



Comparison of Postpartum Bonding, Maternal Blues, and Perceived Insufficient Milk Supply in Adolescent and Adult Mothers

Adölesan ve Yetişkin Annelerde Doğum Sonrası Bağlanma Annelik Hüznü ve Yetersiz Süt Algısının Karşılaştırılması

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Abstract

Aim: This study was conducted to compare the levels of postpartum bonding, maternal blues and insufficient milk perception in adolescent and adult mothers and to examine the relationships between these variables.

Material and Method: This descriptive and cross-sectional study was conducted with a total of 160 mothers, including 44 adolescents and 116 adults, who attended postpartum check-ups at an education and research hospital in eastern Turkey. Data were collected using an introductory information form, the Inadequate Milk Perception Scale, the Postpartum Bonding Scale, and the Maternal Blues Scale. Descriptive statistics, intergroup comparison tests, and correlation analyses were used in the analysis of the data; effect sizes were calculated.

Results: It was determined that adolescent mothers had lower levels of education and income, and higher rates of living in rural areas, unplanned pregnancies, premature births, and lack of breastfeeding education ($p<0.05$). Adolescent mothers' milk adequacy perception scores were found to be lower than those of adult mothers, while their postpartum bonding problems and maternal blues scores were found to be significantly higher ($p<0.05$). Correlation analysis between the scales revealed that as milk adequacy perception increased, bonding problems and maternal blues levels decreased. When effect sizes were evaluated, differences between groups were found to be more pronounced, particularly in psychological variables.

Conclusion: Research findings indicate that adolescent mothers are a more vulnerable group in terms of psychological adjustment during the postpartum period. Therefore, it is recommended that breastfeeding education and psychosocial support programmes for adolescent mothers be strengthened.

Keywords: Adolescent mother, adolescent pregnancy, perception of insufficient milk supply, maternal blues, postpartum bonding

Öz

Amaç: Bu araştırma adölesan ve yetişkin annelerde, doğum sonrası bağlanma, annelik hüznü ve yetersiz süt algısı düzeylerini karşılaştırmak ve bu değişkenler arasındaki ilişkileri incelemek amacıyla yapılmıştır.

Gereç ve Yöntem: Tanımlayıcı ve kesitsel tipte olan bu araştırma Türkiye'nin doğusunda bir eğitim ve araştırma hastanesinde doğum sonrası kontrole gelen 44 adölesan ve 116 yetişkin olmak üzere toplam 160 anne ile yürütülmüştür. Veriler tanıtıcı bilgi formu, Yetersiz Süt Algısı Ölçeği, Doğum Sonrası Bağlanma Ölçeği ve Annelik Hüznü Ölçeği kullanılarak toplanmıştır. Verilerin analizinde tanımlayıcı istatistikler, gruplar arası karşılaştırma testleri ve korelasyon analizleri kullanılmış; etki büyüklükleri hesaplanmıştır.

Bulgular: Adölesan annelerin eğitim ve gelir düzeylerinin daha düşük olduğu, kırsal bölgelerde yaşama, plansız gebelik, erken doğum ve emzirme eğitimi almama oranlarının daha yüksek olduğu saptanmıştır ($p<0,05$). Adölesan annelerin yetersiz süt algısı puanları yetişkin annelere göre daha düşük bulunurken, doğum sonrası bağlanma sorunları ve annelik hüznü puanları anlamlı düzeyde daha yüksek bulunmuştur ($p<0,05$). Ölçekler arasında yapılan korelasyon analizinde, süt yeterlilik algısı arttıkça bağlanma sorunları ve annelik hüznü düzeylerinin azaldığı belirlenmiştir. Etki büyüklükleri değerlendirildiğinde, gruplar arasındaki farkların özellikle psikolojik değişkenlerde daha belirgin olduğu görülmüştür.

Sonuç: Araştırma bulguları, adölesan annelerin doğum sonrası dönemde psikolojik uyum açısından daha kırılgan bir grup olduğunu göstermektedir. Bu nedenle adölesan annelere yönelik emzirme eğitimi ve psikososyal destek programlarının güçlendirilmesi önerilir.

Anahtar Kelimeler: Adölesan anne, adölesan gebelik, yetersiz süt algısı, annelik hüznü, doğum sonrası bağlanma



INTRODUCTION

The "adolescent period", defined as the transition from childhood to adulthood, is characterised by significant biological, psychological and social changes. According to the World Health Organization, adolescence is defined as the period between 10 and 19 years of age.^[1] Adolescent motherhood is a period in which the risks for both mother and baby may increase because the developmental tasks of the mother and parenting responsibilities coincide with the same period.^[2] Motherhood is an important event in a woman's life. Acquiring the role of motherhood is a process that requires acquiring the necessary skills, learning appropriate behaviors and creating a maternal identity. Preparing to accept maternal duty has significant implications for the mother's adjustment and transition into adulthood. However, in many countries, the increase in the number of young mothers has become one of the biggest concerns.^[3] Pregnancy and the early postnatal period are one of the most active life events in a woman's life.^[4] Pregnancy during adolescence is considered a complex developmental event that may increase both maternal and neonatal risks.^[5]

Low education level, poverty and living in rural areas lead to adolescent marriages and adolescent motherhood.^[6]

Adolescent pregnant women, who try to adapt to the physical, psychological, social and cognitive changes brought about by the adolescence period, may face more risks and stress than adult pregnant women due to the complexity of pregnancy and childbirth.^[7]

In addition to the sensitivity brought by the developmental period with the adolescent period, pregnancy and motherhood cause serious problems for babies.^[8]

Adolescent mothers try to cope with both the physical and psychosocial changes specific to adolescence and the responsibilities of the role of motherhood simultaneously during pregnancy and postpartum. This can cause young mothers to experience multifaceted difficulties such as depression, anxiety, low self-efficacy and lack of social support. The breastfeeding process, in particular, is an important part of this complex adaptation process and can often become an additional source of stress for adolescent mothers. The fact that adolescent mothers are in socially and economically disadvantaged conditions may make it difficult for them to continue the breastfeeding process and may increase the risk of early cessation of breastfeeding.^[9]

The bond established between mother and baby is considered a fundamental process for the baby's social, emotional and cognitive development. In the postpartum period, the mental health of the mother is one of the important factors that directly affect this bonding process. Emotional fluctuations and maternal blues, especially in the postpartum period, can affect the mother's sensitivity to the baby and the quality of mother-baby interaction. Psychological difficulties experienced during this period can negatively affect the mother's caregiving behaviors and her ability to respond to the baby's needs, leading to problems in the bonding process. For this reason, postnatal

bonding and maternal blues are important variables that should be considered together in terms of psychosocial adaptation of mother and baby.^[10] However, studies simultaneously examining postpartum bonding, maternal blues and perceived insufficient milk supply in adolescent mothers remain limited in the literature.

