Percentage	F	C/F	Percentage
10 - 15	11	11	37			
15 – 20	4	15	13			
20 – 25	7	22	23			
25 – 30	5	27	17			
30 – 35	3	30	10			
35 – 40						
40 – 45				1	1	3
45 – 50				5	6	17
50 – 55				21	27	70
55 – 60				3	30	10

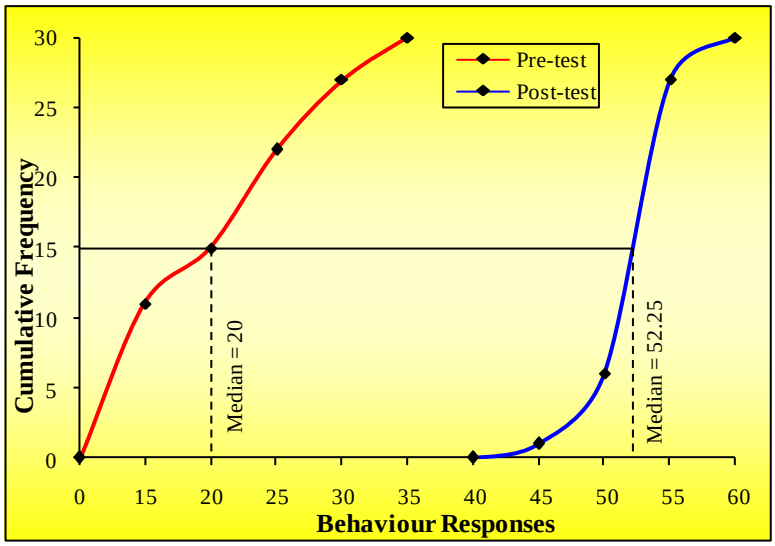

Figure 1: Ogive representing pre-test and post-test behavioural responses score of primigravid women who were receiving TENS

Table 3: Frequency, cumulative frequency and percentage of control group's pre-test and post test behavioural responses N = 30

Responses score	Pre-test			Post-test		
	F	C/F	Percentage	F	C/F	Percentage
10 - 15	7	7	23			
15 – 20	6	13	20			
20 – 25	9	22	30			
25 – 30	6	28	20	7	7	23
30 – 35	2	30	7	13	20	43
35 – 40				5	25	17
40 – 45				3	28	10
45 – 50				2	30	7
50 – 55						
55 – 60						

Data represented indicates that the post-test behaviour response score in most of the subjects (43%) ranged between 30 – 35 whereas the pre-test score, 30% of them were in the 20 – 25 range

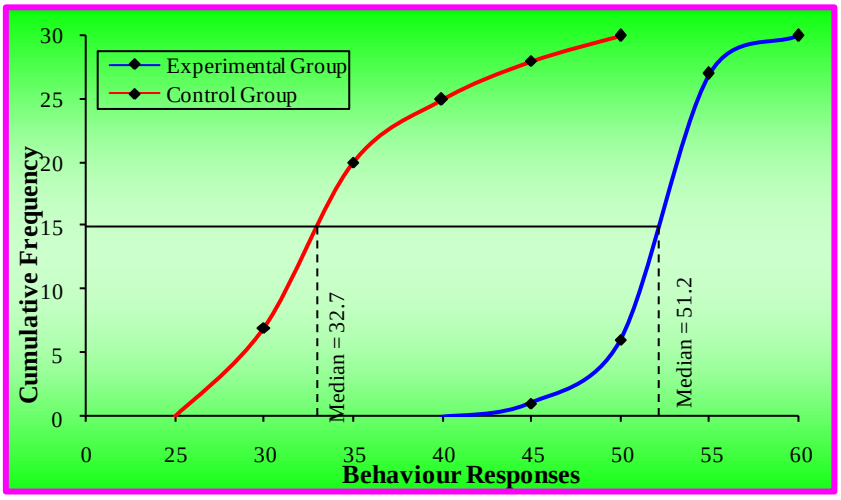

Figure 2: Ogive representing post-test behavioural responses score of primigravid women in experimental and control group

Data represented Table 4 indicated that the post test behaviour response score most of the subjects (70%) ranged between 50-50 in experimental group whereas in control group most of the subjects 43% ranged between 30-35.

