

Evaluation of exclusive breastfeeding rates and breastfeeding duration in term uncomplicated Turkish adolescent mothers

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Abstract

Aim: The aim of the present study was to evaluate exclusive breastfeeding (EBF) rates and breastfeeding duration in adolescent Turkish mothers after term-uncomplicated deliveries.

Material and Methods: The study comprised 803 uncomplicated, nulliparous women, who had a single pregnancy and delivered at term gestational age. After excluding any maternal and fetal factors that affected early breastfeeding initiation, 674 nulliparous pregnant women were divided into three groups as follows: adolescents 16–17 years old, adolescents 18–19 years old, and non-adolescents 20–24 years old. The primary outcome of the study was defined as EBF of the infant, especially during the first 6 months of life.

Results: Gestational age at delivery, birth weight, newborn gender, rate of induced labor, and rate of vaginal deliveries were similar among the groups. We found that 22.5% (14/62) of patients in the 16- to 17-year group, 41.8% (72/172) in 18- to 19-year group, and 72.9% (321/440) in the 20- to 24-year group had EBF during the first 6 months of their baby's life. The rate of EBF during the first 6 months was significantly less in the 16- to 17-year and 18- to 19-year groups compared to that in the 20- to 24-year group ($p < 0.001$). The mean breastfeeding duration was 6.7 ± 1.4 months in the 16- to 17-year group, 9.5 ± 2.2 months in the 18- to 19-year group, and 15.2 ± 3.2 months in the 20- to 24-year group. Mean breastfeeding duration was significantly less in the 16- to 17-year and 18- to 19-year groups than in the 20- to 24-year group ($p < 0.001$).

Conclusion: Our results indicated that adolescent pregnancy in Turkish populations is an important risk factor affecting both EBF during the first 6 months of life and breastfeeding duration.

Keywords: Adolescent pregnancy; breastfeeding duration; exclusive breastfeeding; Turkish population

INTRODUCTION

The World Health Organization (WHO) defines adolescent pregnancy as that of females from ages of 10 through 19, and the frequency of adolescent pregnancy continues to increase in developing countries despite preventative measures (1). According to studies, adverse outcomes for both the mother and newborn, such as low birth weight, preterm delivery, stillbirth, maternal anemia, postpartum depression, eclampsia, maternal death, and neonatal death, are associated with adolescent pregnancy (2-6). The adverse consequences of adolescent pregnancy, other than health concerns, are also those that affect the mother's ability to attend school and they face a low school success rate in addition to increased health costs (7,8).

Breastfeeding is known to be one of the most important factors that reduce infant and child mortality rates. WHO

recommends exclusive breastfeeding (EBF) during at least the first 6 months of life, and then complemented with various foods after that time to ensure optimal growth, development, and health for up to 2 years (9). The benefits of breastfeeding for both the mother and newborn and during childhood are well known. A decrease in infections, such as otitis media, allergies, and respiratory and gastrointestinal system infections, decreased childhood obesity, and decreased postnatal mortality rates are important effects of breastfeeding. Reduction in postpartum blood loss, decreased risk of breast and ovarian cancer, and faster postpartum weight loss in mothers are also important benefits of breastfeeding (10-13). Adolescent pregnancy results in high risks during and after pregnancy; therefore, our current study aimed to evaluate EBF rates during the first 6 months of life by term-uncomplicated adolescent Turkish mothers.

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MATERIAL and METHODS

This retrospective study was conducted at Kayseri City Hospital Gynecology and Obstetrics Clinic, and was approved by Erciyes University Ethics Committee (Approval number: 2019/725).

We interviewed 803 nulliparous pregnant women from 16 to 24 years old who had a single pregnancy and delivered at term gestational age. The exclusion criteria were as follows: pregnant women who had multiple pregnancies, preeclampsia, gestational hypertension, chronic hypertension, preterm delivery (<37 weeks), emergency cesarean delivery requirement, gestational diabetes, type 1 or type 2 diabetes, and alcohol or drug use. In addition, those for whom depression was previously diagnosed or who were using antidepressants were excluded because of their possible effects on breastfeeding time. Babies who had health problems, in-utero fetal distress, were admitted to the neonatal intensive care unit (NICU) for treatment or intubation, or had a serious illness that might affect breastfeeding during the first 6 months after birth were excluded from the study. After screening the 803 pregnant women, 674 who meet the inclusion criteria were selected for the study. Figure 1 provides a flowchart of the selection criteria.

