

Effectiveness of Fetal Movement Counting and Imagining Fetus Position to Prenatal Attachment and Depressive Symptoms in Pregnant Women in 24-28th Gestational Week

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ABSTRACT

Objective: The study is intended to investigate effects of fetal movement counting and at the same time imagining fetus position to prenatal attachment and depressive symptoms in pregnant women of 24th-28th pregnancy weeks.

Material and Method: The study included seventy volunteer pregnant women who are in 24-28th gestational week. Pregnant women in study group asked to count at least 10 fetal movements with touching abdominal wall and imagining the fetus position after waking up for a month. At the beginning and end of the study, both groups applied PAI and BDI.

Results: In the study group, mean PAI score was 53.3 ± 11.9 , mean BDI score was 7.8 ± 4.9 in the first assessment and in the second assessment mean PAI score was 64.6 ± 9.2 , mean BDI score was 8.6 ± 3.9 . PAI scores had statistically significant increase. In control group, mean PAI score was 51.5 ± 12.6 , BDI score was 10.6 ± 6.3 in the first assessment and mean PAI score was 52.0 ± 13.7 , mean BDI score was 10.5 ± 5.5 in the second assessment. PAI and BDI score had no statistically significant increase.

Conclusion: The study showed that counting fetal movements and imagining fetus position had positive effects on prenatal attachment but had not any effect on depression scores on pregnant women in 24-28th gestational week.

KEY WORDS: Pregnancy, Prenatal attachment, Fetal movement, Prenatal attachment inventory, Beck depression inventory

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INTRODUCTION

The process between the first moment of pregnancy and the birth covers the prenatal period. Prenatal attachment refers to the strong bond of the mother with the fetus and begins when the woman notices pregnancy [1]. The attachment process is influenced by factors such as pregnant's previous parenting experiences, adult attachment style, cognitive capacity to develop an internal study model with the fetus, social support level, anxiety, and perinatal depression level. Studies about postnatal attachment have increased interest on maternal-fetal attachment [2].

Prenatal attachment motivates positive health practices, facilitates compliance with parenting and protects against perinatal depression [3]. To determine the level of maternal-fetus attachment is also important to increase the support to pregnant women who are indifferent to

their babies, or who have insufficient knowledge [4]. Planning, wanting, and accepting pregnancy, feeling the movements of the fetus, accepting the fetus as an individual, giving birth, seeing the baby, touching the baby, and giving care contribute to the mother's attachment to her baby. The first five of these are before birth. In the formation of the bond between mother and baby during pregnancy, it has been shown that it is important for the mother to see the fetus as a separate individual, to interact, to interpret the features of the fetus and to dedicate itself [5].

In the present study; the aim of this study was to investigate the effect of counting of fetal movements by pregnant women in the 24th-28th weeks and imagining the position of the fetus at the same time on the prenatal attachment level and depressive symptoms of the mother.

MATERIALS AND METHOD

The research was designed as a randomized controlled prospective intervention study.

Pregnant women older than 18 years and in 24th-28th pregnancy weeks from five family health centers of education type of the Ataturk University Faculty of Medicine, Department of Family Medicine were included in the study. They were followed between April 2017 and October 2017. Participants were separated by simple random method and 35 pregnant women were determined for each group.

Inclusion criteria

Willingness to participate.

To be literate.

To have single pregnancy.

Exclusion criteria

To have a mental disability to prevent communication.

To have ongoing or diagnosed psychiatric illness.

To have multiple pregnancy.

Women used artificial reproduction techniques.

At the beginning of study, the all participants were applied Personal Information Form of 15 questions, the Prenatal Attachment Inventory (PBE) developed by Muller, et al. [6] and adapted to Turkish by Yilmaz, et al. [7] to determine the level of attachment of the pregnant during the prenatal period, Beck Depression Inventory developed by Beck et al. [8], whose validity and reliability study was performed by Hisli, et al. [9], through face-to-face interview method.

The "count-to-ten" method published by winje et al. (1976) is a fetal movement counting method that including counting up to 10 movements, recording the elapsed time and counting at the same time every day by recording of a two-hour period at any time of the day at which the fetus is active and the mother concentrates on the movements of the her baby [10]. Pregnant women in the study group were asked to start counting fetal movements after waking up each morning for a month, trying to feel at least 10 movements a day, and note the movements they could count at the end of the day. Based on the "count-to-ten" method, mothers were asked to count at least 10 movements, while they were not asked to calculate the time to complete the movements. When counting fetal movements, they were asked to touch the abdominal wall and imagine the position of the fetus. The requested tasks were given in writing and a meeting was planned for a month later. The pregnant women in the control group were not offered any other than routine health services. At the end of one month, PBE and BDI were applied to all pregnant women.

