

Effect of Postpartum Depression in Mothers With 0–1-Year-Old Infants on Father–Infant Attachment

Halil Korkmaz¹([ID](#)), Zumrut Yilar Erkek²([ID](#))

¹Midwifery Department, Institute of Health Science, Gaziosmanpaşa University, Tokat, Turkey

²Midwifery Department, Faculty of Health Sciences, Gaziosmanpaşa University, Tokat, Turkey

Copyright@Author(s) - Available online at <https://dergipark.org.tr/en/pub/mbsjohs>

Content of this journal is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License,



Received: 04 November 2020, Accepted: 25 March 2021, Published online: 30 April 2021

© Ordu University Institute of Health Sciences, Turkey, 2021

Abstract

Objective: This analytical, cross-sectional study was designed to determine the effect of postpartum depression in mothers with 0–1 year old infant on father–infant attachment.

Methods: The study included 207 mothers and 207 fathers with 0–12-month-old infants. The data were collected using the Introductory Information Form, Edinburgh Postpartum Depression Scale (EPDS), and Father–Infant Attachment Scale (FIAS). The data were analyzed using standard deviation, arithmetic mean, Mann–Whitney U test, and correlation analysis.

Results: Total 18.3% of the mothers were at risk of postpartum depression, and the mean total EPDS score was 7.19 ± 5.17 . The mean total FIAS score was 74.95 ± 6.21 . There was no statistically significant difference between the mean sub-scale and total FIAS scores and the mean EPDS scores ($p > 0.05$). There was a significant, weak, and negative correlation ($r = -0.15$; $r = -0.181$) between the EPDS scores and the sub-scale and total FIAS scores ($p < 0.05$).

Conclusion: We concluded that postpartum depression (PPD) in mothers has a negative effect on father–infant attachment. The primary responsibilities of midwives should include determining the factors affecting parent–infant attachment and providing training and consultancy to establish parent–infant communication. A secure father–infant attachment can be achieved by ensuring the participation of fathers during the pregnancy, delivery, and postpartum periods and careful evaluation of mothers in terms of PPD.

Key words: Postpartum depression, Attachment, Father–infant attachment, Midwifery

Suggested Citation Korkmaz H, Yilar Erkek Z. Effect of postpartum depression in mothers with 0–1-year-old infants on father–infant attachment. *Mid Blac Sea J Health Sci*, 2021; 7(1):24-31.

Address for correspondence/reprints:

Zumrut Yilar Erkek

Telephone number: +90 (530) 710 92 65

E-mail: zumrut.yilar@gop.edu.tr

Introduction

Postpartum Depression (PPD) is a common affective disorder that manifests with a decrease in interest and pleasure, loss of energy, changes in sleeping patterns, weight reduction, impaired thinking process and concentration, feelings of worthlessness, a sense of guilt, and suicidal thoughts (1-4). Its prevalence is reported to be 3.5%–63.3% worldwide and 3.5%–58% in Turkey (1,4-7). PPD can negatively affect the development of infants, reducing the quality of life of mothers and even leading to commit suicide and harm to their infants. In addition, it may also affect the attachment to the

infant that plays an important role in establishing a family order with mothers and infants (6).

Attachment is referred to as unique love relation that begins in the first days of life, develops over time between parents and infants, and has an impact on all relationships throughout life (8). PPD may negatively affect mother–infant attachment, compatibility with maternal roles, and mother–infant interaction (9–11). This mental issue affects not only mother–infant attachment, but also father–infant attachment (12).

PPD directly affects the mother infant and indirectly impacts the father and family; it is a condition that should be considered to enable early detection and the timely management using an appropriate approach (9). In this regard, midwives who are in direct interaction with the mother, father, infant, and family play critical roles. Midwives play a key role in monitoring mothers carefully in terms of PPD symptoms during pregnancy, delivery, and postpartum periods in order to ensure early diagnosis and intervention (13,14). The mothers should be interviewed in the postpartum period using the Edinburgh Postpartum Depression Scale (EPDS) that is deemed necessary by the Ministry of Health. In this way, the EPDS can help early detection of PPD in mothers, enabling timely intervention and prevention of problems associated with PPD (14,15). In addition to improving the mother's physical health, such intervention can also ensure the involvement of fathers in the prenatal care process to increase the positive communication between the mother and father and facilitate father–infant attachment. Midwives can help fathers build a secure attachment with their infants and strengthen it by providing training and social support to the fathers (16).

