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Investigation of the relationship between fear of birth and prenatal attachment in pregnancy

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SUMMARY

OBJECTIVE: This study was conducted to examine the relationship between the fear of birth and level of prenatal attachment experienced by the pregnant women.

METHODS: In our descriptive and relationship-seeking study conducted between January and March 2020 in Konya, 485 pregnant women who met the inclusion criteria were included in the study. Inclusion criteria for the study were women who were pregnant at the age of 18 years and above, having Turkish literacy, had spontaneous conception were over the 28th gestational week, having a healthy fetus, and not having any existing health problems (based on self-report). The data were collected with an information form, "Prenatal Attachment Inventory" and "Wijma Birth Expectation/Experience (Version A) Scale."

RESULTS: The mean score of the pregnant women from the "Prenatal Attachment Inventory" was 62.44 (21–84), and the mean score of the "Wijma Birth Expectation/Experience Scale/Version A" was found to be 59.45 (0–165). It was concluded that 47.2% of the pregnant women had low, 38.7% had moderate, and 14.1% had high levels of fear of birth. It was determined that there was a negative and weakly significant relationship between "Prenatal Attachment Inventory" and "Wijma Birth Expectation/Experience Scale/Version A" scores of pregnant women (r=-0.11 and p=0.23).

CONCLUSION: In our study, it was determined that as the fear of birth increased, prenatal attachment levels decreased. Initiating and maintaining a healthy mother-infant bond is important for reducing fear of birth.

KEYWORDS: Pregnant women. Birth. Fear. Emotional bonds.

INTRODUCTION

Pregnancy is a natural process that includes biological, cultural, and psychological changes in women's life[1]. In this process, which is full of experiences, negative and permanent changes may occur in the emotional attitudes and behaviors of the expectant mother with the effect of active hormones[2]. The fear of birth, which significantly affects psychosocial health, can also negatively affect the pregnancy and the postpartum period[3]. Not knowing how the birth will take place, feeling ignorant and inadequate about the labor, fear of pain, fear and distrust of health personnel, surgical interventions, thinking that there will be risk to the infant or mother, and death anxiety are the causes of fear of birth[4]. The prevalence of fear of birth detected in pregnant women differs in sociodemographic, obstetric, and cultural terms[5]. In a study conducted in Turkey, it was determined that 62.5% of pregnant women experienced fear of birth[6]. Güleç et al., stated this rate as 46.4% in their study[7]. In a study conducted in Norway, the rate of fear of childbirth experienced by pregnant women was found to be 56.8%, and it was stated that 7.5% of these pregnant women experienced severe fear of childbirth[8]. Toohill et al., found this rate to be 31.4% in their study on nulliparous pregnant women[9]. Fear of childbirth is a problem that can have long-term consequences for the health of women and children, which can be experienced during pregnancy and during and after childbirth[10]. Risky pregnancy history, listening to or watching fearful birth experiences, labor with vacuum or forceps intervention, history of anomaly or stillbirth, history of excessive blood loss during delivery, emergency cesarean section decision, emergencies and experiences during birth, pregnancy and birth, and insufficient social support can trigger the fear of childbirth[11]. In addition, the fear of childbirth can lead the mother to depression[12]. One of the prominent issues in maintaining the psychosocial well-being of pregnant women is prenatal attachment. Prenatal attachment is the first communication established between mother and infant, which provides support for infant development and the emergence of early parenting skills[12,13]. The prenatal period is the period during which the growth and development of the fetus is completed following the onset of pregnancy. In this period, the expectant mother

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adapts to motherhood with the hormonal and physical changes in her body and bonds with her infant. During pregnancy, which is quite active and changing, the first pillars of attachment are to evaluate the emotional and physiological state of the pregnancy, to notice the changes and find solutions if necessary, and to communicate with the fetus with positive emotion[14]. Although it has been determined in the studies that the prenatal attachment level of the pregnant women is good, there are many expectant mothers who have attachment problems[14-18]. Physiological and psychological changes that occur, especially in the expectant mother, are closely related to the prenatal attachment level. Psychiatric problems in pregnancy, prenatal, and postpartum period significantly reduce the level of attachment[19]. Fear experienced in the prenatal period may negatively affect prenatal attachment[20]. The fear of childbirth and attachment problems that can be experienced in the prenatal period can also negatively affect the pregnancy period, birth, and postpartum period, causing psychosocial problems for the mother and the infant. This study was conducted to examine the relationship between the fear of birth and level of prenatal attachment experienced by the pregnant women.