Statistical analysis was done with SPSS version 22.0 package program and the suitability of variables to

normal distribution was examined using Shapiro Wilk test. As hypothesis tests, T-test, Mann Whitney U, Chi Square, Wilcoxon, and Spearman correlation tests were used. Statistical significance limit was accepted as $p < 0.05$.

RESULTS

The mean ages of pregnant women in the control and study groups (28.0 ± 5.8 in the control group, 27.5 ± 4.6 in the study group) were similar ($p > 0.05$). There was no statistically significant difference by educational status, working status, income status and family types (Table 1).

There was no statistically significant difference in terms of pregnancy order, status of planned pregnancy, risk status arising from themselves or from the baby, support from healthcare staff and initial PBE score, and smoking or alcohol use among the groups (Table 2). While 40.0% of pregnant women in the control group had pregnancy loss before, this rate was 17.1% in the study group and the difference between the groups was statistically significant ($p = 0.034$) (Table 2).

There was no significant difference between the first and second evaluations in the PBE and BDI scores of the control group ($p = 0.695$). In the study group, the mean PBE score (64.9 ± 9.2) determined in the second evaluation was statistically significantly higher than the average score in the first evaluation (53.3 ± 11.9) ($p < 0.001$). There was no significant difference between the first and second evaluations in the BDI scores of the study group ($p = 0.215$) (Table 3).

In the first and second evaluation, the PBE scores of the pregnant women in the study group having university or above academic degree (67.8 ± 9.1) were significantly higher than the other education groups with points ($p = 0.035$). In the study and control group, in the first and second evaluation, the mean PBE score of pregnant women having primary or lower education (39.8 ± 7.3) was the lowest. In the first and second evaluation, PBE points was significantly higher in pregnant women having nuclear family in both groups ($p < 0.001$). In the second evaluation of the pregnant women with the second pregnancy in the control group, a significant increase in PBE scores was detected ($p = 0.014$). In the study and control group, the group with the lowest PBE score in the first and second evaluation was the group with three or more pregnancies ($p = 0.02$ and $p = 0.007$). BDI scores in the first evaluation of pregnant women with nuclear family in the study group were significantly higher than those in the extended family ($p = 0.008$). BDI scores of pregnant women having the pregnancy loss in the control group were significantly higher in both the first evaluation and the second evaluation than those without pregnancy loss ($p = 0.007$, $p = 0.032$).

Table 1: Distribution of pregnant women in the control and study groups by socio-demographic features.

Groups	Control	Study
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		n	%	n	%	p value
Age groups	15-24 years	11	31.40%	11	31.40%	0.68
	25-34 years	19	54.30%	20	57.10%	
	>35 year	4	11.40%	4	11.40%	
Education level	Literate or primary school	10	28.60%	7	20.00%	0.74
	Middle school	6	17.10%	6	17.10%	
	High school	10	28.60%	14	40.00%	
	University or above	9	25.70%	8	22.90%	
Working status	Working	8	22.90%	5	14.30%	0.356
	Jobless	27	77.10%	30	85.70%	
Montly income	<1600 TL	5	14.30%	3	8.60%	0.87
	1600-2000	9	25.70%	14	40.00%	
	2001-4000	14	40.00%	12	34.30%	
	4001-6000	3	8.60%	2	5.70%	
	>6000 TL	2	5.70%	1	2.90%	
Famity type	Nuclear family	25	73.50%	28	80.00%	0.524
	Extended family	9	26.50%	7	20.00%	

Table 2: Distribution of pregnant women in the control and study groups according to obstetric history and features.

		Control		Study		p value
		n	%	n	%	
Pregnancy order	First	13	37.10%	14	40.00%	0.953
	Second	9	25.70%	8	22.90%	
	3rd or more	13	37.10%	13	37.10%	
Gender of baby	Female	17	48.60%	12	34.30%	0.422
	Male	12	34.30%	17	48.60%	
	Unknown	6	17.10%	6	17.10%	
Status of planned pregnancy	Yes	24	68.60%	26	74.30%	0.597
	No	11	31.40%	9	25.70%	
Risk arising from the mother	Yes	6	17.10%	4	11.40%	0.495
	No	29	82.90%	31	88.60%	
Risk arising from the baby	Yes	5	14.30%	0	0.00%	0.054
	No	30	85.70%	35	100%	
Pregnancy loss before	Yes	14	40.00%	6	17.10%	0.034
	No	21	60.00%	29	80.00%	
Alcohol or smoking during pregnancy	Yes	5	14.30%	5	14.30%	1,000
	No	30	85.70%	30	85.70%	
Support from your partner during pregnancy	Yes	31	88.60%	32	91.40%	1,000
	No	4	11.40%	3	8.60%	
Support from family or environment	Yes	28	80.00%	34	97.10%	0.055
	No	7	20.00%	1	2.90%	
Support from health personnel	Yes	27	77.10%	32	91.40%	0.101

N	8	22.90%	3	8.60%
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Table 3: Comparison of the first evaluation and 2nd evaluation PBE and BDI scores of the control and study groups.