Figure 2 shows that the experimental group post-test ogive lies right to the diagram and control group ogive over the

middle showing that the experimental group score were consistently higher than the control group behavioural responses score. Differences in achievement between experimental group and control group responses are shown by distances separating the two cumulative frequency curves at 50th percentile which ranges from 32.7 to 51.2 of its median. This implies that most of the primigravid mothers in experimental group scored higher than the control group subjects, i.e., 85.33% and 54.50% respectively.

Table 4: Range, mean, mean percentage standard deviation of pre-test and post-test score of experimental group and control group N=60

. group	Maximum score	Range	Mean	Mean percentage	Standard deviation
Experimental Pre-test	60	10 – 15	20.06	34.33	7.256
Experimental Post-test	240	50 – 55	51.20	86.65	3.168
Control Pre-test	60	20 – 25	20.93	34.93	5.884
Control Post-test	240	30 – 35	32.70	55.75	5.462

The data in the Table 4 show that the subjects belonging to the experimental group had pre test score ranging between 10 – 15, 20 – 25, mean score was almost same i.e., 20.06 and 20.93. In the behaviour response of the primigravid women post-test score was higher in experimental group (51.20) compared to control group (32.70).

Table 5: Area-wise pre-test and post-test maximum score, mean standard deviation and mean percentage score of behavioural responses experimental group. N = 30

Behaviour response of women in labour			Maximum score	Mean	SD	Mean %
A	During uterine contractions	Pre	25	8.600	2.776	34.40
		Post	100	2.220	1.765	88.88
B	Between uterine contractions	Pre	15	3.666	2.226	24.44
		Post	60	12.625	1.060	84.16
C	Manifestation of participation	Pre	20	8.960	3.701	44.80
		Post	80	18.110	1.147	90.55

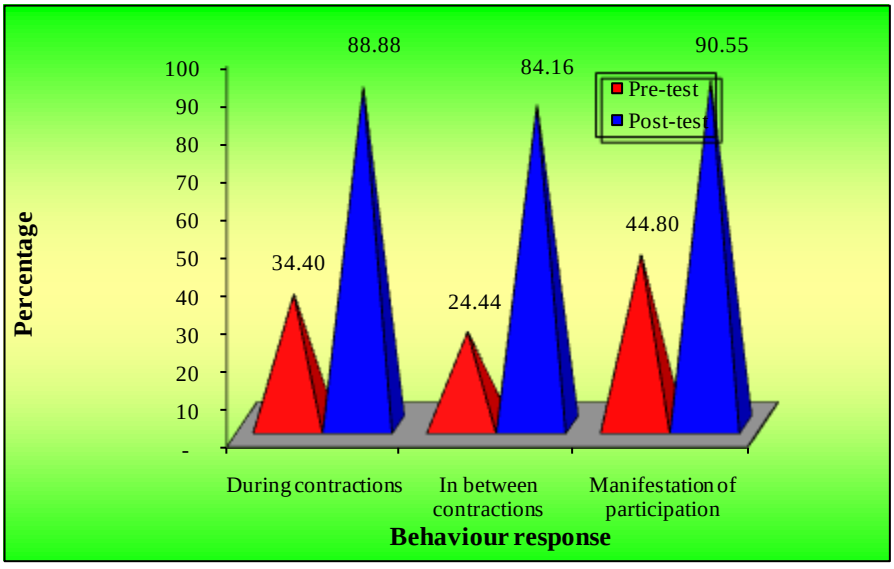

Figure 3: Distribution of sample according to area-wise pre-test and post-test behavioural responses score in the experimental group

The data presented in the Table 5 and Figure 3 indicate that mean percentage scores of behaviour responses of women in experimental group in the first stage of labour, is the highest in the area of manifestation of participation (90.55%) and the lowest during uterine contractions (24.44%).

Table 6: Area-wise maximum score, mean, standard deviation and mean percentage score of behavioural responses of women in control group. N = 30

Area		Maximum score		Mean	S. D.	Mean %
A	During uterine contractions	Pre-test	25	8.66	2.377	34.64
		Post-test	100	14.02	2.086	56.98
B	Between uterine contractions	Pre-test	15	3.866	1.874	25.77
		Post-test	60	7.260	2.012	48.33
C	Manifestation of participation	Pre-test	20	8.433	2.629	42.16
		Post-test	80	12.09	0.767	60.45

The data depicted in Table 6 reveals that mean percentage score of behavioural responses of women in the first stage of labour in control group is the highest in the area of manifestation of participation (60.45%) and the lowest in the area in between uterine contractions (25.77).

