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ORIGINAL RESEARCH

The Effect of Maternal Attitudes and Depression on Bonding During the Postpartum Period

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Purpose: Bonding refers to the development of an emotional relationship between a mother and her baby, which forms a strong and continuous bond that provides the baby with a sense of security and plays an important role in its mental well-being throughout life. The objective of this study was to assess the relationship between cognitive distortions, attitudes towards motherhood and postpartum depression, which have not been studied before, as well as to elucidate their impact on the mother-infant bonding process.

Patients and Methods: The sample of the study was created between November 2018- June 2019 using the non-discriminatory multiplicity snowball sampling technique through social media. Women with infants aged 0–1 year residing in Turkey were asked to participate in the online survey. A sociodemographic data form, the Edinburgh Postpartum Depression Scale, Attitudes Towards Motherhood Scale (AToM), Postpartum Bonding Questionnaire (PBQ), and Cognitive Distortions Scale (CDS) were applied to the sample via social media.

Results: The study sample consisted of 387 women with infants aged 0–1 years, and the rate of impairment bonding was found to be 11.4%. CDS, ATOM and depression scores were significantly higher in the impaired attached group (p < 0.05). The findings indicated that an individual with a psychiatric diagnosis was 2.653 times more likely to exhibit impaired bonding (OR: 2.653, 95% CI: [1.08–6.517]; p = 0.033), and those with a higher AToM score were 1.044 times more likely to display impaired bonding (OR: 1.044, 95% CI: [1.013–1.075]; p = 0.004).

Conclusion: The cognitive structure of the mother is associated with impaired mother-baby bonding. Eliminating the mentioned cognitive elements with psychotherapy interventions will be protective in terms of impaired bonding related to psychopathologies and/or interpersonal relationship problems.

Keywords: postpartum, bonding, attitudes towards motherhood, depression, cognitive distortions

Introduction

Bonding is a two-way interactional process that develops between the infant and the primary caregiver, shaped by the behaviors of both the mother and the infant.[1] The development of the emotional relationship between the mother and the baby provides the formation of a strong and continuous bond that provides the baby with a sense of security and plays an important role in its mental well-being throughout its life.[2] It is thought that this first relationship structure established between the mother and the baby does not change in the relationship cycles established by the later in life and forms the basis for a recurring basic pattern structure in relationships with others.[3–5] Bonding has been shown to be an important predictive indicator of infant social−affective development. Bonding is associated with the cognitive, language, and motor development of the baby.[6]

To understand mother-infant bonding, it is important to evaluate the mother's feelings, thoughts, and behaviors, mental health and the interactions between mother and infant as a whole.[7] According to cognitive theory, thoughts and

beliefs influence and determine emotions and behaviors.[8] Understanding and working with the mother's behaviors and emotions is important because it is a pathway to the mother's cognition. Although there are studies on women's mental health and bonding, the relationship between cognitive styles and motherhood cognition and bonding has not been examined.

When examining postpartum depression, which is the most studied subject in bonding in mothers,[9] it has been observed that they tend to exhibit a reduced sensitivity to their infants' needs, a greater tendency towards punitive behaviors, and an increased indifference and rejection in their interactions with the infant.[10] When postpartum depression is prolonged and untreated, the adverse effects on the mother–infant relationship are exacerbated, and the risk of developing a impairment bonding is increased.[11–13]

According to Beck's cognitive theory, it has long been known that cognitive distortions play an important role in the development and maintenance of depressive symptoms.[14] When this model is applied to stressful events, it has been shown that stressor-specific cognitive distortions come to the fore rather than general cognitive distortions and play a role as a vulnerability factor with the diathesis-stress model.[15–17] Another factor that affects maternal cognitions is the culture in which they live. In Turkish culture, where the concept of family and motherhood are given considerable importance, the transition to motherhood is an important process in a woman's life.[18] It has been shown in various cultures and in our country that specific dysfunctional attitudes to motherhood are significantly associated with depression symptoms in the period that includes the transition to the role of motherhood of women, such as pregnancy and the postpartum period.[17,19–21]

In recent years, research has shifted its focus from exploring the personal factors associated with postnatal depression that are challenging to change to a greater emphasis on examining cognitive processes that can be modified through psychological interventions. Identifying and intervening cognitive distortions, which are risk factors that can be changed with psychotherapy interventions, and revealing their effects on mother-infant bonding, will provide an opportunity to eliminate factors that negatively affect mental well-being. Cognitive distortion and dysfunctional attitudes towards motherhood have the potential to act as a modifiable determinant of maternal bonding.

