Annals of Clinical and Analytical Medicine
Original Research

Comparison of psychological status, physical activity level, and birth results of adolescent and adult pregnant women

Adolescent pregnant women

Berrin Aktan[1], Salim Erkaya[2], Türkan Akbayrak[3]
[1] Departmant of Physical Therapy, Etlik Zübeyde Hanım Gynecology Training and Research Hospital
[2] Departmant of Perinatology, Etlik Zübeyde Hanım Gynecology Training and Research Hospital
[3] Department of , Faculty of Physical Therapy and Rehabilitation, Hacettepe University, Ankara, Turkey

Abstract
Aim: The aim of this study was to investigate the differences between adolescent and adult pregnant women in terms of psychological status, physical activity level, and birth outcomes.
Material and Methods: This study was conducted on pregnant women who admitted to the Pregnancy Polyclinic of Etlik Zübeyde Hanım, Gynecology Training and Research Hospital. The study included 38 adolescent pregnant women and 38 adult pregnant women. While adolescent pregnant women were named as Group 1, adult pregnant women were named as Group 2. The International Physical Activity Questionnaire-Short Form (IPAQ-SF) and the Edinburgh Postpartum Depression Scale (EPDS) were used in the study.
Results: The mean body weight before delivery was 76.50±11.25 kg in Group 1 and 75.16±10.80 kg in Group 2. It was found that the mean weight gain during pregnancy was 18.4±6.20 kg in Group 1 and 14.76±4.77 kg in Group 2 ($p<0.05$). The mean weight gain was significantly higher in Group 1. It was found that there was no statistically significant difference between the groups in terms of 3rd trimester EPDS scores ($p>0.05$). However, it was found that postpartum EPDS scores were significantly higher in Group 1 compared to Group 2 ($p<0.05$).
Discussion: The results of our study show that adolescent pregnant women tend to gain excessive weight during pregnancy. Postpartum depression symptoms were found to be higher in adolescent pregnant women. Adolescent women who get pregnant during a sensitive development period should be provided with prenatal care and social support.

Keywords
Adolescent Pregnancy, Physical Activity, Neonatal Outcomes, Postpartum Depression

DOI: 10.4328/ACAM.20951 Received: 2021-11-15 Accepted: 2022-03-09 Published Online: 2022-03-24
Corresponding Author: Berrin Aktan, Etlik Zübeyde Hanım Gnecology Training and Research Hospital, Ankara, Turkey.
E-mail: berrin_ay@yahoo.com P: +90 532 551 07 31 / +90 312 565 60 54
Corresponding Author ORCID ID: https://orcid.org/0000-0003-4840-5720

Introduction

The World Health Organization (WHO) defines 10-19 age range as the adolescent period, 20-24 age range as the youth period, and defines individuals between the ages of 10 and 24 as young people. It is estimated that 17.5% of the world population is in the 15-24 age group [1].

Pregnancy of younger women who have not reached physical, psychological and social maturity is an important public health problem in all countries of the world. Pregnancy in this period negatively affects the health of both mother and baby. Pregnancy in adolescence is considered a high risk [2]. Postural adaptations occur during pregnancy to accommodate abdominal growth and change in the center of gravity [3]. The most common complications in adolescent pregnancy include bleeding, preeclampsia, urinary tract infection, preterm birth, premature birth, cephalopelvic incompatibility, fetal distress, fetal anomaly, and presentation anomaly [4]. Neonatal complications have been reported to be significantly higher in babies of adolescent women compared to babies of adult women. The most commonly seen neonatal complications of babies of adolescent pregnant women are low birth weight (LBW) and delayed intrauterine growth, while neonatal mortality was defined in 6.9% of the cases [5]. Although many studies on adolescent pregnancy have been conducted in our country, it has been observed that comparative physical activity, psychosocial factors and their birth outcomes have not been studied together.

The aim of this study was to investigate differences between adolescent and adult pregnant women in terms of psychological status, physical activity level, and birth outcomes.