While comparing the data in Table 4 and 5 as depicted in Table 6, it is evident that during the first stage of labour, women in control group had a higher mean percentage score of behavioural responses during contractions, between contractions and in manifestation of participation.

Section 3: Effectiveness of TENS on behavioural response

This section deals with the analysis and interpretation of behavioural responses score of primigravid women during the first stage of labour according to the areas.

Table 7: Area wise mean, mean difference score, standard deviation and 't' value of pre test and post-test of experimental and control group. N = 60

Area	Group	Mean		Mean difference	S. D. Diff.	Df	't' value
		Pre-test	Post-test				
During contractions	Exp.	8.600	21.220	12.620	1.765	29	20.329*
	Control	8.660	14.020	5.360	0.291	58	15.221*
Between contractions	Exp.	3.666	12.625	8.959	1.166	29	18.712*
	Control	3.866	7.250	3.384	0.138	58	13.676*
Manifestation of participation	Exp.	8.960	18.110	9.150	1.072	29	13.606*
	Control	8.433	12.090	3.651	0.620	58	14.403*

t_{29} = 2.045 at 5% * Significant at 5%

Table 7 shows that there is significant difference in the area-wise mean pre-test and post-test scores paired 't' test was computed between the groups. Calculated 't' values in all the areas were greater than the table value t_{29} at 5% level. So there is significant difference between experimental group and control group in all the areas.

Table 8: Friedman test for testing significant difference in the area-wise behavioural responses score in experimental group and control group. N = 60

Group	During contractions	Between contractions	Manifestation of participation	Mean	Friedman's χ^2 value
Experimental	8.60	3.66	8.96	20.06	43.12*
Control	8.66	3.86	8.43	20.93	40.72*

$\chi_{(2)}^2$ = 5.99 * Significant at 5%

Table 8 shows that the mean percentages of behavioural responses of women during the first stage of labour were almost equal in both groups. Friedman's test was used to test the significant difference among the area-wise behavioural responses score during the first stage of labour. Chi-square value was 43.12 for the experimental group and 40.72 for the control group. The table value of chi-square was 5.99 at 0.05 level of significance. This shows that there is significant difference between the area-wise behavioural responses in experimental group and control group.

Table 9: Analysis of Significant difference between pre-test and post-test behavioural responses in experimental group and control group. N = 60

Group	Mean		Mean Difference	S. D. Difference	't' value
	Pre-test	Post-test			
Experimental	20.06	51.20	31.81	3.168	20.459*
Control	20.96	32.70	12.49	5.462	16.682*

$t_{(29)}$ = 2.04, P 0.05; $t_{(58)}$ = 2.021, P 0.05 * Significant at 5%

Table 9 shows that the mean post test score of experimental group (51.20) is higher than mean post test score of control group (32.70). The paired 't' test (t = 20.459, P < 0.05) shows that there is a significant difference between pre-test and post-test scores. Also, unpaired 't' test (t = 16.682, P < 0.05) shows that there is a significant difference between the post-test score of experimental and control group. So TENS is effective during first stage of labour to relieve pain.

Table 10: Frequency, percentage and cumulative frequency distribution of experimental group according to their pre-test and post-test N=30

Degree of pain	Pre-test		Group C/F	Post test		
	F	%		F	%	C/F
4 – 6						
6 - 8	5	17	5	20	67	20
8 - 10	25	83	30	10	33	30

Table 10 shows the pre test and post test degree of pain in experimental group. In the pre test pain scores of majority (83%) of them ranged between 8-10 but in post-test only 33% had the same range, and majority (67%) scored 6-8. It indicates that TENS application helps to reduce the degree of pain experienced by the primigravid women.

