



# EFFECTIVENESS OF SELECTED MULTICOMPONENT NURSING INTERVENTIONS ON QUALITY OF LIFE AND BIRTH OUTCOMES OF PREGNANT WOMEN – PILOT STUDY REPORT

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**Abstract:** This RCT has been undertaken to evaluate the effectiveness of selected multicomponent nursing interventions on quality of life and birth outcomes of twenty-two pregnant women who attended antenatal OPD by RAND 36-Item Health Survey 1.0 Questionnaire Items and birth outcomes questionnaire from Sep 2023 to Dec 2023. Multicomponent nursing interventions include Psychoeducation, Antenatal exercises and JPMRT Study findings shows that QoL decreases with progression of gestation, but interventions helped in sustaining/improving the QoL of pregnant women so due attention must be given on it by continuous monitoring and motivation.

**Index Terms -** Pregnancy, Pregnant women, Quality of life (QoL), birth outcomes, Antenatal exercises, JPMRT, Gestation.

## I. INTRODUCTION

Pregnancy is a physiological occurrence that places a significant burden on and stresses the female body. In order to meet the changing needs of the foetus, maintain homeostasis, get ready for labour and lactation, and other factors, the expectant mother goes through a number of anatomical, physiological, psychological, and biochemical changes. These alterations may have an impact on pregnant women's quality of life (QoL), influencing both maternal and baby health <sup>1</sup>.

Maternal mortality is unacceptably high world-wide. According to World Health Organization (WHO) 2017 approximately 830 women died every single day due to complications during pregnancy or childbirth <sup>2</sup>. Globally 2,95,000 women died due to issues related to pregnancy and childbirth in 2017. The vast majority of these deaths i.e., 94% occurred in low-resource settings, and most could have been prevented. Maternal mortality continues to be the biggest challenge facing India and other developing countries. India contributes to 15 per cent of the global maternal death toll. About 44,000 Indian women die each year due to complications arising during childbirth. About 70 percent of these can be prevented. Almost two-thirds of maternal deaths in India reportedly occur in just nine states i.e., Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttarakhand and Uttar Pradesh <sup>3</sup>.

According to SRS 2016-18 MMR of India is 113 and in Rajasthan MMR is 164. In 2018, Peri-natal mortality rate of India was 22 and in Rajasthan it was 26. In India neonatal mortality rate is 23 and early neonatal mortality rate is 18. Neonatal mortality rate is 26 and early neonatal mortality rate is 20 in Rajasthan <sup>4</sup>. Maternal stress may increase the level of corticotrophin releasing hormone (CRH) in pregnancy that might lead to premature delivery. This may in-turn prove fatal and result in harming the child itself <sup>5</sup>.

A review study was conducted on factors influencing the quality of life of pregnant women. Results revealed that the physical component of QoL decreased throughout pregnancy, the mental component was stable and even showed an improvement during pregnancy <sup>6</sup>. The memories a woman has of her childbearing experiences, whether they were good or bad, stay with her for the rest of her life. Experiences with maternity caregiver can both enlighten and reassure women. The well-being of both the mother and the foetus will be improved by nursing interventions that will assist the pregnant woman adjust to these changes.

**AIM:** To Evaluate the effectiveness of selected multicomponent nursing interventions on quality of life and birth outcomes of pregnant women.

**OBJECTIVES:****Primary Objective:**

- To evaluate and compare quality of life score of pregnant women after 10 weeks of follow-up in experimental and control group.

**Secondary Objective:**

- To assess quality of life score of pregnant women (21-24 weeks of gestation) at recruitment and find out its association with selected demographic variables.
- To find out correlation between post-test quality of life score and birth outcomes of pregnant women.

**II. MATERIALS AND METHODS:****Study design:**

A randomized controlled trial was conducted on 22 pregnant women attending antenatal OPD at MDM and Umaid Hospital, Jodhpur from September 2022 to December 2022. Ethical clearance was sought from Institutional Ethical Committee, Dr. S.N. Medical College, Jodhpur. Pregnant women were allotted to experiment and control group by block randomization and allocation concealment.

