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ARAŞTIRMA MAKALESİ **RESEARCH ARTICLE**

Exploring Postpartum Depression in Mothers of Preterm and Term Infants: Sociodemographic Influences, Guilt and Shame*

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*"Prematüre Bebek Annelerinde Doğum Sonrası Depresyon ve Suçluluk, Utanç Duyguları Arasındaki İlişkinin Değerlendirilmesi", prepared by Research Assistant Mustafa TABUROGLU under the supervision of Prof. Dr. İsmail AK.

Abstract

Objective: Limited research exists on the connection between postpartum depression (PPD), sociodemographic risk factors, and guilt-shame feelings in mothers of preterm and term infants. This study aims to investigate these relationships and their implications comprehensively.

Method: Mothers were screened using the Sociodemographic Data Form, Beck Depression Inventory, Beck Anxiety Inventory, Edinburgh Postnatal Depression Scale, and Guilt-Shame Scale. Data were analyzed with "MiniTAB17" using Chi-square and Fisher Exact tests. The Kolmogorov-Smirnov test assessed the normally distributed data which were then compared using the t-test, while non-normally distributed data were analyzed with the Mann-Whitney U test.

Results: PPD prevalence was higher in mothers of preterm infants (40.0%) compared to term infants (26.1%). Among mothers of preterm infants with PPD, there was lower spousal support, reduced breastfeeding rates, higher instances of family psychiatric history, and greater perceived inadequacy in infant care. For mothers of term infants, PPD was associated with spousal support and family psychiatric history. While guilt and shame scores didn't differ significantly in mothers of term infants between the PPD and non-PPD groups, shame scores were significantly higher in mothers of preterm infants with PPD.

Conclusion: PPD adversely impacts maternal and infant health. Early identification and intervention, particularly for mothers of preterm infants, are crucial. Future studies should examine the social and psychological stressors affecting mothers of preterm infants to better understand their higher PPD prevalence and increased feelings of shame.

Keywords: Postpartum Depression, Preterm, Mother, Guilt, Shame

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Preterm ve Term Bebeklerin Annelerinde Doğum Sonrası Depresyonun Araştırılması: Sosyodemografik Etkiler, Suçluluk ve Utanç Duyguları

Öz

Amaç: Bu çalışma, doğum sonrası depresyon, sosyodemografik risk faktörleri ve suçluluk-utanç duyguları arasındaki ilişkiyi, sınırlı araştırmaya sahip bir alan olan preterm ve term bebek anneleri arasında araştırmayı hedeflemektedir. Bu çalışmada amaç, bu ilişkilerin ve sonuçlarının kapsamlı bir şekilde anlaşılmasını sağlamaktır.

Yöntem: Çalışmaya katılan anneler, Sosyodemografik Veri Formu, Beck Envanterleri, Edinburg Doğum Sonrası Depresyon Ölçeği ve Suçluluk-Utanç Ölçeği gibi çeşitli araçlar kullanılarak değerlendirilmiştir. İstatistiksel analiz, "MiniTAB17" yazılımı kullanılarak gerçekleştirilmiştir. Kategorik veriler Ki-Kare ve Fisher Kesin Olasılık testleri kullanılarak karşılaştırılırken, parametrik ve non-parametrik veriler dağılıma bağlı olarak uygun testler kullanılarak karşılaştırılmıştır.

Bulgular: PPD prevalansı, preterm bebeklerin annelerinde %40, term bebeklerin annelerinde ise %26,1 olarak gözlemlenmiştir. Preterm doğum yapan annelerin PPD grubunda, daha düşük eş desteği ve emzirme oranları, ailede psikiyatrik hastalık öyküsü ve bebek bakımında yetersizlik algısı ile ilişkili daha yüksek oranda bulunmuştur. Buna karşılık, term bebeklerin anneleri arasında sadece eş desteği ve ailede psikiyatrik hastalık öyküsü PPD ile ilişkilendirilmiştir. Term bebeklerin annelerinde PPD ve PPD olmayan gruplar arasında suçluluk ve utançta anlamlı farklılıklar görülmemişken, preterm bebeklerin annelerinin PPD grubunda anlamlı şekilde yüksek utanç puanları gözlemlenmiştir.

