



# Open Journal of Pediatrics & Neonatal Care

## Research Article

# Affects of Adolescent Pregnancy on Health of Baby -

**N. Cinar\* and D. Menekse**

*Department of Pediatric Nursing, Faculty of Health Sciences, Sakarya University, Sakarya, Turkey*

**\*Address for Correspondence:** Nursan Cinar, Sakarya University, Faculty of Health Sciences, Esentepe Campüs, 54187, Sakarya, Turkey, Tel: +0264-295-66-21; Fax: +0264-295-66-02; E-mail: ndede@sakarya.edu.tr

**Submitted:** 29 November 2016; **Approved:** 20 February 2017; **Published:** 22 February 2017

**Citation this article:** Cinar N, Menekse D. Affects of Adolescent Pregnancy on Health of Baby. Open J Pediatr Neonatal Care. 2017;2(1): 012-023.

**Copyright:** © 2017 Cinar N, et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

The effects of adolescent pregnancies on child health are discussed in this paper. In recent decades adolescent pregnancy has become an important health issue in many countries, both developed and developing. According to WHO data in 2010, there are nearly 1, 2 billion adolescents in the world, which consists of 20% of the world population. 85% of these adolescents live in developing countries. A pregnancy in adolescence, which is a period of transmission from childhood to adulthood with physical, psychological and social changes, has been a public health issue having an increasing importance. Individual, cultural, social, traditional or religious factors play a great role in adolescent pregnancies which are among risky pregnancies. In the related studies, it is obviously stated that adolescent pregnancies, compared to adult pregnancies, have a higher prevalence of health risks such as premature delivery, low birth weight newborn, neonatal complications, congenital anomaly, problems in mother-baby bonding and breastfeeding, baby negligence and abuse. As a result, it is clear that adolescent pregnancies have negative effects on the health of children. Both the society and the health professionals have major responsibilities on this subject. Careful prenatal and postnatal monitoring of pregnant adolescents and providing of necessary education and support would have positive effects on both mother and child health. In this review, we have discussed affects of adolescent pregnancy on the health of a baby.

**Keywords:** Adolescent; Adolescent mothers and their child; Health outcomes; Pregnancy

## INTRODUCTION

In recent decades adolescent pregnancy has become an important health issue in many countries, both developed and developing [1]. According to WHO data in 2010, there are nearly 1,2 billion adolescents in the world, which consists of 20% of the world population. In developing countries, 85% of these adolescents live [2]. Among the adolescent girls between the ages of 15-19, nearly 16 million births are seen in 2008, and this number consists of 11% of the world population [3]. Although adolescent pregnancy is a serious health (anemia, hypertension, preeclampsia and eclampsia, abortion, assisted delivery, stillbirth, maternal complications and postpartum depression) and social problem (decreasing self-confidence, disruption of adolescent mother, departure from social activities) worldwide, more than 90% of cases occur in developing and developed countries and carry considerable risk [4,5]. In the United States, 9% of women aged 15 to 19 years become pregnant each year of which 5% will deliver a baby, 3% will choose to have an induced abortion, and 1% end in miscarriage or stillbirth [6,7]. The USA has the highest incidence (52.1 per 1000 15 to 19 year-olds) in the developed world and the UK has the highest incidence (30.8 per 1000 15 to 19 year-olds) in Europe [4,8].

The vast majority of these births (95%) occur in low- and middle-income countries [9]. The 2014 World Health Statistics indicate that the average global birth rate among 15 to 19 years old is 49 per 1000 girls. Adolescent Delivery Rate (ADR) ranges from 1 to 299 births per 1000 adolescent girls, with the highest rates in countries of sub-Saharan Africa [9].

According to Turkey Demographic and Health Survey (TDHS) 2013 data, 17.2% of the population that is nearly 1/5 of the population is comprised of 10-19 years old adolescents [10]. It is stated that the percentage of motherhood in adolescence increases corresponding to the age, thus, 0.0% in 15 years old, 0.5% in 16 year olds, 3.4% in 17 years old, 4.6% in 18 years old, 16.2% in 19 years old. According to the TDHS 2008 data, the percentage of adolescent mothers was 6%, while that of TDHS 2013 was reduced to 5% [10]. In Turkey, a study by the Ministry of Health was conducted in 81 provinces in order to detect adolescent labors. It was seen that adolescent labor number and rates were higher in provinces in the East and generally in the provinces that were identified as district health centers and in the provinces that received immigrants [11].

