Original Article

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Effect of Foetal Movement Counting on Prenatal Attachment and Maternal Worries among Primigravidas- A Longitudinal Study

Nursing Section

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ABSTRACT

Introduction: Pregnant woman experience various physical, emotional, and hormonal changes that may cause anxiety. The anxiety and worries can be decreased by sharing information about the developing child, like foetal body movement.

Aim: To assess effect of Foetal Movement Counting (FMC) on prenatal attachment and maternal worries among primigravida mothers.

Materials and Methods: A longitudinal study was carried out among primigravida mothers of selected Hospitals of Central Gujarat using proforma of Cranley's maternal foetal attachment scale and Cambridge worry scale. The study was conducted from March 2019 to July 2020. Eighty participants were recruited by convenient sampling 40 in each study group and control group. The study group were provided with foetal movement chart and the participants were asked to record foetal movements for seven consecutive days, twice a day for 20 minutes. Post assessment of prenatal attachment and maternal worries was done using tools of data collection for both study and control group. Chi-square test was used to test the significance (p-value <0.05).

Results: The study results revealed that in study group mean score for prenatal attachment was 79.43 at the start and improved to 101.25 (p-value <0.001) after seven days of FMC. In control group, the mean score for prenatal attachment did not show significant difference pre-test and post-test (74.20 vs 74.85, p-value=0.077). In study group, the mean Cambridge worry scale score was 36.55 which came down to 20.28 (p-value <0.001) after seven days, while in control group it was 41.38 at the beginning and 41.30 after seven days (p-value=0.998).

Conclusion: Foetal Movement Counting was found to improve maternal foetal attachment and reduce maternal worries. FMC can be routinely and effectively promoted among the pregnant population to help them achieve a positive pregnancy experience and outcome.

Keywords: Cambridge worry scale, Cranley's maternal foetal attachment scale, Hormonal changes, Pregnant

INTRODUCTION

Prenatal attachment is also known as maternal no foetal attachment. It has been defined as the emotional bond which develops between the pregnant women and her unborn child growing in her womb [1]. Prenatal attachment depicts the relation that a pregnant woman shares with her foetus. Many times prenatal attachment is manifested in various behaviours that show care towards the foetus which may include staying away from harmful substances like alcohol, smoking, eating nutritious diet, engaging in exercise etc., [2]. During this period the woman's body undergoes tremendous physical, mental, social, hormonal changes. This change triggers a lot of sign and symptoms like morning sickness, fatigue, mood swings etc. It is during this period the pregnant woman gains an understanding about her unborn child through manifestations like foetal movement or foetal sleep cycle etc., [3].

Since primigravidas for the first time undergo these drastic changes, they are more prone to develop stress and may get worried about their growing baby. This stress or worry can negatively impact the health status of the mother and foetus. Studies show that stress and anxiety during pregnancy can increase chances of preterm delivery, low birth weight baby, miscarriage and premature baby. It becomes the prime importance to reduce the worries among the pregnant women specially primigravidas and enhance their relationships with their unborn baby [4]. Pregnant women who have a strong bounding to her foetus tend to have healthy behaviours that help to improve not only the health status of the mother but also of the foetus [5].

Thus, to make the antenatal mother free of worries and to improve her bond with her unborn child, regular Foetal Movement Counting (FMC) can be a helpful strategy. Daily FMC is an easy and simple technique that can be used to assess the foetal wellbeing by the mother. It is essential to implement the research-based findings in Indian setting. Hence, the researcher felt a need to assess the impact of FMC among pregnant mothers as, yet it is not much taken in consideration. The present study aimed to evaluate the effect of FMC on prenatal attachment and maternal worries among primigravida mothers.

MATERIALS AND METHODS

A longitudinal study was conducted on primigravidas, recruited from nine distinct Hospitals and Maternity Home of Central Gujarat. Permission was obtained from principal of Manikaka Topawala Institute of Nursing, Charusat, Changa, Anand, Gujarat, India. The study was approved by Institutional Ethical Committee with letter number, CHA/IEC/ADM/20/07/599.01. Formal administrative permission was obtained from concerned Hospital authorities.

Sample size calculation: The sample size was estimated based on previous research study with following values, power was 80%, standard error of 5%, pre-test mean of 73.18, post-test mean of 75.5, SD in pre-test of 13.41, SD in post-test of 15.7 [1]. The study was conducted from March 2019 to July 2020. The total sample size was 80 (40 each in study group and control group).