In this regard, we believe that the study will provide significant insights that would benefit the society by determining the extent of the effect of PPD on father–infant attachment, leading to the prevention of negative father–infant attachment via appropriate intervention and improved health protection. Midwives who are primarily responsible for maintaining the parent–infant relationship are aware of the factors affecting the parent–infant attachment that contribute to the health of individuals, families, and therefore the community. Few studies have investigated this issue (12,17) and the present study is a subjective study that is considered to provide significant contribution. The purpose of this study was to determine the effect of postpartum depression in mothers with 0–1 year old infants on father–infant attachment. The first hypothesis of our study was that PPD has an effect on father–infant attachment, and

the second was that PPD has no effect on father–infant attachment.

Methods

Study type

Descriptive, cross-sectional study.

Study population and samples

The study population included mothers and fathers of 781 infants (0–1 year old) who resided in a district in the north of Turkey and were registered in one of 4 family health centers between January 01 and January 31, 2018.

For sample size calculation, when the prevalence of PPD in Turkey was assumed to be 14% (7,18–23) a power of 80%, a margin of error of 5% and an effect size of 0.07 were calculated for a population size of 781 samples in the G*Power (version 3.1.2) analysis. Based on the analysis, the sample size was determined to be 182 mothers and 182 fathers with 0–1 year old infants. The study was performed on 207 mothers and 207 fathers with 0–1 year old between February 01, 2018, and August 01, 2018.

Data Collection Tools

The data were collected using the Socio-Demographic Data Form, EPDS, and Father–Infant Attachment Scale (FIAS).

Socio-Demographic Data Form

The Socio-Demographic Data Form was created by the researchers following a literature review (16,24–26). This form consists of 14 questions regarding the baseline characteristics of mothers and fathers (age, marital status, employment status, income status etc.).

Edinburgh Postpartum Depression Scale

The EPDS is a self-assessment scale designed to determine the risk of depression, degree of depression, and change of violence in the postpartum period. The scale was adapted to Turkish by Engindeniz et al. (27) and includes 10 questions. Each question provides a 4-point likert-type measurement. The lowest score that can be obtained from the scale is 0, and the highest score is 30. The coefficient of consistence of EPDS (Cronbach's Alpha) is 0.79, and the cut-off score is 12/13). In the present study, the cut-off point of the scale was 12, and the Cronbach's Alpha value was 0.81.

Father–Infant Attachment Scale

The FIAS was designed by Condon et al. (2008) to evaluate the postpartum father–infant attachment and consists of 19 items. The scale was adapted to Turkish by Gulec (28). It has three sub-scales: patience and tolerance, pleasure in interaction, and love and pride. Each item is scored between 1 and 5, with higher scores indicating higher attachment (item 16 was removed from the scale following further analysis). The Cronbach's Alpha value of the FIAS was calculated to be 0.76. The Cronbach's Alpha value of the present study was highly reliable (0.75).

Statistical analysis

The data were analyzed using SPSS 25.0 package software. Continuous variables are expressed as mean, standard deviation, and median (minimum–maximum) values, and categorical variables are expressed as numbers and percentages. The normal distribution of the data was examined using Shapiro–Wilk and Kolmogorov–Smirnov tests. When parametric test assumptions were met, independent t-test and one-way analysis of variance were used for the comparison of the differences between independent groups. When the parametric test assumptions were not met, Mann–Whitney U test was used in comparison of independent group differences. Logistic Regression analysis was used to determine the risk factors affecting the dependent variable. In all analyzes, $p < 0.05$ was considered statistically significant.

Ethics of the Study

The study was approved by the Gaziosmanpaşa University, Non-Interventional Ethics Committee (18-KAEK-053) and the institutions where the study was conducted. The purpose of the study was explained to the participants, and the participants were assured that their responses would be anonymous and would be used only in scientific research; they were also informed that they could withdraw at any point during the interview. Verbal and written consents were obtained from the participants. The study was performed as per the “Informed Consent, Confidentiality and Protection of Privacy and Respect for Autonomy” principles and the Helsinki Declaration. The required permissions were obtained from those who confirmed the validity

and reliability of the Turkish version of the scale. The data were collected within 30 minutes via face-to-face interviews. The parents were interviewed in different environments to prevent influence from each other.