METHODS

Ethical aspect of the study

Before starting the research, the ethics committee approval of Necmettin Erbakan University Meram Faculty of Medicine Non-Pharmaceutical and Medical Device Researches Ethics Committee dated 11.12.2019 and decision number 2019/1759, and for the institution where the research was conducted, the ethics committee approval of Konya Provincial Health Directorate Konya Health Services Unit dated 06.02.2020 and numbered 86737044-806.01.03 were obtained. Also, verbal and written consent was obtained from the participants who met the criteria for being included in the sample and agreed to participate in the research.

Study design

This was designed as a descriptive and relation-seeking study.

Population and sample of the study

The universe of the study consisted of pregnant women who applied to the maternity polyclinics of a training and research hospital in Konya, Turkey, between January 2020 and March 2020. The G*Power 3.1.9.2 package program has been used to determine the sufficient sample size. For the sample of the research, the results of the study conducted by Buko and Özkan were taken as basis. It was decided to include 475 women in the sampling[14]. The data in our study were collected using the face-to-face interview technique from pregnant women, and it takes 15–20 min to complete each questionnaire.

Inclusion criteria of the study

The inclusion criteria of the study were women who were pregnant at the age of 18 and above, over the 28th gestational week, literate in Turkish, conceived spontaneously, had a healthy fetus, and who did not have any existing health problems (based on self-report).

Exclusion criteria of the study

The exclusion criteria were pregnant women who did not want to participate in the study and could not fill in the data collection tool.

Data collection tools

"Personal Information Form", "Prenatal Attachment Inventory (PAI)", and "Wijma Birth Expectation/Experience Scale/Version A (W-DEQ-A)" were used for data collection.

Personal Information Form

The form, which was created as a result of the literature review[14,16,21], consists of questions regarding sociodemographic and obstetric characteristics.

Prenatal Attachment Inventory

Prenatal Attachment Inventory was developed by Mary Muller in 1993 to describe the thoughts, feelings, and situations experienced by women during pregnancy and to determine their level of attachment to the infant during the prenatal period. The Turkish validity-reliability study of the scale was carried out in Turkey by Yılmaz and Beji in 2013. PAI is applied to pregnant women at 20–40 weeks of gestation. In the study by Yılmaz and Beji, the Cronbach's alpha reliability coefficient of the scale was stated as 0.84[21]. In the study, the Cronbach's alpha reliability coefficient of the scale was found to be 0.87.

Wijma Birth Expectation/Experience Scale/Version A

W-DEQ-A was developed by Wijma et al., to measure the fear of birth experienced by women. The Turkish validity and reliability of the scale were performed by Korukcu and Kukulu. The W-DEQ-A scale is applicable to pregnant women at 28–40 weeks of gestation. Korukcu and Kukulu stated the Cronbach's alpha coefficient of the scale as 0.89[22,23]. In the study, the Cronbach's alpha reliability coefficient of the scale was found to be 0.90.

Data analysis

The SPSS (Windows 22.0) software was used for data analysis. Number, percentage, mean, and standard deviation are given in the descriptive statistics of the study. In the comparison of the difference between the mean PAI and W-DEQ-A scores of the pregnant women according to the independent variables, the t-test for the independent groups and the Mann-Whitney U test were used in the two-group variables according to the sample number in the groups. The independent variables that had an effect on the PAI and W-DEQ-A scores of the pregnant women in the primary analyses were evaluated with multiple regression analysis (backward method). The significance level was accepted as $p<0.05$.

RESULTS

When the PAI scores according to the sociodemographic characteristics of the pregnant women were evaluated, it was found that the scores differed according to age, spouse's age, marriage duration, and educational status ($p<0.05$), while the change according to other variables (spouse's education level, employment status, spouse's employment status, family type, house income, and settlement) was insignificant ($p>0.05$) (Table 1). When the mean W-DEQ-A scores of the pregnant women in the study group were analyzed according to their sociodemographic characteristics, it was found that the scale score differed according to the education level and income of the spouse ($p<0.05$), while the change according to other variables (age in years, age of spouse in years, marriage duration in years, education status, employment status, spouse's employment status, family type, and settlement) was insignificant ($p>0.05$) (Table 1).