**Inclusion and exclusion criteria:**

Primi or secundigravida women with the age of 18-35 years who attended antenatal OPD in II trimester (21-24 weeks of gestation) were included. Pregnant women with high-risk pregnancy, multiple pregnancy, psychiatric illness, or premature delivery prior to completion of the follow-up period were excluded.

**Study procedure:**

RAND 36-Item Health Survey 1.0 Questionnaire Items were used to assess the quality of life of pregnant women<sup>7,8</sup>. Psychoeducation, Antenatal exercises and Jacobson progressive muscle relaxation technique were used as Multicomponent Nursing Interventions for experimental group.

The study was conducted in 4 phases: -

- I. Pre-test on quality of life at baseline (21-24 weeks of gestation).
- II. Application of selected multicomponent nursing interventions to experimental group.
- III. Post-test assessment of quality of life after 10 weeks (31-34 weeks of gestation) in experimental and control group
- IV. Assessment of birth outcomes (after delivery of the newborn) in experimental and control group

**Statistical analysis:**

Data were entered into Ms Excel 365 sheet and were analyzed using SPSS version 26 for Windows. Descriptive and inferential statistical analyses were done. A p value of <0.05 was considered significant. Shapiro-Wilk test, Levene's test, Independent t-test, paired t-test, ANOVA & Chi-square test was used for data analysis<sup>9,10</sup>.

**III. RESULT AND DISCUSSION:**

During the study period, 38 pregnant women were contacted, out of which 22 pregnant women met the inclusion criteria. After assessing QoL of pregnant women with RAND 36-Item Health Survey 1.0 Questionnaire, intervention is administered to experiment group while control group received routine antenatal care. After 10 weeks of follow-up, post-test of QoL was assessed and after delivery, birth outcomes were assessed which include duration of pregnancy, type of delivery, newborn birth weight and APGAR score. Table 1 shows the comparison of Health Related QoL per subscale of pregnant women's quality of life in the Experimental and Control groups. Table 2 shows the comparison of Health Related QoL per subscale of pregnant women's quality of life within and between the Experimental and Control groups. Table 3 shows sociodemographic characteristics associated with the Health Related QoL physical component summary score in experimental and control group. Table 4 shows sociodemographic characteristics associated with the Health Related QoL Mental component summary score in experimental and control groups. Table 5 shows Correlation between HRQoL scores at 31-34 weeks of gestational age and birth outcomes of pregnant women in experimental and control groups.

Table 1: The comparison of HRQoL per Subscale of pregnant women's quality of life in the Experimental and Control groups

Subscale	Baseline at 21-24 weeks of gestational age					After 10 weeks at 31-34 weeks of gestational age				
	Mean±SD		t	df	p-value	Mean±SD		t	df	p-value
	Experimental	Control				Experimental	Control			
<b>HRQoL (Physical Component)</b>										
Physical functioning	77.27±18.49	60.91±13.75	2.36	20	0.029*	49.55±14.05	23.18±5.60	5.78	20	<0.001*
Role limitations due to physical health	68.18±44.85	54.55±21.85	0.91	20	0.375	56.82±31.80	20.45±15.08	3.43	20	0.003*
Bodily pain	71.59±23.11	62.73±25.68	0.85	20	0.405	82.27±9.11	30.45±11.06	11.99	20	<0.001*
General health	65.91±28.53	50.00±28.64	1.31	20	0.207	77.73±10.34	39.55±21.62	5.28	20	<0.001*
<b>PCS Score</b>	<b>70.74±23.21</b>	<b>57.05±17.79</b>	<b>1.55</b>	<b>20</b>	<b>0.136</b>	<b>66.59±13.10</b>	<b>28.41±7.78</b>	<b>8.31</b>	<b>20</b>	<b>&lt;0.001*</b>
<b>HRQoL (Mental Component)</b>										
Vitality (Energy/fatigue)	65.45±30.29	67.73±14.38	-0.23	20	0.824	81.36±8.09	54.09±10.68	6.75	20	<0.001*
Role limitations due to emotional problems	72.73±38.92	54.55±26.97	1.27	20	0.217	81.82±17.41	54.55±26.97	2.82	20	0.011*
Social functioning	85.23±31.03	68.18±38.06	1.15	20	0.263	88.64±11.80	23.86±14.20	11.63	20	<0.001*
General mental health (Emotional well-being)	87.64±19.80	85.45±8.25	0.34	20	0.739	94.55±5.73	78.55±11.90	4.02	20	0.001*
<b>MCS Score</b>	<b>77.76±21.62</b>	<b>68.98±18.00</b>	<b>1.04</b>	<b>20</b>	<b>0.313</b>	<b>86.59±6.26</b>	<b>52.76±11.73</b>	<b>8.44</b>	<b>20</b>	<b>&lt;0.001*</b>
Health change	45.45±24.54	31.82±16.17	1.54	20	0.139	40.91±20.23	15.91±12.61	3.479	20	0.002*