To our knowledge, although the relationship between bonding – postpartum depression, postpartum depression – cognitive distortions has been shown in the literature, there is no study examining the relationship between bonding and the cognitive structure of the woman. Our study is the first to evaluate the effects of maternal cognition and dysfunctional attitudes on mother-infant bonding. Our study aimed to evaluate postpartum depressive symptoms, general and maternal cognitive distortions, and reveal their relationship with the mother-infant bonding process.

Materials and Methods
Methods
The study was approved by Bakirköy Prof. Dr. Mazhar Osman Research and Training Hospital for Neurology, Neurosurgery and Psychiatry Ethic Committee (Decision number: 30.10.2018/36,132).

The study was conducted in accordance with the Declaration of Helsinki. The study was planned by following the STROBE guideline.[22] The sample of the study was created between November 2018- June 2019. Because mothers with babies between the ages of 0–1 have limited time for outdoor activities, the sample of our study was created using the non-discriminatory multiple snowball sampling technique to reach more people. The questions and answer options of the scales, all of which were self-report, were created via Google Forms and shared via general social media platforms (eg Facebook, Instagram). Women between the ages of 18–45 years who had children between the ages of 0–1, residing in Turkey, could read and speak Turkish, had internet access, and consented to participate in the study were included in the study.

The sample size was calculated using power analysis with the G*Power 3.1.9.4 program and priority analysis method. A minimum sample size of 172 participants was determined based on a power of 95%, margin of error 0.05, and 0.15 effect size value. Due to the fact that people were reached through certain social networks, the homogeneity of the sample may increase, which may create a disadvantage in terms of generalization of the research.[23] The number of participants in our study was kept high considering the disadvantages of the snowball technique.

Participants declared their consent to participate in the study by completing the consent form at the beginning of the online response process, in which the purpose of the study and the procedure to be applied were explained in detail.

Participants who agreed to participate in the study were asked to complete a sociodemographic data form, the Edinburgh Postnatal Depression Scale (EPDS), Attitudes Toward Motherhood Scale (AToM), Postpartum Bonding Questionnaire (PBQ), and Cognitive Distortions Scale (CDS), which were arranged for online use. The scales were filled in the form of self-report via Google Forms. Due to the nature of self-report scales, there may be biases in the perception of questions and the accuracy of the results, which may limit generalizability.

Although a total of 450 women started to complete the scale battery, 34 women were not included in the study because their infants were not within the specified age range, and 30 women did not fully complete the scale battery. Accordingly, the sample consisted of 386 women. All women who participated in the survey were informed about the aims of the study and given contact information for mental health support if needed.

Scales

Sociodemographic Data Form

This detailed form was prepared by the researchers for the study, evaluating the demographic information of the participants such as age, sex, education, marital status, income, and medical history. All women participating in the study were informed about the study's aims. Contact information was given to provide mental health support if needed.

Edinburgh Postnatal Depression Scale (EPDS)

The EPDS was developed by Cox et al.[24] This scale was prepared for screening purposes to determine the risk of depression in women in the postpartum period. The first validity and reliability study of EPDS in our country was conducted by Engindeniz et al. A score of 13 and above was accepted as risky for postpartum depression.[25]

Attitudes Toward Motherhood Scale (AToM)

AToM is a 12-item scale developed by L. Sockol. It consists of three subgroups. Beliefs about the idealization of the maternal role, beliefs about maternal responsibility, and beliefs about the judgments of others are subgroups of this scale. The scale is a 6-point Likert scale and its scoring is between 0 and 5. The total score of the subgroups shows the test total score. High subgroup scores and high-test total scores indicate high dysfunctional attitudes about motherhood.[19]

Postpartum Bonding Questionnaire (PBQ)

The PBQ was developed by Brockington et al to provide early diagnosis of problems in the mother–infant relationship.[26] The scale is completed by the mother. It consists of 25 items with a 6-point Likert scale. The reliability study was conducted by Yalçın et al in 2014. The Turkish version was not found suitable for evaluation with subgroups and the cut-off score was calculated as 26.[27]