Sonuç: PPD; anne ve bebek sağlığını olumsuz etkilemektedir. Özellikle preterm bebeklerin anneleri için erken teşhis ve müdahale çok önemlidir. Gelecek çalışmalarda, preterm bebeklerin annelerinde gözlemlenen yüksek PPD prevalansını ve utanç duygusunu daha iyi anlamak için bu annelerin yaşadığı sosyal ve psikolojik stres faktörlerinin detaylı bir şekilde incelenmesi önerilir.

Anahtar Kelimeler: Postpartum Depresyon, Preterm, Anne, Utanç, Suçluluk

Introduction

Depression is a pervasive disorder marked by persistent feelings of sadness and sorrow, often triggered by adverse life events. It disrupts daily life and functionality due to the intensity of these emotions (Işık et al., 2013). Globally prevalent, it affects all age groups, with a higher frequency between 25 and 44 years, and is more commonly reported in women (5.1%) than in men (3.6%) (Cimilli, 2001; World Health Organization, 2017).

Pregnancy is a transformative period with significant psychological challenges. Uncertainties about infant development and postpartum health can lead to fears of coping incapacity, a phenomenon typical among first-time mothers (Seedat et al., 2009). Mothers of preterm infants face additional hurdles, such as lower survival chances, potential complications, and extended separations in neonatal intensive care units (Shin, 2003). Studies reveal higher rates of mental health issues like postpartum blues, PPD, and anxiety in mothers of preterm births compared to term births (Küçüker, 2006; Nicholas, 2006).

PPD, a non-psychotic form occurring within the first 12 months post-childbirth, typically emerges 2-3 weeks postpartum and may last up to a year (Parry, 1995). Symptoms include depressive mood, guilt, fatigue, sleep disturbances, loss of appetite, diminished pleasure, suicidal or homicidal thoughts, and somatic symptoms (Aktaş et al., 2012). PPD affects 10-15% of women in Western countries (Beck, 2001), with an increased risk of suicide, ranking as the second leading cause of mortality in affected mothers (Lindahl et al., 2005).

PPD adversely affects a mother's self-esteem, skills, interaction with the infant, and fulfillment of the infant's needs, impacting domestic responsibilities. Depressive mothers may exhibit reluctance in meeting their babies' needs, leading to less frequent positive interactions such as holding, health monitoring,

and play. Infants of depressive mothers may experience restlessness, frequent crying, and a higher incidence of inadequate healthcare access (McLearn et al., 2006).

Feelings of shame and guilt, common in daily life, are linked to psychological symptoms, particularly depressive symptoms, as evidenced by research with university students (Harder et al., 1992). Investigations into the association of these emotions with psychopathologies have focused on various disorders, including depression, anxiety, and social anxiety (Gevrekci & Çırakoğlu, 2017). Some studies highlight the predictive nature of high guilt and shame levels for depression (Alexander et al., 1999; Balkaya, 2001). However, divergent perspectives exist, with some suggesting shame as a significant predictor of depression, asserting its pathogenic nature, while others propose guilt as the most distinguishing feature (Breslau & Davis, 1985; Jarrett & Weissenburger, 1990; Orth et al., 2006; Tangney, 1992). In postpartum experiences, a study with 183 mothers of infants (4 weeks to 1 year) revealed that a tendency towards shame significantly predicted postpartum depressive symptoms while, guilt tendencies were not identified as significant indicators of depressive symptoms or attitudes toward seeking (Dunford & Granger, 2017).

This study is crucial due to the significant yet understudied impact of preterm birth on PPD. While PPD is a recognized public health issue, the unique challenges faced by mothers of preterm infants, such as heightened stress, guilt, and shame, have not been fully explored. By investigating these factors, alongside sociodemographic variables, this study aims to better understand the relationship between preterm birth and PPD, will guide more effective interventions for at-risk mothers.

Given these considerations, our study aims to explore the differences in PPD prevalence between mothers of preterm and term infants, focusing on the roles of sociodemographic factors, and the emotions of guilt and shame. We hypothesize that mothers of preterm infants are more likely to experience PPD compared to mothers of term infants. We further hypothesize that this increased risk is influenced by sociodemographic factors, and higher levels of guilt and shame, with these emotions playing a more significant role in the development of PPD in mothers of preterm infants.

Method

Study Design

This study employs a cross-sectional methodology to investigate the prevalence of PPD, associated factors, and the relationship between depression and guilt-shame feelings in mothers of preterm and term infants.