Individual, familial and social factors have a great role in the increase of adolescent pregnancies [12]. In the studies conducted, the

low level of education among mothers [1,5,13-15] a lower economic status [5], non-working mothers [1,4,5,16], mother's smoking [4], lack of information about contraception and early sexual activity [17] are all factors that affect adolescent pregnancies. The study indicates that there is a significant correlation between ethnicity and adolescent pregnancy [4]; however, there are also studies claiming no between them [5].

In a study conducted in Turkey, adolescent pregnancy is seen that 73.8% is in illegal marriages at the age of 12-17 and 24.4% in illegal marriages at the age of 18-19 [18]. According to the current Turkish civil laws in force, illegal marriages are not valid, but a considerable number of these couples preferred religious marriages, which are not defined as a legal marital status [18]. In Thailand, 91.6% of the adolescent mothers below 20 are single parents [19]. Illegal marriages or divorce in adolescent mothers are other factors that negatively affect maternal and infant health

Giving birth to a child during the adolescent years frequently is associated with long-term adverse consequences for the child [20]. Together with biological immaturity, factors such as unintended pregnancy, inadequate perinatal care, poor maternal nutrition, and maternal stress may cause adverse obstetric and neonatal outcomes in pregnant adolescents [18].

It is possible to examine the effects of adolescent pregnancies on baby health under certain categories (Figure 1), which we will explain the following sections.

### Preterm birth / premature infant / preterm delivery

Preterm is defined as babies born alive before 37 weeks of pregnancy [21]. The rates of preterm birth, low birth weight, and asphyxia are higher among the newborns of adolescent mothers, all of which increase the risks of death and of future health problems for the baby [22]. Preterm birth is another important perinatal challenge faced in clinical practice. Several studies have explored long-term health outcomes for premature infants, including chronic lung disease, visual and hearing problems and neurodevelopment delays [23,24].

In the studies conducted, the rates of preterm birth in adolescents and adults are detected as the following; Mukhopadhyay, et al. [15] 27.7% - 13%, Omar, et al. [5] 22.5% - 2.9%, Rasheed, et al. [24] 13.2% - 5.6%, Edirne, et al. [14] 28.4% - 14.7%, Duvan, et al. [25] 18.5% - 8.7%, Kovavisarach, et al. [19] 12.1% - 7.1%, Gupta, et al. [4] 8.7%

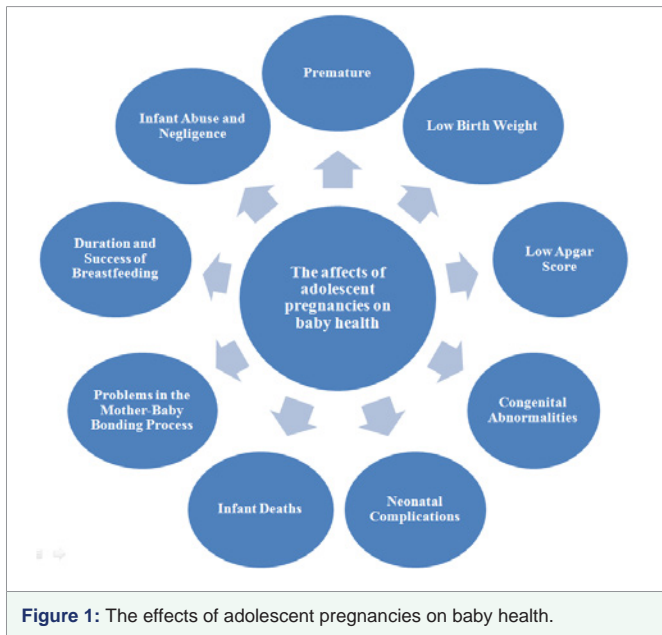


Figure 1: The effects of adolescent pregnancies on baby health.