Breastfeeding experiences, maternal emotional adjustment, and mother–infant bonding are closely interconnected processes during the early postnatal period. Previous studies have shown that adolescent mothers often experience lower breastfeeding self-efficacy, higher psychological stress, and more difficulties in adapting to the maternal role compared with adult mothers.^[11,12] These difficulties may negatively affect both breastfeeding outcomes and the quality of early mother–infant interaction. In addition, maternal emotional distress in the postpartum period has been reported to be associated with bonding difficulties and adverse developmental outcomes in children.^[10]

Understanding the relationship between these variables is particularly important for healthcare professionals who provide maternal and child health services. In this context, identifying psychosocial risks among adolescent mothers may contribute to the development of supportive interventions aimed at improving breastfeeding experiences, strengthening mother–infant bonding, and promoting maternal psychological well-being.

These findings may contribute to the development of evidence-based nursing interventions aimed at supporting adolescent mothers during the postpartum period and improving breastfeeding experiences and mother–infant bonding. Adolescent mothers differ from adult mothers in terms of psychosocial maturity, breastfeeding experiences, and adaptation to the maternal role. Therefore, comparing these two groups may help to better understand the psychosocial challenges experienced during the postpartum period. Although previous studies have examined adolescent motherhood, breastfeeding practices, and postpartum psychological well-being separately, studies evaluating breastfeeding perception, maternal blues, and mother–infant bonding together in adolescent mothers are limited. Therefore, examining these variables together may contribute to a better understanding of the psychosocial challenges experienced by adolescent mothers during the postpartum period.

Study Aim

This study aimed to compare postpartum bonding, maternal blues and perceived insufficient milk supply between adolescent and adult mothers and to examine the relationships between these variables.

Research Questions

1. Is there a difference between the two groups in terms of postnatal bonding level?
2. Is there a difference between the two groups in terms of the level of maternal blues?
3. Is there a difference between the two groups in terms of perceived insufficient milk supply?
4. Is there a relationship between perceived insufficient milk supply, postpartum bonding and maternal blues?

MATERIAL AND METHOD

Ethical Aspects of the Research

Ethical approval for the study was obtained from the Non-Interventional Clinical Research Ethics Committee of a university hospital (Date: 24.06.2024, Decision No: 2024/07-16). The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Written and verbal informed consent was obtained from the participating mothers.

Type of Study

The study is descriptive and cross-sectional in nature.

Location and Time of the Research

The research was conducted with 44 adolescents and 116 adult mothers who came for postpartum check-ups at a Training and Research hospital in eastern Turkey between 03.10.2024 and 29.01.2025.

Universe and Sample of the Research

In this study, which evaluated bonding in adolescent and adult mothers, the effect size of the difference between the two groups was calculated to be 0.51. The number of births of adolescent and adult mothers a year ago was examined in the hospital and it was seen that the ratio of adolescent mothers to adult mothers was one-third. In this context, the smallest sample size to be included in the study was calculated using G* Power (version 3.1) software that 37 patients should be included in the adolescent group and 113 patients in the adult group, with effect size=0.51, power=85%, error probability of 0.05 and distribution ratio of 1/3. Based on these results, a total of 150 mothers were included in the study. Predicting that there may be data loss, 160 mothers were reached at the end of the study.

Inclusion and Exclusion Criteria

Mothers aged 18 years and older who attended postpartum follow-up visits at the hospital during the study period and agreed to participate voluntarily were included in the study. Mothers with severe medical complications, diagnosed psychiatric disorders, or communication difficulties that could prevent them from completing the questionnaires were excluded from the study.

Statistical Analysis

Data were analyzed using SPSS (version 26.0) and Microsoft Excel. Descriptive statistics included frequency (n), percentage (%), mean \pm standard deviation ($\bar{x}\pm SD$), minimum–maximum, median, and mode values. Due to the absence of adolescent mothers in the postgraduate education category, education level was recategorized into two groups (primary school and high school or above). Similarly, income level was recategorized into low and equal/high categories. Categorical variables were analyzed using the Pearson chi-square test or Fisher's exact test when appropriate. Continuous variables were compared using the independent samples t-test or Mann–Whitney U test. Statistical significance was

set at $p < 0.05$. Effect sizes were calculated using Cramer's V for categorical variables and converted to Cohen's d where appropriate. Effect sizes were interpreted according to Cohen's criteria. Odds ratios (OR) and 95% confidence intervals (CI) were calculated to assess the strength of associations. A forest plot was constructed to present effect sizes and their corresponding confidence intervals.

Data collection tools

The data collection form consisted of a total of 11 questions.^[13-15] and scales detailed below, about the individual characteristics of the mothers and their babies (age, education level, income level, region of residence, employment status, number of children, whether there is a planned pregnancy, in what week the birth takes place, whether she has received breastfeeding training, what the type of birth is, whether the gender of the baby is accepted) by examining similar studies.

Insufficient Milk Perception Scale

The scale developed by McCarter-Spaulding is a form consisting of 6 questions.^[16] In the first item, the participant's perception of whether he believes he has enough milk to feed his baby is questioned, and the next five questions are about measuring the perception of insufficient milk. The questions were measured with a Likert-type scale of 0-10 points. A minimum of 0 and a maximum of 50 points can be obtained from the scale. A high total score suggests an increased perception of milk's effectiveness. Cronbach's Alpha value was found to be 0.81 in the original scale. The Turkish validity and reliability study of the scale was conducted by Gökçeoğlu and Küçükoğlu (2014) and Cronbach's Alpha value was found to be 0.82. In this study, the Cronbach's Alpha value of the Insufficient Milk Perception Scale was found to be 0.910.