Material and Methods

This study was conducted on pregnant women who admitted to the Pregnancy Polyclinic of the Etlik Zübeyde Hanım, Gynecology Training and Research Hospital. Our study was designed as a prospective study. Pregnant women with gestational diabetes and those with participation barriers and complications including Type 1 diabetes, persistent bleeding, membrane rupture, history of growth retardation, chronic systemic vascular disease, and preeclampsia were excluded from the study. Inclusion criteria for the study were as follows: nulliparity, pregnant women with BMI <30, being a citizen of the Republic of Turkey, adolescent pregnant women (15-18 years old). Ethical approval for the study was obtained from the Ethics Committee for Non-Interventional Clinical Research of Hacettepe University with the decision number 2019/12-11. The population of the study consisted of pregnant women who applied to our hospital between January 2020 and March 2020. Sample calculation was not made in the study, and adolescent pregnant women admitted during the study period and adult pregnant women with similar characteristics formed the sample of the study. The study included 38 adolescent pregnant women and 38 adult pregnant women with similar anthropometric characteristics and gestational age between 29-36 weeks of gestation. Adolescent pregnant group was named as the 1st group, and the adult pregnant group was named as the 2nd group.

Detailed obstetric and medical histories and demographic information of the pregnant women were recorded. All evaluations regarding pregnancy were performed twice in both groups in the 3rd trimester (between 29th and 36th weeks) and in the 2nd month after delivery. Both groups of pregnant women were compared in terms of postpartum gestational age and birth weights of their babies.

The International Physical Activity Questionnaire-Short Form (IPAQ-SF) was applied to pregnant women (Group 1 and Group 2) to determine the level of physical activity. In addition, the Edinburgh Postpartum Depression Scale (EPDS) was used to evaluate the depression level of pregnant women during pregnancy and postpartum period.

The IPAQ and IPAQ-SF were developed by the International Consensus Group in Geneva in 1998 to evaluate the physical activity levels of individuals according to standards. The Turkish version of the questionnaire was made by Sağlam M. et al. in 2010 [6].

Edinburgh Postpartum Depression Scale: The EPDS was developed by Cox in 1987 to screen for depression in postpartum women in England. The scale is a self-report scale. The scale is a screening scale for determining the risk of postpartum depression and is also used during pregnancy [7]. The Turkish version of the questionnaire was made by Aydın N. et al. in 2004 [8].

Statistical analysis

Statistical analyses were performed using SPSS version 20 software (SPSS Inc., Chicago, IL., USA). The descriptive statistics of categorical variables were given by numbers and percentages, and continuous variables were given by mean ± standard deviation. In the evaluation of the study data, Student's t-test was used for the two-group comparison of the variables that have a normal distribution. A p-value <0,05 was accepted statistically significant.

Results

The mean age of the 38 adolescent pregnant women (Group 1) was 17.86±0.57 years, and the mean age of the 38 adult pregnant women (Group 2) was 26.34±4.34 years. The mean height was 161.71±7.13 cm in Group 1 and 161.31±5.18 cm in Group 2. There was no significant difference between the groups in terms of average height (p>0.05) (Table 1).

The mean body weight before pregnancy was 58.07±10.21 kg in Group 1 and 60.39±10.99 kg in Group 2. There was no significant difference in the mean body weight pre-pregnancy between Group 1 and Group 2 (p>0.05) (Table 1). The mean body weight before delivery was 76.50±11.25 kg in Group 1 and 75.16±10.80 kg in Group 2. There was no significant difference between the groups in terms of the mean body weight before delivery (p>0.05) (Table 1). It was found that the mean weight gain during pregnancy was 18.4±6.20 kg in Group 1 and 14.76±4.77 kg in Group 2 (p<0,05). The mean weight gain was significantly higher in Group 1. The physical characteristics of the pregnant women participating in the study are summarized in Table 1.

The mean duration of marriage was 9.97±5.08 months in Group 1 and 25.31±21.22 months in Group 2.