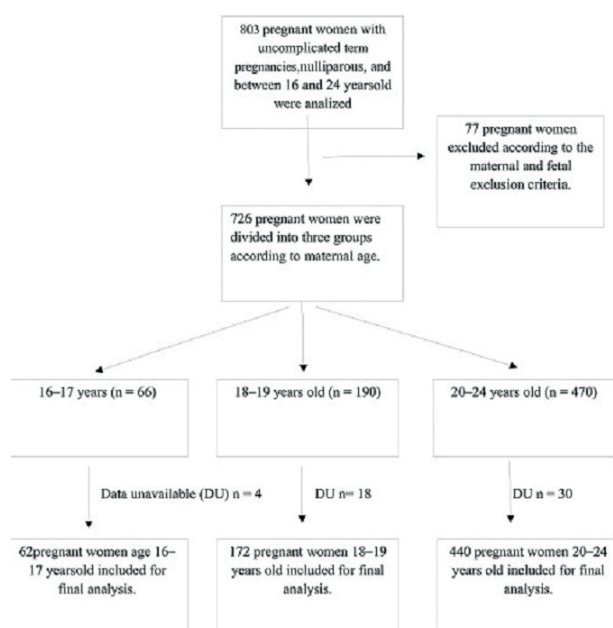


Figure 1. Flowchart of selection criteria.

The participants were divided into three groups. The first group comprised adolescents 16-17 years old, the second group comprised adolescents 18-19 years old, and the third group comprised non-adolescents 20-24 years old. In this study, we selected the non-adolescent pregnant women as the reference group, consistent with that of previous studies (14,15). Some research has suggested that adolescent females who conceive <2 years after menarche (considered a low gynecological age) are at an increased risk of adverse outcomes from the pregnancy

to both them and their baby (16). Because menarche tends to begin later in girls with poor nutritional and environmental conditions, we presumed that it would not be appropriate to categorize females 16-17 years old with the older adolescents; therefore, we categorized the ages of those participating in this study as follows: 16-17, 18-19, and 20-24 years old.

The primary outcome of the study was EBF of the infant, particularly during the first 6 months of life. 2-year periods of postpartum were questioned for determine breastfeeding duration. Initiation of breastfeeding, early breastfeeding, breastfeeding duration, onset of including supplementary foods, and the infant's age in months when breastfeeding stopped were recorded. The information was taken with from the hospital's patient database by reaching the patient phones and by phone call. The onset of breastfeeding referred to the first time after delivery that the mother breastfed her baby. EBF was defined as breastfeeding on the birth date with only breast milk. EBF duration and age at which supplementary feeding began were noted. Maternal characteristics and delivery outcomes were also recorded.

Statistical analyses

An analysis of variance followed by ANOVA with Tukey's post-hoc test were conducted to compare more than two groups using Minitab 16 (Minitab Inc., State College, PA, USA). The Shapiro-Wilk test was used to compare two groups to determine the normality of the data, and the Levene's test was used to test the homogeneity of variance assumption. The values are expressed as the mean \pm standard deviation. Pearson correlation test was preferred for correlation analysis. The difference among the groups was considered statistically significant when $p < 0.05$.

RESULTS

The 674 nulliparous pregnant women enrolled in the study. Table 1 provides the demographic characteristics of the women. The mean maternal age, more than 10 prenatal visits, and employment status were significantly different among the groups ($p < 0.001$, $p < 0.001$, and $p < 0.001$, respectively). The number of females with a body mass index (BMI) > 30 kg/m² and the number who smoked were similar among the groups ($p = 0.870$ and $p = 0.942$, respectively).