According to components specific to all four subscales of Physical Components such as physical functioning ( $P = <0.001$ ), Role limitations due to physical health ( $P = 0.003$ ), Bodily pain ( $P = <0.001$ ), and General health ( $P = <0.001$ ), similarly all four subscales of Mental Component such as Vitality (Energy/fatigue) ( $P = <0.001$ ), Role limitations due to emotional problems ( $P = 0.011$ ), Social functioning ( $P = <0.001$ ), General mental health (Emotional well-being) ( $P = 0.001$ ) and it showed that significantly better HRQoL among the pregnant women in the experimental group as compared with the control group in all eight subscales. (Table 1).



Table 2: The comparison of HRQoL per Subscale of pregnant women’s quality of life within and between the Experimental and Control groups

	Within group Mean Difference (pre-post)				Between group Mean Difference (Exp-Cont.)			
	Experimental		Control		Baseline at 21-24 weeks of gestational age		After 10 weeks at 31-34 weeks of gestational age	
	Adj. Mean Diff. (95% CI)	p-value	Adj. Mean Diff. (95% CI)	p-value	Adj. Mean Diff. (95% CI)	p-value	Adj. Mean Diff. (95% CI)	p-value
<b>HRQoL (Physical Component)</b>								
Physical functioning	27.727 (18.52–36.935)	<0.001*	37.727 (28.52–46.935)	<0.001*	16.364 (1.872–30.855)	0.029*	26.364 (16.854–35.874)	<0.001*
Role limitations due to physical health	11.364 (-9.518–32.245)	0.270	34.091 (13.21–54.972)	0.003*	13.636 (-17.739–45.012)	0.375	36.364 (14.228–58.499)	0.003*
Bodily pain	-10.682 (-22.43–1.069)	0.072	32.273 (20.522–44.024)	<0.001*	8.864 (-12.864–30.591)	0.405	51.818 (42.806–60.831)	<0.001*
General health	-11.818* (-21.6–2.038)	0.02*	10.455 (0.674–20.235)	0.037*	15.909 (-9.515–41.333)	0.207	38.182 (23.112–53.251)	<0.001*
<b>PCS Score</b>	<b>4.148</b> <b>(-4.669–12.965)</b>	<b>0.338</b>	<b>28.636</b> <b>(19.819–37.453)</b>	<b>&lt;0.001*</b>	<b>13.693</b> <b>(-4.701–32.088)</b>	<b>0.136</b>	<b>38.182</b> <b>(28.602–47.762)</b>	<b>&lt;0.001*</b>
<b>HRQoL (Mental Component)</b>								
Vitality (Energy/fatigue)	-15.909 (-27.5–4.316)	0.01*	13.636 (2.043–25.23)	0.023*	-2.273 (-23.36–18.814)	0.824	27.273 (18.845–35.7)	<0.001*
Role limitations due to emotional problems	-3.409 (-20.35–13.536)	0.679	44.318 (27.373–61.263)	<0.001*	17.045 (-13.843–47.934)	0.263	64.773 (53.16–76.385)	<0.001*
Social functioning	-9.091 (-25.45–7.271)	0.260	0.00 (-16.36–16.362)	1.000	18.182 (-11.601–47.965)	0.217	27.273 (7.085–47.461)	0.011*
General mental health (Emotional well-being)	-6.909 (-14.38–0.562)	0.068	6.909 (-0.562–14.38)	0.068	2.182 (-11.306–15.67)	0.739	16.000 (7.691–24.309)	0.001*
<b>MCS Score</b>	<b>-8.83</b> <b>(-18.21–0.555)</b>	<b>0.064</b>	<b>16.216</b> <b>(6.831–25.6)</b>	<b>0.002*</b>	<b>8.784</b> <b>(-8.909–26.477)</b>	<b>0.313</b>	<b>33.830</b> <b>(25.468–42.191)</b>	<b>&lt;0.001*</b>
Health change	4.545 (-5.511–14.602)	0.357	15.909 (5.852–25.966)	0.004*	13.636 (-4.847–32.12)	0.139	25.000 (10.008–39.992)	0.002*