Cognitive Distortions Scale (CDS)

The CDS was developed by Covin et al in 2011, as a 7-point Likert-type scale. The scale consists of 20 items in total and has 10 cognitive distortions (mind reading, catastrophizing or all-or-nothing thinking, reaching conclusions from emotion, labeling, mental filtering, overgeneralization, personalization, imperative statements [should.], underestimating the positive and or ignoring).[28] Each cognitive distortion includes two domains, interpersonal and personal. The validity and reliability study of the scale in a Turkish sample was performed by Özdel et al.[29]

Statistical Analysis

Data were analyzed using the IBM SPSS V23 software package. Conformity to normal distribution was evaluated using Kolmogorov–Smirnov and Shapiro–Wilk tests. Analysis results are presented as mean ± standard deviation and median (minimum-maximum) for quantitative data and as frequency and percentage for categorical data. Spearman correlation analysis was used to compare the PBQ total scores of continuous sociodemographic characteristics. To compare the PBQ total scores of categorical sociodemographic characteristics, the Mann–Whitney U-test was used in groups of two to compare the variables that were not normally distributed. The Kruskal–Wallis H-test was used to compare variables that were not normally distributed according to groups of three or more, and multiple comparisons were examined using the Dunn test.

The sample was divided into two according to the PBQ cut-off score of 26.[27] Twenty-six points and above were defined as impaired bonding, and 26 points and below were defined as secure bonding. The independent two-sample *t*-test was used to evaluate whether the mean scores of the EPDS, AToM, and CDC subgroups and their total scores were different from each other in terms of the secure bonding and impaired bonding groups.

Data that did not show normal distribution were evaluated using the Mann–Whitney *U*-test. Spearman's rho correlation coefficient was used to examine the relationship between PBQ, EPDS, ATOM, and CDC points. A binary logistic regression analysis was employed to assess the factors influencing postpartum impaired bonding and examine both univariate and multivariate models. The significance level was accepted as p < 0.05.

Results

The mean age of the women was 27.15 (range, 18–53) years. Of the women, 28.2% were working. Three-quarters (74.6%) of the women had one child. The mean age of infants was 5.94 months. Of the women, 79.3% stated that they had planned pregnancies. It was observed that 43.8% of the women gave birth by normal vaginal delivery. The majority (86.3%) of the women stated that their babies were given to them after birth. The test results according to the sociodemographic characteristics of the sample and PBQ are shown in Table 1.

Table 1 Comparison of PBQ Total Score According to Sociodemographic Characteristics

	Mean±SD	Median (min-max)	Test Statistics	P
Age	27.15 ± 4.82	27 (18–53)	0.010	0.852
Working status				
No	15 ± 19	9 (0–101)	14,870	0.818
Yes	12 ± 14	9 (0–99)		
Family type				
Nuclear family	14 ± 17	9 (0–101)	11,987	0.423
Extended family	15 ± 20	9 (1–100)		
Income				
Low	17 ± 23	8 (1–99)	8.659	**0.034**
Moderate	14 ± 17	10 (0–101)		
Good	13 ± 18	8 (0–99)		
Quite good	7 ± 7	6 (0–29)		
Planned pregnancy				
No	17 ± 20	12 (0–92)	10,732	0.089
Yes	13 ± 17	8 (0–101)		
Infertility treatment before pregnancy				
No	14 ± 18	9 (0–101)	318.5	0.525
Yes	12 ± 16	8 (1–68)		
Delivery type				
Vaginal delivery	15 ± 19	9 (0–101)	17,612	0.505
Cesarean delivery	13 ± 17	8 (0–99)		
Do you have a history of miscarriage?				
No	14 ± 17	9 (0–101)	12,957	0.763
Yes	15 ± 20	9 (0–99)		
Was your baby brought to you immediately after birth?				
No	18 ± 22	11 (0–99)	7338.5	**0.049**
Yes	13 ± 17	8 (0–101)		

(*Continued*)

Table 1 (Continued).