Postpartum Bonding Scale

Brockington et al. (2001) developed this scale to assess the mother's bonding to her baby in the postnatal period and to identify problems in the relationship between mother and baby. The scale completed by mothers consists of 25 questions. It is a 6-point Likert-type scale defined as ('always', 'very often', 'quite often', 'sometimes', "rarely" and 'never'). Seventeen of the questions are reverse-scored. These questions are questions 2, 3, 5, 6, 7, 10, 12, 13, 14, 15, 17, 18, 19, 20, 21, 23, and 24. High scores on the scale indicate an increase in bonding issues. The Cronbach's α value in the original version of the scale was determined to be 0.81. The validity and reliability of the Turkish version of the scale were established by Yalçın et al. (2014), and the Cronbach's α value in that study was found to be 0.82. In this study, the Cronbach's α value was found to be 0.753.

Postpartum Maternal Blues Assessment Scale

The scale was developed by Küçük and Cesur (2025) to determine what psychological changes occur in mothers during the postnatal period and what problems these changes may cause in mothers, with the aim of conducting reliability

and validity studies. The scale is a 5-point Likert type, consisting of 23 items across three subscales (the first factor being the “mother self-care dimension”, the second factor being the “infant care dimension”, and the third factor being the “spousal support dimension”). The Cronbach Alpha reliability coefficient of the original scale was determined to be 0.902. The Cronbach α value of our study was found to be 0.924.

RESULTS

When **Table 1** is examined, it is observed that among the participants (n=160), 27.5% were adolescent mothers (n=44) and 72.5% were adult mothers (n=116). Considering maternal age, 27.5% of the participants were in the 18–19 age group (n=44), 43.8% were in the 20–30 age group (n=70), 25.6% were in the 31–40 age group (n=41), and 3.1% (n=5) were over 40 years of age. In terms of educational status, 35.6% of the mothers had primary school education (n=57), 46.9% had high school education (n=75), and 17.5% (n=28) had postgraduate education. Regarding income level, 37.5% of the participants reported low income (n=60), 55.6% reported that their income was equal to their expenses (n=89), and 6.9% (n=11) reported higher income than expenses. In terms of place of residence, 56.9% of the mothers lived in the city center (n=91), while 43.1% (n=69) lived in districts or villages. Regarding employment status, only 20% of the participants were employed (n=32), whereas 80% (n=128) were not working. According to the number of children, 51.9% of the mothers had one child (n=83), and 48.1% (n=77) had two or more children. In terms of pregnancy planning, 70.6% of the participants reported that their pregnancy was planned (n=113), while 29.4% (n=47) reported it was unplanned. Based on gestational age at birth, 4.4% of the infants were born between 28–32 weeks (n=7), 30.6% between 33–37 weeks (n=49), and 65% between 38–41 weeks (n=104). It was found that 46.3% of the mothers had received breastfeeding education (n=74), whereas 53.8% (n=86) had not. In terms of mode of delivery, 65% had a vaginal delivery (n=104), and 35% (n=56) had a cesarean section. Additionally, 98.8% of the mothers (n=158) reported accepting their baby's gender, while only 1.3% (n=2) reported not accepting it.

The reliability coefficients of the three scales used in the study were found to be high. The Cronbach's alpha values were calculated as 0.910 for the Perceived Insufficient Milk Scale (PIMS), 0.753 for the Postpartum Bonding Scale (PBS), and 0.924 for the Maternal Blues Scale (MB). The mean score obtained from the PIMS was 35.1 ± 10.8 , with participants scoring between a minimum of 10 and a maximum of 50. The most frequently observed value (mode) was 50, and the median value was 37. The mean score for the PBS was 16.9 ± 16.1 , with scores ranging from 0 to 60; the mode was 10 and the median was 11. The mean score for the MB scale was 51.3 ± 17.7 , with scores ranging from a minimum of 23 to a maximum of 51; the mode was 23 and the median was 51. The results of the correlation analysis between the scales indicated a negative, moderate, and statistically significant relationship

between PIMS and PBS ($r=-0.262$, $p=0.001$, $d=0.271$). This finding indicates that as mothers' perception of milk sufficiency increases, problems in mother–infant bonding decrease. Similarly, a negative, moderate, and statistically significant relationship was found between PIMS and MB ($r=-0.270$, $p=0.001$, $d=0.280$). Accordingly, as mothers' perception of milk sufficiency increases, symptoms of maternal blues decrease. A positive, moderate, and statistically significant relationship was identified between PBS and MB ($r=0.416$, $p<0.001$, $d=0.457$). This finding demonstrates that as mother–infant bonding problems increase, maternal blues symptoms also increase.

Table 1. Sociodemographic and obstetric characteristics of adolescent and adult mothers

Variables	Categories	n	%
Mother	Adolescent	44	27.5
	Adult	116	72.5
Mother age (Year)	18-19	44	27.5
	20-30	70	43.8
	31-40	41	25.6
	Over 40	5	3.1
Educational status	Primary education	57	35.6
	High School	75	46.9
	Postgraduate*	28	17.5
Income level	Low	60	37.5
	Average	89	55.6
	High*	11	6.9
Residence	City	91	56.9
	Town & Village	69	43.1
Employment status	Yes	32	20
	No	128	80
Number of children	1	83	51.9
	2 and over	77	48.1
Planned pregnancy status	Yes	113	70.6
	No	47	29.4
Week of birth	28-32	7	4.4
	33-37	49	30.6
	38-41	104	65
Breastfeeding training status	Yes	74	46.3
	No	86	53.8
Mode of Birth	Natural birth	104	65
	Caesarean section	56	35
Acceptance of the baby's gender	Yes	158	98.8
	No	2	1.3

*No adolescents were represented in these categories. n=Number, %=Percentage.