HRQoL- Health related Quality of Life; PCS - Physical Component Summary; MCS-Mental Component Summary.

Note: - Negative mean difference shows the improvement in the HRQoL



Mixed model analysis was used to reflect the change in the mean score of HRQoL. It was found that after 10 weeks, experimental group had significantly better QoL for Physical Component Summary (PCS) score with mean difference 38.18, (95% confidence interval [CI]: 28.602–47.762) and for Mental Component Summary (MCS) score with mean difference 33.83, (95% confidence interval [CI]: 25.468–42.191), as compared to the control group ( $P = <0.001$ ) along with all the 8 domains scales as shown in table. While in comparison within the group (pre-test and post-test), in experimental group the pregnant women's HRQoL is almost alike to better after 10 weeks of intervention for Physical Component Summary (PCS) score with mean difference 4.15, (95% confidence interval [CI]: -4.669–12.965) ( $p=0.338$ ) and for Mental Component Summary (MCS) score with mean difference -8.83, (95% confidence interval [CI]: -18.21–0.555) ( $p=0.064$ ), along with all the 8 domains scales compared with baseline except physical functioning shows significant deterioration with the mean difference 27.23, (95% confidence interval [CI]: 18.52–36.935); whereas in the control group, HRQoL significantly deteriorated after 10 weeks for Physical Component Summary (PCS) score with mean difference 28.636, (95% confidence interval [CI]: 19.819–37.453) ( $p<0.001$ ) and for Mental Component Summary (MCS) score with mean difference 16.216, (95% confidence interval [CI]: 6.831–25.6) ( $p=0.003$ ), along with all the 8 domains scales compared with baseline except social functioning with mean difference 0.00, (95% confidence interval [CI]: -16.36–16.362) ( $p=1$ ) and General mental health with the mean difference 6.909, (95% confidence interval [CI]: -0.562–14.38) ( $p=0.068$ ) that shows no significant change.(Table No. 2)



**Table 3- Sociodemographic characteristics associated with the HRQoL physical component summary score in experimental and control group.**