It was found that there was no statistically significant difference between the groups in terms of the 3rd trimester

Table 1. Physical Characteristics of Pregnant Women in Group 1 and Group 2

Physical Characteristics	Group 1 n=38 ±SD*	Group 2 n= 38 ±SD*	p value
Age (years)	17.86±0.57	26.34±4.34	-
Height (cm)	161.71±7.13	161.31±5.18	0.291**
Body Weight Before Pregnancy (kg)	58.07±10.21	60.39±0.99	0.852**
Body Weight Before Delivery (Kg)	76.50±11.25	75.16±10.80	0.347**
Weight Gain During Pregnancy (kg)	18.4±6.20	14.7± 4.77	0.009**

*: mean; SD: Standard Deviation, **Student's t-test

Table 2. Comparison of the 3rd Trimester and Postpartum EPDS scores of the pregnant women according to the groups

EPDS scores	Group 1 n=38 ±SD*	Group 2 n= 38 ±SD*	P
3rd trimester EPDS score	14.33±1.05	14.95±1.01	0.210
Postpartum EPDS score	17.32±1.34	13.97±1.02	0.007

* : mean; SD: Standard Deviation, ** Student's t-test

Table 3. Comparison of the 3rd Trimester and Postpartum International Physical Activity Questionnaire-Short Form (UFAA-SF) Values of the Pregnant Women

IPAQ-SF Scores	Group 1 n=38 ±SS*	Group 2 n= 38 ±SS*	P
3rd Trimester IPAQ-SF Score (MET)**	349.13±27.1	368.94±18.43	0.145***
Postpartum IPAQ-SF (MET)	218.38±13.33	274.76±13.60	0.322***

* : mean, SD: Standard Deviation, **MET: Metabolic Equivalent, *** Student's t-test

EPDS scores (p>0.05) (Table 2). However, it was found that postpartum EPDS scores were significantly higher in Group 1 compared to Group 2 (p<0.05). The mean EPDS scores of the pregnant women according to the groups are shown in Table 2. It was found that there was no statistically significant difference between the groups in terms of the mean 3rd trimester and postpartum IPAQ-SF scores of the pregnant women (p>0.05). The comparison of the mean 3rd trimester and postpartum IPAQ-SF scores of the pregnant women according to the groups are shown in Table 3.

Discussion

In this study, we compared differences between adolescent pregnant women and adult pregnant women in terms of socio-psychological status, physical activity level and birth outcomes. According to the results of the study, it was determined that the demographic characteristics of pregnant women in both groups were similar, and adolescent pregnant women gained more weight during their pregnancy. Adolescent pregnant women may have special problems due to poor pre-pregnancy nutritional status, nutritionally poor diets during pregnancy, early weight gain adequacy and body image concerns. However, it is not known for sure whether these problems are related to irregular weight gain patterns during adolescent pregnancy [9]. Similar to our study, in the study conducted by D. Howie et al. in the USA, the weight gain of adolescent pregnant women (≤19 years of age) and adult pregnant women (≥20 years of age) during pregnancy were compared and it was found that more than 27% of adolescent women and approximately 18% of adult pregnant women gained excessive weight during pregnancy [10]. In a prospective study conducted on 150 adolescent pregnant women, it was determined that adolescent pregnant women had inadequate antenatal care that could lead to adverse maternal and birth outcomes [11].

In our study, it was determined that the depression status of adolescent and adult pregnant women was similar in the third trimester, while the depression level of the adolescent pregnant women was higher in the second month postpartum. In another study comparing depression levels of adolescent and adult pregnant women in the 3rd trimester and in the 3rd month postpartum, it was found that the depression levels of adolescent pregnant women were higher during both pregnancy and postpartum period compared to adult pregnant women [12]. In another study, a prospective research questionnaire was applied to 212 adolescent pregnant women during pregnancy and 6 weeks after the delivery and it was reported that poor social adjustment was found to be associated with perceived maternal stress, less social support, and less positive view of pregnancy [13]. In another study, evaluating the depression levels of 396 adolescent pregnant women and 286 adult pregnant women, it was found that adolescent mothers exhibited higher depression rates before and at 6 months postpartum compared to adult mothers [14]. In a study in which prenatal care and support were provided to adolescent pregnant women, it was stated that a significant number of adolescent pregnant women were affected by depression. They suggested that there is a need for comprehensive interventions involving partners and families and that address the challenges that adolescent mothers face [15].