- 7.6%, Keskinoglu, et al. [18] 18.2% - 2.1%, Akdemir, et al. [26] 16% - 1.8%. There is a significant difference between them (Table 1).

**Low birth weight**

Low Birth Weight is characterized by the fetus below 2500 grams, and very low birth weight is the birth weight of the fetus below 1500 grams Low birth weight is closely associated with fetal and neonatal mortality and morbidity, inhibited growth and cognitive development, and chronic diseases later in life [27]. In many studies, it is seen that there is a positive relationship between the adolescent pregnancy and low birth weight of the infant [4,14,15,28].

**Low Apgar score**

In some studies, it is expressed that the average Apgar scores in the 1st and 5th minutes are below 7 [25,29] the Apgar scores in the 1st and 5th minutes are below 7 [16,30], which reflects no difference between adolescents and adults. The rate of infant Apgar scores below 7 is 10.1% in adolescents while it is 1% in adults [5].

**Congenital abnormalities**

The rates of congenital abnormalities in adolescent deliveries are detected as 1.1% [19], 2.51% [31], 0.9% [15]. In adolescent deliveries, cardiovascular and central nervous system abnormalities are most widely seen among the major congenital abnormalities [31].

In adolescent pregnancies, the risk of developing central nervous system abnormalities such as anencephalia, sipina bifida / meningocele, hydrocephalus/microcephalus; gastrointestinal system abnormalities such as omphalocele, gastroschisis; musculoskeletal system abnormalities such as cleft lip and cleft palate, polydactyly, syndactyly increases [17]. Adult and adolescent mothers are compared in terms of iron folic tablet administration and it is seen that adult mothers (49.1%) use more iron folic tablets than adolescent mothers (40%), and that there is a significant difference between them [15].

**Neonatal complications**

In the study by Keskinoglu, et al. [18], conducted in Izmir with the adolescent mothers, meconium aspiration (8.7%), respiratory distress (2.3%), cordon presentation (2%), Rh isoimmunization

(1.8%), infection (0.9%) and postpartum traumatic stress (0.5%) were listed among neonatal complications. In the study by Omar, et al. [5], it is stated that the rate of perinatal complications in the first 24 hours is 18.2% in adolescents, and 4.9% in mothers between 20-35 years old. In the studies, it is found out that the rate of premature rupture of membranes in adolescent pregnancies is 2.2% [18], 20.9% [24] and 16.39% [31].

**Infant deaths**

As one of the indicators of a country's health status, infant deaths have a great importance. According to 2013 data of TDHS in Turkey, infant death rate is significantly high among mothers younger than 20 (25 per thousand), 20-29 years old (14 per thousand) and 30-39 years old (25 per thousand) [10]. Infant mortality seen in adolescent pregnancies is given in (Table 2).

A study in the city of Sakarya in Turkey determines that postnatal infant death rate is 2.5% in adolescent pregnancies and 0.1% adult pregnancies [26]. Malabarey, et al. [7] in their studies in the USA evaluate the effect of young maternal age on adverse obstetrical and neonatal outcomes. They stated that the rate of infant deaths in pregnant adolescents below 15 is 0.86%, and it is 0.41% in pregnant adolescents over 15. In another study conducted in the USA, the rate of neonatal mortality is reported as 7.3% between the ages of 10-15, 4.9% between the ages of 16-17 and 4.1% between the ages of 18-19, so, the younger the mothers are, the higher the rate of deaths is [27]. In a study conducted in India, it is stated that the rate of infant deaths earlier than 48 hours is 5.1% in adolescents and it is 1.7% in adults, which is significantly a high rate [15]. The increased neonatal mortality in infants born to teenage mothers might be mediated by

Table 1: Rates of preterm birth in adolescent and adult mothers.

Studies	Rates of Preterm Birth	
	Adolescents	Adults
Mukhopadhyay, et al. [15]	27.7	13.1
Omar, et al. [5]	22.5	2.9
Rasheed, et al. [24]	13.2	5.6
Edirne, et al. [14]	28.4	14.7
Duvan, et al. [25]	18.5	8.7
Kovavisarach, et al. [19]	12.1	7.1
Gupta, et al. [4]	8.7	7.6
Keskinoglu, et al. [18]	18.2	2.1
Akdemir, et al. [26]	16	1.8

Table 2: The rate of infant deaths in adolescent pregnancies.