	Mean±SD	Median (min-max)	Test Statistics	P
Did your baby have any health problems after birth?			15,197	0.056
No	13 ± 17	8 (0–101)		
Yes	16 ± 20	10 (0–99)		
Presence of psychiatric disease			8222	**0.003**
No	13 ± 17	8 (0–101)		
Yes	21 ± 23	14 (1–98)		

Note: Bold: p<0.05.
Abbreviations: Min, minimum; Max, maximum; SD, standard deviation.

When the sample was evaluated according to the EPDS and PBQ cut-off scores, it was seen that 88.6% had secure bonds and 32.4% had depressive symptoms shown in Table 2

The total score and subgroup scores of AToM and CDS were evaluated according to the PBQ cut-off score (Table 3).

Table 2 Descriptive Statistics for the Sample's PBQ Score and EPDS Score by Cut-off Point

	Frequency (n)	Percentage (%)
PBQ		
Secure Bonding	342	88.6
Impairment Bonding	44	11.4
EPDS		
Non-depressive	261	67.6
Depressive	125	32.4

Abbreviations: PBQ, Postpartum Bonding Questionnaire; EPDS, Edinburgh Postnatal Depression Scale.

Table 3 Evaluation of Cognitive Distortions and Depressive Symptoms in Secure and Impairment Bonding

	Secure Bonding		Impairment Bonding		Test Statistics	P
	Mean±SD	Median (min-max)	Mean±SD	Median (min-max)		
AToM-Beliefs According to Others' Judgments	7.73 ± 7.06	6 (0–25)	14.57 ± 9.06	15.5 (0–25)	4296.5	**<0.001**
AToM-Beliefs About Maternal Responsibility	15.29 ± 5.15	17 (0–20)	15.55 ± 5.19	17 (3–20)	7186	0.623
AToM-Maternal Role Idealization	8.11 ± 5.47	9 (0–15)	9.84 ± 5.02	12 (0–15)	6264	0.068
AToM Total	31.13 ± 13.13	32 (0–60)	39.95 ± 16.72	43 (7–60)	4979	**<0.001**
CDS - Mind Reading	9.61 ± 3.26	10 (2–14)	10.2 ± 2.67	10 (4–14)	6870	0.360
CDS - Catastrophizing	7.43 ± 3.47	7 (2–14)	8.89 ± 3.67	9 (2–14)	5755	**0.012**
CDS - All or Nothing Style Thinking	7.36 ± 3.66	7 (2–14)	8.27 ± 3.43	9 (2–14)	6340.5	0.093
CDS - Drawing Deductions from CDS - Emotion	7.75 ± 3.22	8 (2–14)	8.41 ± 3.14	8 (2–14)	6695.5	0.243
CDS - Labelling	6.59 ± 3.43	7 (2–14)	7.48 ± 3.71	7 (2–14)	6477	0.138
CDS - Mental Filtering	7.39 ± 3.66	8 (2–14)	7.98 ± 3.39	8.5 (2–14)	6736	0.268
CDS - Overgeneralization	6.43 ± 3.63	6 (2–14)	7.45 ± 3.76	7 (2–14)	6340	0.092
CDS - Personalization	6.52 ± 3.12	6 (2–14)	7.36 ± 3.53	7 (2–14)	6452.5	0.129
CDS - "Must" Expressions	6.75 ± 3.36	7 (2–14)	7.16 ± 3.43	7 (2–14)	7022	0.487
CDS - Positive Minimization or Ignoring	6.01 ± 3.47	6 (2–14)	7.5 ± 4.15	7.5 (2–14)	5944.5	**0.024**
CDS Total	71.85 ± 23.61	71 (21–137)	80.7 ± 27.12	82.5 (32–140)	−2.300	**0.022**
EPDS Score	9.74±6.22	9 (0–28)	13.5±6.52	13.5 (1–27)	5039	**<0.001**

Note: Bold: p<0.05.
Abbreviations: Min, minimum; Max, maximum; SD, standard deviation; PBQ, Postpartum Bonding Questionnaire; AToM, Attitudes Toward Motherhood Scale; CDC, Cognitive Distortions Scale; EPDS, Edinburgh Postnatal Depression Scale.