Table 2 provides a comparison of delivery characteristics among the groups. The gestational age at delivery, birth weight, newborn gender, rate of induced labor, and rate of vaginal deliveries were similar among the groups ($p = 0.752$, $p = 0.840$, $p = 0.822$, $p = 0.920$, and $p = 0.734$ respectively). Table 3 provides a comparison and Figure 2 provides an illustration of EBF during the first 6 months of life and breastfeeding duration among the groups.

Our results showed that 22.5% (14/62) of females in the 16- to 17-year group, 41.8% (72/172) in 18- to 19-year group, and 72.9% (321/440) in the 20- to 24-year group had EBF during the first 6 months of their baby's life.

Table 1. Comparison of maternal demographic characteristics among the groups

	Maternal age			P value
	16–17 (n = 62)	18–19 years (n = 172)	20–24 years (n = 440)	
Maternal age (years)	16.4 (16–17) ^a	18.6 (18–19) ^b	22.4 (20–23) ^c	<0.001
BMI >30 kg/m ²	8 (12.9)	23 (13.3)	62 (14.0)	0.870
Prenatal visits >10	42 (67.7) ^a	142 (82.5) ^b	369 (83.8) ^b	<0.001
Smoking rates	7 (11.2)	20 (11.6)	52 (11.8)	0.942
Maternal employment (nonworking)	60 (96.7) ^a	163 (94.7) ^a	298 (67.7) ^b	<0.001

Different superscripts means statistically difference. The values are expressed as n (%)

Table 2. Comparison of delivery characteristics among the groups

	Maternal age			P value
	16–17 (n = 62)	18–19 years (n = 172)	20–24 years (n = 440)	
Gestational age at delivery (years)	38 (37–40)	39(38–40)	39 (38–40)	0.752
Birthweight (g)	3160 ± 210	3240 ± 260	3210 ± 270	0.840
Newborn gender				
Males	34 (54.8)	94 (54.6)	237 (53.8)	0.822
Females	28 (45.2)	78 (45.4)	203 (46.2)	
Inducted labor rates	8 (12.9)	24 (13.9)	58 (13.1)	0.920
Vaginal delivery rates	56 (90.3)	158 (91.8)	409 (92.9)	0.734

The values are expressed as the median (min-max), or mean ± SD, or n (%)

Table 3. Comparison of exclusive breastfeeding (EBF) during the first 6 months of life and breastfeeding duration among the groups

	Maternal age			P value
	16–17 (n = 62)	18–19 years (n = 172)	20–24 years (n = 440)	
EBF during the first 6 months	14 (22.5) ^a	72 (41.8) ^b	321 (72.9) ^c	<0.001
Mean breastfeeding duration (months)	6.7 ± 1.4 ^a	9.5 ± 2.2 ^b	15.2 ± 3.2 ^c	<0.001

Different superscripts mean statistically difference. The values are expressed as n (%) or the mean ± SD

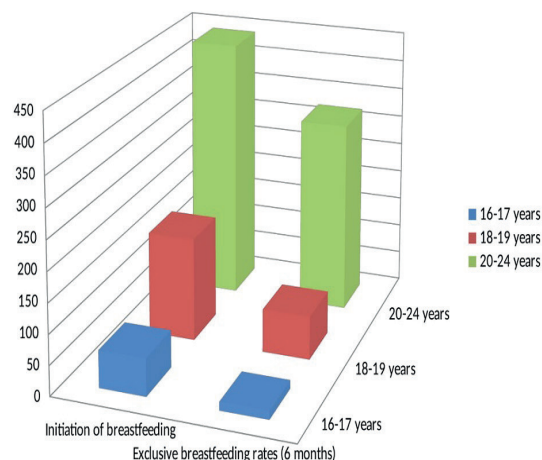


Figure 2. Comparison of exclusive breastfeeding during the first 6 months of life and breastfeeding duration among the groups

The rate of EBF during the first 6 months was significantly less in the 16- to 17-year and 18- to 19-year groups compared to that in the 20- to 24-year group ($p < 0.001$). In addition, the rate of EBF during the first 6 months was inversely correlated with maternal age (-0.452 , $P = 0.000$). The mean breastfeeding duration was 6.7 ± 1.4 months in the 16- to 17-year group, 9.5 ± 2.2 months in the 18- to 17-year group, and 15.2 ± 3.2 months in the 20- to 24-year group. Mean breastfeeding duration was significantly less in the 16- to 17-year and 18- to 19-year groups than in the 20- to 24-year group ($p < 0.001$).

