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A Quasi Experimental Study to Compare the Effect of Semi-Sitting Versus Left Lateral Position on Maternal and Foetal Bio-Physiological Parameters Among Antenatal Women Undergoing Non Stress Test in Tertiary Care Hospital of Patiala, Punjab

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Background of the study

NST is a simple, non invasive test performed in pregnancy over 28 weeks of gestation. Pregnant women are generally positioned in the supine position because this position allow easy administration of the test. But supine position cause aortacaval compression which decrease blood supply to the fetus hence shows non reactive results. Hence position is one of the main factor which should be considered during non stress test.

Methodology

Aquasi experimental design was used. Total 60 antenatal women (30 experimental group I, 30 experimental group II) was selected by purposive sampling technique. Data collection method- Baseline maternal foetal bio-physiological parameters were assessed by performing NST for 10 minutes in baseline position(supine position) among experimental groups and then after a gap of 10 minutes semi-sitting and left lateral position was given to experimental group I and II respectively. Maternal and foetal bio-physiological parameters were assessed after 10 minutes of NST in both experimental groups I and II.

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Results

Result of the present study revealed that baseline (supine) when compared with Semi-sitting position had significant effect on maternal foetal bio-physiological parameters at ($p<0.05$) level of significance however when baseline (supine) compared with left lateral position had no significant effect on maternal bio-physiological parameters except on pulse rate at ($p<0.05$) level of significance whereas left lateral position had significant effect on foetal bio-physiological parameters except baseline heart rate and deceleration at ($p<0.05$) level of significance. When semi-sitting compared with left lateral had no significant effect on maternal foetal bio-physiological parameters at ($p<0.05$) level of significance.

Conclusion

Baseline position(supine) when altered to semi-sitting or left lateral position influence the maternal foetal bio-physiological parameters. Semi-sitting when compared with left lateral had no significant effect on maternal and foetal bio-physiological parameters

Keywords: NST, physiological, parameters, maternal, foetal, position.

1. INTRODUCTION

Antenatal care is one of the important element to ensure normal pregnancy with delivery of healthy baby. There are many ways to evaluate the health and well-being of a developing baby (fetus) throughout pregnancy. Fetal heart rate is an integral part of fetal surveillance. Auscultation of fetal heart rate has been a standard component of each prenatal visit. Monitoring fetal heart rate pattern is called non stress test[1].Non stress test : In non stress test, a continuous electronic monitoring of foetal heart rate along with recording of foetal movements (cardiotocography) is undertaken. The non stress test (NST) is a primary foetal surveillance tool. The foetal NST is a simple, non invasive test performed in pregnancy over 28 weeks of gestation. Before 28 weeks, the fetus is not developed enough to respond to the test protocol. The test is named "non stress'' because no stress is placed on the foetus during the test[2].

NST is a non invasive method used to evaluate foetal well-being. This test is a part of cardiotocography(CTG) used within at least 20 minutes after admission of patient , is the only screening test for evaluation of foetal well being during delivery ,important component of NST are baseline foetal heart rate (FHR), baseline variability , acceleration and deceleration[3]. NST records the FHR and the interaction between the foetal movements. Thereby, provides information on the health of the foetus[4]. NST is used in an attempt to reduce the incidence of the foetal compromise at birth i.e the result of placental insufficiency.

Several factors can contribute to false-positive result and increase the time spent performing tests. Maternal position during NST surely influences the hemodynamic of maternal and feto-placental circulation. However, the maternal position during the testing is important element that should be part of practice guidelines. Physicians generally position the pregnant women in the supine position because this position allows easy administration of the test[5].

A study done in New York, to determine whether maternal posture (left lateral recumbent vs semi-fowlers position) had an effect on non stress test results. The result shows that there was more non reactivity in supine position ($p = 0.01$). So as per findings, it was recommended that semi-fowlers position is superior position for conducting a non stress test in a short period[6].