Table 4 Spearman Correlation Analysis for Scales

	EPDS		PBQ		AToM	
	r	p	r	P	r	p
PBQ	0.36; **<0.001**					
AToM	0.414; **<0.001**		0.199; **<0.001**			
Judgments of others	0.431; **<0.001**		0.326; **<0.001**		0.801; **<0.001**	
Maternity responsibility	0.24; **<0.001**		−0.004; 0.941		0.642; **<0.001**	
Maternal role	0.196; **<0.001**		0.03; 0.555		0.751; **<0.001**	
CDS	0.382; **<0.001**		0.18; **<0.001**		0.425; **<0.001**	
Mind Reading	0.228; **<0.001**		0.042; 0.415		0.221; **<0.001**	
Catastrophizing	0.342; **<0.001**		0.185; **<0.001**		0.334; **<0.001**	
All Or Never	0.209; **<0.001**		0.108; **0.034**		0.283; **<0.001**	
Drawing Deductions from Emotion	0.274; **<0.001**		0.053; 0.300		0.309; **<0.001**	
Labeling	0.306; **<0.001**		0.213; **<0.001**		0.368; **<0.001**	
Mental Filtering	0.226; **<0.001**		0.14; **0.006**		0.337; **<0.001**	
Overgeneralization	0.341; **<0.001**		0.184; **<0.001**		0.34; **<0.001**	
Personalization	0.314; **<0.001**		0.143; **0.005**		0.284; **<0.001**	
"Must" Expressions	0.165; **0.001**		0.063; 0.219		0.24; **<0.001**	
Positive Ignoring	0.277; **<0.001**		0.137; **0.007**		0.255; **<0.001**	

Note: Bold: p<0.05.
Abbreviations: PBQ, Postpartum Bonding Questionnaire; AToM, Attitudes Toward Motherhood Scale; CDC, Cognitive Distortions Scale; EPDS, Edinburgh Postnatal Depression Scale.

The interrelationships of the scales used in our study were evaluated using Spearman correlation analysis, significant correlations with AToM, EPDS, and CDS scores are shown in Table 4 ($p < 0.001$).

When the sample was evaluated according to the postpartum bonding questionnaire, the factors affecting impaired bonding were examined as univariate and multivariate models using binary logistic regression analysis. In the univariate model, those with a psychiatric diagnosis were 3.575 times more likely to have impaired bonding risk (OR: 3.575, 95% CI: [1.589–8.04]; $p = 0.002$). As the dysfunctional attitudes towards motherhood increased, the risk of impaired bonding increased 1.051 times (OR:1.051, 95% CI: [1.025–1.077]; $p < 0.001$). As the depressive symptoms increased by 1 point, the risk of impaired bonding increased 1.092 times (OR:1.092, 95% CI: [1.041–1.145]; $p < 0.001$). As the cognitive distortions increased, the risk of impaired bonding increased 1.015 times (OR: 1.015, 95% CI: [1.002–1.028]; $p = 0.023$). Although cognitive distortions and depressive symptoms significantly predict impaired bonding in univariate analyses, their significance was reduced when other variables were included. Beliefs according to the judgments of others score increased, and the risk of impaired bonding increased 1.119 times (OR: 1.119 95% CI: [1.073–1.168]; $p < 0.001$). As the maternal role idealization score increased, the risk of impaired bonding increased 1.063 times (OR: 1.063, 95% CI: [1–1.13]; $p = 0.049$). No other variables were statistically significant ($p > 0.05$).

When the multivariate model was examined, it was determined that the presence of psychiatric diagnosis and dysfunctional attitudes towards motherhood predicted impaired bonding. It was observed that the presence of a psychiatric disease increased the risk of impaired bonding by 2.653 times (OR: 2.653, 95% CI: [1.08–6.517]; $p = 0.033$) and when the dysfunctional attitudes towards motherhood increased by 1 point, the risk of impaired bonding increased by 1.044 times (OR: 1.044, 95% CI: [1.013–1.075]; $p = 0.004$) (Table 5).