Studies	Age	Rate of infant deaths (%)
Akdemir, et al. [26] (city of Sakarya in Turkey)	Ages of 10-19	2.5
	Ages of 20-35	0.1
Malabarey, et al. [7] (USA)	Ages of below 15	0.86
	Ages of over 15	0.41
Chena, et al. [27] (USA)	Ages of 10-15	7.3
	Ages of 16-17	4.9
	Ages of 18-19	4.1
Mukhopadhyay, et al. [15] (India)	Ages of 13-19	5.1
	Ages of 20-29	1.7



low weight gain during pregnancy, preterm birth, and/or low birth weight in teenage pregnancy [27]. Because Adolescent pregnancies during pregnancy are may have maternal weight gain, inadequate prenatal care, due to pregnancy have a high risk for hypertension and preeclampsia [26].

### Problems in the mother-baby bonding process

Bonding, which develops in three periods; pregnancy, labor and after the birth, is a mutual emotional relationship [32,33]. It deeply affects the physical, psychological and intellectual development of the child and retains its effect whole life. Parents have to play a key role in order to maintain a healthy process [33]. Motherhood in adolescence is accepted as a risk factor for an adequate relationship between mother and infant and for the subsequent development of the infant [34].

The mother-child bonding is deteriorated in the first years of the child's life, especially because the mother is still immature and is undergoing a period of development [35]. It is found out that adolescent mothers, compared to adults, have a lower tendency to touch, call, smile at and accept their babies [36]. In a study by Crugnola, et al. [34] it is expressed that adolescent mothers spend more time establishing a poor relationship and that they play less with their babies. In our literature reviews, we found out that there was limited number of studies on this subject. Informative studies are required on this subject.

### Duration and success of breastfeeding

Breastfeeding practices among adolescent mothers is a biopsychological process which includes negative and positive factors along with the importance of social support in the intention of breastfeeding, starting and continuing of breastfeeding [37]. Despite substantial evidence of maternal and infant benefits of breastfeeding, adolescent mothers initiate breastfeeding less often and maintain breastfeeding for shorter durations when compared to their adult counterparts [38].

The intention of breastfeeding is an important determiner in the starting and continuing of breastfeeding. McDowell, Wang, & Kennedy-Stephenson [39] have reported in their study that 43% of adolescent mothers, 75% of mothers between 20-29 and 75% of mothers above 30 have the intention of breastfeeding. Kyru, Valentine, & DeFranco [40] have emphasized that adolescent mothers (44%) have a lower rate of breastfeeding intention than adult mothers (65%), which is influenced by an insufficient social support and poor socioeconomic conditions. It is more probable for mothers having breastfeeding intention to start breastfeeding [41]. Kyru, et al. [40] have stated that breastfeeding rates in deliveries before 37 weeks are 20.9% for adolescent mothers younger than 15, 40.7% for mothers between 15-19, 56.8% for mothers older than 20, and that breastfeeding rate significantly decreases as the mother is younger. Teenage mothers' breastfeeding experiences may be similar to adult women's breastfeeding experiences, but teenage mothers may require additional breastfeeding support [42]. Oddy, et al. [43] have reported that 12.6% of the mothers below 20, 27.2% of the mothers between 20-24 and 29.9% of the mothers between 25-30, 21.5% of the mothers between 30-34 and 8.9% of the mothers older than 35 have breastfed their babies for less than 6 months. As for breastfeeding for more than 6 months, mothers younger than 20 have the least rate of breastfeeding (3.2%).

It which is conducted in a bistate metropolitan area in the

Midwestern United States is emphasized that the interactive education given to the adolescent mothers by the team of lactation and peer consulting has a positive effect on their breastfeeding initiation and duration up to 6 months postpartum [38]. It is essential that breastfeeding education is given to adolescent mothers and familial and social support is increased.