DISCUSSION

Pre- and postnatal complications in the mothers are more prevalent in adolescent pregnancies worldwide. WHO has stated that the worldwide incidence of adolescent pregnancies is 10%; however, in Turkey in 2013, this rate was 16.2% (17). Because this annual rate has increased, we

must pay greater attention to both pre- and postnatal care of these women. Postnatal care should include education about breastfeeding and its value, and encouragement to begin breastfeeding early after delivery. It has been well documented in the literature that adolescent pregnancy is associated with adverse outcomes for both the mother and baby (18,19). In these pregnancies, increased preterm delivery, low birth weight, NICU stay, and increased neonatal adverse morbidities are important determiners for initiation breastfeeding, EBF, and increasing breastfeeding duration. Studies on these complications have shown a lower prevalence of breastfeeding initiation and shorter breastfeeding duration in adolescent mothers (20,21).

The aim of the present study was to evaluate EBF rates during the first 6 months of life rates in term-uncomplicated adolescent Turkish mothers. We found that the rates of EBF during the first 6 months were 22.5, 41.8, and 72.9% in the 16- to -17 year, 18- to 19-year, and 20- to 24-year groups, respectively. EBF during the first 6 months was found to be inversely correlated with maternal age. In addition, mean breastfeeding duration was 6.7 ± 1.4 months, 9.5 ± 2.2 months, and 15.2 ± 3.2 months in the 16- to 17-year, 18- to 19-year, and 20- to 24-year group, respectively. According to the Centers for Disease Control and Prevention Breastfeeding, the 2012 national data indicated that 60% of mothers <20 years old initiate breastfeeding, and only that 22% continue to breastfeed at 6 months in the United States (22). These result supported by Sipsma et al. and they have declared that many adolescent mothers who initiate breastfeeding discontinue in <6 weeks (23). In another study from Brazil, results of a randomized control trial have shown that continued breastfeeding for 6, 12, and 24 months was observed in 68.4, 47.3, and 31.9% of the sample, respectively, involving adolescent mothers (24).

The results of our study found that more than 10 prenatal visits and maternal employment status were significantly different among the groups, and that BMI >30 kg/m² and smoking rates were similar among the groups. In addition, gestational age at delivery, birth weight, the number of male babies, the rates of induced labor, and the rates of vaginal delivery were statistically similar among the groups. Yılmaz et al. have conducted a cross-sectional study on 200 adolescent mothers and found a significant correlation between early breastfeeding and a planned pregnancy, vaginal delivery, and having a male infant. In addition, the study results found that age, planned pregnancy, postpartum education, frequent breastfeeding at night, and onset of supplemental foods were predictors of EBF (17). Various studies have been conducted to evaluate the effect of these demographic and delivery characteristics on EBF. Nonworking mothers were two times more likely to practice EBF than working mothers in the United Arab Emirates (25). Yılmaz et al. have not found any differences between working and nonworking mothers in the onset of breastfeeding or its duration (17). The results of our study found that the number of nonworking mothers was higher in the 16- to

17-year and 18- to 19-year groups than in the 20- to 24-year group. Although we found that the 20- to 24-year group comprises more working mothers, they also had significantly increased EBF rates, which could have been because of new strategies by the Health Ministry in Turkey that allow breastfeeding mothers to leave work earlier, and provides longer break times during the first 6 months after birth. The 16- to 17-year group was more likely to have less than 10 prenatal visits to the clinic, which results in the lack of breastfeeding training during follow-up. The sex of the infant is another interesting factor for breastfeeding. The results of several studies from various countries have differed with regard to the effect of the sex of the infant on breastfeeding. The result of our study found no significant breastfeeding difference among the groups based on the infant's sex. One study on Indian infants has found that the female infants were breastfed for shorter periods of time than the males and consumed less milk (26). In the Turkish population, one study showed that women who had male infants began breastfeeding earlier; however, the breastfeeding duration did not differ between males and females (17). Gestational age at delivery, birth weight, rates of induced labor, and rates of vaginal delivery did not significantly affect the breastfeeding patterns in our study.