Table 5 Examination of Factors Affecting Impairment Bonding With a Binary Logistic Regression Model

	Univariate		Multivariate	
	OR (95% CI)	p	OR (95% CI)	p
Age	1.02 (0.958–1.086)	0.538	1.066 (0.993–1.145)	0.077
Did you use infertility treatment before pregnancy? (Reference: No)	0.91 (0.203–4.08)	0.902	1.24 (0.248–6.207)	0.793
Was your baby brought to you immediately after birth? (Reference: No)	0.682 (0.298–1.56)	0.364	0.717 (0.295–1.742)	0.463
Did you have a non-psychiatric health problem during or after pregnancy? (Reference: No)	1.088 (0.481–2.462)	0.839	0.725 (0.289–1.817)	0.492
Presence of psychiatric diagnosis (Reference: None)	3.575 (1.589–8.04)	**0.002**	2.653 (1.08–6.517)	**0.033**
My baby is getting sick more than other babies (Reference: No)	2.122 (0.866–5.195)	0.100	1.688 (0.623–0.572)	0.303
Income Status (Reference: Low)				
Moderate	3.694 (0.423–32.284)	0.237	0.665 (0.239–1.849)	0.435
Good	2.267 (0.289–17.808)	0.436	1.109 (0.366–3.36)	0.855
Quite good	2.568 (0.32–20.591)	0.375	0.72 (0.071–7.279)	0.781
AToM total score	1.051 (1.025–1.077)	**<0.001**	1.044 (1.013–1.075)	**0.004**
EPDS total score	1.092 (1.041–1.145)	**<0.001**	1.056 (0.993–1.123)	0.082
CDS total score	1.015 (1.002–1.028)	**0.023**	1.001 (0.985–1.017)	0.931
AToM-Beliefs According to Others' Judgments Sub-Dimensional Score	1.119 (1.073–1.168)	**<0.001**	–	–
AToM-Beliefs About Maternal Responsibility Sub-Dimensional Score	1.01 (0.949–1.075)	0.759	–	–
AToM-Maternal Role Idealization Sub-Dimensional Score	1.063 (1–1.13)	**0.049**	–	–

Note: Bold: p<0.05.
Abbreviations: PBQ, Postpartum Bonding Questionnaire; AToM, Attitudes Toward Motherhood Scale; CDC, Cognitive Distortions Scale; EPDS, Edinburgh Postnatal Depression Scale; OR, Odds Ratio; CI, Confidence Interval.

Discussion

In our study, it was found that the rate of impaired bonding was 11.4%, and 32.4% of the participants had depressive symptomatology (Table 2). In the group with impaired bonding, beliefs according to the judgments of others, catastrophizing and minimizing the positive, and CDS total scores were found to be significantly higher than the securely bonded group (Table 3). When the factors affecting impaired bonding were examined, it was shown that the presence of a psychiatric diagnosis and the total score of AToM predicted impaired bonding. The risk of impaired bonding increased 2.653 times in those with a psychiatric diagnosis. It was determined that as the AToM total score increased, the risk of impaired bonding increased 1.044 times (Table 5).

When the sociodemographic characteristics of the study sample were evaluated, the level of impaired bonding was found to be statistically significantly higher in participants who were not given their baby immediately after birth and in participants with a psychiatric diagnosis in the pregnancy and postpartum period (Table 1). It is stated that close contact immediately after birth contributes physically to the health of the newborn and the mother, and bonding. For a newborn, the mother's body is defined as a natural playground.[30] It has been stated that sensual contact in the postnatal period causes an increase in the mother's interest and communication with the baby in the short and long term. In studies, it was found that mothers who had physical contact for 16 hours or longer postpartum were associated with being more attentive during the examination of the baby, not wanting to leave the baby, having more eye contact with the baby, and being more calming and caressing the baby[31] In line with the existing literature, our findings suggest that mothers who are separated from their infants after birth due to medical or social reasons have higher levels of impaired bonding.

In our study, when the sample was examined according to the PBQ cut-off score, 11.4% were found to have impaired bonding characteristics (Table 2). When the bond between parents and infants is evaluated in studies conducted in community samples, it is seen that impaired bonding rates approach 10%.[32] The results of our study are consistent with the rates of impaired bonding in the literature.

When our sample was analyzed according to the EPDS cut-off score, 32.4% of the women had depressive symptoms (Table 2). In meta-analysis, the rate of postpartum depression varies between 8% and 28%.[33–35] It is stated that the rates are higher in developing countries.[36] In a meta-analysis assessing depressive symptoms in the postnatal period within our country, the prevalence of postpartum depression (PPD) was found to range from 9.1% to 51.3%, with an aggregate

prevalence rate of 25.2%.[37] Our study revealed a higher prevalence of depressive symptoms than that reported in previous research. This finding may be attributed to the characteristics of the sample.