Study Setting and Exclusion Criteria

The study was conducted at the Pediatric Clinic of Karabuk University Education and Research Hospital, focused on mothers of infants aged 1-12 months who sought care at the clinic between 1/3/2018 and 1/3/2019. The study included literate mothers, without intellectual disability, psychotic disorders, or a history of chronic illness (e.g., hypertension, diabetes mellitus), who had not used any psychotropic or psychoactive drugs during pregnancy, and were 1 to 12 months postpartum. During this period, all mothers who were admitted to the hospital and met the study criteria were included in the sample. Out of approximately 200 cases screened, 25 were excluded due to not meeting the criteria, unwillingness to participate, incomplete data, a history of chronic illness before or during pregnancy, previous psychotic episodes, intellectual disability, or language barriers. The study was completed with 175 participants.

Sampling

The study enrolled mothers in the postpartum period (1-12 months). Exclusion criteria comprised a history of psychotropic medication

use during pregnancy, chronic diseases, psychotic attacks, mental retardation, or language illiteracy. In total, 175 eligible participants completed the study.

Measurement Tools

The research data were collected using the Sociodemographic Data Form, Beck Depression Inventory, Beck Anxiety Inventory, Edinburgh Postnatal Depression Scale, and Guilt-Shame Scale.

Sociodemographic data form

This form comprises two sections. The first section pertains to general variables (age, family type, spousal support, psychiatric history in family, maternal and spousal occupation, average monthly salary, maternal and spousal educational status). The second section focuses on pregnancy-related aspects (number of pregnancies, miscarriage/stillbirth history, pregnancy planning, delivery method) and the postpartum period (infant's gender, infant's age group, feeding method, adequacy of infant care, and infant's pre-existing medical conditions). The form consists of 18 closed-ended questions.

Beck Depression Inventory

The purpose of the scale is to assess the severity of depression objectively. It consists of 21 questions, and the responses provided by the individual are scored on a scale of 0-3. The summation of scores determines the severity of depression. The Turkish validity and reliability study of this scale was conducted by Hisli in 1988 (r=0.63). The reliability coefficient of the study is 0.89 (Hisli, 1988).

Beck Anxiety Inventory

This is a self-assessment scale designed to measure the level of anxiety symptoms. The Likert-type scale consists of twenty-one items scored between 0 and 3. The higher total scores on the scale correlate with the individual's level of experienced anxiety. A validity and reliability study of the scale in Turkish was conducted by Ulusoy et al. (Ulusoy et al., 1988). The Cronbach alpha for this scale was found to be 0.93.

Edinburgh Postnatal Depression Scale (EPDS)

This scale is used to determine the risk and measure the severity of PPD. The scale consists of 10 items in a four-point Likert type. The cutoff score for the scale is reported as 12/13 (Aydemir, 2006). The scale has been adapted into Turkish by Engindeniz and colleagues. In Engindeniz's validity and reliability study, the internal consistency coefficient of this scale was found to be 0.79. At a cutoff point of 12/13, the sensitivity was 0.84, specificity was 0.88, positive predictive value was 0.69, and negative predictive value was 0.94 (Engindeniz et al., 1997; Karaçam & Kitis, 2007).

Guilt-Shame Scale

The Guilt-Shame Scale measures levels of guilt and shame purportedly associated with depression experienced under various circumstances. The scale comprises 24 items, with 12 forming the guilt subscale and the remaining 12 forming the shame subscale (Şahin & Şahin, 1997). Elevated scores indicate the intensity of guilt and shame feelings. In Turkey, a validity and reliability study of this scale was conducted by Nesrin H. Şahin and Nail Şahin in 1992 on a sample of 540 high school and university students. The result of this study found the internal consistency Cronbach's Alpha values to be 0.81 for 'guilt' and 0.80 for 'shame' (Şahin & Şahin, 1997).

Ethical Approval

Before the study, ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Karabük University Faculty of Medicine on 07.02.2018. During the interview, each participating mother was informed about the study, and informed consent, prepared in accordance with the Declaration of Helsinki by the World Medical Association, was obtained.