Table 2. Findings related to scales and correlations between scales

	α	$\bar{x}\pm ss.$	Min-Max.	Mod-Median	PBS	p/d	AH	p/d
IMPS	0.910	35.1±10.8	10-50	50-37	-0.262	0.001*/0.271	-0.270	0.001*/0.280
PBS	0.753	16.9±16.1	0-60	10-11			0.416	<0.001*/0.457
MBS	0.924	51.3±17.7	23-95	23-51				

α : Cronbach's alpha reliability coefficient, $\bar{x}\pm ss.$: Mean plus/minus standard deviation, Min-Max: Minimum and Maximum values, Mode-Median: The most frequently occurring and median value of the series, d: Cohen's d effect size, *p<0.05 IMPS: Inadequate Milk Perception Scale (5-item 10-point Likert, Min:0, Max:50, a higher score indicates an increase in the mother's perception of adequacy regarding her milk). PBS: Postpartum Bonding Scale (6-point Likert scale with 25 questions, Min:0, Max:125, a higher score indicates an increase in the mother's postpartum bonding issues with her baby) MBS: Maternal Blues Scale (5-point Likert scale with 23 questions, Min:23, Max:115, a higher score indicates that the symptoms of maternal blues are high in the postpartum period)

Table 3. Comparison of Adolescents and Adults According to Variables

Variables	Categories	Adolescent (n=44)		Adult (n=116)		vs	Statistics	p.	V.	OR (%95 CI)
		n	%	n	%					
Mother age (Years)							ET:0.160	<0.001*	1.00	
	18-19	44	100	0	0	a≠y				
	20-30	0	0	70	60.3	a≠y				
	31-40	0	0	41	35.3	a≠y				
	Over 40	0	0	5	4.3	a≠y				
Educational status							χ^2 :9.473	0.002*	0.243	3.02 (1.47, 6.19)
	Primary education	24	54.5	33	43.1	a≠y				
	High school and over	20	45.5	83	32.8	a≠y				
Income level							χ^2 :4.046	0.044*	0.159	2.05 (1.01, 4.16)
	Low	22	50.0	38	32.8	a≠y				
	Equal and more	22	50.0	78	67.2	a≠y				
Residence							χ^2 :12.9	<0.001*	0.283	0.27 (0.13, 0.57)
	City	15	34.1	76	65.5	a≠y				
	Town & village	29	65.9	40	34.5	a≠y				
Employment status							ET:4.514	0.045*	0.168	0.31 (0.10, 0.96)
	Yes	4	9.1	28	24.1	a≠y				
	No	40	90.9	88	75.9	a≠y				
Number of children							ET:10.32	0.001*	0.254	12.3(4.2, 37.8)
	1	40	90.9	43	37.1	a≠y				
	2 and over	4	9.1	54	62.9	a≠y				
Planned pregnancy status							χ^2 :12.4	0.001*	0.279	0.27(0.13, 0.57)
	Yes	22	50	91	78.4	a≠y				
	No	22	50	25	21.6	a≠y				
Week of birth							ET:6.390	0.035*	0.201	2.57 (1.23, 5.38)
	28-32	2	4.5	5	4.3					
	33-37	20	45.5	29	25	a≠y				
	38-41	22	50	82	70.7	a≠y				
Breastfeeding training status							χ^2 :6.812	0.009*	0.206	0.38 (0.18, 0.79)
	Yes	13	29.5	61	52.6	a≠y				
	No	31	70.5	55	47.4	a≠y				
Mode of Birth							χ^2 :2.668	0.102		
	Natural birth	33	75	71	61.2					
	Caesarean section	11	25	45	38.8					
Acceptance of the baby's gender							ET:0.768	0.381		
	Yes	44	100	114	98.3					
	No	0	0	2	1.7					

Scales	$\bar{x}\pm ss.$	$\bar{x}\pm ss.$	Statistics (p)	d	%95 GA
IMPS	30.3±10.7	36.9±10.4	t:-3.583 (<0.001*)	-0.634	(-0.987, -0.279)
PBS	29.7±21.8 MR:105.8	12.0±9.6 MR:70.9	Z:-4.260 (<0.001*)	1.257	(0.881, 1,629)
MBS	57.9±18.1	48,8±16.9	t:2.995 (0.003*)	0.530	(0.178, 0,881)

n: Number, %: Percentage, χ^2 : Chi-square test statistic, ET: Fisher Exact test statistic, V: Cramer's V effect size, etc: Comparison between Adolescent and Adult categories, if there is a difference in the variable category, t: Independent sample t test, Z: Mann-Whitney U test standardized score, MR: Mean rank, f: Cohen's d effect size, *p<0.05

Sociodemographic Characteristics

Since maternal age determined adolescent status, all participants in the 18–19 age group ($n=44$) were classified as adolescent mothers, while the remaining participants ($n=116$) were classified as adult mothers. Therefore, a complete distinction between the groups was observed based on age ($ET=0.160$, $p=1.000$, $V=1.00$). In terms of educational status, 54.5% of adolescent mothers had primary education and 45.5% had high school or higher education, whereas among adult mothers, 43.1% had primary education and 32.8% had high school or higher education. A statistically significant difference was found between the groups ($\chi^2=9.473$, $p=0.002$), with a small-to-moderate effect size ($V=0.243$). According to the odds ratio, adolescent mothers were 3.02 times more likely to have primary education compared to adult mothers (95% CI: 1.47–6.19). Regarding income level, 50% of adolescent mothers reported low income, compared to 32.8% of adult mothers. A statistically significant difference was observed between the groups ($\chi^2=4.046$, $p=0.044$), with a small effect size ($V=0.159$). Adolescent mothers were 2.05 times more likely to have low income compared to adult mothers (95% CI: 1.01–4.16). In terms of place of residence, 34.1% of adolescent mothers lived in the city center and 65.9% in districts or rural areas, whereas 65.5% of adult mothers lived in the city center and 34.5% in districts or rural areas. A statistically significant difference was found between the groups ($\chi^2=12.900$, $p<0.001$), with a moderate effect size ($V=0.283$). Adolescent mothers were less likely to live in the city center ($OR=0.27$, 95% CI: 0.13–0.57) and more likely to reside in rural areas ($1/OR=3.7$). Regarding employment status, 9.1% of adolescent mothers were employed compared to 24.1% of adult mothers. A statistically significant difference was identified between the groups ($ET=4.514$, $p=0.045$), with a small effect size ($V=0.168$). Adolescent mothers were less likely to be employed ($OR=0.31$, 95% CI: 0.10–0.96) and more likely to be unemployed ($1/OR=3.2$) compared to adult mothers.