In our study, women with impaired bonding exhibited a higher level of depressive symptoms (Table 3). Studies have shown that mothers with depression symptoms are more likely to experience bonding problems in the first few months postpartum, regardless of the severity of the depression.[38–40] Cornish et al found that women with chronic depression experienced greater impairment in bonding with their babies and reported higher levels of hostility and anger towards their offspring compared to women with short-term depression and healthy controls.[41] As in our study, Warfa et al reported in their meta-analysis that postpartum depression is associated with impaired bonding.[42] The development of a more comprehensive understanding of the shared risk factors between impaired bonding and depression, which frequently co-occur, could significantly contribute to the optimization of treatment approaches for both conditions.

In our study examining the factors influencing maternal bonding among women with infants aged 0–1 years, we found that the presence of a psychiatric diagnosis increased the risk of impaired bonding by a factor of 2.653, while dysfunctional attitudes toward motherhood were associated with a 1.044-fold increase in the risk of impaired bonding (Table 5). The presence of a psychiatric diagnosis has been closely associated with impaired bonding, although it does not always occur. Impaired bonding is detected in the general population at a rate of 3–9%; however, it is reported that the rate of mother–infant relationship problems in the psychiatric population increases to 10–25%.[43–45] There is evidence showing that the presence of psychiatric diagnoses such as depression, anxiety disorders, and PTSD is associated with impaired bonding.[40,46,47] Ozcan et al evaluated women with postpartum mental disorders and found that women with mental disorders were more impaired bonding than healthy controls, they took care of the babies less, and the duration of breastfeeding was shorter than in healthy controls.[48] Parfitt et al examined the transition to parenthood in men and women who became parents for the first time in their study and found that people with mental disorders started to have positive feelings towards the baby later than the healthy population.[49]

The presence of psychiatric disorders in the mother may cause impaired bonding patterns by affecting the bonding and this may increase the risk of children having problems in cognitive, emotional, and interpersonal relationships in their future lives.[50]

Our study is consistent with studies in the literature reporting that bonding is impaired in the presence of mental disorders and that the presence of mental disorders is an important risk factor for impaired bonding.[51–53] It may be crucial for women with mental disorders to receive psychiatric follow-up and clinical support during their decision to become mothers and during their motherhood experience in terms of bonding.[51–53]

In our study, it was determined that impaired bonded women had higher general cognitive distortions, catastrophizing, ignoring the positive and dysfunctional attitudes towards motherhood compared with securely bonded women (Table 3). According to cognitive theory, cognitive styles in which a person evaluates the world take shape at an early age by the by the family and culture. Cognitive style has been shown to influence how individuals evaluate the world around them, their self-concept, and their parenting.[54,55] In studies conducted in our country, it has been stated that Turkey is a more collectivist country compared with the Czech Republic and Spain.[56] In our country, a traditional mother is expected to have high standards in childcare.[57] This is thought to affect women's cognition related to motherhood. In a study conducted in our country, it was shown that dysfunctional attitudes associated with motherhood were associated with postpartum depression and anxiety symptoms.[21] Ingram et al examined the relationship between bonding and dysfunctional thoughts and showed that individuals reporting positive maternal bonding had less negative and more positive thoughts than those reporting impaired bonding.[55] This finding suggests that the increased risk of impaired bonding may be explained by more negative automatic thoughts. Our study supports and extends previous research indicating that women with impaired bonding have more negative automatic thoughts[55,58] and extends this understanding by identifying specific types of automatic thoughts such as catastrophizing and ignoring the positive.