Table 1. Findings Regarding the Association between PPD and Age Averages among Mothers of Term and Preterm Infants

	Mothers of Term Infants					**Mothers of Preterm Infants**				
	NON-PPD Groups		PPD Groups		p	NON-PPD Groups		PPD Groups		p
	n	***mean±SD***	***n***	***mean±SD***		***n***	***mean±SD***	***n***	***mean±SD***	
Age (min-max)	85	29.03±5.32 20-42	30	28.80±5.51 18-40	0.861	36	29.27±6.03 18-40	24	30.54±5.86 19-42	0.422

SD: Standard Deviation, PPD: Postpartum Depression

Data Collection Procedure

The sociodemographic data form prepared by us was administered to collect information. Subsequent to the psychiatric interview, the Beck Depression Inventory, Beck Anxiety Inventory, Edinburgh Postnatal Depression Scale, and Guilt-Shame Scale were completed by participants.

Data Analysis

The statistical analysis of the data was conducted using the MiniTAB17 program. Descriptive statistics for variables were presented as mean ± standard deviation. Categorical data was compared using the Chi-square and Fisher Exact tests. Normal distribution of parametric data was assessed via the Kolmogorov-Smirnov test. Normally distributed parametric data were compared using the t-test, while non-normally distributed parametric data were compared using the Mann-Whitney U test. To examine the relationship between maternal age and EPDS scores, Spearman Correlation analysis was performed. The level of statistical significance in the study was accepted as $p<0.05$.

Results

Mothers of term and preterm infants, categorized based on EPDS scores (cut-off=13), were divided into two groups: The "PPD group" (scored 13 and above) and the "Non-PPD group" (scored below 13). Sociodemographic variables, obstetric variables, and scales were compared between these groups.

Sociodemographic Variables

General variables

There was no statistically significant difference observed in the age averages between the two groups of mothers, those with and without PPD, among both term and preterm infants ($p>0.05$) (**Table 1**). For mothers of term infants, Spearman Correlation analysis between EPDS scores and maternal age showed a very weakly positive correlation between age and EPDS scores ($p=0.033$, $r=0.199$). For mothers who gave birth prematurely, Spearman Correlation analysis of EPDS scores and maternal age revealed no significant correlation between age and EPDS scores ($p=0.252$, $r=0.150$).

No statistically significant differences were found in terms of family type, maternal and spousal occupation, average monthly salary, and maternal and spousal education level between PPD and non-PPD groups for both preterm and term infant mothers. However, a statistically significant difference was observed between mothers with PPD and those without PPD who had premature or term births, specifically in terms of spousal support and psychiatric history in the family (**Table 2**).

Obstetric variables

No statistically significant differences were observed between mothers with and without PPD for term infant mothers regarding the number of pregnancies, miscarriage/stillbirth history, pregnancy planning, delivery method, infant's gender and age, adequacy of infant care, the feeding method, and infant's pre-existing

Table 2. Findings Regarding the Association between PPD and Other General Variables among Mothers of Term and Preterm Infants

	Mothers of Term Infants					**Mothers of Preterm Infants**				
	NON-PPD Groups		PPD Groups			NON-PPD Groups		PPD Groups		
	n	%	n	%	p	n	%	n	%	p
Family Type										
Nuclear Family	72	84.7	25	83.3	1.000	30	83.3	20	83.3	1.000
Extended Family	13	15.2	5	16.6		6	16.6	4	16.6	
Spousal Support										
Yes	64	75.2	16	53.3	**0.025**	27	75.0	12	50.0	**0.047**
No	21	24.7	14	46.6		9	25.0	12	50.0	
Psychiatric History in Family										
Yes	4	4.7	8	26.6	**0.002**	1	2.7	6	25.0	**0.013**
No	81	95.2	22	73.3		35	97.2	18	75.0	
Occupation										
Not Working	67	78.8	22	73.3	0.537	24	66.6	19	79.1	0.293
Working	18	21.1	8	26.6		12	33.3	5	20.8	
Spousal Occupational Status										
Not Working	9	10.5	1	3.3	0.450	4	12.5	1	4.1	0.639
Working	76	89.4	29	96.6		32	87.5	23	95.8	
Average Monthly Salary										
Low Income	26	30.5	10	33.3	0.962	11	30.5	6	25.0	0.612
Middle Income	53	50.0	18	60.0		18	50.0	15	62.5	
High Income	6	19.4	2	6.6		7	19.4	3	12.5	
Educational Status										
Primary School	33	38.8	12	40.0	0.994	9	25.0	8	33.3	0.647
High School	26	30.5	9	30.0		16	44.4	11	45.8	
College	26	30.5	9	30.0		11	30.5	5	20.8	
Spousal Educational Status										
Primary School	25	29.4	8	26.6	0.712	11	30.5	7	29.1	0.975
High School	27	31.7	12	40.0		14	38.8	9	37.5	
College	33	38.8	10	33i3		11	30.5	8	33.3	

PPD: Postpartum Depression

medical conditions (**Table 3**).