The study was conducted to assess the effect of three positions on maternal foetal biophysical parameters. The finding shows that in semi-fowlers position 69% of test was reactive and in left lateral 63.6% were reactive. So, they concluded that there is a relation between maternal position and non stress test and semi-fowlers position is a superior position for conducting non stress test[7].

Studies show that left lateral and sitting position are preferable but it is still an open question regarding the best position during non stress test.These view points motivate the investigator to compare the effect of semi-sitting versus left lateral position on maternal and foetal bio-physiological parameters among antenatal women undergoing non stress test.

2. MATERIALS AND METHODS

A quasi experimental study was carried out by using a parallel comparative design.Total 60 antenatal women (30 experimental group I, 30 experimental group II) was selected by purposive sampling technique.The purpose of the study was explained and consent was taken from the sample. The data was collected using observational recording for assessing maternal parameters and observational checklist for assessing foetal parametersfrom 1March, 2016 to 31March, 2016. Baseline maternal foetal bio-physiological parameters were assessed by performing NST for 10 minutes in baseline position(supine position) among experimental groups. Then after a gap of 10 minutes semi-sitting and left lateral position was given to experimental group I and II respectively. Maternal and foetal bio-physiological parameters were assessed after 10 minutes of NST in both experimental groups I and II. Approval of research/Ethical committee of GianSagar Hospital was taken before starting the study. Permission was obtained from Nitin Hospital, Patiala, Punjab. Analysis and interpretation of data was based on objectives and was done by descriptive /inferential statistics.

3. ANALYSIS AND INTERPRETATION OF DATA

Section- A

3.1 Socio-demographic variables

Table 1 shows that majority of antenatal women 53.3% belongs to 18-25 years age group and 46.7% belongs to 26-33 years in experimental group I and II respectively. In period of gestation majority of women 56.7%, 43.3% belong to 33-38 weeks of gestation in experimental group I and II respectively whereas minimum 16.7% belong to 39-42 weeks in experimental group I and 26.7% belong to 28-32 weeks of gestation in experimental group II. Majority 70.0%, 66.7% were primi-gravida and 30.0%, 33.3% were multi-gravid in experimental group I and experiment group II respectively. Majority 76.7%, 66.7% were housewife and minimum 6.7%, 13.3% were government employee in experimental group I and experimental group II respectively. Majority 46.7% antenatal women having weight 46-55(kg), 56-65(kg) in experimental group I and II and minimum 6.7%, 3.3% antenatal women having weight 35-45(kg) in experimental group I and II respectively.

N=30+30

Table 1: Frequency, Percentage distribution and homogeneity of socio-demographic variables.

Socio−demographic variable	**Antenatal women**					
	Exp.group I		**Exp.group II**			
f	**%**	**f**	**%**	**X^2**	**df**	
1) Age (in years)						
a) 18−25	16	53.3	16	53.3	0.000^{NS}	1
b) 26−33	14	46.7	14	46.7		
c) 34−41	0	0	0	0		
d) >41	0	0	0	0		
2) Period of gestation(weeks)						
a) 28−32	8	26.7	8	26.7	1.676^{NS}	2
b) 33−38	17	56.7	13	43.3		
c) 39−42	5	16.7	9	30.0		
3) Gravida						
a) Primi-gravida21	70.0	20	66.7	0.077^{NS}	1	
b) Multigravida	9	30.0	10	33.3		

4) Occupation						
a) Housewife	23	76.7	20	66.7	0.967^{NS}	2
b) Government employee 2	6.7	4	13.3			
c) Private employee	5	16.7	6	20.0		
5) Body mass index(kg)						
a) 35−45	2	6.7	1	3.3	0.841^{NS}	3
b) 46−55	14	46.7	12	40.0		
c) 56−65	12	40.0	14	46.7		
d) >65	2	6.7	6	10.0		