Obstetric Characteristics

In terms of the number of children, 90.9% of adolescent mothers had one child, whereas this rate was 37.1% among adult mothers. A statistically significant difference was found between the groups ($ET=10.320$, $p=0.001$), with a moderate effect size ($V=0.254$). Adolescent mothers were 12.3 times more likely to have only one child compared to adult mothers (95% CI: 4.2–37.8). Regarding planned pregnancy, 50% of adolescent mothers reported that their pregnancy was planned, compared to 78.4% of adult mothers. A statistically significant difference was found ($\chi^2=12.400$, $p=0.001$), with a moderate effect size ($V=0.279$). Adolescent mothers were less likely to have a planned pregnancy ($OR=0.27$, 95% CI: 0.13–0.57) and more likely to experience unplanned pregnancy ($1/OR=3.7$). In terms of gestational age at birth, 45.5% of adolescent mothers delivered between 33–37 weeks and 50% between 38–41 weeks, whereas among adult mothers, 25% delivered between 33–37 weeks and 70.7% between 38–41 weeks. A statistically significant difference was found between the groups ($ET=6.390$, $p=0.035$), with a small effect

size ($V=0.201$). The odds ratio ($OR=2.57$, 95% CI: 1.23–5.38) indicated a higher likelihood of early delivery (33–37 weeks) among adolescent mothers. Regarding breastfeeding education, 29.5% of adolescent mothers had received education compared to 52.6% of adult mothers. A statistically significant difference was found ($\chi^2=6.812$, $p=0.009$), with a small effect size ($V=0.206$). Adolescent mothers were less likely to receive breastfeeding education ($OR=0.38$, 95% CI: 0.18–0.79) and more likely not to receive such education ($1/OR=2.6$). No statistically significant difference was found between the groups in terms of mode of delivery ($\chi^2=2.668$, $p=0.102$). Regarding acceptance of the baby's gender, all adolescent mothers (100%) and 98.3% of adult mothers reported acceptance. No statistically significant difference was found between the groups ($ET=0.768$, $p=0.381$).

Comparison of Scale Scores

A statistically significant difference with a moderate effect size was found between adolescent and adult mothers in terms of IMPS scores ($t=-3.583$, $p<0.001$, $d=-0.634$, 95% CI [-0.987, -0.279]). The mean score was 30.3 ± 10.7 for adolescent mothers and 36.9 ± 10.4 for adult mothers. For PBS scores, a statistically significant difference with a moderate-to-large effect size was observed ($Z=-4.260$, $p<0.001$, $d=1.257$, 95% CI [0.881, 1.629]). The mean score for adolescent mothers was 29.7 ± 21.8 (mean rank=105.8), while for adult mothers it was 12.0 ± 9.6 (mean rank=70.9). For MB scores, a statistically significant difference with a small effect size was found ($t=2.995$, $p=0.003$, $d=0.530$, 95% CI [0.178, 0.881]). The mean score was 57.9 ± 18.1 for adolescent mothers and 48.8 ± 16.9 for adult mothers.

Forest Plot Analysis of Effect Sizes

In the forest plot (Figure 1), 11 variables that showed statistically significant differences between adolescent and adult mothers were compared using Cohen's d as the measure of effect size.

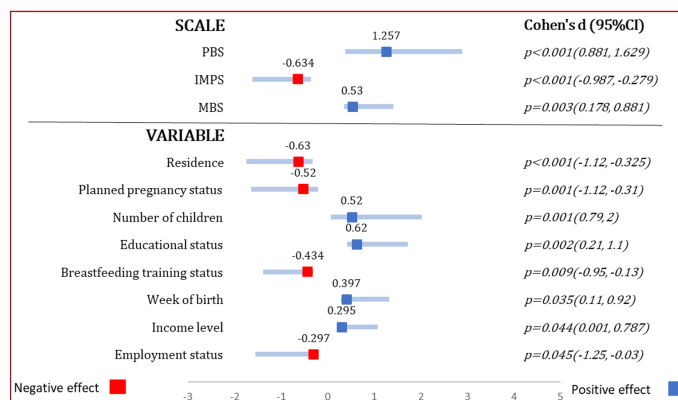


Figure 1. Forest plot of effect sizes and 95% confidence intervals (95% CI) between adolescent and adult mothers

Red points indicate effects favoring adult mothers, whereas blue points indicate effects favoring adolescent mothers.

Note: Effect sizes for categorical variables were converted to Cohen's d values using the method of Borenstein et al. (2009). Effect sizes (Cohen's d) were interpreted using the benchmarks suggested by Cohen (1988): $|d|<0.2$ (negligible), $0.2\leq|d|<0.5$ (small), $0.5\leq|d|<0.8$ (medium), and $|d|\geq 0.8$ (large).

Scale Category: Psychological Variables

Variables based on psychological scales revealed the strongest differences between adolescent and adult mothers. This category includes the results of three standardized measurement tools and is critical for demonstrating the impact of maternal age on psychological adaptation processes. The Postpartum Bonding Scale (PBS) showed the highest effect size among all variables ($d=1.257$), indicating a large effect. This finding demonstrates a substantial difference in bonding levels between adolescent and adult mothers. The 95% confidence interval was entirely within the positive range (95% CI: 0.881,1.629), indicating consistency in the direction of the effect and strong statistical support. However, the relatively wide confidence interval suggests that the precision of the effect size should be interpreted with caution.

The Perceived Insufficient Milk Scale (PIMS) demonstrated a moderate effect size ($d=-0.634$). The confidence interval was entirely in the negative range (95% CI: -0.987 to -0.279), indicating that adolescent mothers systematically differed from adult mothers in the opposite direction and that this difference was statistically reliable. The absence of zero within the confidence interval further supports the statistical significance and robustness of the finding.