### Infant abuse and negligence

Infants of adolescent mothers as a result of unplanned pregnancies may face various problems They are at risk of abuse, neglect, and school failure and are more likely to engage in criminal behavior later on [5,44]. Adolescent mothers may not possess the same level of maternal skills as adults do. There is a debate in the literature regarding the association between maternal age and child abuse [45]. It is emphasized that children of adolescent mothers have a higher rate of maltreatment [46]. In most studies, it is stated that children of adolescent mothers are exposed to a higher rate of unjust treatment in many ways, compared to the children of adult mothers [47,48].

It is reported that children of adolescent mothers are at risk in terms of cognitive and social development. Negative environmental conditions, including lack of stimulation or close and affectionate interaction with primary caregivers, child abuse, violence within the family, or even repeated threats of physical and verbal abuse during these critical years can have a profound influence on these nerve connections and neurotransmitter networks, potentially resulting in impaired brain development [49]. Mother's lack of knowledge and experience on motherhood and baby care is a risk factor of child neglect.

## CONCLUSION

Adolescent pregnancy is a common public health issue for both the mother and the child in terms of health, emotional and social outcomes. Adolescent pregnancies which have an important role in child health are an issue that should be carefully evaluated. In this compilation, the effect of adolescent pregnancies on the health of a child is discussed. Upon a literature research, it is seen that pregnant adolescents have greater health problems during pregnancy, labor and after labor, compared to pregnant adults. As for the baby, it is reported that premature labor, low birth weight, neonatal complications, congenital abnormalities, problems in mother-child link and breastfeeding and child abuse and neglect are among the problems that are widely seen as a result of adolescent pregnancies. The factors affecting this condition are emphasized as the educational and occupational status of the pregnant adolescent, socio-economical conditions, marital status, and family structure, racial and ethnic roots. The risk factors for adolescent pregnancy are multiple and complex. In order to clarify this issue, more comprehensive epidemiological studies which evaluate the effect of adolescent pregnancies on child health are needed.

As a result, it is clear that adolescent pregnancies have negative effects on the health of children. Both the society and the health professionals have major responsibilities on this subject. Careful prenatal and postnatal monitoring of pregnant adolescents and providing of necessary education and support would have positive effects on child health.

## REFERENCES

1. Gokce B, Ozsahin A, Zencir M. Determinants of adolescent pregnancy in an urban area in Turkey a population-based case-control study. *Journal of Biosocial Science* 2007; 39: 301-311.