Group Characteristics	PCS HRQoL Score					
	Experimental			Control		
	Mean (SD)	F/t	p-value	Mean (SD)	F/t	p-value
<b>Age (in years)</b>						
18-21	97.5 (0)	0.451 <sup>a</sup>	0.725	69.79 (9.61)	2.055 <sup>a</sup>	0.191
22-25	68.13 (24.21)			59.38 (20.37)		
26-29	70.63 (28.15)			45.16 (14.85)		
30-33	60 (0)			-		
<b>Religion</b>						
Hindu	67.57 (23.92)	-0.957 <sup>b</sup>	0.364	56.8 (18.66)	-0.072 <sup>b</sup>	0.944
Muslim	85 (17.68)			57.71 (19.08)		
<b>Habitat</b>						
Urban	59 (21.27)	-1.660 <sup>b</sup>	0.131	58.38 (18.17)	0.767 <sup>b</sup>	0.463
Rural	80.52 (21.51)			43.75 (0)		
<b>Qualification</b>						
Primary education	97.5 (0)	1.371 <sup>a</sup>	0.328	48.44 (14.58)	2.285 <sup>a</sup>	0.166
Secondary education	61.56 (36.68)			81.88 (7.95)		
Senior secondary education	90 (0)			55 (23.14)		
Graduation & above	62.92 (20.24)			50.47 (9.18)		
<b>Type of family</b>						
Nuclear	63.44 (32.26)	0.392 <sup>a</sup>	0.688	63.75 (0)	0.143 <sup>a</sup>	0.714
Joint	70.16 (23.5)			56.38 (18.61)		
Extended	90 (0)			-		
<b>Occupation</b>						
Housewife	63.36 (23.03)	1.725 <sup>a</sup>	0.238	57.05 (17.79)		
Private sector	86.25 (0)			-		
Other	92.5 (7.07)			-		
<b>Family monthly income (in ₹)</b>						
Less than 10,000	35.63 (0)	2.155 <sup>a</sup>	0.182	-	3.344 <sup>a</sup>	0.088
10,001 to 20,000	87.81 (7.24)			51.09 (12.12)		
20,001 to 30,000	65.78 (20.8)			71.88 (16.08)		
Above 30,000	64.06 (36.68)			45.21 (15.94)		
<b>Dietary pattern</b>						
Vegetarian	70.56 (24.46)	-0.076 <sup>b</sup>	0.941	56.88 (21.6)	-0.033 <sup>b</sup>	0.974
Mixed diet/ Nonvegetarian	72.5 (0)			57.25 (14.43)		
<b>Gravida</b>						
Primi gravida	68.5 (27.33)	-0.278 <sup>b</sup>	0.787	60.63 (13.03)	0.713 <sup>b</sup>	0.494
Secundigravida	72.6 (21.7)			52.75 (23.18)		
<b>Height of mother (in inch)</b>						
< 150.0	60 (0)	0.466 <sup>b</sup>	0.652	-		
150.0+	71.81 (24.18)			57.05 (17.79)		
<b>Weight of mother (in Kg.)</b>						
< 50	70.63 (30.37)	-0.009 <sup>b</sup>	0.993	55 (16.96)	-0.275 <sup>b</sup>	0.790
50+	70.78 (22.5)			58.21 (19.48)		
<b>Hb (mg/dl)</b>						
< 10.0	64.06 (33.15)	-0.431 <sup>b</sup>	0.677	29.38 (0)	-1.806 <sup>b</sup>	0.104
10.0+	72.22 (22.86)			59.81 (16.07)		
<b>BMI (kg/m2)</b>						
< 18.0	-	0.514 <sup>a</sup>	0.491	38.13 (0)	1.57 <sup>a</sup>	0.266
18.0 - 20.9	76.38 (23.14)			66 (16.73)		
21.0+	66.04 (24.3)			51.88 (16.98)		

a- One way ANOVA, b- Independent sample t- test and \*p value ≤ 0.05

**Table 4- Sociodemographic characteristics associated with the HRQoL Mental component summary score in experimental and control group.**