The Maternal Blues Scale (MBS) was positioned between small and moderate effect size ($d=0.530$). The confidence interval was entirely positive (95% CI: 0.178–0.881), indicating a consistent direction of the effect and suggesting that the observed difference was not due to chance. The moderate width of the interval indicates that, although statistically significant, the magnitude of the effect remains limited.

Sociodemographic Category: Structural Differences

Sociodemographic variables reflect systematic differences in living conditions and social positioning between adolescent and adult mothers. This category is important for highlighting structural inequalities and social determinants. Residence had the highest effect size among sociodemographic variables ($d=-0.63$). Its position in the negative direction indicates that adolescent mothers were more concentrated in rural areas compared to adult mothers. The confidence interval was entirely negative and relatively narrow (95% CI: -1.12 to -0.325), suggesting a more precise estimation of both the direction and magnitude of the effect. This finding indicates a clear difference in geographical distribution between the groups. Educational status showed a small-to-moderate effect size ($d=0.62$). The confidence interval was entirely positive (95% CI: 0.21–1.1), indicating consistency in direction but also variability in magnitude across the sample. Employment status demonstrated a small effect size ($d=-0.297$). The negative direction indicates lower employment among adolescent mothers, while the relatively wide confidence interval (95% CI: -1.25 to -0.03) suggests heterogeneity across the sample. Income level had the smallest effect size among all variables ($d=0.295$). Although the confidence interval was positive (95% CI: 0.001–0.787), indicating a consistent

difference, the magnitude of the effect remained limited, suggesting that higher income levels were more common among adult mothers.

Obstetric Category: Pregnancy and Birth Characteristics

Obstetric variables highlight differences in pregnancy processes and birth experiences between adolescent and adult mothers, which are important for reproductive health and perinatal care. Planned pregnancy status had the highest effect size among obstetric variables ($d=-0.52$). The confidence interval was negative and relatively narrow (95% CI: -1.12 to -0.31), indicating a strong and consistent effect. This finding highlights that unplanned pregnancies are substantially more common among adolescent mothers and represent a key distinguishing factor between the groups. Number of children showed a moderate effect size ($d=0.52$). The confidence interval was entirely positive (95% CI: 0.79–2), indicating a strong and consistent difference. This reflects that most adolescent mothers were primiparous, whereas adult mothers included both primiparous and multiparous individuals. Breastfeeding education status demonstrated a small effect size ($d=-0.434$). Its negative position indicates that adolescent mothers were less likely to receive breastfeeding education. The confidence interval was entirely negative (95% CI: -0.95 to -0.13), suggesting a consistent but limited effect. Week of birth had the smallest effect size among obstetric variables ($d=0.397$). The confidence interval was positive and of moderate width (95% CI: 0.11–0.92), indicating a statistically significant but relatively limited difference. This suggests that adolescent pregnancies differ from adult pregnancies in terms of early birth risk, although the magnitude of this difference is not substantial.

Comparative Evaluation Across Categories

When comparing the three main categories, the scale (psychological) category showed the highest average effect size. This finding indicates that the most pronounced differences between adolescent and adult mothers are related to psychological adaptation, maternal experience, and emotional health. This categorical distribution suggests that adolescent motherhood is not solely a biological or demographic phenomenon, but rather a complex and multidimensional experience in which psychological dimensions play a prominent role.

DISCUSSION

The main finding of this study is that adolescent mothers have a higher risk of postpartum psychological adjustment compared to adult mothers. In the study, it was determined that adolescent mothers' postpartum bonding problems and maternal blues levels were significantly higher, while insufficient milk perception scores were lower. These findings suggest that adolescent mothers may be a more vulnerable group in terms of both emotional adjustment and adaptation to the role of motherhood during the postpartum period.

Discussion of Inter-Scale Relationships

In this study, the significant relationships between insufficient milk perception and postpartum bonding problems and maternal blues show that mothers' psychological adaptation processes in the postpartum period have a multidimensional structure. With the increase in the perception of insufficient milk, mothers are expected to feel more adequate, their anxiety about the breastfeeding process will decrease and their adaptation to the role of motherhood will strengthen. On the other hand, low perception of milk adequacy can lead to damage to the perception of self-efficacy and increase emotional strain, especially in adolescent mothers who are first-time mothers and have limited breastfeeding experience. It is thought that this situation may cause an increase in maternal blues and difficulties in bonding between mother and baby. Our research findings reveal that the perception of insufficient milk supply is not limited to breastfeeding behaviour alone, but also plays a decisive role in the mother's psychological well-being and the relationship she establishes with her baby.

In this study, it was determined that the mean scores of adolescent mothers on the Insufficient Milk Perception Scale (IMPS) were significantly lower than those of adult mothers. This finding suggests that adolescent mothers' perceptions of breast milk adequacy are more negative and they evaluate the breastfeeding process with more anxiety and a sense of inadequacy. The fact that this difference between groups is also clinically significant indicates that inadequate milk perception in adolescent mothers is an important risk factor affecting the breastfeeding process. The fact that the vast majority of adolescent mothers are primiparous, have limited breastfeeding experience and receive less breastfeeding education may contribute to this perception. The literature reports for the first time that women who are first-time mothers have lower levels of self-efficacy regarding the breastfeeding process and experience more difficulties in initiating and maintaining breastfeeding.^[12,21] It has been reported that planned pregnancy and the mother's psychological state can affect the breastfeeding process. It has been shown that unwanted pregnancies are associated with lower rates of initiating and continuing breastfeeding.^[22] This finding suggests that the relationship between perceived insufficient milk supply and maternal blues and bonding issues should be evaluated in conjunction with psychological well-being.