Table 11: Frequency and percentage distribution of experimental group and control group according to their post test degree of pain N=60

Degree of pain	Experimental Group		Control Group	
	F	%	F	%
4 – 6				
6 - 8	20	67	-	-
8 - 10	10	33	30	100

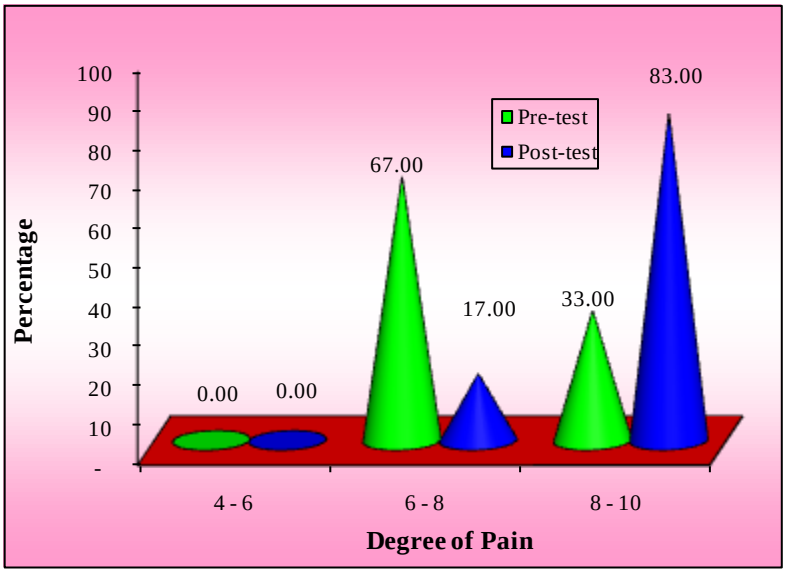

Figure 4: Distribution of pre-test and post-test score of degree of pain in experimental group

Data presented in Table 11 and Figure 4 shows the post test score of degree of pain lowered in experimental group. In the experimental group 67% had degree of pain in the range of 6-8 whereas in control all had the score 8-10 range. This indicates that TENS application reduces the degree of pain during the 1st stage of labour.

Table 12: Range mean, mean percentage standard deviation of pre-test and post-test degree of pain in experimental group and control group N = 60

Group	Maximum score	Range	Mean	Mean percentage	Standard Deviation
Experimental Pre-test	10	8-10	9.36	31.20	0.835
Experimental Post-test	40	6-8	8.04	26.80	0.452
Control Pre-test	10	6-8	9.26	30.86	0.883
Control Post-test	40	8-10	9.07	30.23	0.345

The data in the Table 12 shows that the subjects belong to the experimental group and control group pre-test and post test degree of pain. The lowest mean percentage score 26.08 belongs to the post test score of experimental group. It belongs to the range of 6-8.

Section 5: Effectiveness of TENS on degree of pain

This section deals with the analysis and interpretation of degree of pain after applying TENS on primigravid women during the first stage of labour.

Table 13: Maximum score, mean, mean percentage, standard deviation of pre test and post test degree of pain in experimental group N = 30

Test	Maximum score	Range	Mean	Mean percentage	Standard deviation
Pre test	10	8 – 10	9.36	31.2	0.835
Post test	40	6 – 8	8.04	26.8	0.452

The data in Table 13 shows higher degree of pain in pre-test score (31.2) whereas in post-test it was low (26.8). This indicates that TENS is useful to reduce the degree of pain in the first stage of labour.

Table 14: Analysis of significant differences between the post test of experimental group and control group N = 60

Group	Mean	Mean difference	S. D. Difference	D/F	't' value
Experimental	8.041	1.319	0.383	29	10.014*
Control	9.072	0.188	0.508	58	10.520*

$t_{29} = 2.04$, $P < 0.05$, $t_{58} = 2.021$, $P < 0.05$ * Significant at 5%

The Table 14 shows that the mean post test score 8.041 lower than the control group – score 9.072. Paired 't' test ($t = 10.014$, $P < 0.05$) shows that there is significant difference between pre-test and post-test scores. Also unpaired 't' test ($t = 10.520$, $P < 0.05$) shows that there is significant difference between experimental and control group post-test score. So TENS is effective during first stage of labour to relieve pain.

Section 6: Other findings

This section deals with other findings of the study such as

Association between research variables and baseline variables.

Correlation between degree of pain and behavioural responses of primigravid women during first stage of labour.