Inclusion and Exclusion criteria: Primigravida mother within 32 to 36 weeks of gestation with singleton pregnancy and within the age group of 18 to 28 years were selected for the study, while those diagnosed as high risk or conceived through assisted reproductive technique were excluded from the study.

The investigators initially assessed the prenatal attachment level and the maternal worries of the participants of both study and control group using Cranley's maternal foetal attachment scale and Cambridge worry scale, respectively. Later the participants of experimental group were guided and asked to record the FMC experienced by them for seven consecutive days, twice a day for 20 minutes. After seven days, post-assessment of prenatal

attachments and maternal worries was done using the same tools for both the groups.

The tools of data collection included four sections as mentioned below:

Section A- Performa of demographic and maternal variables

Section B- FMC chart [6]

Section C- Cranley's maternal foetal attachment scale [7]

Section D- Cambridge worry scale [8]

The scoring of Cambridge worry scale was grouped into three categories- mild (20-40), moderate (40-60) and major (60-80).

STATISTICAL ANALYSIS

Statistical analysis was done using Statistical Package for the Social Sciences (SPSS) software version 20.0. Frequency and percentage were used to assess sociodemographic and maternal data, t-test were used to find the effect of FMC on prenatal attachment and maternal worries and Fisher's Chi-square were used to find the association between pre- FMC level of prenatal attachment and maternal worries with selected demographic and maternal variables.

RESULTS

The data presented in [Table/Fig-1] indicate that demographically both the groups were similar. The [Table/Fig-2] depicts that there was significant effect of FMC on prenatal attachment. The mean post-assessment score of prenatal attachment among study group (101.25) was higher than mean pre-assessment score of the same group (p-value <0.001).

The [Table/Fig-3] depicts that the post-assessment score of maternal worries among study group was significantly lower than pre-assessment score in control group (p-value <0.001). The [Table/Fig-4] depicts that variable type of family in study group had statistically significant association with pre-FMC level maternal worries with Fisher's chi-square test value 6.942 (p-value=0.031).

Demographic and maternal variable	Study group N=40 N (%)	Control group N=40 N (%)	p-value (chi-square)
Age			
18 to 22 years	20 (50.0)	20 (50.0)	1.00
23 to 27 years	20 (50.0)	20 (50.0)	
Educational status			
No formal education	24 (60.0)	21 (52.5)	0.2380
Secondary education	14 (35.0)	11 (27.5)	
Higher secondary education	1 (2.5)	03 (7.5)	
Graduation and/or above	1 (2.5)	05 (12.5)	
Occupation			
Housewife	27 (67.5)	23 (57.5)	0.2919
Related to medical profession	0	2 (5)	
Related to non-medical profession	13 (32.5)	15 (37.5)	
Family income per month, in Rupees			
≤5000	18 (45.0)	12 (30.0)	0.3376
5001 to 10,000	12 (30.0)	11 (27.5)	
10001-20000	7 (17.5)	10 (25.0)	
>20,0001	3 (7.5)	7 (17.5)	
Weeks of gestation			
32 to 33 weeks	17 (42.5)	10 (25.0)	0.2542
34 to 35 weeks	10 (25.0)	13 (32.5)	
36 weeks	13 (32.5)	17 (42.5)	
Type of family			
Nuclear family	18 (45.0)	20 (50.0)	0.6543
Joint family	22 (55.0)	20 (50.0)	

[Table/Fig-1]: Findings related to socio-demographic and maternal characteristics.

Group	Prenatal attachment	Mean±SD	t-value	p-value
Study group	Pre-assessment	79.43±8.00	18.223	<0.001
	Post-assessment	101.25±5.35		
Control group	Pre-assessment	74.20±5.72	1.887	0.077
	Post-assessment	74.85±4.79		

[Table/Fig-2]: Finding related to effect of FMC on prenatal attachment based on Cranley's maternal foetal attachment scale.

Group	Maternal worries	Mean±SD	t-value	p-value
Study group	Pre-assessment	36.55±11.67	13.566	<0.001
	Post-assessment	20.38±8.72		
Control group	Pre-assessment	41.28±8.50	0.001	0.998
	Post-assessment	41.30±8.88		

[Table/Fig-3]: Finding related to effect of FMC on maternal worries based on Cambridge worry scale.