Mean Age - 30.13 years **NS- not significant**

Section B

3.2 Assess the baseline maternal foetal bio-physiological parameters

Table 2 shows that in baseline position the SBP Mean ± SD was 115.8 ± 8.3 and 121.8 ± 10.2 with the range 110-140 and 108-150 in experimental group I and II respectively. DBP with Mean ± SD was 74.5 ± 7.7 and 78.5 ± 8.1 with the range 60-90 and 70-100. PR with Mean ± SD was 83.8 ± 7.6 and 84.3 ± 6.7 with the range 74-94 and 74-94. RR with Mean ± SD was 20.0 ± 0.7 and 20.4 ± 1.3 with the range 18-22 and 20-22 in experimentalgroup I and II respectively.

N=30+30

Table 2: Comparison of baseline(supine) score of maternal bio-physiological parameters among Experiment group I and II.

Parameters	**Experiment I**		**Experiment II**	
	Range	**Mean + SD**	**Range**	**Mean + SD**
Systolic blood pressure	110−140	115.8+ 8.3	108−150	121.8+ 10.2
Diastolic blood pressure	60−90	74.5+ 7.7	70−100	78.5+ 8.1
Pulse rate/ min	74−94	83.8+ 7.6	74−94	84.3+ 6.7
Respiration rate/min	18−22	20.0+ 0.7	20−22	20.4+ 1.3

Table 3 depicts in baseline position baseline heart rate between 110-150 bpm was present in 29(96.7) and absent in 1(3.3) in experimental I and II respectively. Two or more acceleration in baseline position in experimental group I was present in 6(20.0) and absent in 24(80.0) whereas in experimental group II was present in 5(16.7) and absent in 25(83.3). Foetal heart rate deceleration in baseline position in experimental group I was present in 26(86.7) and absent in 4(13.3) whereas in experimental group II was present in 27(90.0) and absent in 3(10.0). Foetal movement in baseline position in experimental group I was present in 16(53.3) and absent in 14(46.7) whereas in experimental group II was present in 11(36.7) and absent in 19(63.3).

N= 30+30

Table 3: Comparison of baseline(supine) score of foetal bio-physiological parameters among Experiment group I and II.

Parameters	**Experiment I**		**Experiment II**	
	Yes f(%)	**No** f(%)	**Yes** f(%)	**No** f(%)
Baseline heart rate between 110-150bpm with moderate variability (5-25 inter beat variability)	29(96.7)	1(3.3)	29(96.7)	1(3.3)
Two or more accelerations of more than 15 bpm above the baseline and longer for 15 seconds within 10 minute period	6(20.0)	24(80.0)	5(16.7)	25(83.3)
Foetal heart rate deceleration	26(86.7)	4(13.3)	27(90.0)	3(10.0)
Foetal movement	16(53.3)	14(46.7)	11(36.7)	19(63.3)

Section C

3.3 Compare baseline score of maternal foetal bio-physiological parameters with semi-sitting and left lateral score.

H_{01}–There is no significant difference of baseline position with semi-sitting versus left lateral position on maternal and foetal bio-physiological parameters among antenatal women undergoing non stress test.

H_1–There is significant difference of baseline position with semi-sitting versus left lateral position on maternal and foetal bio-physiological parameters among antenatal women undergoing non stress test.

Table 4 depicts that in baseline and semi−sitting position Mean ± SD of SBP was 115 ± 8.3, 118.7 ± 4.3 with −2.9 mean difference. Mean ± SD of DSP was 74.5 ±7.7, 77.4 ± 4.8 with −2.9 mean difference. Mean ± SD of PR was 83.8 ± 7.6 and 81.2 ± 7.5 with −2.6 mean difference. Mean ± SD of RR was 20.0 ± 0.7 and 20.2 ± 0.6 with −0.2 mean difference in baseline and semi-sitting position respectively. Calculated t value of all parameters was more than tabulated value. So, Semi-sitting had significant effect on maternal bio-physiological parameters at p<0.05 level of significance. Hence research hypothesis was accepted.