In our study, when the physical activity levels of adult and adolescent pregnant women were compared in the 3rd trimester and in the 2nd month after delivery, it was found that there was no difference between the groups in terms of the duration of labor in pregnant women, and there was no difference between the baby weights. In the literature, there is little information about the physical activity levels of adolescent pregnant women. In a cohort study conducted by Steinl et al., physical activity levels of 157 adolescent pregnant women (13-18 years) were investigated and physical activity level of the adolescent women was low during pregnancy [16]. In our study, when adolescent and adult pregnant women were compared in terms of physical activity level, it was found that both groups were inactive. We think that this lack of adequate activity was due to the social indications experienced during the COVID-19 pandemic.

When we evaluate our study results in terms of birth results, it was found that there were no significant differences between the groups in terms of the birth weight of the babies. In the literature, results regarding adolescent pregnancies and birth outcomes are variable. In a study similar to our study, it was found that early pregnancy was not associated with low birth weight alone [17]. In a study examining adolescent pregnant

women, it was shown that low birth weight and young maternal age (>17 years) were significantly associated [18]. Again, it has been shown in several studies that infants of adolescent mothers, especially those who were the babies of mothers younger than 20 years of age are much more likely to have low birth weight [19, 20]. One of the reasons for this has been suggested to be due to the fact that nutritional supply for the adolescent mother and her baby is problematic during this period when adolescent mothers are still developing and not fully matured [21]. Studies have suggested additional support and prenatal care to minimize the risk of adverse outcomes in adolescent pregnancies [22, 23]. In our study, we detected no significant difference between the groups in terms of postpartum results; this may be due to the developments in maternal health policies and antenatal care services in our country.

Limitations

Since our study was conducted during the COVID-19 period, a limited number of pregnant women could be reached. In addition, the physical activities, nutritional habits, and psychological states of pregnant women may have been affected by the COVID-19 pandemic. To support our results, there is a need for studies with a higher sample size. In addition, there is a need for comparative studies evaluating adolescent pregnancies by including other COVID-19-related parameters.

Conclusion:

The results of our study show that adolescent pregnant women tend to gain excessive weight during pregnancy. In addition, postpartum depression symptoms were found to be higher in adolescent pregnant women. Adolescent women who get pregnant during a sensitive development period should be provided with prenatal care and social support, including recommendations for physical activity during pregnancy and proper nutrition. In addition, we suggest that psychological support should be provided to prevent postpartum depression.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

Funding: *None*

Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

References

1. Pinto E Silva JL, Surita FG. Pregnancy in Adolescence - A Challenge Beyond Public Health Policies. Rev Bras Ginecol Obstet. 2017; 39(2):41-3.

2. Biviá-Roig G, Lisón JF, Sánchez-Zuriaga D. Changes in trunk posture and muscle responses in standing during pregnancy and postpartum. PLoS One. 2018; 13(3):e0194853.

3. Kawakita T, Wilson K, Grantz KL, Landy HJ, Huang CC, Gomez-Lobo V. Adverse Maternal and Neonatal Outcomes in Adolescent Pregnancy. J Pediatr Adolesc Gynecol. 2016; 29(2):130-6.

4. Karataşlı V, Kanmaz AG, İnan AH, Budak A, Beyan E. Maternal and neonatal outcomes of adolescent pregnancy. J Gynecol Obstet Hum Reprod. 2019; 48(5):347-50.

5. Craig CL, Marshall AL, Sjöström M, Bauman AE, Booth ML, Ainsworth BE, et al. International physical activity questionnaire: 12-country reliability and validity. Med Sci Sports Exerc. 2003; 35(8):1381-95.

6. Saglam M, Arikan H, Savci S, Inal-Ince D, Bosnak-Guclu M, Karabulut E, et al. International physical activity questionnaire: reliability and validity of the Turkish version, Percept Mot Skills. 2010; 111(1):278-84.

7. Kroska EB, Stowe ZN. Postpartum Depression: Identification and Treatment in the Clinic Setting. Obstet Gynecol Clin North Am. 2020; 47(3):409-19.