When the PAI scores according to the obstetric characteristics of the pregnant women were evaluated, it was found that the scale score differed according to the number of pregnancies, the desired pregnancy status, the history of miscarriage and stillbirth, and regular visits to the controls ($p<0.05$). The change according to other variables (gestational period (weeks), duration between current pregnancy and previous pregnancy (years), knowing the gender of the infant, expected gender, relationship with the spouse, and planned method for child feeding) is insignificant ($p>0.05$) (Table 1). When the W-DEQ-A score averages of the pregnant women in the study were examined according to their obstetric characteristics, it was found that the score differed according to the state of wanting pregnancy, going to antenatal care regularly, the bond with their mother and the relationship with their spouse, and the method of feeding the child ($p<0.05$). The change with respect to other variables (parity, gestational period (weeks), duration between current pregnancy and previous pregnancy (years), miscarriage history, still birth, knowing the gender of the infant, expected gender, ties with her own mother, and positive changes in lifestyle) is insignificant ($p>0.05$) (Table 1).

Five independent variables that have a significant effect on the Prenatal Attachment Scale score of the pregnant women, from the most important to the least important, the number of pregnancies ($p<0.001$), regular visits to controls, positive changes in pregnancy lifestyle and health behavior ($p<0.01$), education level, and age ($p<0.05$) explain the change (variance) of the Prenatal Attachment Scale score of pregnant women as 13% (Table 2).

Four independent variables that have a significant effect on the W-DEQ-A Scale score of pregnant women, from the most important to the least important, income evaluation, education level of the spouse, evaluation of the relationship with the spouse ($p<0.01$), and planned method for child feeding ($p<0.05$) explain the change (variance) of the pregnant women in the W-DEQ-A Scale score as 7% (Table 3).

DISCUSSION

According to the results of our study, which was conducted to examine the relationship between the fear of birth experienced by pregnant women and their prenatal attachment status, the scores of the pregnant women in the research group from PBI were in the range of 27–84, and it was determined that the attachment levels of the pregnant women were moderate. In addition to the results similar to our study in the literature[14,16], there are also studies with lower mean PBI scores that are significantly different from our study[15,17,18,24]. It was determined that the mean fear of childbirth score experienced by the pregnant women included in the study was in the range of 0–130 and was at a low level. In addition to moderate birth fear results in the literature[3,25,26] studies with parallel results with our study[8,9,11,27], it has been determined that there is a negative and weakly significant relationship between the PBI scores and W-DEQ-A scores of the pregnant women ($p=0.023$). As the W-DEQ-A scores of pregnant women increase, PBI scores decrease. In line with these findings, it can be said that it was concluded that the fear of childbirth experienced by pregnant women is an important issue that should be evaluated before and during pregnancy.

In this study, the mean attachment score of pregnant women decreases with age. This is an indication that young mothers-to-be are eager during pregnancy and accept their child easily, and their attachment situations are experienced more intensely. There are studies with similar findings in the literature[16,21,28].

Table 1. Comparison of Prenatal Attachment Inventory and Wijma Birth Expectation/Experience Scale/Version A scores according to sociodemographic and obstetric characteristics of pregnant women (n=475).