Results

The distribution of the socio-demographic characteristics of the parents who were involved in the study is shown in Table 1.

The postpartum depression risk levels in mothers based on the EPDS cut-off point were determined to be 18.3% (Table 2).

In the study, the mean "patience" sub-scale score was 32.8 ± 2.95 , the mean "pleasure" sub-scale score was 27.86 ± 3.67 , the mean "love" sub-scale score was 14.29 ± 1.2 , and the mean total attachment score was 74.95 ± 6.21 (Table 3).

The comparison of the mean FIAS sub-scale and total attachment scores with the mean EPDS scores revealed no significant difference between them ($p > 0.05$). However, although not statistically significant, the total attachment scores in the spouses of mothers with EPDS scores ≥ 12 were lower than those in spouses of mothers with EPDS scores ≤ 11 (Table 4).

The examination of correlation between the EPDS scores and the sub-scale and total FIAS scores revealed a weak, significant ($p < 0.05$) and negative correlation ($r = -0.15$; $r = -0.181$) between the total FIAS scores and the patience and tolerance sub-scale scores upon the manifestation of PPD symptoms in mothers. In addition, there was a significant correlation between the total FIAS scores and FIAS sub-scale scores ($p < 0.05$). There was a strong positive correlation between the patience and tolerance sub-scales and pleasure in interaction sub-scales ($r = 0.814$; $r = 0.874$) and a moderate positive correlation with the love and pride sub-scales ($r = 0.555$) (Table 5). The correlations among the sub-scales were significant ($p < 0.05$). There was a moderate positive correlation between the patience and tolerance sub-scales and pleasure in interaction sub-scales ($r = 0.506$) and a weak positive correlation with the love and pride sub-scales ($r = 0.398$). There was a weak positive correlation between the pleasure in interaction sub-scales and love and pride sub-scales ($r = 0.35$) (Table 5).

Table 1. Distribution of the socio-demographic characteristics of parents

Characteristics	$\bar{X} \pm SD$	Min–max	
Mean age of mothers (n = 207)	29.02 ± 4.87 (years)	19–41	
Mean age of fathers (n = 207)	32.87 ± 5.29 (years)	23–48	
		No (n)	Percentage
Marital Status	Married	206	99.5
	Divorced/widowed	1	0.5
Consanguineous marriage	Yes	14	6.8
	No	193	93.2
Marriage style	Companionate	170	82.1
	Prearranged	37	17.9
	≤ 20 years	58	28.0
Age at the time of marriage	20–30 years	141	68.1
	≥ 30 years	8	3.9
	≤ 1 year	27	13.0
Duration of marriage	2–5 years	85	41.1
	≥ 5 years	95	45.9
	Primary school	30	14.5
Educational level	Secondary school	57	27.5
	High School	62	30.0
	University	58	28.0
Employment status	Employed	44	21.3
	Unemployed	163	78.7
Family type	Nuclear family	162	78.3
	Extended family	45	21.7
Father's educational level	Primary school	33	15.9
	Secondary school	42	20.3
	High school	66	31.9
	University	66	31.9
Father's occupation	Unemployed	12	5.8
	Officer	43	20.8
	Worker	63	30.4
Family income	Self-employment	89	43.0
	Income less than expense	58	28.0
	Income equal to expense	119	57.5
Father's age at the time of marriage	Income more than expense	30	14.5
	≤ 20 years	15	7.2
	20–30 years	161	77.8
	≥ 30 years	31	15.0

\bar{X} : Arithmetic mean; SD: Standard Deviation

Table 2. The postpartum depression risk levels in mothers based on the mean EPDS score and cut-off point (n = 207)

Mean EPDS Score	$\bar{X} \pm SD$	Min–max
	7.19 ± 5.17	0–23
EPDS Cut-off Point	No (n)	Percentage
≥ 12	38	18.3
≤ 11	169	81.6
Total	207	100

\bar{X} : Arithmetic mean; SD: Standard Deviation

EPDS: Edinburgh Postpartum Depression Scale

Table 3. Distribution of total FIAS and FIAS sub-scale scores (n = 207)