Table 15: Association between level of pre-test behavioural responses scores and selected variables N = 30

Selected variables	< Mean	> Mean	df	χ^2	Inference
Educational level					
< 8th class	10	5	1	1.21	Not significant
> 8th Class	6	9			
Age level					
< 25 years	10	14	1	5.21	Significant
> 25 Years	5	1			
Religion					
Christian	8	3	2	3.30	Not significant
Muslim	6	8			
Hindu	3	4			

$\chi^2_{1df} = 3.84$ $P < 0.05$

$\chi^2_{2df} = 5.99$ $P < 0.05$

The data in Table 15 shows the association between pre-test behavioural responses score and selected variables. The following null hypothesis was formulated.

H_0: There is no significant association between the level of pre-test response scores and selected variables.

Chi-square was computed between pre-test behaviour response score and religion. Yates correlation was computed in age and education. In education and religion, chi-square value is lower than the table value. Thus it is concluded that there is no significant association between behavioural responses with education and religion. Therefore the null hypothesis is accepted and research hypothesis is rejected, i.e., $1.21 < 3.84$ accept H_0; $3.30 < 5.99$ accept H_0.

Association between age and behavioural responses was $\chi^2 = 5.21$. The table chi-square value was $\chi^2_{(1)} = 3.84$. In age distribution, chi-square value is more than the table value, therefore, H_0 is rejected and research hypothesis is accepted. $5.21 > 3.84$ reject H_0. So, there is association between age and behavioural responses score of women in labour.

Table 16: Coefficient of correlation showing the relationship between pain score and behavioural responses among primigravid women in both groups N = 60

	Experimental group		Control group	
Variables	**Mean ± SD**	**r value**	**Mean ± SD**	**r value**
Pain score	9.36 ± 0.84	0.15	9.26 ± 0.85	0.13
Behavioural responses	20.06 ± 7.26		20.93 ± 5.88	

r = 0.381, P < 0.05

The data presented in the above Table 16 reveals that the calculated values experimental group (r = 0.15) and control group (r = 0.13) are less than the table value (r = 0.381) at 0.05 level of significance. This indicates that there is no significant correlation between the degree of pain and behavioural responses of primigravid women during the first stage of labour.

Table 17: Distribution of sample based on women's satisfaction opinionnaire in experimental group N = 30

Variable	Frequency	Percentage
Recommended TENS application for friends and relatives	27	90.00
Like to have TENS during next childbirth	27	90.00
Experience during childbirth		
Soothing effect	3	10.00
Less pain	21	70.00
Relaxed	2	6.67
Tingling sensation	4	13.33
More pain relief experienced		
Abdomen	5	16.67
Back	23	76.66
No effect	2	6.67

The data represented above demonstrates that 90% of the subjects were satisfied with TENS treatment and would like to have it for the next childbirth. The experience of TENS was on pain relief for 70% whereas 6.67% had comfort effect; 13.33% had tingling sensation and 10% had soothing effect. From this it can be concluded that TENS is an effective accepted non-pharmacological measure for pain relief during labour.

DISCUSSION

The aim of this study was to evaluate the effectiveness of TENS application on pain and behavioural responses of primigravid women during the 1st stage of labour.

Section – 1 Sample Characteristics

In experimental group 47% and control group 43% of the subjects belonged to the age group of 21-25 years. Majority of the women in experimental group 50% and control group 60% had below 8th standard education. Experimental group 26% and control group 30% had higher secondary education too.

In both the groups most of them 75% are house wives. In the study half of them belong to Muslim religion i.e. in experimental group 47% and control group 53% and only 30% belong to Christian.

Section – 2 Evolution of behavioural response of primigravid women in experimental and control group.

Behavioural responses of the primigravid women pre-test behaviour responses score were 33.3% in experimental group 33.43% in control group. In both groups all women's scores were below 30 out of 60. This indicates that their pain intensity is more in labour. Supportive studies[38] show that out of 318 mothers, 180 received analgesic during labour.

The mean post-test scores were 86.45% in experimental group and 55.75% in control group. Whereas the pre-test score was 33.3% and 33.43% in experimental and control group respectively. Even though there is some reduction in the pain intensity among the control group by the use of analgesics and sedatives, in experimental group, very good pain relief can be noticed. In the present study both group't' value computed experimental group t=20.46% and control group t=16.68. Table value (t_{29} = 2.04, P ≤ 0.05) experimental group had got higher score than the control group. From this we can come to the conclusion that, TENS application during labour is a good non pharmacological measure to improve the behavioural responses of the primigravid women. Supportive studies[4,5] show that

those who received TENS had 20% pain relief.