No statistically significant differences were observed between mothers with and without PPD for preterm infant mothers regarding the number of pregnancies, miscarriage/stillbirth history, pregnancy planning, delivery method, infant's gender and age, and infant's pre-existing medical conditions. However, a statistically significant difference was observed between mothers with PPD and those without PPD who had preterm births, specifically in terms of adequacy of infant care and the feeding method (**Table 3**).

Scales

Beck Depression and Anxiety Inventories

Mothers of preterm infants exhibited statistically higher Beck Depression Inventory scores (p=0.014). However, Beck Anxiety Inventory scores did not show a significant difference between the two groups (p=0.135) (**Table 4**).

Table 3. Findings Regarding the Association Between PPD and Obstetric Variables Among Mothers of Term and Preterm Infants

	Mothers of Term Infants					**Mothers of Preterm Infants**				
	NON-PPD Groups		PPD Groups			NON-PPD Groups		PPD Groups		
	n	%	n	%	p	n	%	n	%	p
Number of Pregnancies										
1	28	32,9	15	50,0	0,210	11	30,5	11	45,8	0,230
2	32	37,6	7	23,3		15	41,6	5	20,8	
≥3	25	29,4	8	26,6		10	27,7	8	33,3	
Miscarriage/Stillbirth History										
No	63	74,1	23	76,6	0,782	28	77,7	16	66,6	0,340
Yes	22	25,8	7	23,3		8	22,2	8	33,3	
Pregnancy Planning										
Planned	65	76,4	19	63,3	0,163	27	75,0	15	62,5	0,301
Not planned	20	23,5	11	36,6		9	25,0	9	37,5	
Delivery Method										
Natural	34	40,0	10	33,3	0,518	7	19,4	3	12,5	0,725
Cesarean section	51	60,0	20	66,6		29	80,5,	21	87,5	
Infant's Gender										
Boy	46	54,1	14	46,6	0,482	23	63,8	13	54,1	0,451
Girl	39	45,8	16	53,3		13	36,1	11	45,8	
Infant's Age Group (weeks)										
4-12	35	41,1	17	56,6	0,342	25	69,4	11	45,8	0,077
13-24	19	22,3	5	16,6		3	8,3	7	29,1	
25-52	31	36,4	8	26,6		8	22,2	6	25,0	
Feeding Method										
Breast Milk Only	39	45,8	14	46,6	0,324	19	52,7	5	20,8	**0,04**
Breast Milk and Infant Formula	35	41,1	9	30,0		13	36,1	13	54,1	
Infant Formula Only	11	12,9	7	23,3		4	11,1	6	25,0	
Adequacy of Infant Care										
Adequate	73	85,8	21	70,0	0,053	29	80,5	11	45,8	**0,005**
Inadequate	12	14,1	9	30,0		7	19,4	13	54,1	
Infant's Pre-existing Medical Conditions										
Yes	8	9,4	7	23,3	0,063	3	8,3	5	20,8	0,462
No	77	90,5	23	76,6		33	91,6	19	79,1	

PPD: Postpartum Depression

Table 4. The Findings Related to the Beck Depression Inventory and Beck Anxiety Inventory Scores of Mothers of Term and Preterm Infants

	Mothers of Preterm Infants		**Mothers of Term Infants**		
	mean±SD	***med (min-max)***	***mean±SD***	***med (min-max)***	**p**
Beck Depression	15.91±11.07	13.5 (0-47)	11.70±8.01	10 (0-42)	**0.014**
Beck Anxiety	15.38±13.44	10.5 (0-51)	12.11±11.54	8 (0-50)	0.135

SD: Standard Deviation

Table 5. Findings Regarding the Association between PPD and Guilt-Shame Scales Among Mothers of Term and Preterm Infants