It was determined in previous studies that women with postpartum depression were overly critical of the maternal role and associated high-performance standards with extreme self-sacrifice. In this case, it has been stated that in line with the high-performance standards that the individuals expect from themselves, they evaluate events related to their own parenting experiences negatively, so that negative events are perceived as more catastrophic, which makes it difficult to adapt to the mothering role.[59–61] The fact that women who ignore the positive about themselves and their motherhood

and catastrophized the problems, focus on negative thoughts such as inadequacy about themselves and motherhood in the new role change process may lead to the inability to read the baby's needs correctly and negatively affect mother-infant bonding.[58]

According to the findings of our study, it was revealed that dysfunctional attitudes towards motherhood increased impaired bonding 1.044 times (Table 5). Dysfunctional attitudes specific to motherhood are an important component of women's psychological experiences during the transition to motherhood.[62] In particular, the idea of inadequacy and beliefs about negative judgments of others are among the dysfunctional attitudes that emerge in the postpartum period. Dysfunctional motherhood beliefs have been associated with postpartum depressive symptoms,[20,63] eating disorders[64,65] and emotional distress.[62]

Our study examines the impact of dysfunctional maternal attitudes, which have been shown to be the main component of psychological stress in the postpartum period[62] on bonding.

There are few studies in the literature examining the relationship cognitive distortions, cognitive structure on bonding. Gamble et al examined the relationship between parenting styles and dysfuncitonally attitudes and impaired bonding. Their findings suggest that adolescents who perceive their parents as critical and perfectionistic may develop dysfunctional attitudes through impaired bonding. Additionally, they found that these adolescents tend to perceive negative events as more global, stable, and internal in nature.[66] Although there are studies showing that adolescents and adults with an impaired bonding have more frequent dysfunctional attitudes and less positive automatic cognitions,[67,68] there is no study examining the cognitive style of the mother/woman on bonding in the literature.

Our study highlights the strong relationship between dysfunctional maternal attitudes and impaired bonding, emphasizing the importance of screening for these attitudes during early pregnancy and the postnatal period. Screening that can be performed during pregnancy and postpartum follow-up will provide an opportunity for the detection of risky groups and early preventive interventions in terms of public health. In addition, the training to be provided during this process will make a significant contribution to raising public awareness and implementing early intervention strategies more effectively. Furthermore, it provides a basis for cognitive psychotherapy interventions targeting these attitudes, and underlines that this method can strengthen the mother-infant bond.

Conclusion

Bonding style, which develops from early childhood and continues consistently throughout life, has been shown to cause depressive symptoms and mental problems in relation to cognitive distortions in adulthood.[69] In our study, depression symptoms, dysfunctional attitudes toward motherhood and general cognitive distortions were more common in women with impaired bonding than in those with secure bonding. Furthermore, we demonstrated that dysfunctional attitudes toward motherhood and the presence of psychiatric diagnoses increase the risk of impaired bonding among women with infants aged 0–1 years. It can be thought that early detection of factors that may adversely affect bonding and the removal of these cognitive factors with psychotherapy interventions will be protective in terms of impaired bonding associated with psychopathologies and/or interpersonal relationship problems in adulthood. Cognitive distortions and psychoeducation that can be screened with short and self-applicable scales in routine checkups during pregnancy and the postpartum period form the basis for early preventive interventions in terms of identification of risk groups and public health.

The present study is strengthened by several factors. Primarily, the relationship between bonding and attitudes toward motherhood has not been previously examined in the literature. Secondly, in addition to the effects of mother-infant bonding on children, the fact that it was handled with an approach from a women's mental health perspective and that the cognitive structure of women was evaluated are among the strengths of our study. Our results may also prove useful for physicians and researchers interested in developing interventions cognitive behavior therapy in women's mental health.

The limitations of our study are that our scales are self-reported and sample was totally online, so it may not be representative of the Turkish population. Therefore, future studies should include different recruitment methods (eg, online and face-to-face). Secondly, the study was cross-sectional in design. Although the relationship between dysfunctional attitudes and impaired bonding has been shown, it cannot be concluded that it fully explains the nature of the relationship due to the cross-sectional nature of the study. It is necessary to clarify the relationship between dysfunctional attitudes towards motherhood and bonding with longitudinal studies. Another limitation of

the current study was the homogeneity of our subjects. The lack of sociodemographic diversity is a demonstrated problem in healthcare research.[70] It is further recommended that future research explores the role of maternal attitudes in bonding by increasing participant diversity. Specifically, our findings suggest that postpartum women's motherhood dysfunctional attitudes play an important role in bonding. Additionally, future research can explore whether there is a mediating effect of (ie, depression, anxiety, anxiety, sensitivity, relationship, social support) on the relationship between dysfunctional attitudes or beliefs toward motherhood and important and relevant outcomes such as impaired bonding.

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Disclosure

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