An area wise mean, mean percentage pre-test and post-test was computed. Among the areas manifestation of participation is the highest score 90.55% lowest score between the uterine contraction 84.24% in the experimental group. But in control group manifestation of participation is 60.45% lowest in between uterine contraction.

Section – 3 Effectiveness of TENS on experimental group.

Area wise pre test and post test score were computed. The study shows that during the uterine contraction highest score t = 20.33, at 0.5 level of significant Friedman's test was computed, χ^2=43.12 in experimental group and χ^2=40.72 in control group table value (χ^2=5.99). Highly significant differences were also found in the area wise behavioural responses such as behavioural responses during contractions, in between contractions and manifestation of participation, among the groups. This shows that TENS application increases the coping ability. The findings of the present study showed a positive correlation among the areas of behavioural responses of primigravid women in both the groups. Supportive studies[6] found that TENS application increases coping ability.

Section – 4 Evolution of degree of pain.

Degree of pain in primigravid women, Visual analogue pain assessment scale evaluation was done and the pre test score was 83%. It indicates the need for pain relieving measures in labour. The control group provided with regular treatment and experimental group applied with TENS. This study is supported by other studies [7, 8] different measures that helps to reduced the labour pain.

Section – 5 Effectiveness of times on degree of pain.

Primigravid mothers degree of pain was evaluated. The post test score was 67%. The test of significance 't' test demonstrated that the experimental group had significantly lower pain reaction in the latent, active and transitional phases although there was a steady increase in pain intensity in both groups t_{29} = 10.014. From this we can conclude that TENS is an effective non invasive, alternative measure for pain relief in labour. This finding was supported by other studies[9, 10, 11] where pain relief in labour was experienced by TENS. In this degree of satisfaction to the women had increased and pain score were significantly lower.

The correlation between the degree of pain and behaviour responses of the primigravid women, the findings of the study were r=0.15. This shows that there is no correlation between the degree of pain and behaviour responses of the primigravid in labour.

Section - 6 other findings

Association between the pre test behaviour responses score and selected variable chi square test was computed. There is no association between the behaviour responses score and selected variables like age, education and religion.

The present study reveals that experimental group 10% and control group 70% received sedatives during labour. In experimental group 70% received only TENS for pain relief in labour. This indicates TENS application reduces the use of analgesics supporting studies [12, 13]are TENS decreased post operative opioid analgesic requirements and opioid related side effects

An outstanding difference was seen with regard to participation in bearing down 85% experimental group co-operated with bearing down without any assistance. Where as 85% of the control group required constant reminder to bear down. This indicate that TENS application is effective in bringing positive outcome of labour.

The present study showed that there was no adverse effect on mother or new born in the experimental group. But on the other hand in the control group most of the new born were provided with naloxone to protect them from the respiratory distress.

TENS application improved the physical activity and coping ability of the mother and it will tolerate other therapies too. This study supported by other studies[14]shows no significant difference was found in foetal heart tracing, Apgar score and Cord blood PH between the study group and an equal number matched controls who used other forms of pain management.

This study also proves that TENS application helps in the progress of labour. In experimental group 6.67% of them have caesarean section and 1 forceps delivery too. In control group 23.33% had caesarean section and 4 vacuum extraction and 2 forceps delivery too. Supporting studies[66] found the use of TENS for pain relief during labour. There were 11 operative deliveries 7 vacuum extractions and 4 caesarean section in control group, 2 vacuum extraction and 1 forceps in TENS group.

Women's satisfaction opinionnaire regarding the present study shows that 90 of women were satisfied with the treatment and would recommend this treatment to their friends and relatives. Ninety percent expressed that they would like to have it for another childbirth; 70% experienced pain relief and 6.67% had comforting effect; 76.67% did not feel back pain during labour. They felt that childbirth is less painful than they expected.

CONCLUSION

This study attempted to find out the effectiveness of TENS, a non-invasive, non pharmacological measure, in labour and childbirth. TENS is effective in reducing labour pain and increasing coping ability of the woman in labour TENS is an effective, non-invasive, cost effective, non pharmacologic alternative or complement for pain relief in labour, it also to reduce duration of 1st stage of labour. Complementary therapy is a better option for augmenting labour process, & also to induce effective and adequate uterine contractions TENS gives a pleasant delivery experience to the mother.

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