N=30

Table 4: Comparison of baseline(supine) with semi-sitting score of maternal bio-physiological parameters among Experiment group I.

Parameters	Baseline Mean± SD	Semi−sitting Mean± SD	Mean difference	't'
Systolic blood pressure	115.8± 8.3	118.7± 4.3	−2.9	−2.404*
Diastolic blood pressure	74.5± 7.7	77.4±4.8	−2.9	−3.515**
Pulse rate/min	83.8± 7.6	81.2± 7.5	−2.6	5.204***
Respiration rate/ min	20.0± 0.7	20.2± 0.6	−0.2	−2.112*

df-29*Significant at p<0.05

Table 5 depicts that semi-sitting position when compared with baseline position had significant effect on acceleration and foetal movement whereas had no significant effect on baseline heart rate and foetal heart rate deceleration. So semi-sitting had significant effect on foetal bio-physiological parameters except baseline heart rate and deceleration at p<0.05 level of significance. Hence research hypothesis was accepted.

N=30

Table 5: Comparison of baseline(supine) with semi-sitting score of foetal bio-physiological parameters among Experiment group I.

Parameters	Baseline		Semi-sitting		
	Yes	No	Yes	No	X^2
	f(%)	f(%)	f(%)	f(%)	
Baseline heart rate between 110-150bpm with moderate variability (5-25 inter beat variability)	29(96.7)	1(3.3)	29(96.7)	1(3.3)	0.517^{NS}
Two or more accelerations of more than 15 bpm above the baseline and longer for 15 seconds within 10 minute period	6(20.0)	24(80.0)	22(73.3)	8(26.7)	17.143*
Foetal heart rate deceleration	26(86.7)	4(13.3)	24(80.0)	6(20.0)	0.483^{NS}
Foetal movement	16(53.3)	14(46.7)	24(80.0)	6(20.0)	4.8*

df= 1 , *Significant at p<0.05 NS= non significant

Table 6 depicts that in baseline and left lateral position Mean $\pm$ SD of SBP was 121.8 $\pm$ 10.2, 120.6 $\pm$ 5.8 with 1.2 mean difference. Mean $\pm$ SD of DSP was 78.5 $\pm$ 8.1, 77.6 $\pm$ 5.8 with 0.9 mean difference. Mean $\pm$ SD of PR was 84.3 $\pm$ 6.7 and 82.2 $\pm$ 6.0 with 2.1 mean difference. Mean $\pm$ SD of RR was 20.4 $\pm$ 1.3 and 20.4 $\pm$ 0.8 with 0 mean difference in baseline and left lateral position respectively. Calculated t value of all parameters except pulse rate was less than tabulated value.So left lateral had no significant effect on maternal bio-physiological parameters except on pulse rate at p<0.05 level of significance. Hence null hypothesis was accepted.

N=30

Table 6: Comparison of baseline(supine) with left lateral score of maternal bio-physiological parameters among Experiment group II.

Parameters	Baseline	Left-lateral		
	Mean± SD	Mean± SD	Mean difference	't'
Systolic blood pressure	121.8± 10.2	120.6± 5.8	1.2	0.978^{NS}

Diastolic blood pressure	78.5± 8.1	77.6±5.8	0.9	1.166^{NS}
Pulse rate/min	84.3± 6.7	82.2± 6.0	2.1	6.440***
Respiration rate/min	20.4± 1.3	20.4± 0.8	0	0.273^{NS}

df-29, *Significant at p<0.05 **NS= non significant**

Table 7 depicts that left lateral position when compared with baseline position had significant effect on acceleration and foetal movement whereas had no significant effect on baseline heart rate and foetal heart rate deceleration. So left lateral had significant effect on foetal bio-physiological parameters except baseline heart rate and deceleration at p<0.05 level of significance. Hence research hypothesis was accepted.