FIAS Sub-Scales	$\bar{X} \pm SD$	Min–max
Patience and tolerance	32.8 ± 2.95	34–36
Pleasure in interaction	27.86 ± 3.67	15–35
Love and pride	14.29 ± 1.2	9–15
Total	74.95 ± 6.21	55–85

\bar{X} : Arithmetic mean; SD: Standard Deviation

FIAS: Infant Attachment Scale

Table 4. Comparison of mothers' mean EPDS scores with mean FIAS sub-scale and total scores

FIAS Sub-Scales	EPDS Cut-off Point		Test and p value
	≤ 11	≥ 12	
	$\bar{X} \pm SD$	$\bar{X} \pm SD$	
Patience and tolerance	32.94 ± 2.96	32.18 ± 2.88	p = 0.082 z = -1.73
Pleasure in interaction	27.93 ± 3.68	27.53 ± 3.67	p = 0.631 z = -0.48
Love	14.38 ± 1.07	13.92 ± 1.63	p = 0.185 z = -1.32
Total	75.25 ± 6.03	73.63 ± 6.9	p = 0.177 z = -1.35

*p < 0.05 was considered statistically significant; \bar{X} : Arithmetic mean; SD: Standard Deviation; z: Mann–Whitney U test

EPDS: Edinburgh Postpartum Depression Scale

FIAS: Infant Attachment Scale

Table 5. Correlation of mothers' EPDS scores with FIAS sub-scale and total FIAS scores

		Total EPDS	Total attachment	Patience and tolerance	Pleasure in interaction	Love and pride
Total EPDS	r	1	-0.15	-0.181	-0.181	-0.05
	p		0.031*	0.009*	0.091	0.471
Total attachment	r		1	0.814	0.874	0.555
	p			00001*	00001*	00001*
Patience and tolerance	r			1	0.506	0.398
	p				00001*	00001*
Pleasure in interaction	r				1	0.35
	p					00001*
Love and pride	r					1
	p					

*p < 0.05 - statistically significant correlation; Spearman Correlation Analysis; r: Correlation Coefficient (r value ranges: 0–0.199 very weak, 0.2–0.399 weak, 0.4–0.699 moderate, 0.7–0.899 strong, 0.9–1 very strong)

EPDS: Edinburgh Postpartum Depression Scale

FIAS: Infant Attachment Scale

Discussion

In the present study, the mean total EPDS score of mothers was 7.19 ± 5.17 . Based on the cut-off point of the scale, it was determined that 18.3% of mothers had PPD risk (Table 2). Considering the maximum and minimum scores obtained in the scale (minimum

value: 0 maximum value: 30) and the cut-off point of the scale, it can be suggested that mothers have a low risk of PPD. Previous studies that have used the same scale as that used in the present study have shown that the risk level of PPD in mothers was 9.58 ± 5.10 in the study by Aslan and Ege (29), 8.3 ± 4.6 in that by

Ngo et al. (30), and 7.26 ± 3.94 in the trial by Brown et al. (31). The findings of these studies are similar to our results. In other studies, conducted in the provinces in Turkey, PPD risk levels are at rates changed between 14% and 34.4%. (7,14,19,23,24,32-35). In a study on 2,259 mothers in 2017 in Brazil, the risk level of PPD was 12%; the risk level was 16% in Zimbabwe, 22% in Jordan and 34.7% in South Africa (7). Given the findings in studies conducted in Turkey and worldwide, it can be suggested that PPD is a very common condition. Further, the incidence rate may vary, depending on the diagnostic tools used, the cut-off point used for screening, the duration of the postpartum period, and the cultural and socio-demographic characteristics of the country and region (4,36).