Characteristics		n	%	PAI			W-DEQ-A		
				$\bar{X}$	SD	p	$\bar{X}$	SD	p
Age in years	18–24[a]	181	38.1	64.0	10.2	**0.000 (a>b)**	59.4	24.7	0.992
	25–34[a]	232	48.8	62.4	10.5		59.3	23.2	
	≥35[b]	62	13.1	57.7	10.9		59.7	23.4	
Age of spouse in years	18–24[a]	57	12.0	64.5	10.6	**0.027 (a>c)**	59.6	25.5	0.678
	25–34[b]	308	64.8	62.8	10.4		58.8	23.7	
	≥35[c]	110	23.2	60.2	11.1		61.1	23.1	
Marriage duration in years	1–2[a]	140	29.5	66.2	10.3	**0.000 (a>b)**	57.7	25.5	0.272
	3–4[b]	113	23.8	61.6	9.8		63.2	23.4	
	5–6[b]	76	16.0	61.9	10.3		58.2	21.7	
	≥7[b]	146	30.7	59.6	10.7		58.8	23.3	
Education status	Primary school[a]	241	50.7	60.7	10.4	**0.000 (a<b)**	60.7	23.5	0.160
	High school[a]	145	30.5	62.6	11.0		59.8	24.1	
	≥University[b]	89	18.7	66.5	9.4		55.	23.8	
Spouse's education level	Primary school[a]	255	53.7	61.6	10.9	0.101	62.6	24.0	**0.001 (a>c)**
	High school[b]	121	25.5	62.5	10.6		58.7	23.6	
	≥University[c]	99	20.8	64.3	9.8		52.1	21.9	
House income	Good[a]	90	18.9	63.1	9.6	0.365	52.1	23.0	**0.000 (a<b<c)**
	Moderate[b]	351	73.9	62.4	10.5		60.2	23.4	
	Low[c]	34	7.2	60.1	13.7		70.2	24.5	
Parity	1st pregnancy	149	31.4	66.9	9.4	**0.000**	56.9	25.1	0.117
	≥2 pregnancy	326	68.6	60.4	10.5		60.6	23.1	
Willing pregnancy?	Willing	436	91.8	62.8	10.4	**0.002**	58.6	23.9	**0.020**
	Non-willing	39	8.2	57.4	12.0		67.9	20.2	
Miscarriage history	Yes	99	20.8	60.1	10.1	**0.014**	59.0	21.4	0.827
	No	376	79.2	63.0	10.7		59.5	24.4	
Still birth	Yes	25	5.3	57.7	11.2	**0.024**	61.6	22.3	0.628
	No	450	94.7	62.7	10.5		59.3	23.9	
Regular obstetrics visits	Yes	444	93.5	62.8	10.6	**0.001**	58.3	23.7	**0.014**
	No	31	6.5	56.2	9.3		66.0	23.0	
Ties with mother	Good	407	85.7	62.8	10.3	**0.029**	57.8	22.5	0.052
	Moderate	68	14.3	59.8	11.8		62.2	25.7	
Relationship with the spouse	Good	421	88.6	62.7	10.5	0.086	57.9	23.6	**0.000**
	Moderate	54	11.4	60.0	10.9		71.2	21.6	
Positive changes in lifestyle	Yes	303	63.8	63.7	10.5	**0.000**	58.5	23.7	0.279
	No	172	36.2	60.1	10.5		61.0	23.9	
Planned method for child feeding	Breast feeding	459	96.6	62.6	10.5	0.061	58.9	23.8	**0.008**
	Ready formula	16	3.4	57.3	12.7		72.9	18.1	

The superscript letters a, b, and c represent subgroups for statistical significance in each line. Statistically significant values are denoted in bold.

Table 2. The effect of independent variables on Prenatal Attachment Scale scores of pregnant women: results of multiple regression analysis (n=475).

Independent variables	B	Se	β	t	p	95% confidence interval for B		Collinearity statistics	
								Tolerance	VIF
(Coefficient)	40.19	4.63		8.678	0.000	31.09	49.29		
Parity	5.11	1.05	0.22	4.882	0.000	3.05	7.16	0.885	1.130
Regular obstetrics visits	5.70	1.85	0.13	3.079	0.002	2.06	9.34	0.996	1.004
Positive changes in lifestyle during pregnancy	2.71	0.96	0.12	2.827	0.005	0.83	4.60	0.979	1.022
Education status	2.72	1.22	0.10	2.232	0.026	0.33	5.12	0.921	1.086
Age in years	-2.81	1.41	-0.09	1.995	0.047	-5.57	-0.04	0.928	1.077

R: 0.37. Adjusted R^2: 0.13. F: 14.88. p: 0.000. Durbin Watson: 1.96.

Table 3. The effect of independent variables on the Wijma Birth Expectation/Experience (Version A) Scale score of pregnant women: results of multiple regression analysis (n=475).

Independent variables	B	Se	β	t	p	95% confidence interval for B		Collinearity statistics	
								Tolerance	VIF
(Coefficient)	29.29	8.32		3.520	0.000	12.94	45.64		
House income	7.03	2.19	0.15	3.206	0.001	2.72	11.34	0.929	1.076
Spouse's education level	-3.89	1.37	-3	2.849	0.005	-6.57	-1.21	0.930	1.075
Relationship with the spouse	9.74	3.46	0.13	2.812	0.005	2.94	16.55	0.914	1.094
Planned method for child feeding	12.17	6.09	0.09	1.998	0.046	0.20	24.14	0.915	1.093

R: 0.29. Adjusted R^2: 0.07. F: 10.48. p: 0.000. Durbin Watson: 2.04.