Group			Pre-maternal worries: Major	Mild	Moderate	Total	Fishers Chi-quare	df	p-value
Age (years)	Study	18 to 22	4	0	16	20	1.625	2	0.428
		23 to 28	2	1	17	20			
	Control	18 to 22	4	0	16	20	0.143	1	0.705
		23 to 28	5	0	15	20			
Education	Study	No formal education	3	1	20	24	6.316	6	0.956
		Secondary education	3	0	11	14			
		Higher secondary education	0	0	1	1			
		Graduation and/or above	0	0	1	1			
	Control	No formal education	5	0	16	21	1.867	3	0.611
		Secondary education	3	0	8	11			
		Higher secondary education	1	0	2	3			
		Graduation and/or above	0	0	5	5			
Occupation	Study	Housewife	3	1	23	27	1.502	2	0.499
		Related to non-medical profession	3	0	10	13			
	Control	Housewife	8	0	15	23	4.201	2	0.094
		Related to medical profession	0	0	2	2			
		Related to non-medical profession	1	0	14	15			
Family income per month	Study	≤5000	2	1	15	18	7.555	6	0.23
		5001 to 10,000	1	0	11	12			
		10,001 to 20,000	1	0	6	7			
		>20,0001	2	0	1	3			
	Control	≤5000	3	0	9	12	0.632	3	0.92
		5001 to 10,000	3	0	8	11			
		10,001 to 20,000	2	0	8	10			
		>20,0001	1	0	6	7			
Weeks of gestation	Study	32 to 33 weeks	2	1	14	17	1.987	4	0.799
		34 to 35 weeks	2	0	8	10			
		36 weeks	2	0	11	13			
	Control	32 to 33 weeks	2	0	8	10	3.068	2	0.195
		34 to 35 weeks	1	0	12	13			
		36 weeks	6	0	11	17			
Type of family	Study	Nuclear family	0	0	18	18	6.942	2	0.031
		Joint family	6	1	15	22			
	Control	Nuclear family	4	0	16	20	1.067	2	0.587
		Joint family	5	0	15	20			

[Table/Fig-4]: Finding related to association between pre- FMC and maternal worries with selected demographic and maternal variables.

DISCUSSION

The present study aimed at documenting the effect of FMC on prenatal attachment and maternal worries among primigravida mothers. It showed significant effect of FMC on prenatal attachment and maternal worries among primigravida mothers. Through the foetal movement counting a strong bond can be established between mother and fetus. By ensuring foetal wellbeing the antenatal mother can experience a sense of relief and would be free from worries.Thus, in this context, it becomes of prime importance to conduct a study which documents the effect of FMC on maternal worries and prenatal attachment as it gains wide importance.

The present study showed significant effect of FMC in increasing prenatal attachment as well as decreasing maternal worries. Similar results were observed in some previously done research studies where FMC was found to be effective in increasing prenatal attachment whereby decreasing the maternal worries. Rincy K and Nalini SJ in their study also supported the same result [9]. In some of the other available literatures as well, FMC has been found to be able to decrease maternal anxiety and increase prenatal attachment [1,10]. The possible reason for this result to be common in all these studies might be that these studies were done in a population where parenting process is always stressed upon positively. Mothers are considered as the mirror of the unborn child's health and hence, by making the mothers practice FMC they are empowered by knowing the status of their child thereby increasing their attachment with them and decreasing their worries.

Likewise, Delaram Met al., has also conducted a RCT on the effect of FMC on maternal anxiety where it was found out that the participants of the intervention group has a lower level of state and trait anxiety than those in the control group [11]. Salehi K et al., had also conducted a RCT on effect of FMC on maternal-foetal attachment where the researchers concluded that by imparting education of FMC during the second trimester of pregnancy would increase the level of maternal-foetal attachment significantly [12].

Thus, the positive impact that FMC can have over the attachment between the mother and her unborn child as well as in decreasing her worries regarding the same could not be ignored. FMC is a completely simple and inexpensive method which does not require any medical skills or knowledge and it isn't even a time-consuming process. Yet, it can yield results which could possibly lead to healthy labour and positive parenting process as it empowers the mother. Hence, the researchers feel that the antenatal population specifically those who are primigravida should be widely educated and trained about FMC.

Limitation(s)

The study was limited to only the primigravida mothers who were recruited conveniently.

CONCLUSION(S)

Foetal Movement Counting could be used to improve the prenatal attachment and prevent/reduce the maternal worries among primigravida mothers. Since, it is something which requires no expensive equipment, articles or manpower, FMC can be routinely and effectively promoted among the pregnant population to help them achieve a positive pregnancy experience and outcome.

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