In the study, the mean "patience" sub-scale score was 32.8 ± 2.95 , the mean "pleasure" sub-scale score was 27.86 ± 3.67 , the mean "love" sub-scale score was 14.29 ± 1.2 , and the mean total attachment score was 74.95 ± 6.21 (Table 3). A literature review has revealed that in the study by Gulec (28) that examined the validity and reliability of the Turkish version of scale, the mean patience and tolerance sub-scale score was 36.05 ± 3.51 , the mean pleasure in interaction score was 27.60 ± 4.11 , the mean love and pride score was 19.22 ± 1.43 ; the mean total score was 82.88 ± 7.39 . Condon (2008) who developed the original scale found that the mean total attachment score was 79.2 ± 9.0 , mean patience and tolerance sub-scale score was 34.9 ± 3.8 , the mean pleasure in interaction score was 26.2 ± 4.0 , and the mean love and pride score was 19.3 ± 1.4 . The present findings are similar to those reported by Condon and Gulec (28), and the FIAS scores were higher. In the study by Dinc (37) who used this scale in Turkey, the mean patience and tolerance sub-scale score was 32.86 ± 4.27 , the mean pleasure in interaction score was 24.84 ± 5.31 , the mean love and pride score was 18.03 ± 2.03 , and the mean total score was 75.73 ± 10.64 . The mean total FIAS score was 73 ± 9.1 in the study by Kilan (25) and 55.6 ± 10.2 in the study by Evcili et al. (38) It is considered that the differences in the scale scores in the studies may result from the timing of application of the scales, the regional and cultural characteristics, or the characteristics of fathers and infants.

The comparison of the mean total and sub-scale FIAS scores with the mean EPDS scores in the present study revealed no statistically difference between the scale scores ($p > 0.05$) (Table 4). However, although not statistically significant, the total attachment scores in spouses of mothers with EPDS scores ≥ 12 were lower than those in spouses of mothers with EPDS scores ≤ 11 . This may be

associated with the low mean depression risk levels in the mothers and mild depression symptoms. Previous studies have shown that maternal and paternal depression are interrelated and negatively affected by each other. It has been reported that fetal attachment and depression in mothers are the most significant factors for father–infant attachment (26,39).

Considering the correlation between postpartum depression and father–infant attachment, there was a significant correlation between the EPDS scores and the total and sub-scale FIAS scores ($p < 0.05$) (Table 5). There was a very weak negative correlation between the total EPDS score and total FIAS score ($r = 0.15$; $p = 0.003$). With an increase in the EPDS score increased, the mean FIAS scores decreased. These results confirm the assumption of the study that "PPD has an effect on father–infant attachment".

To our knowledge, no previous study has investigated the effect of postpartum depression on father–infant attachment. Therefore, the present results have been compared with studies examining the effect of postpartum depression on maternal attachment. In the study by Cankaya et al. (9), there was a moderately negative correlation between postpartum depression and maternal attachment, similar to our findings. Contrary to these studies, the study by Karabulut (40) showed a positive significant correlation between the first-month maternal attachment and the EPDS score.

Limitations

The results of the present study are applicable to only the study group and may not be generalized to the general population. The fact that the characteristics of the region where the study was conducted have caused a low risk level of depression may have influenced the study results. Another limitation may be the inability to contact both the parents simultaneously due to employment of fathers.

Conclusions

In conclusion, PPD has a negative impact on father–infant attachment. Care practices should not be limited to the physical health of the mother, but it should also extend to fathers. Therefore, it is recommended to carefully follow mothers for PPD symptoms, to interview mothers routinely using EPDS to ensure early diagnosis and intervention, ensure that fathers are involved in the care of infants through a midwife family-centered healthcare approach, to include fathers in the mother-baby-friendly hospital and health policies, and to conduct studies consisting of wider populations to determine

the effect of PPD in mothers on father–infant attachment.

Ethics Committee Approval: Appropriate permission for the study was obtained from the Committee of Ethics of Gazioamanpasa University (approval no: 20.02.2018; 2018/03-18-KAEK-053).

Peer-review: Externally peer-reviewed.

Author Contributions:

Concept: H.K, ZYE, **Design:** H.K, ZYE, **Literature Search:** H.K, **Data Collection and Processing:** H.K, **Analysis or Interpretation:** H.K, ZYE, **Writing-** H.K, ZYE,

Conflict of Interest: No conflict of interest was declared by the author.

Financial Disclosure: The author declared that this study hasn't received no financial support.