8. Aydin N, Inandi T, Yigit A, Hodoglugil NN. Validation of the Turkish version of the Edinburgh Postnatal Depression Scale among women within their first postpartum year. Soc Psychiatry Psychiatr Epidemiol. 2004; 39(6):483-6.

9. Vehmeijer FOL, Balkaran SR, Santos S, Gaillard R, Felix JF, Hillegers MHJ, et al. Psychological Distress and Weight Gain in Pregnancy: a Population-Based Study. Int J Behav Med. 2020; 27(1):30-8.

10. Howie LD, Parker JD, Schoendorf KC. Excessive maternal weight gain patterns in adolescents. J Am Diet Assoc. 2003; 103(12):1653-7.

11. Marković S, Cerovac A, Cerovac E, Marković D, Bogdanović G, Kunosić S. Antenatal Care and Weight Gain in Adolescent Compared to Adult Pregnancy. Int J Prev Med. 2020; 11:115

12. Figueiredo B, Pacheco A, Costa R. Depression during pregnancy and the postpartum period in adolescent and adult Portuguese mothers. Arch Womens Ment Health. 2007; 10(3):103-9.

13. Meltzer-Brody S, Bledsoe-Mansori SE, Johnson N, Killian C, Hamer RM, Jackson C, et al. A prospective study of perinatal depression and trauma history in pregnant minority adolescents. Am J Obstet Gynecol. 2013; 208(3):211.e1-7.

14. Lanzi RG, Bert SC, Jacobs BK. Centers for the Prevention of Child Neglect. Depression among a sample of first-time adolescent and adult mothers. J Child Adolesc Psychiatr Nurs. 2009; 22(4):194-202.

15. Buzi RS, Smith PB, Kozinetz CA, Peskin MF, Wiemann CM. A Socioecological Framework to Assessing Depression Among Pregnant Teens. Matern Child Health J. 2015; 19(10):2187-94.

16. Steinl GK, Whisner CM, Pressman EK, Cooper EM, Groth SW, O'Brien KO. Patterns and Correlates of Self-Reported Physical Activity in a Cohort of Racially Diverse Pregnant Adolescents. J Pediatr Adolesc Gynecol. 2019; 32(1):51-6.

17. Guimarães AM, Bettiol H, Souza Ld, Gurgel RQ, Almeida ML, Ribeiro ER, et al. Is adolescent pregnancy a risk factor for low birth weight? Rev Saude Publica. 2013; 47(1):11-9.

18. Liran D, Vardi IS, Sergienko R, Sheiner E. Adverse perinatal outcome in teenage pregnancies: is it all due to lack of prenatal care and ethnicity? J Matern Fetal Neonatal Med. 2013; 26(5):469-72.

19. Schempf AH, Branum AM, Lukacs SL, Schoendorf KC. Maternal age and parity-associated risks of preterm birth: differences by race/ethnicity. Paediatr Perinat Epidemiol. 2007; 21(1):34-43.

20. Gilbert W, Jandial D, Field N, Bigelow P, Danielsen B. Birth outcomes in teenage pregnancies. J Matern Fetal Neonatal Med. 2004; 16(5):265-70.

21. Njim T, Tanyitiku BS, Babila CS. Prevalence of adolescent deliveries and its complications in Cameroon: a systematic review and meta-analysis. Arch Public Health. 2020; 78:24.

22. Marvin-Dowle K, Kilner K, Burley VJ, Soltani H. Impact of adolescent age on maternal and neonatal outcomes in the Born in Bradford cohort. BMJ Open. 2018; 8(3):e016258.

23. Tyrberg RB, Blomberg M, Kjølhede P. Deliveries among teenage women - with emphasis on incidence and mode of delivery: a Swedish national survey from 1973 to 2010. BMC Pregnancy Childbirth. 2013; 13:204.

How to cite this article:

Berrin Aktan, Salim Erkaya, Türkan Akbayrak*. Comparison of psychological status, physical activity level, and birth results of adolescent and adult pregnant women. Ann Clin Anal Med 2022; DOI: 10.4328/ACAM.20951*