The fact that adolescent mothers' Postpartum Bonding Scale (PBS) scores were found to be significantly higher than those of adult mothers indicates that postpartum bonding problems are more pronounced in this group. Considering the developmental characteristics of adolescence, it can be said that assuming the role of motherhood before completing one's own identity development may create additional psychosocial difficulties in establishing the mother–infant relationship. It has been reported that the bonding process in adolescent mothers is closely related to the mother's interpersonal relationships and psychosocial environment.^[23]

Furthermore, it is thought that postpartum bonding problems observed in adolescent mothers should be addressed not only in terms of individual characteristics, but also in conjunction with developmental stage characteristics and lack of social support.^[14] It has been reported that prenatal bonding begins with the emotional response to pregnancy and that age and whether the pregnancy was planned affect prenatal bonding.^[24] It has been noted that younger pregnant women have lower levels of prenatal bonding, while those with planned pregnancies exhibit higher levels of prenatal bonding.^[25] This suggests that postpartum bonding difficulties may be a reflection of bonding patterns that begin during pregnancy.

This study found that adolescent mothers experience higher levels of maternal blues than adult mothers, suggesting that women who become mothers at a young age may experience greater emotional distress during the adjustment process to their maternal role in the postpartum period. The literature reports that postpartum depressive symptoms and psychosocial adjustment problems may be higher in adolescent mothers than in adult mothers, and that developmental immaturity and lack of social support may negatively affect this process.^[11,26] These findings suggest that maternal blues in adolescent mothers may be more than just a temporary emotional fluctuation; it may be an important indicator of psychological adjustment that affects the process of adapting to the role of motherhood.

When examining the relationships between scales, a negative and significant relationship was observed between perceived milk insufficiency and postpartum bonding. This finding suggests that mothers' positive perceptions of milk adequacy may support mother–infant bonding. Furthermore, the finding of a negative relationship between perceived insufficient milk supply and maternal blues suggests that mothers who feel adequate in breastfeeding may have better emotional adjustment after childbirth. The positive relationship found between postpartum bonding and maternal blues, on the other hand, suggests that increased maternal blues may negatively affect the bonding process.

In our study, **Table 1** presents the sociodemographic and obstetric characteristics of the sample at a descriptive level, while **Table 3** contains analytical comparisons revealing the magnitude and direction of differences between adolescent and adult mothers.

In our study, when comparing educational status, it was determined that adolescent mothers had significantly lower educational levels than adult mothers (**Table 1**). Intergroup comparisons revealed that this difference was statistically significant ($\chi^2=9.473$, $p=0.002$) (**Table 3**). Similarly, various studies in the literature have reported that adolescent mothers have low levels of education.^[5,19,20] World Health Organisation data also show that adolescent pregnancy leads to dropping out of school and low levels of education.^[27] Our study shows that adolescent mothers have a lower level of education, which is consistent with the literature. This

finding suggests that women who become pregnant during adolescence interrupt their education to become mothers at an early age. It is thought that a low level of education may negatively affect preparation for motherhood, making postpartum psychological adjustment more difficult.

In terms of income level, adolescent mothers were found to be economically disadvantaged. Descriptive findings show that half of adolescent mothers report a low income level (**Table 1**); comparative analyses reveal a statistically significant difference in income level between the groups ($p=0.044$) (**Table 3**). This finding suggests that adolescent motherhood not only means becoming a mother at an early age but also inheriting economic deprivation. The literature shows that adolescent pregnancy is strongly associated with low socioeconomic status and poverty.^[28] A systematic review and meta-analysis covering large samples also found that adolescent pregnancy is associated with low socioeconomic status and poverty.^[29] The research findings are consistent with the literature. It is thought that economic hardship may make the experience of motherhood more stressful by limiting access to social support resources and may negatively affect psychological adjustment.

In terms of place of residence, adolescent mothers were found to live predominantly in rural areas (**Table 1**). When comparing groups, the place of residence variable was found to have a high effect size among sociodemographic variables, and this difference was statistically significant ($p<0.001$) (**Table 3**). The fact that adolescent mothers are 0.27 times less likely to live in city centres than adult mothers indicates that the likelihood of living in rural areas increases significantly. A systematic review and meta-analysis study shows that adolescents living in rural areas have a higher risk of pregnancy.^[30] This finding is consistent with our study. The prevalence of early marriage in rural areas, limited access to education and healthcare services, and insufficient use of family planning services may be among the factors contributing to the higher incidence of adolescent pregnancies in these regions.

In analyses conducted in terms of employment status, it was determined that the employment rates of adolescent mothers were significantly lower than those of adult mothers ($p=0.045$) (**Table 3**). The fact that adolescent mothers are 0.31 times less likely to be employed than adult mothers suggests that participation in the labour force is limited due to young age, low educational attainment, and increased caregiving responsibilities. According to the World Health Organisation (2024) report, it is emphasised that early motherhood increases economic dependency by limiting education and employment opportunities and is associated with social disadvantages.^[27] The literature also reports that adolescent motherhood can increase economic dependency by limiting education and employment opportunities.^[30]

When obstetric characteristics are examined, it is seen that the vast majority of adolescent mothers are primiparous and are experiencing motherhood for the first time. Comparative

analyses have shown that adolescent mothers are 12.3 times more likely to have a child than adult mothers (95% CI: 4.17-64.5) (**Table 3**). This finding suggests that adolescent pregnancies are generally first pregnancies and that the role of motherhood is assumed during an inexperienced period. The literature also reports that the majority of adolescent pregnancies are first pregnancies and that these mothers are mostly primiparous.^[27,31] It is thought that becoming a mother for the first time may play a decisive role in breastfeeding self-efficacy and perceptions of motherhood; this situation may have an effect on perceptions of insufficient milk supply and psychological adjustment.