References

- Atilla R, Mucuk S. Postpartum depression screening and treatment approaches of health personnel working in primary health care services. *Journal of Health Sciences*. 2018; 27: 186-191.
- Azad R, Fahmi R, Shrestha S, Joshi H, Hasan M, Khan ANS. et al. Prevalence and risk factors of postpartum depression within one year after birth in urban slums of Dhaka, Bangladesh. *PloS One*. 2019; 14(5):1-15.
- Hamel C, Lang E, Morissette K, Beck A, Stevens A, Skidmore B, Moher D. et al. Screening for depression in women during pregnancy or the first year postpartum and in the general adult population: A protocol for two systematic reviews to update a guideline of the Canadian task force on preventive health care. *BMC*. 2019; 8:27. <https://doi.org/10.1186/S13643-018-0930-3>.
- Norhayati MN, Hazlina NN, Asrenee AR, Emilin WW. Magnitude and risk factors for postpartum symptoms: a literature review. *Journal of Affective Disorders*. 2015;175:34-52.
- Aktas MC, Simsek C, Aktas S. Etiology of postpartum depression: Culture effect. *JAREN/Journal of Nursing Academic Research*. 2017; 3(1): 10-13.
- Ay F, Tektas E, Mak A, Aktay N. Postpartum depression and the factors affecting it: 2000-2017 study results. *Journal of Psychiatric Nursing*. 2018; 9(3):147-152.
- Turkkapar AF, Kadioglu N, Aslan E, Tunc S, Zayifoglu M, Mollamahmutoglu L. Sociodemographic and clinical features of postpartum depression among Turkish women: a prospective study. *BMC Pregnancy & Childbirth*. 2015;15(1): 108-117.
- Nacar E, Gokkaya F. A review article on attachment and maternal attachment. *Cyprus Turkish Journal of Psychiatry & Psychology*. 2019;1(1):49-55. doi:10.35365/ctjpp.19.1.06.
- Cankaya S, Yilmaz SD, Can R, Kodaz ND. Effect of postpartum depression on maternal attachment. *Journal of Acibadem University of Health Sciences*. 2017; 4: 232-40.
- Goecke TW, Voigt F, Faschingbauer F, Spangler G, Beckmann MW, Beetz A. The association of prenatal attachment and perinatal factors with pre- and postpartum depression in first-time mothers. *Archives of Gynecology and Obstetrics*. 2012;286(2):309-316. doi: 10.1007 / s00404-012-2286-6.
- Moehler E, Brunner R, Wiebel A, Reck C, Resch F. Maternal depressive symptoms in the postnatal period are associated with long-term impairment of mother–child bonding. *Archives of Women's Mental Health*. 2006;9(5):273-278.
- Ustunsoz A, Guvenc G, Akyuz A, Oflaz F. Comparison of maternal–and paternal–fetal attachment in Turkish couples. *Midwifery*. 2010;26(2): 23-34.
- Aoyagi SS, Takei N, Nishimura T, Nomura Y, Tsuchiya KJ. Association of late-onset postpartum depression of mothers with expressive language development during infancy and early childhood: the HBC study. *Journal of Life and Environmental Sciences*. 2019;7: 1-22. Doi: 10.7717/peerj.6566.
- Sutlu S, Catak B. Prevalence of postpartum depression and affecting factors in the province of Burdur. *Kafkas J Med. Sci* 2017;7(3):220–224. doi: 10.5505/kjms.2017.070888.
- Durmazoglu G, Serttas M, Kuru Oktay A, Tatarlar A, Gocmen F, Bezirgan S, Toksoy S. et al. Foreseeing of the postpartum depression by nurses & midwives. *Anatolian Journal of Nursing and Health Sciences*. 2016;19. Special Issue.
- Gulec D, Kavlak O. Father-infant attachment and role of nurse: Review. *Turkiye Klinikleri J Nursing Sci*. 2015; 7(1):63-68. Doi: 10.5336/Nurses.2013-3606229.
- Noh NI, Yeom HA. Development of the Korean Paternal-Fetal Attachment Scale (K-PAFAS). *Asian Nursing Research*. 2017;11(2): 98-106.