Adolescent mothers experience the same barriers as non-adolescent mothers; however, their age and social situations are somewhat associated with infant feeding practices that are different from those of adult mothers. Adolescent mothers often lack the knowledge of and skills for breastfeeding, lack support from families and health providers, and have more difficulties with techniques, such as the infant latching on, positioning, managing breastfeeding problems, and fatigue (21,27,28). If the factors and issues surrounding optimal EBF in adolescent mothers could be revealed and resolved, respectively, the idea of EBF might be more accepted in adolescent mothers as their needs are met. Maternal patience and effort were rated as the most important for successful EBF, which can be difficult. Studies on the adolescent mothers' perception of discomfort associated with breastfeeding practices included pain, sore nipples, and fatigue (29). In addition, the commitment to breastfeed was directly affected by the amount of knowledge the mother had about its benefits to her own health and acceptance of her maternal role. According to Nesbitt et al. (28), this information on the health benefits and acceptance of the maternal role helps in the commitment to breastfeed in teenage mothers, which, in turn, is associated with longer breastfeeding duration. The encouragement and support needed from the adolescent mother's social network, such as the nurses and family members, affected EBF at 6 months. Initially, these mothers need information about the benefits of EBF and how to resolve common breastfeeding problems using a hands-off technique and assessment, teaching skills, and rapid solutions together with emotional support (27).

LIMITATIONS

Our study had some limitations, such as the retrospective design and small sample size. In addition, we gathered the breastfeeding information through phone calls rather than in face-to-face conversations with the mothers, and this technique might be considered a limitation to the study.

CONCLUSION

Our results indicated that adolescent pregnancy in Turkish population is an important risk factor for both EBF during the first 6 months of life and breastfeeding duration.

Competing interests: The authors declare that they have no competing interest.

Financial Disclosure: There are no financial supports.

Ethical approval: This retrospective study was conducted at Kayseri City Hospital Gynecology and Obstetrics Clinic, and was approved by Erciyes University Ethics Committee (Approval number: 2019/725).