	PBE point			BDI point		
	First evaluation	Second evaluation	p	First Evaluation	Second evaluation	p
Control	51.5 ± 12.6	52.0 ± 13.7	0.69	10.6 ± 6.3	10.5 ± 5.5	0.51
Study	53.3 ± 11.9	64.6 ± 9.2	0	7.8 ± 4.9	8.6 ± 3.9	0.22

DISCUSSION

The present study is investigating increasing factors the prenatal attachment affecting the relationship between mother and baby after birth. This study showed us the positive effect of counting fetal movements on prenatal attachment. In literature, there were no relation between education level and prenatal attachment in some studies [11-13]. However, some studies [14,15] have reported positive relationship between education and prenatal attachment like the results of this study.

The group with the lowest PBE score was found to be in those with three or more pregnancies, and some studies support this result [11,12,15]. While Aksoy et al. [16] did not find a relationship between parity and attachment, a study reported that nulliparity was associated with low prenatal attachment level [14]. The depression score of the pregnant women living in the nuclear family in the pregnant women in the study group was found to be higher than those living in the extended family. This is consistent with the previous study [17]. According to these results, it can be thought that more versatile support to pregnant women in the extended family has a protective effect against depression. On the other hand, some studies [15,18] have reported higher depression scores in pregnant women with large families.

Some studies [19,20] reported the higher depression in pregnant women having perinatal loss like the results of the present study. In 103 pairs with the pregnant women in the second trimester; pregnant women having pregnancy loss had a higher depression score than ones with first pregnancy [21]. On the other hand, a previous study [22] reported that there was no relationship between the history of abortion and curettage and depressive disorder.

In the research of Salehi et al. [23], which was designed similarly to our study; 52 pregnant women were asked to count the fetal movements by lying on their back for half an hour after breakfast from the 24th week, and the Maternal-Fetal Attachment Scale (MFAS) was applied again on the 29th week. Like the results of this study, while there was no significant difference in terms of attachment scale scores in both groups before the study; At the end of the study, the PBE score was found to be significantly higher in the group counting fetal movements. In another study, regular trainings including fetal movement count and fetus logging were given to 32 adolescent pregnant women having 24th-34th pregnancy

weeks and these pregnant women had higher prenatal attachment points compared to the control group [24].

Studies have been carried out considering that the effect of counting fetal movements can be seen better in the last trimester when the bond between the mother and fetus has reached a strong level. In another study [25], 100 pregnant women with first pregnancy were asked to count the movements of the fetus twice a day for 14 days during 32th-36th pregnancy weeks and a significant increase in points was found. In another study, 456 pregnant women who perceived fetal movements more frequently during 34th-42th pregnancy weeks had higher prenatal attachment level [26]. Another study had the similar results [13]. Unlikely, a study [27] reported that the nulliparas at the beginning of the last trimester had no significant increase in the attachment score of the group performing fetal movement count for 8 weeks. In the study conducted by Saastad et al. [6] of 1123 pregnant women; during the last trimester, pregnant women were asked to count and note the movements of the fetus with the "count-to-ten" method, and it was concluded that the fetal movement count did not have a significant effect on prenatal attachment.

Considering that the mother's sensual contact and fetal movements will have a positive effect on attachment, pregnant women were asked to feel the movements of the fetus by touching the abdominal walls and imagine the position of the fetus. Nishikawa, et al. [28] applied the Leopold maneuver 3 times every two weeks with a group of pregnant women and concluded that abdominal palpation had a positive effect on prenatal attachment by seeing that these pregnant women talked more with their babies and increased awareness of fetal position. It is known that talking to the baby and dreaming of the mother during pregnancy also increases attachment [29].

It can be said that fetal movement count increases prenatal attachment regardless of the methods used. In a study performed Mikhail et al. [14], 213 pregnant women having 28th-32th gestational week were counted fetal movements for a month by dividing into two groups use Sadovsky or Cardiff methods. As a result, the scores of the attachment scale of the counting group were found to be significantly higher than those who did not, and when the Cardiff and Sadovsky methods were compared among themselves, no significant difference was found between the methods in terms of attachment.

CONCLUSION

As a method that can be learned and applied easily during pregnancy, the level of attachment of mothers to their babies can be increased by counting fetal movements and imaging the position of the fetus.

LIMITATIONS

The fact that our study was performed on a small number of pregnant women living in the same region is among the limitations and many different studies are needed.

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