N=30

Table 7: Comparison of baseline(supine) with left lateral score of foetal bio-physiological parameters among Experiment group II.

Parameters	**Baseline**		**Left lateral**		
	Yes	**No**	**Yes**	**No**	X2
	f(%)	**f(%)**	**f(%)**	**f(%)**	
Baseline heart rate between 110-150 bpm with moderate variability (5-25 inter beat variability)	29(96.7)	1(3.3)	30(100.0)	0(0.0)	0.000^{NS}
Two or more accelerations of more than 15 bpm above the baseline and longer for 15 seconds within 10 minute period	5(16.7)	25(83.3)	23(76.7)	7(23.3)	21.696*
Foetal heart rate deceleration	27(90.0)	3(10.0)	24(80.0)	6(20.0)	0.523^{NS}
Foetal movement	11(36.7)	19(63.3)	27(90.0)	3(10.0)	18.373*

df= 1, *Significant at p<0.05 NS= non significant

Section D

3.4 Compare the maternal foetal bio-physiological parameters among experimental group I and II

H_{02}-There will be no significant difference between semi-sitting versus left lateral position on maternal and foetal bio-physiological parameters among antenatal women undergoing non stress test .

H_2-There is significant difference between semi-sitting versus left lateral position on maternal and foetal bio-physiological parameters among antenatal women undergoing non stress test .

Table 8 depicts that in semi−sitting and left lateral Mean ± SD of SBP was 118± 4.3, 120.6 ± 5.8 with −1.9 mean difference. Mean ± SD of DSP was 74.4± 4.8, 77.6 ± 5.8 with −0.2 mean difference. Mean ± SD of PR was 81.2±7.5 and 82.2 ± 6.0 with −1 mean difference. Mean ± SD of RR was 20.2± 0.6 and 20.4 ± 0.8 with −0.2 mean difference. Calculated t value of all parameters was less than tabulated value. So semi-sitting versus left lateral had no significant effect on maternal bio-physiological parameters at $p<0.05$ level of significance. Hence null hypothesis was accepted.

N=30+30

Table 8: Comparison of semi-sitting versus left lateral position on maternal bio-physiological parameters among experiment I and II **.**

Parameters	**Experiment I**	**Experiment II**		
	Mean± SD	**Mean± SD**	**Mean difference**	**t−value**
Systolic blood pressure	118± 4.3	120.6± 5.8	−1.9	-1.448^{NS}
Diastolic blood pressure	74.4± 4.8	77.6±5.8	−0.2	-0.096^{NS}
Pulse rate/min	81.2± 7.5	82.2± 6.0	−1	-0.565^{NS}
Respiration rate/min	20.2± 0.6	20.4± 0.8	−0.2	-0.684^{NS}

df-58 **S= non significant**

H_3- There is association of maternal and foetal bio-physiological parameters among antenatal women undergoing non stress test with selected demographic variable.

N=30+30

Table 9: Comparison of semi-sitting versus left lateral position on foetal bio-physiological parameters among experiment I and II.

Parameters	**Semi-sitting**		**Left lateral**		
	Yes	**No**	**Yes**	**No**	X2
	f(%)	**f(%)**	**f(%)**	**f(%)**	
Baseline heart rate between 110-150 bpm with moderate variability (5-25 inter beat variability)	29(96.7)	1(3.3)	30(100.0)	0(0.0)	1.017^{NS}
Two or more accelerations of more than 15bpm above the baseline and longer for 15 seconds within 10 minute period	22(73.3)	8(26.7)	23(76.7)	7(23.3)	0.089^{NS}
Foetal heart rate deceleration	24(80.0)	6(20.0)	24(80.0)	6(20.0)	0.000^{NS}
Foetal movement	24(80.0)	6(20.0)	27(90.0)	3(10.0)	1.176^{NS}

df= 1 **NS= non significant**

Table 9: depicts that semi-sitting versus left lateral had no significant effect on foetal bio-physiological parameters at $p<0.05$ level of significance. Hence null hypothesis was accepted.