2. World Health Organization. WHO [Internet]. 10 facts on adolescent health. 2010. [cited 2016 March 16]. Available from: <http://www.who.int/features/factfiles/adolescenthealth/facts/en/index.html>,
3. World Health Organization. WHO [Internet]. Early marriages, adolescent and young pregnancies, [cited 2016 March 16]. Available from: [http://apps.who.int/gb/ebwha/pdf\\_files/EB130/B130\\_12-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/EB130/B130_12-en.pdf).
4. Gupta N, Kiran U, Bhal K. Teenage pregnancies obstetric characteristics and outcome. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2008; 137: 165-171
5. Omar K, Hasim S, Muhammad NA, Jaffar A, Hashim SM, Siraj HH. Adolescent pregnancy outcomes and risk factors in Malaysia. *International Journal of Gynecology and Obstetrics*. 2010; 111: 220-223
6. Darroch JE. Adolescent pregnancy trends and demographics. *Curr Womens Health Rep*. 2001; 1: 102-110.
7. Malabarey OT, Balayla J, Klam SL, Shrim A, Abenhaim HA. Pregnancies in young adolescent mothers a population-based study on 37 million births. *North American Society for Pediatric and Adolescent Gynecology*. 2012; 25: 98-102.
8. UNICEF. A league table of teenage births in rich nations. *Innocenti Report Card No. 3*; 2001: <https://www.unicef-irc.org/publications/pdf/repcard3e.pdf>
9. World Health Organization. WHO [Internet]. Adolescent pregnancy. [cited 2016 March 16]. Available from: <http://www.who.int/mediacentre/factsheets/fs364/en/>.
10. Turkey Population and Health Survey, 2013. Ankara. [cited 2016 March 16]. Available from: [http://www.hips.hacettepe.edu.tr/tnsa2013/rapor/TNSA\\_2013\\_ana\\_rapor.pdf](http://www.hips.hacettepe.edu.tr/tnsa2013/rapor/TNSA_2013_ana_rapor.pdf)
11. Guney R, Eras Z, Ayar B, Saridas B, Dilmen U. Adolescent births in Turkey. *Sakarya Medical Journal*. 2012; 3: 91-92.
12. Santos MI, Rosario F. A score for assessing the risk of first-time adolescent pregnancy. *Family Practice*. 2011; 28: 482-488.
13. Ahmed MK, Ginneken J, Razzaque A. Factors associated with adolescent abortion in a rural area of Bangladesh. *Tropical Medicine and International Health*. 2005; 10: 198-205
14. Edirne T, Can M, Kulusari A, Yildizhan R, Adali E, Akdag B. Trends, characteristics, and outcomes of adolescent pregnancy in eastern Turkey. *International Journal of Gynecology and Obstetrics*. 2010; 110: 105-108
15. Mukhopadhyay P, Chaudhuri RN, Paul B. Hospital-based perinatal outcomes and complications in teenage pregnancy in india. *J Health Popul Nutr*. 2010; 28: 494-500
16. Raatikainen K, Heiskanen N, Verkasalo PK, Heinonen S. Good outcome of teenage pregnancies in high-quality maternity care. *European Journal of Public Health*. 2005; 16: 157-161.
17. Demirgöz M, Canbulat N. [Adolescent pregnancy: Review]. *Türkiye Klinikleri J Med Sci*. 2008; 28: 947-952.
18. Keskinoglu P, Bilgin N, Picakciefe M, Giray H, Karakus N, Gunay T. Perinatal outcomes and risk factors of Turkish adolescent mothers. *J Pediatr Adolesc Gynecol*. 2007; 20: 19-24.
19. Kovavisarach E, Chairaj S, Tosang K, Asavapiriyant S, Chotigeat U. Outcome of teenage pregnancy in rajavithi hospital. *J Med Assoc Thai*. 2010; 93: 1-8
20. Centers for Disease Control and Prevention (CDC) [Internet]. [cited 2016 March 18]. CDC Health Disparities and Inequalities Report -United States, 2011. Available from: <https://www.cdc.gov/mmwr/pdf/other/su6001.pdf>
21. World Health Organization (WHO). [Internet]. [cited 2016 March 18]. Preterm birth, 2013, <http://www.who.int/mediacentre/factsheets/fs363/en/>
22. World Health Organization (WHO). [Internet]. [cited 2016 March 18]. Available from: [http://www.who.int/maternal\\_child\\_adolescent/topics/maternal/adolescent\\_pregna\\_cy/en/](http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregna_cy/en/).
23. Kuo CP, Lee SH, Wu WY, Liao WC, Lin SJ, Lee MC. Birth outcomes and risk factors in adolescent pregnancies results of a taiwanese national Survey. *Pediatrics International*. 2010; 52: 447-452.
24. Rasheed S, Abdelmonem A, Amin M. Adolescent pregnancy in upper egypt. *International Journal of Gynecology and Obstetrics*. 2011; 112: 21-24
25. Duvan CI, Turhan NO, Onaran Y, Gumuş I, Yuvacı H, Gozdemir E. Adolescent pregnancies: maternal and fetal outcomes. *The New Journal of Medicine*. 2010; 27: 113-116.