	Mothers of Term Infants					**Mothers of Preterm Infants**				
	NON-PPD Group *mean±SD*		PPD Group *mean±SD.*		p	NON-PPD Group *mean±SD*		PPD Group *mean±SD*		p
Guilt	50.10±8.58	20-60	51.66±7.12	34-60	0.480	51.72±6.52	35-60	53.66±6.06	38-60	0.197
Shame	44.31±8.17	20-58	45.13±7.61	29-60	0.711	43.86±9.77	17-58	49.58±4.85	39-55	**0.014**

SD: Standard Deviation, PPD: Postpartum Depression

Guilt-Shame Scales

No statistically significant differences were found in Guilt and Shame Scale scores in both groups with and without PPD among mothers of term infants (p>0.05). Similarly, there was no statistically significant difference in Guilt Scale scores among mothers of preterm infants (p=0.197). However, PPD group scores were significantly higher for the Shame Scale in mothers of preterm infants (p=0.014) (**Table 5**).

Discussion

This study, utilizing the Edinburgh Postnatal Depression Scale (EPDS), aimed to assess PPD prevalence and identify associated risk factors in 175 women within the first 1-12 months postpartum. A score of 13 or higher on the EPDS indicated PPD, yielding an overall prevalence of 30.8%. In the subgroup of mothers with preterm infants, the prevalence was 40.0%, while in mothers of term infants, it was 26.1%. A domestic study with 431 women, using a cutoff of 12 on the EPDS, reported a PPD prevalence of 34.8% (Demir et al. 2016). A 2015 review by Norhayati et al. found PPD prevalence between 21.0% and 33.2% in developing countries using EPDS (Norhayati et al. 2015). Studies in this regard suggest that population characteristics, timing of research in different postpartum periods, and the use of various diagnostic methods can influence reported PPD prevalence.

Our study categorized participants into two groups: Mothers with preterm and term births. Within each group, sociodemographic variables were compared. Additionally, both groups were subdivided based on EPDS scores to distinguish mothers with and without PPD. Internal comparisons within PPD groups for both preterm and term births were conducted to analyze specific risk factors.

There was no significant age difference observed between mothers of preterm infants in the PPD and non-PPD groups, as well as between mothers of term infants in the PPD and non-PPD groups. The literature presents conflicting findings on the association between young maternal age and the risk or absence of PPD. A study conducted by Rich-Edwards et al. revealed higher postpartum depressive symptoms in mothers under the age of 23 (Rich-Edwards et al. 2006). Durukan et al. did not identify a significant relationship between PPD and mean age in mothers between 2 weeks and 18 months after delivery (Durukan et al., 2011). These discrepancies could be due to differences in study methods, such as variations in participant backgrounds, the criteria used to diagnose PPD, and the timing of assessments. Additionally, cultural and regional differences, including variations in support systems and societal norms, might also explain the conflicting results.

The family structure plays a significant role in the development and resolution of emotional issues experienced by the mother during the postpartum period. Our study found no significant relationship between the types of families and PPD. Similarly, a study evaluating the prevalence of depression among mothers

who had a natural birth by Vural et al. found no significant difference between extended and nuclear family groups (Vural & Akkuzu, 1999). These findings suggest that, despite the potential influence of family dynamics, the type of family structure may not be a decisive factor in the development of PPD. Further research is needed to explore other contributing factors and validate these results across diverse populations and settings.

The findings of the current study corroborate with earlier reports that both depressive groups of mothers, whether with preterm or term infants, reported lower levels of spousal support during pregnancy. Miles et al.'s study on postpartum mothers of preterm infants highlighted that single mothers received less social support from their partners and were at risk for depressive symptoms (Miles et al., 2007). Social support, a known positive influencer on mental health, is likely to act protectively against depression.

A significant relationship was found between a family history of psychiatric illness and PPD symptoms. In both groups consisting of preterm and term infant mothers, the families of mothers with PPD had higher rates of psychiatric illness. Many studies in the literature support our findings (Elder & Mosack, 2011; Holmans et al., 2007). In general, these findings highlight the crucial role of genetic predisposition in the progression of PPD.