Section D

3.5 Association of maternal foetal bio-physiological parameters with selected demographic variables

H_{03} -There is no association of maternal and foetal bio-physiological parameters among antenatal women undergoing non stress test with selected demographic variable.

Table 10 depicts that there was no association of maternal bio-physiological parameters with selected demographic variables except occupation effect respiration rate. All the calculated value were less than the table value except occupation(respiration). Hence, null hypothesis was accepted except occupation (respiration).

N=60

Table 10: Association of maternal bio-physiological parameters with selected demographic variable.

Parameters	**Systolic blood pressure**		**Diastolic blood pressure**		**Pulse rate/min**		**Respiration rate/min**		
Age	**Mean± SD**	**t**	**Mean± SD**	**t**	**Mean± SD**	**t**	**Mean± SD**	**t**	**Df**
18–25	120 ± 10.85		76.62 ± 9.34		83.81 ± 7.50		20.2 ± .98		
26–33	117.14 ± 8.19	1.287^{NS}	76.62 ± 6.58	0.093^{NS}	84.36 ± 6.88	−0.291^{NS}	20.21 ± 1.25	0.123^{NS}	58
34–41	0		0		0		0		
>41	0		0		0		0		
Period of gestation		**t**		**t**		**t**		**t**	
Primigravida	118 ± 10.79	0.013^{NS}	76.29 ± 8.63	−0.335^{NS}	83.46 ± 7.12	−0.957^{NS}	20.15 ± 1.13	−0.89^{NS}	58
Multigravida	118.84 ± 7.28		77.05 ± 7.03		85.37 ± 7.27		20.42 ± 1.07		
Gravida		**F**		**F**		**F**		**F**	
28–32	115.62 ± 7.12		76.25 ± 5.05		82.88 ± 7.48		20.62 ± .95		
33–38	119.47 ± 10.76	1.388^{NS}	75.80 ± 9.84	0.506^{NS}	85.60 ± 7.54	1.432^{NS}	20.20 ± 1.21	1.866^{NS}	2/57
39–42	121.29 ± 9.75		78.43 ± 6.89		82.14 ± 5.51		19.86 ± .94		
Occupation		**F**		**F**		**F**		**F**	

Housewife	119.07 ± 10.51		76.14 ± 8.75			83.49 ± 7.33			20.05 ±1.112		
Government	122.33 ± 5.27	0.799^{NS}	81.33 ± 4.84	1.208^{NS}		85.67 ± 5.85	0.487^{NS}		21.33 ±1.033	3.998^{S}	2/57
Private	116.18 ± 8.26		75.45 ± 6.20			85.45 ± 7.43			20.36 ± .809		
Body mass index		**F**		**F**			**F**			**F**	
35–45	116.67 ± 11.54		76.00 ± 7.21			84.00 ± 10.00			20.00 ± .000		
46–55	119.92 ± 12.20	1.507^{NS}	78.31 ± 9.61	0.846^{NS}		83.46 ± 7.17	0.185^{NS}		20.08 ± .89	0.402^{NS}	3/56
56–65	119.69 ± 6.92		75.46 ± 7.16			84.31 ± 7.17			20.38 ± 1.38		
>66	110.40 ± 1.67		73.20 ± 1.78			86.00 ± 7.87			20.40 ± .894		

***Significance p<0.05NS-Non significant**

Table 11 depicts that there was no association of foetal bio-physiological parameters with selected demographic variables except period of gestation effect foetal movement. All the calculated value were less than the table value except period of gestation (foetal movement). Hence, null hypothesis was accepted except period of gestation (foetal movement).

N=60

Table 11: Association of foetal bio-physiological parameters with selected demographic variable.