26. Akdemir N, Bilir F, Cevrioğlu AS, Ozden S, Bostancı S. Investigation of obstetric outcomes of adolescent pregnancies in Sakarya Region. *Sakarya Medical Journal*. 2014; 4: 18-21.
27. Chena XK, Wen SW, Fleming N, Yanga Q, Walker MC. Increased risks of neonatal and postneonatal mortality associated with teenage pregnancy had different explanations. *Journal of Clinical Epidemiology*. 2008; 61: 688-694.
28. Bukulmez O, Deren O. Perinatal outcome in adolescent pregnancies: a case-control study from a Turkish university hospital. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2000; 88: 207-212.
29. Dane B, Arslan N, Batmaz G, Dane C. Does maternal anemia affect the newborn? *Turk Arch Ped*. 2013; 195-199.
30. Thato S, Rachukul S, Sopajaree C. Obstetrics and perinatal outcome of Thai pregnant adolescents: a retrospective study. *Int J Nurs Stud*. 2007; 44: 1158-1164.
31. Yildirim Y, Inal MM, Tinar S. Reproductive and obstetric characteristics of adolescent pregnancies in turkish women. *J Pediatr Adolesc Gynecol*. 2005; 18: 249-253.
32. Kavlak O, Şirin A. The Turkish version of Maternal Attachment Inventory. *Journal of Human Sciences*. 2009; 6: 189-202.
33. Kose D, Cinar N, Altinkaynak S. Bonding process of the newborn and the parents. *STED*. 2013; 22: 239-245.
34. Crugnola CR, Lerardi E, S Gazzotti S, Albizzati A. Motherhood in adolescent mothers: Maternal attachment mother-infant styles of interaction and emotion regulation at three months. *Infant Behavior & Development* 2014; 37: 44-56.
35. Molina RC, Roca CG, Zamorano JS, Araya EG. Family planning and adolescent pregnancy. *Best Practice & Research Clinical Obstetrics and Gynaecology*. 2010; 24: 209-222
36. Deutscher B, Fewell R, Gross M. Enhancing the interactions of teenage mothers and their at-risk children: effectiveness of a maternal-focused intervention. *Topics Early Childhood Educ*. 2006; 26: 194-205.
37. Wambach KA, Cohen SM. Breastfeeding experiences of urban adolescent mothers. *J Pediatr Nurse*. 2009; 24: 244-254.
38. Wambach KA, Aaronson L, Breedlove G, Domian EW, Rojjanasirat W, Yeh HW. A Randomized controlled trial of breastfeeding support and education for adolescent mothers. *West J Nurs Res*. 2010; 33: 486-505.
39. McDowell, M. A., Wang, C.-Y, Kennedy-Stephenson, J. Breastfeeding in the United States: Findings from the National Health and Nutrition Examination Surveys 1999-2006. (NCHS databriefs, no. 5). Hyattsville, MD: National Center for Health Statistics. 2008. Retrieved from <https://www.cdc.gov/nchs/products/databriefs/db05.htm>
40. Kyrus KA, Valentine C, DeFranco DO. Factors associated with breastfeeding initiation in adolescent mothers. *J Pediatr*. 2013; 163: 1489-1494.
41. Sipsma H, Phil M, Biello KB, Cole-Lewis H, Kershaw T. Like father, like son: the intergenerational cycle of adolescent fatherhood. *American Journal of Public Health*. 2010; 100: 517-524.
42. Nelson A, Sethi S. The breastfeeding experiences of canadian teenage mothers. *Journal of Obstetric, Gynecologic & Neonatal Nursing*. 2005; 34: 615-624.
43. Oddy WH, Kendall GE, Jianghong L, Jacoby P, Robinson M, Psych H, et al. The long-term effects of breastfeeding on child and adolescent mental health a pregnancy cohort study followed for 14 years. *J Pediatr*. 2010; 156: 568-574.
44. Barnett B, Liu J, DeVoe M, Duggan AK, Gold MA, Pecukonis E. Motivational intervention to reduce rapid subsequent births to adolescent mothers: a community-base randomized trial. *Ann Fam Med*. 2009; 7: 436-445.
45. Klein JD. Adolescent pregnancy: current trends and issues. *Pediatrics*. 2005; 116.
46. U.S. Department of Health and Human Services, Administration on Children, Youth and Families Child maltreatment 2007. Washington, DC: U.S: Government Printing Office; 2010.
47. Dixon L, Browne K, Hamilton-Giachritsis C. Risk factors of parents abused as children: A mediational analysis of the intergenerational continuity of child maltreatment. *Journal of Child Psychology and Psychiatry*. 2005; 46: 47-57.
48. Sidebotham P, Golding J. Child maltreatment in the "children of the nineties": A longitudinal study of parental risk factors. *Child Abuse & Neglect*. 2001; 25: 1177-1200.
49. Pinzon JL, Jones VF. Care of adolescent parents and their children. *Pediatrics*. 2012; 130: e1743-1756.