The literature indicates that maternal occupation, socioeconomic status, and family financial strain contribute significantly to PPD prevalence (Robertson et al., 2004). In our study, no significant differences were found between preterm and term infant mothers in terms of working status, spousal occupation status, and average monthly salary levels in the PPD and non-PPD groups. The low employment rate among women in our study may have influenced the lack of a significant association between maternal working status and depressive symptoms.

Regarding maternal and spousal education, our study did not find a significant difference between the PPD and non-PPD groups for both preterm and term-infant mothers. Similarly, Miles and colleagues did not find a significant relationship between PPD symptoms and maternal education in a study involving 102 mothers of preterm infants (Miles et al., 2007). However, other studies provide contrasting findings. In a study involving 774 women in the U.S., lower education levels were associated with more persistent postpartum depressive symptoms (Chung et al., 2004). Additionally, a study conducted in Turkey found a relationship between elevated depressive symptoms in the postpartum period and lower education levels of both mothers and fathers (Cak et al., 2015). These discrepancies suggest that while maternal education alone may not be a primary factor, it could interact with other influences, such as emotional support, family environment, or socioeconomic status. Further research is needed to explore these additional factors and their effects on PPD.

No significant relationship was found between the groups of mothers with preterm and term infants regarding the number of pregnancies, miscarriages/stillbirths, planning of pregnancy, and delivery method among those with and without PPD. In a separate study conducted in our country with 141 women between 1 and 24 weeks postpartum, sociodemographic factors such as the number of pregnancies, miscarriages, and stillbirths were reported not to be predictors of PPD development (Gülnar et al., 2010). However, Mayberry et al. found that PPD is more common among multiparous women compared to nulliparous women (Mayberry et al., 2007) Conversely, another study reported a higher prevalence of PPD among nulliparous women. These conflicting results highlight the need for further investigation to clarify the role of parity and

other related factors in the development of PPD (Kheirabadi et al., 2009). A meta-analysis of 84 studies published to determine the relationship between PPD and various risk factors indicated that unwanted and unplanned pregnancies were risk factors for postpartum depressive symptoms (Beck, 2001). Unplanned pregnancies can lead to decreased functionality in women's careers, education, or social areas. However, contrary to expectations, the relationship between unplanned pregnancy and PPD was not found to be significant in our study. This may be associated with the cultural values and religious beliefs of the population in which the study was conducted, as well as the low proportion of working mothers in our research. There are studies in the literature suggesting that the mode of delivery, specifically cesarean section, is a risk factor for the development of PPD (Boyce & Todd, 1992; Hannah et al., 1992). During a normal delivery, the mother may experience pain, but the recovery process can be rapid. On the other hand, while a cesarean section is painless, the hospital stay may be more extended. Our study did not find a significant relationship between the mode of delivery and PPD.

The gender of the infant did not significantly impact the frequency of postpartum depression symptoms in both preterm and term infant mothers. In contrast, studies in Jordan and India using the EPDS reported higher postpartum depressive symptoms and a 2.1 times higher risk, respectively, among mothers with female infants (Guin & Rawat, 2018; Mohammad et al., 2011). In Eastern societies with patriarchal family structures, the female gender might pose a risk for PPD.

No significant relationship was observed between infant age and PPD in groups comprising both preterm and term infant mothers. Our research findings align with studies conducted in our country (Durukan et al., 2011; Gülnar et al., 2010). The lack of significant relationship between infant age and PPD in our study could be attributed to variations in study methodologies and differences in demographic factors. These discrepancies might obscure any potential links between infant age and PPD. Further research is needed to explore these factors more thoroughly and clarify their effects on PPD.

In our study, the link between infant feeding method and maternal depression risk was explored, a topic investigated in various studies (Hatton et al., 2005; Watkins et al., 2011). Among mothers of preterm infants, those exclusively breastfeeding had significantly lower PPD levels. Conversely, for mothers with term births, no significant relationship was found between the feeding method and PPD levels. A 2009 study indicated that late preterm pregnancy negatively affects the postpartum psychological process, potentially reducing lactation efficiency and contributing to anxiety and depression (Zanardo et al., 2011). Mothers of low gestational age infants also reported low perceived competence in breastfeeding (Campbell, 1996), suggesting that lower breastfeeding self-efficacy in mothers with preterm infants may increase susceptibility to depression.