In our study, it was found that the mean PBI score of the pregnant women with a marriage duration of 1–2 years was significantly higher than those of 3 years or more ($p<0.05$, Table 1). This situation can be explained by the decrease in interest in pregnancy with increasing maternal age, increasing duration of marriage, and number of children. Our study shows that educational status is also an important factor. The attachment status of pregnant women with education level of university and above is found to be higher ($p<0.05$, Table 1). It is thought that the attachment level of pregnant women with a high level of education, willing to be a mother, conscious, researching, and questioning also increases. Parallel results with our study were found in the literature[17,20,29]. In our study, it was concluded that as the number of pregnancies increased, the level of prenatal attachment decreased. Yılmaz and Beji and Elkin reached similar conclusions[21,24]. It is observed that the more eager and excited mothers in the first pregnancies perform increased mother-infant attachment. In our study, when the attachment scores were examined according to the desired state of pregnancy, the difference between the groups was found to be very significant ($p<0.01$, Table 1). Ustunsoz et al., Abasi et al., and Hergüner et al., also concluded in their study that the prenatal attachment status of mothers is high in planned and desired pregnancies[28,30,31]. In our study, the attachment scores of women with a history of miscarriage were found to be low. These expectant mothers have difficulty in attaching to their new infant due to the fear of re-experiencing the negative situations they experienced in their previous pregnancies and losing their infants. In our study, it was found that the mean prenatal attachment score of the pregnant women who received regular health care and experienced positive changes in their health behaviors was also high. These findings show parallelism with the literature[16,17,32]. In our study, it was found that the mean score of the pregnant women who had good ties with their mothers was high, and the difference between the groups was significant ($p<0.05$, Table 1). It is thought that the experiences of pregnant women with their mothers are effective in gaining the role of motherhood.

In this study, it was found that the educational status of pregnant women had no effect on fear of childbirth. This may be due to the fact that more than half of the pregnant women included in the sample are literate/primary school graduates. On the contrary, the average scores of fear of childbirth of pregnant women with high spouse's education level decreases ($p<0.01$, Table 1). It can be said that spouse's education level is an effective variable on fear of childbirth[33,34]. In our study,

income status is also an important variable in terms of fear of childbirth. It was determined that the pregnant women who evaluated their income as bad had a higher level of fear of childbirth compared to the pregnant women who evaluated their income as medium and good. As the income level of pregnant women increases, the level of fear of childbirth decreases and our research findings show parallelism with the literature[7,34]. In our study, it was found that the parity did not affect the fear of birth, but the desire for pregnancy had an increasing effect on the fear of childbirth ($p<0.05$, Table 1). In an unwanted pregnancy, it can be thought that the mother cannot accept her infant and has more fear of birth. In our study, it was found that pregnant women who received regular health care had less fear of childbirth than those who did not. It can be said that pregnant women who receive regular health care have less anxiety and health worries, thus they experience less fear of childbirth.

The important limitation of our study is that the study was conducted in only one hospital institution. In this case, the research data cannot be generalized. The data obtained from the study are limited to the information provided by the women.

CONCLUSION

Prenatal attachment, which facilitates the mother's adaptation to her pregnancy and her infant, is very important. Fear of childbirth is a serious problem that negatively affects both the pregnancy and birth process of the woman. While planning care, health professionals should question the fear of pregnant women, evaluate their attachment status, and take precautions. More detailed studies that examine the demographic characteristics of not only the mother but also the father can be planned.

ETHICAL ASPECT OF THE STUDY

Before starting the research, the ethics committee approval of Necmettin Erbakan University Meram Faculty of Medicine Non-Pharmaceutical and Medical Device Researches Ethics Committee dated 11.12.2019 and decision number 2019/1759, and for the institution where the research was conducted, ethics committee approval of Konya Provincial Health Directorate Konya Health Services Unit dated 06.02.2020 and numbered 86737044-806.01.03 were obtained.

AUTHORS' CONTRIBUTIONS

KA: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Methodology, Project administration, Resources, Software, Supervision, Validation, Writing – review & editing.
AK: Conceptualization, Formal Analysis, Funding acquisition, Investigation, Methodology, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

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