Group Characteristics	MCS HRQoL Score					
	Experimental			Control		
	Mean (SD)	F/t	p-value	Mean (SD)	F/t	p-value
<b>Age (in years)</b>						
18-21	96.5 (0)	0.291 <sup>a</sup>	0.831	83.08 (2.92)	5.341 <sup>a</sup>	0.034
22-25	76.81 (19.43)			75.04 (7.58)		
26-29	71.35 (33.68)			52.33 (19.98)		
30-33	84 (0)			-		
<b>Religion</b>						
Hindu	75.08 (22.99)	0.862 <sup>b</sup>	0.411	66.58 (19.73)	-0.704 <sup>b</sup>	0.5
Muslim	89.83 (9.43)			75.38 (13.16)		
<b>Habitat</b>						
Urban	70.39 (16.79)	-1.036 <sup>b</sup>	0.327	67.61 (18.36)	-0.782 <sup>b</sup>	0.454
Rural	83.9 (24.7)			82.67 (0)		
<b>Qualification</b>						
Primary education	96.5 (0)	0.799 <sup>a</sup>	0.533	70.23 (13.7)	0.192 <sup>a</sup>	0.898
Secondary education	78.75 (30.05)			75.98 (13.7)		
Senior secondary education	92.33 (2.71)			62.11 (27.33)		
Graduation & above	69.45 (22.68)			70 (19.35)		
<b>Type of family</b>						
Nuclear	63.65 (22.83)	0.69 <sup>a</sup>	0.529	76.17 (0)	0.161 <sup>a</sup>	0.698
Joint	79.23 (22.25)			68.26 (18.8)		
Extended	94.25 (0)			-		
<b>Occupation</b>						
Housewife	72.39 (22.66)	1.195 <sup>a</sup>	0.352	68.98 (18)		
Private sector	79.79 (0)			-		
Other	98.25 (2.47)			-		
<b>Family monthly income (in ₹)</b>						
Less than 10,000	57.5 (0)	1.095 <sup>a</sup>	0.412	-	0.461 <sup>a</sup>	0.647
10,001 to 20,000	91.07 (9.05)			74.82 (9.89)		
20,001 to 30,000	76.27 (19.45)			69.22 (20.58)		
Above 30,000	64.25 (42.43)			60.86 (25.9)		
<b>Dietary pattern</b>						
Vegetarian	77.22 (22.71)	-0.25 <sup>b</sup>	0.808	69.2 (19.74)	0.043 <sup>b</sup>	0.967
Mixed diet/ Nonvegetarian	83.17 (0)			68.71 (17.95)		
<b>Gravida</b>						
Primi gravida	69.21 (26.94)	-1.228 <sup>b</sup>	0.251	74.08 (16.85)	1.033 <sup>b</sup>	0.329
Secundigravida	84.89 (14.84)			62.86 (19.21)		
<b>Height of mother (in inch)</b>						
< 150.0	84 (0)	0.288 <sup>b</sup>	0.78	-		
150.0+	77.14 (22.69)			68.98 (18)		
<b>Weight of mother (in Kg.)</b>						
< 50	75.9 (16.8)	-0.166 <sup>b</sup>	0.872	75.76 (10.68)	0.939 <sup>b</sup>	0.372
50+	78.46 (24.19)			65.1 (20.85)		
<b>Hb (mg/dl)</b>						
< 10.0	73.75 (37.12)	-0.276 <sup>b</sup>	0.789	31.38 (0)	2.883 <sup>b</sup>	0.018
10.0+	78.65 (20.18)			72.74 (13.68)		
<b>BMI (kg/m<sup>2</sup>)</b>						
< 18.0	-	0.327 <sup>a</sup>	0.581	60.54 (0)	1.249 <sup>a</sup>	0.337
18.0 - 20.9	81.99 (14.68)			78.14 (7.49)		
21.0+	74.24 (27.01)			61.5 (23.69)		

a- One way ANOVA, b- Independent sample t- test and \*p value ≤ 0.05

One way ANOVA and independent sample t test was used to find the association of HRQoL score with the socio demographic variable of the samples and it was found that no variable shows significant association with the HRQoL score of the physical and mental component as shown in table 3 and 4.



Table 5- Correlation between HRQoL scores at 31-34 weeks of gestational age and birth outcomes of pregnant women in experimental and control groups.