REFERENCES

- Chandra-Mouli V, Camacho AV, Michaud P-A. WHO guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. *JAH* 2013;52:517-22.
- Ganchimeg T, Ota E, Morisaki N, Laopaiboon M, Lumbiganon P, Zhang J, et al. Pregnancy and childbirth outcomes among adolescent mothers: a World Health Organization multicountry study. *BJOG* 2014;121:40-8.
- Malabarey OT, Balayla J, Klam SL, et al. Pregnancies in young adolescent mothers: a population-based study on 37 million births. *J Pediatr Adolesc Gynecol* 2012;25:98-102.
- Torvie AJ, Callegari LS, Schiff MA, et al. Labor and delivery outcomes among young adolescents. *Am J Obstet Gynecol* 2015;213: 1-8.
- Sahin E, Madendag Y, Sahin ME, et al. Does Young Maternal Age Have Any Adverse Effect on Maternal and Fetal Health? A Retrospective Case Control Study. *Gynecology Obstetrics & Reproductive Medicine*. 2018;24:60-4.
- Turgal M, Seven B, Icer B, et al. Is Multiparity in Adolescent Pregnancies Associated with Adverse Outcome? *Gynecology Obstetrics & Reproductive Med* 2018;24:124-8.
- Maiden K, Gunter WD, Martin SS, et al. Teen mothers, unintended pregnancies, and costs across Delaware. *Del Med J* 2014;86:109-16.
- Kingston D, Heaman M, Fell D, et al. Comparison of adolescent, young adult, and adult women's maternity experiences and practices. *Pediatrics*. 2012;129:1228-37.
- Organization WH. Global strategy for infant and young child feeding: World Health Organization; 2003.
- Ip S, Chung M, Raman G, Chew P, Magula N, DeVine D, et al. Breastfeeding and maternal and infant health outcomes in developed countries. *Evid Rep Technol Assess* 2007;153:1-186.
- Hauck FR, Thompson JM, Tanabe KO, et al. Breastfeeding and reduced risk of sudden infant death syndrome: a meta-analysis. *Pediatrics* 2011;128:103-10.
- Gouveri E, Papanas N, I Hatzitolios A, et al. Breastfeeding and diabetes. *Curr Diabetes Rev* 2011;7:135-42.
- Hatsu IE, McDougald DM, Anderson AK. Effect of infant feeding on maternal body composition. *International Breastfeeding J* 2008;3:18.
- Conde-Agudelo A, Belizan JM, Lammers C. Maternal-perinatal morbidity and mortality associated with adolescent pregnancy in Latin America: Cross-sectional study. *Am J Obstet Gynecol* 2005;192:342-9.
- Sharma V, Katz J, Mullany LC, et al. Young maternal age and the risk of neonatal mortality in rural Nepal. *Arch Pediatr Adolesc Med* 2008;162:828-35.
- Gibbs CM, Wendt A, Peters S, et al. The impact of early age at first childbirth on maternal and infant health. *Paediatr Perinat Epidemiol* 2012;26:259-84.
- Yilmaz E, Yilmaz Z, Isik H, et al. Factors Associated with Breastfeeding Initiation and Exclusive Breastfeeding Rates in Turkish Adolescent Mothers. *Breastfeed Med* 2016;11:315-20.
- Moraes AN, Likwa RN, Nzala SH. A retrospective analysis of adverse obstetric and perinatal outcomes in adolescent pregnancy: the case of Luapula Province, Zambia. *Matern Health Neonatol Perinatol* 2018;4:20.
- Karai A, Gyurkovits Z, Nyari TA, et al. Adverse perinatal outcome in teenage pregnancies: an analysis of a 5-year period in Southeastern Hungary. *J Matern Fetal Neonatal Med*. 2019;32:2376-9.
- Eidelman AI. Breastfeeding and the use of human milk: an analysis of the American Academy of Pediatrics 2012 Breastfeeding Policy Statement. *Breastfeed Med* 2012;7:323-4.
- Monteiro JCdS, Dias F, Stefanello J, Reis M, Nakano AMS, Gomes-Sponholz FA. Breast feeding among Brazilian adolescents: practice and needs. *Midwifery* 2014;30:359-63.
- Control CfD, Prevention. Breastfeeding report card—United States, 2014. Centers for Disease Control and Prevention: Atlanta, GA, USA. 2014.
- Sipsma HL, Magriples U, Divney A, et al. Breastfeeding behavior among adolescents: initiation, duration, and exclusivity. *Journal of adolescent health*. 2013;53(3):394-400.
- Muelbert M, Giugliani ERJ. Factors associated with the maintenance of breastfeeding for 6, 12, and 24 months in adolescent mothers. *BMC Public Health* 2018;18:675.
- Radwan H. Patterns and determinants of breastfeeding and complementary feeding practices of Emirati Mothers in the United Arab Emirates. *BMC Public Health* 2013;13:171.
- Fledderjohann J, Agrawal S, Vellakkal S, et al. Do girls have a nutritional disadvantage compared with boys? Statistical models of breastfeeding and food consumption inequalities among Indian siblings. *PLoS one* 2014;9.

27. Nuampa S, Tilokskulchai F, Patil CL, et al. Factors related to exclusive breastfeeding in Thai adolescent mothers: Concept mapping approach. *Maternal & Child Nutrition* 2019;15:12714.
28. Nesbitt SA, Campbell KA, Jack SM, et al. Canadian adolescent mothers' perceptions of influences on breastfeeding decisions: a qualitative descriptive study. *BMC Pregnancy Childbirth* 2012;12:149.
29. Nuampa S, Tilokskulchai F. An Integrative review of breastfeeding among adolescent mothers: An ecological model approach. *Nurs Science J Thailand* 2017;35:21-32