Parameters	**Baseline heart rate**			**Acceleration**			**Deceleration**			**Foetal movement**			
Age	**Yes**	**No**	X^2	**Yes**	**No**	X^2	**Yes**	**No**	X^2	**Yes**	**No**	X^2	**Df**
18–25	30	2		4	28		27	5		12	20		
26–33	28	0	1.81^{NS}	7	21	1.558^{NS}	26	2	1.043^{NS}	15	13	1.558^{NS}	1
34–41	0	0		0	0		0	0		0	0		
>41	0	0		0	0		0	0		0	0		
Period of gestation													
28–32	15	1		1	15		15	1	0.63^{NS}	4	12		
33–38	29	1	0.905^{NS}	6	24	2.596^{NS}	26	4		13	17	6.57*	2
39–42	14	0		4	10		12	2		10	4		
Gravida													
Primigravida	39	2	0.959^{NS}	8	33	0.12^{NS}	36	5	0.035^{NS}	18	23	0.063^{NS}	1
Multigravida	19	0		3	16		17	2		9	10		
Occupation													
Housewife	42	1		8	35		36	7		22	21		
Government	5	1	3.825^{NS}	0	6	1.936^{NS}	6	0	3.133^{NS}	1	5	2.937^{NS}	2
Private	11	0		3	8		11	0		4	7		
Body mass index													
35–45	3	0		0	3		2	1		2	1		
46–55	24	2	2.706^{NS}	4	22	1.224^{NS}	21	5	5.013^{NS}	13	13	1.331^{NS}	3
56–65	26	0		6	20		25	1		10	16		
>66	5	0		1	4		5	0		2	3		

*Significance p<0.05 **NS-Non significant**

DISCUSSION

The present study intends to compare the effect of semi-sitting versus left lateral position on maternal and foetal bio-physiological parameters among antenatal women undergoing non stress test in Tertiary Care Hospital of Patiala, Punjab.

The present study depicts that semi-sitting when compared with left lateral had no significant effect on maternal and foetal bio-physiological parameters .Calculated 't' value of all parameters was less than tabulated value. So semi-sitting versus left lateral had no significant effect on maternal foetal bio-physiological parameters at ($p<0.05$) level of significance.

These findings are in accordance with the study done by **ManeeshaMS[27]** , to assess the effect of maternal position on physiological parameters of antenatal mothers and fetus during non stress test. There was no significant difference in 'F' value for physiological parameters maternal(pulse, respiration, systolic and diastolic pressure) and foetal (fetal heart rate, movement, acceleration) during the test . All the calculated values for the maternal and foetal physiological parameters were less than the tabulated value, so the researcher accepted the null hypothesis.

These findings are congruent with the study done by **Samuel R[9]** to compare the materno foetal physiological parameters during non stress test. There were significant changes in maternal bio-physiological parameters like maternal systolic, diastolic blood pressure, pulse rate between left lateral and sitting position at ($p<0.01$) level of significance. There was significant difference in foetal physiological parameters like baseline foetal heart rate($p=0.034$) and deceleration($p<0.001$) between sitting and left lateral position.

The present study depicts that there is no significant association of demographic variable i.e age, period of gestation, body mass index with maternal foetal bio-physiological parameters at ($p<0.05$) level of significance. These findings are in accordance with study conducted by **Maneesha MS[8]**regarding the effect of maternal positions on physical and physiological parameters of mother and fetus during non stress test. According to the result there was no significant association with selected demographic variables (age, period of gestation, body mass index) at $p<0.05$ level of significance.

CONCLUSION

The result concluded that baseline position(supine) when altered to semi-sitting position influenced the maternal foetal bio-physiological parameters whereas baseline position(supine) when altered to left lateral position influenced the maternal (pulse rate) and foetal (acceleration, foetal movement)

bio-physiological parameters. Semi-sitting when compared with left lateral had no significant effect on maternal and foetal bio-physiological parameters.

Ethical Clearance: The study was conducted after approval by the institutional Ethics Committee

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