	Experimental				Control			
	DOP	TOD	NBBW	APGAR	DOP	TOD	NBBW	APGAR
<b>Physical functioning</b>								
R	-0.483	0.257	-0.144	0	0.06	-0.161	-0.137	-0.229
p-Value	0.132	0.446	0.672	1	0.86	0.637	0.689	0.498
<b>Role limitations due to physical health</b>								
R	0.071	0.17	0.262	0.066	0.261	-0.149	-0.103	0
p-Value	0.835	0.617	0.437	0.846	0.438	0.662	0.763	1
<b>Bodily pain</b>								
R	0.083	0.143	-0.088	0.394	-0.371	-0.371	-0.315	-0.209
p-Value	0.809	0.674	0.796	0.23	0.261	0.261	0.346	0.538
<b>General health</b>								
R	-0.233	0.497	-0.162	0.123	-0.182	0.047	-0.047	0.285
p-Value	0.49	0.12	0.634	0.719	0.592	0.891	0.891	0.396
<b>Physical component summary (PCS)</b>								
R	-0.118	0.295	0.073	0.133	-0.121	-0.2	-0.219	0.082
p-Value	0.73	0.379	0.832	0.696	0.723	0.555	0.518	0.81
<b>Vitality (Energy/fatigue)</b>								
R	-0.354	0.256	-0.31	0.209	-0.389	-0.042	-0.243	-0.024
p-Value	0.285	0.447	0.354	0.538	0.237	0.902	0.472	0.944
<b>Social functioning</b>								
R	-0.319	0.076	-0.295	0.179	-0.475	-0.257	-0.002	-0.135
p-Value	0.338	0.823	0.379	0.598	0.14	0.445	0.995	0.691
<b>Role limitations due to emotional problems</b>								
R	0.289	-0.069	0.514	-0.162	0.083	0.083	0.093	0.38
p-Value	0.389	0.84	0.106	0.635	0.808	0.808	0.786	0.248
<b>General mental health (Emotional well-being)</b>								
R	-0.316	0.49	-0.108	-0.059	-0.476	0.106	-0.301	-0.259
p-Value	0.345	0.126	0.752	0.863	0.139	0.757	0.369	0.443
<b>Mental component summary (MCS)</b>								
R	-0.136	0.183	0.094	0.026	-0.305	-0.013	-0.079	0.107
p-Value	0.689	0.59	0.784	0.94	0.361	0.97	0.818	0.755

DOP-Duration of Pregnancy; TOD- Type of Delivery; NBBW- New-born Birth Weight (Kg) and APGAR- APGAR Score (at 5 min.)

Pearson's correlation coefficient was used to assess the correlation between HRQoL scores at 31-34 weeks of gestational age and birth outcomes. PCS score of HRQoL in the experimental group shows a negative correlation with the duration of pregnancy (DOP) ( $r = -0.118$ ) but a positive correlation with all the rest such as type of delivery (TOD) ( $r = 0.295$ ), newborn birth weight (NBBW) ( $r = 0.073$ ), and APGAR score ( $r = 0.133$ ). Similarly, duration of pregnancy (DOP) ( $r = -0.136$ ) showed a negative correlation with the MCS score of HRQoL, but the rest i.e., type of delivery (TOD) ( $r = 0.183$ ), new-born birth weight (NBBW) ( $r = 0.094$ ), and APGAR score ( $r = 0.026$ ) showed a positive correlation. While in the control group, the duration of pregnancy (DOP) ( $r = -0.121$ ), type of delivery (TOD) ( $r = -0.2$ ), and new-born birth weight (NBBW) ( $r = -0.219$ ) showed a negative correlation but the APGAR score ( $r = 0.082$ ) showed a positive correlation with the PCS score of HRQoL; Similarly, the MCS score of HRQoL shows a negative correlation with duration of pregnancy (DOP) ( $r = -0.305$ ), type of delivery (TOD) ( $r = -0.013$ ), and new-born birth weight (NBBW) ( $r = -0.079$ ) but APGAR score ( $r = 0.107$ ) shows a positive correlation. But the correlation between HRQoL during pregnancy and birth outcomes is negligible and not significant in both the experimental and control groups as the value of  $r$  less ( $\leq 0.30$ ) and  $p$ -value in greater than 0.05 (Table no.-5).

Study findings shows that quality of life decreases with progression of gestational weeks in both the groups but interventions helped in sustaining/improving the health related Quality of life of pregnant women. This is similar to the study results of Satya Prabha et al. <sup>11</sup>.

#### IV. LIMITATION:

As this is a pilot study, more samples can be selected for the study. It would be ideal if study population is selected from different districts and states for generalisation. Absolute control is not possible as this study involves vulnerable group i.e., pregnant women. Birth outcomes can be affected by various confounding variables especially type of delivery and APGAR score.

**V. CONCLUSION:**

According to the findings physical and mental components of Quality of life decrease with the progression of gestation so due attention should be provided on it by giving antenatal counselling, health education, demonstration of antenatal exercises and various relaxation techniques along with routine antenatal care. Continuous follow-up monitoring and regular motivation is also required for its implementation.

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