In the postpartum period, feelings of guilt, inadequacy, and dependence on help can negatively impact the early mother-infant relationship (Perrin et al., 1989). In our study, mothers with preterm births and PPD exhibited significantly higher levels of feeling inadequate in infant care. Conversely, no significant relationship in terms of inadequacy in infant care was observed between groups of term infant mothers with and without depression. A study by Spear and colleagues, focusing on mothers of preterm infants, reported a PPD rate of 53% and highlighted a direct correlation between feelings of inadequacy in care and depression symptoms (Spear et al., 2002). Complications arising after birth in preterm infants, prolonged intensive care follow-ups, and issues related to breastfeeding can nurture

feelings of inadequacy in maternal care, potentially serving as a risk factor for PPD.

The frequency of illnesses observed in infants in both groups, including mothers of preterm and term infants, was higher in mothers with PPD, but it was not statistically significant. A study conducted in the Eastern and Central Anatolia regions of our country, involving 2514 women in the first year after childbirth, found a direct relationship between the infant's health problems and depression symptoms in the mother (Inandi et al., 2002). These findings suggest that while there is a notable trend, further research is needed to determine if and how infant health issues specifically influence maternal PPD.

Depression and anxiety often co-occur, and it is known that women with depressive symptoms in the postpartum period also experience clinically significant levels of anxiety symptoms (Maser, 1990). Furthermore, anxiety disorders, especially in women, are prevalent even in the absence of depression (Brown et al., 2001). The onset age of many anxiety disorders is noteworthy, occurring in the 20s, an age range when many women plan childbirth (Kessler et al., 1993). In our study, mothers with preterm infants scored significantly higher on the Beck Depression Inventory compared to mothers of term infants. While Beck Anxiety Inventory scores for mothers of preterm infants were higher, the difference did not achieve statistical significance. Literature indicates increased rates of depression in families with preterm infants during the early postpartum period due to increased stress and anxiety (Ekuklu et al., 2004). Our findings demonstrate elevated depressive symptoms in mothers of preterm infants, potentially linked to factors such as intensive care, separation from infants, and challenges in postpartum care (Özdoğan et al., 2014). Despite higher anxiety levels in mothers of preterm infants compared to mothers of term infants, the lack of a significant relationship might be attributed to a considerable proportion of the preterm group giving birth in the late preterm period (34-37 weeks), constituting 56.6% of the total preterm group.

Guilt and shame are distressing emotions stemming from individual mistakes, failures, or behaviors conflicting with moral values (Leary & Tangney, 2012). While guilt targets behavior and is considered constructive, shame, targeting the self, is seen as more destructive (Ferguson et al., 1999). In postpartum, some mothers perceive themselves as failures, experiencing increased shame and guilt (Cree, 2010). In our study involving mothers of preterm and term infants, no statistically significant difference in average guilt scale scores was observed in both PPD and non-PPD groups. However, the PPD group of mothers with preterm infants had significantly higher average shame scale scores than the non-PPD group. In contrast, there was no significant difference in average shame scale scores between PPD and non-PPD groups of mothers with term infants. The notably higher shame scores in the PPD group of mothers with preterm infants align with literature emphasizing shame's more significant psycho-pathogenic impact compared to guilt (Gilbert et al., 1994; Tangney et al., 1992).

In conclusion, we have demonstrated the prevalence of PPD and the impact of certain risk factors through a self-assessment scale. Identifying high-risk groups for PPD early, particularly among mothers of preterm infants, and implementing necessary psychotherapeutic interventions should be a primary goal. Future research should focus on refining health policies and proposing practical applications and treatments related to PPD.

Strengths and Limitations: Our study had several strengths. It is the first to investigate predictors of depression, anxiety, guilt, and shame in mothers of both preterm and term infants, filling a significant gap in the literature. While many studies have explored the

psychological processes of mothers with term infants, comparative research on preterm versus term infant mothers is limited, making this the first such study in Turkey as far as we know. Additionally, our study sheds light on the often-overlooked psychological vulnerabilities of mothers with preterm infants, emphasizing their potential impact on their infants' developmental processes.

The main limitations of our study include the assessment of volunteers at different times during the postpartum period, the inclusion of participants who only sought care at a tertiary education and research hospital, and the use of a self-report scale rather than a semi-structured interview such as SCID for diagnosing depression. Additionally, undiagnosed psychiatric disorders may have affected the study results.

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