In the assessment of planned pregnancy status, it was determined that the rate of unplanned pregnancies among adolescent mothers was significantly higher than that among adult mothers ($p=0.001$) (**Table 3**). This finding indicates that rates of utilisation of family planning and contraceptive services are low among adolescent pregnancies. Marriages at an adolescent age are particularly prevalent in rural areas in Turkey, and these marriages are often approved by families within the socio-cultural structure.^[32] In various studies, a significant proportion of adolescent pregnancies are unwanted (unplanned), and this situation is particularly evident in low- and middle-income countries.^[33,34]

In our study, it was determined that adolescent mothers were more likely to give birth in earlier weeks ($p=0.035$) (**Table 3**). This finding shows that adolescent pregnancies constitute a more sensitive group in terms of obstetric risks. A systematic review and meta-analysis covering African countries reported that adolescent pregnancies are associated with preterm birth.^[29] International studies also report higher rates of preterm birth and increased obstetric risks among adolescent mothers. It is thought that preterm birth may negatively affect psychological adjustment by increasing postpartum stress and maternal anxiety.^[35-37]

When assessing breastfeeding education, it is observed that adolescent mothers' rates of receiving breastfeeding education are significantly lower than those of adult mothers (OR=0.38). This suggests that adolescent mothers are unable to benefit sufficiently from prenatal and postpartum care services. The literature also reports that breastfeeding counselling provided to adolescent mothers significantly increases breastfeeding self-efficacy and performance.^[38] Grassley (2010) reported that adolescent mothers need more social and professional support during the breastfeeding process. Inadequate breastfeeding education may increase perceptions of insufficient milk supply, potentially leading to increased anxiety and psychological distress related to the breastfeeding process.

In this study, no statistically significant difference was found between adolescent and adult mothers in terms of mode of birth ($\chi^2=2.668$, $p=0.102$). It was determined that 75% of adolescent mothers gave birth vaginally and 25% by caesarean section, while 61.2% of adult mothers gave

birth vaginally and 38.8% by caesarean section. This finding indicates that the mode of birth does not differ significantly according to age groups. A review of the literature shows that the mode of birth does not differ significantly according to age groups. International studies also report that caesarean section rates are similar among adolescent and adult mothers and that the mode of birth does not always show significant differences according to age.^[38] In a study conducted by Ranjbar and colleagues (2023), the incidence of caesarean section among adolescents was found to be significantly lower than among adults.^[41] Another study found that adolescent primiparous mothers were less likely to give birth by caesarean section than adults.^[41]

The indirect effects of the mode of birth on breastfeeding and psychological adjustment processes after birth should also be considered. Indeed, the literature indicates that caesarean birth may negatively affect the initiation and continuation of breastfeeding, whereas breastfeeding outcomes are more favourable in mothers who have vaginal births.^[42] Another study reported that caesarean birth may negatively affect the early initiation of breastfeeding and result in lower breastfeeding rates.^[43] When these findings are considered together, although our study did not find a statistically significant difference between groups in terms of mode of birth, it can be said that mode of birth may have an indirect effect on postpartum breastfeeding perceptions and psychological adjustment processes, and that supportive care approaches are particularly important for adolescent mothers.

In this study, no statistically significant difference was found between adolescent and adult mothers in terms of accepting the baby's gender ($ET=0.768$, $p=0.381$). It was observed that all adolescent mothers and the vast majority (98.3%) of adult mothers accepted their baby's gender. There are limited studies in the literature in which the acceptance of the baby's gender is directly compared between adolescent and adult mothers. For this reason, the current findings can be discussed indirectly with studies examining preferences for fetal sex in pregnant women. As a matter of fact, in a study by Maduka et al. (2024) examining preferences regarding fetal sex in pregnant women, it was reported that a significant proportion of women did not show a clear preference for sex and that the sex of the baby was generally accepted. Similarly, a study conducted by Gavalas and colleagues (2015) found no significant relationship between maternal age and the sex of the baby. Arnold et al. (2002) reported that sex preferences are related to cultural and social factors rather than maternal age.

To our knowledge, this study is one of the limited studies that simultaneously examines postpartum bonding, maternal blues, and perceived insufficient milk supply in adolescent mothers. By evaluating these variables together, the study provides a more comprehensive understanding of the psychosocial adjustment processes experienced by adolescent mothers during the postpartum period.

CONCLUSION

This study revealed that adolescent mothers had lower perceptions of insufficient milk in the postpartum period, higher postpartum bonding problems, and higher levels of maternal blues compared to adult mothers. In addition, statistically significant relationships were found between insufficient milk perception and postpartum bonding problems and maternal blues.

The findings suggest that adolescent mothers are a more psychosocially vulnerable group in the postpartum period. This vulnerability becomes more pronounced when assessed in conjunction with sociodemographic and obstetric characteristics such as low educational attainment, unplanned pregnancy, limited breastfeeding education, and rural living. These findings indicate the importance of assessing adolescent mothers during prenatal and postpartum care not only in terms of physical health indicators but also in terms of breastfeeding perception, mother–infant bonding, and emotional well-being. The findings of this study may guide nursing care practices aimed at supporting adolescent mothers and increasing clinical awareness. Therefore, it is recommended that prenatal and postpartum care programmes for adolescent mothers include structured interventions that strengthen psychosocial support and breastfeeding self-efficacy. These findings highlight the importance of early psychosocial assessment and breastfeeding support for adolescent mothers during prenatal and postnatal care. Pediatric nurses working in maternal and child health services play a crucial role in identifying psychosocial risks, supporting breastfeeding practices, and strengthening mother–infant bonding among adolescent mothers.

Strengths

One of the strengths of this study is that it addresses adolescent motherhood not merely as a demographic or obstetric phenomenon, but within the context of the psychosocial adjustment process during the postpartum period. By comparing adolescent and non-adolescent mothers, this study evaluates the variables of perceived milk insufficiency, postpartum bonding with the baby, and maternal blues together, revealing the multidimensional nature of adolescent motherhood. Furthermore, the fact that differences between groups are presented not only with statistical significance levels but also with effect sizes and confidence intervals allows for a more realistic interpretation of the findings from both clinical and academic perspectives.

Limitations

This study has some limitations. Firstly, as the research was conducted using a cross-sectional design, it is not possible to establish a causal relationship between the findings. Secondly, the data was collected from mothers who attended a single training and research hospital, and the generalisability of the results to the entire population may be limited. Furthermore, the data used in the study was obtained through self-reporting scales, and participants' responses may contain recall bias or social desirability effects..

ETHICAL DECLARATIONS

Ethics Committee Approval: Ethical approval for the study was obtained from the Van Yüzüncü Yıl University Non-interventional Ethics Committee (Date: 24.06.2024, Decision No: 2024/07-16).

Informed Consent: Written and verbal informed consent was obtained from the participating mothers.

Referee Evaluation Process: Externally peer-reviewed.

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