18. Arslantas H, Ergin F, Balkaya NA. Postpartum depression prevalence and related risk factors in Aydin province. *Adnan Menderes University Journal of Faculty of Medicine*. 2009; 10(3), 13 – 22.
19. Danaci AE, Dinc G, Deveci A, Sen FS, Icel II. Postnatal depression in Turkey: Epidemiological and cultural aspects. *Soc Psychiatry Psychiatr Epidemiol*. 2002;37:125–9.
20. Durukan E, Ilhan NM, Bumin AM, Aycan S. Postpartum depression frequency and quality of life among a group of mothers having a child aged 2 weeks-18 months. *Balkan Medical Journal*. 2011; 28(4): 385-393.
21. Kirpinar I, Gozum S, Pasinlioglu T. Prospective study of postpartum depression in eastern Turkey prevalence, socio-demographic and obstetric correlates, prenatal anxiety and early awareness. *Journal of Clinical Nursing*. 2010;19(3-4), 422-31.
22. Serhan N, Ege E, Ayranci U, Kosgeroglu N. Prevalence of postpartum depression in mothers and fathers and its correlates. *Journal of Clinical Nursing*. 2013;22(1–2): 279–284.
23. Sunter AT, Guz H, Canbaz S, Dundar C. Postpartum depression in Turkey: prevalence and related factors. *Turk J Obstet Gynecology*. 2006;3(1): 26-31.
24. Demir S, Senturk MB, Cakmak Y, Altay M. Postpartum depression and associated factors in patients who admitted to our clinic to make childbirth. *Medical Bulletin of Haseki*. 2016;54(2), 83-89. doi: 10.4274/haseki.2856
25. Kilan S. Father-baby attachment and affecting factors; example of Manisa. Manisa. Published Master Thesis Celal Bayar University Institute of Health Sciences. 2019.26-75.
26. Paulson JF, Bazemore SD. Prenatal and postpartum depression in fathers and its association with maternal depression: A meta-analysis. *Journal of The American Medical Association*. 2010; 19(303): 1961-9. doi: 10.1001/jama.2010.605.
27. Engindeniz AN, Kuey L, Kultur S. Validity and reliability study of Edinburgh postpartum depression scale Turkish form. *Spring Symposium 1st Book*. Ankara. Psychiatric Association Publications; 1996. p. 51-52.
28. Gulec D, Kavlak O. The study of reliability and validity of paternal-infant attachment scale in Turkish society. *Journal of Human Sciences*. 2013; 10(2): 170-181
29. Aslan Y, Ege E. Breastfeeding self-efficacy of mothers and relationship with depression risk. *Journal of Human Sciences*. 2016;13(2): 3160-3172.
30. Ngo LTH, Chou HF, Gau ML, Liu CY. Breastfeeding self-efficacy and related factors in postpartum Vietnamese women. *Midwifery*. 2019;70:84-91.
31. Brown A, Rance J, Bennett P. Understanding the relationship between breastfeeding and postnatal depression: the role of pain and physical difficulties. *Journal of Advanced Nursing*. 2016; 72(2): 273-282. doi: 10.1111/jan.12832.
32. Ayvaz S, Hocaoglu C, Tiryaki A, Ak İ. Incidence of postpartum depression in Trabzon province and risk factors at gestation. *Turkish journal of Psychiatry*. 2006;17(4): 243-251.
33. Ege E, Timur S, Zincir H, Geckil E, Sunar-Reeder B. Social support and symptoms of postpartum depression among new mothers in Eastern Turkey. *Journal of Obstetrics and Gynaecology Research*. 2008;34(4), 585-593.
34. Kilic M. The effect of marital adjustment to symptoms of postpartum depression: A multivariate. *Journal of Health Sciences*. 2016;25: 106-113.
35. Yagmur Y, Ulukoca N. Social support and postpartum depression in low-socioeconomic level postpartum women in Eastern Turkey. *International Journal of Public Health*. 2010;55(6):543-549.
36. Slomian J, Honvo G, Emonts P, Reginster J, Bruyère O. Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. *Women’s Health*. 2019;15: 1–55. doi: 10.1177/174550651984404448.
37. Dinc S. Determination of father-baby attachment and fathers that effect this condition. Istanbul. Istanbul University, Institute of Health Sciences, Child Health and Disease Nursing Department, Master Thesis. 2014 :55-79.
38. Evcili F, Yurtsal ZB, Cesur B, Kaya N. The effect of painful processes applied to newborn on parent-infant attachment. *Gumushane University Journal of Health Sciences*. 2017; 6(1): 65- 71.
39. Ferkeitch LS, Mercer RT. Paternal-infant attachment of experienced and in experienced fathers during pregnancy. *Nursing Research* 1997;44(1): 31-37.
40. Karabulut I. The relationship of maternal attachment on postpartum depression symptoms in the first- and fourth-month postpartum period. Konya. Published PhD Thesis Selcuk University Institute of Health Sciences. 2013.;29-62.