Araştırma Makalesi *Research Article*

Pamukkale Tıp Dergisi
Pamukkale Medical Journal

doi:https://dx.doi.org/10.31362/patd.598253

Effects of childbirth preparation education on the preference of mode of delivery in pregnant nulliparous women

Nullipar gebe kadınlarda doğuma hazırlık eğitimin doğum şekli tercihi üzerine etkisi

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Gönderilme tarihi: 29.07.2019 Kabul tarihi: 25.11.2019

Abstract

Purpose: To examine the effects of prenatal education on the preference of mode of delivery in pregnant nulliparous women.

Materials and methods: This retrospective cross-sectional study included 824 pregnant nulliparous women who gave their first birth between May 2017-May 2018 in the Giresun University Gynecology and Obstetrics and Child Diseases Training and Research Hospital. Among the women (n=752) included in the study, 397 participated in the childbirth preparation education at least once. Childbirth preparation education is planned for 4 weeks with a total of 8 hours. The trainings were given by midwives who had the certificate of childbirth preparation education to all pregnant women who complete 20th gestational week. While the women who had regular follow-ups (at least 4) in the study center, had healthy singleton pregnancy, and gave birth between 34-42 weeks of gestation were included, 2 pregnant who had stillbirth, 33 pregnant who had cesarean delivery due to breech presentation, 20 pregnant who underwent cesarean due to macrosomia, and 17 patients who did not attend regular follow-ups were excluded. The remaining 752 nulliparous pregnant women made up the cohort.

Results: The mean age of the women (n=752) was 25.73±4.66 years and their mean birth time was 39.02±1.49 weeks. The mean birth weight was 3259.28±418.05 g and 51.5% (n=387) of the women gave birth to a boy. Of the women, 439 (58.4%) gave birth vaginally and 313 (41.6%) gave birth by cesarean section. There was no significant difference between the women gave birth by vaginal route and cesarean section regarding the rate of participation in the childbirth preparation education (52.6% vs. 53.0%, *p*=0.910). Moreover, the rate of cesarean section was also lower than vaginal delivery (31.9% vs 68.1%) in the women who completed the prenatal education and had certificate (n=72) but the difference was not significant (*p*=0.080).

Conclusion: There was no significant effect of childbirth preparation education on the delivery route of nulliparous pregnant women.

Key words: Childbirth preparation education, nulliparity, type of delivery, vaginal birth, cesarean section.

Sipahi M. Effects of childbirth preparation education on the preference of mode of delivery in pregnant nulliparous women. Pam Med J 2020;13:61-67.

Özet

Amaç: Doğuma hazırlık eğitiminin nullipar gebe kadınlarda doğum tercihi üzerine olan etkisini incelemek.

Gereç ve yöntem: Bu retrospektif kesitsel çalışma Giresun Üniversitesi Kadın Doğum ve Çocuk Hastalıkları Eğitim ve Araştırma Hastanesinde Mayıs 2017-Mayıs 2018 arasında ilk doğumlarını yapan 824 gebe nullipar kadını içermektedir. Çalışmaya katılan (n=752) gebelerden 397'si en az bir kez doğuma hazırlık eğitimine katılmıştır. Doğuma hazırlık eğitimi toplam 8 saat sürecek şekilde 4 hafta olarak planlanmıştır. Eğitimler, 20. gebelik haftasını tamamlayan tüm gebelere doğuma hazırlık eğitimi sertifikası olan ebeler tarafından verildi. Çalışma merkezinde düzenli takibe (en az 4) gelenler, sağlıklı tekil gebeliği olanlar ve 34-42 hafta arasında doğum yapmış olan kadınlar çalışmaya dahil edilirken, ölü doğum yapan 2 gebe, makat geliş nedeniyle sezaryene alınan 33 gebe, makrozomi nedeniyle sezaryenle doğurtulan 20 gebe ve obstetrik takipleri düzenli olmayan 17 gebe çalışma dışı bırakıldı. Kalan 752 nullipar gebe, örneklem grubu olarak incelendi.

Bulgular: Kadınların (n=752) yaş ortalaması 25,73±4,66 yıl, ortalama gebelik haftası 39,02±1,49 idi. Ortalama doğum ağırlığı 3259,28±418,05 gr saptandı ve doğumların %51,5'i (n=387) erkekti. Kadınların 439'u (%58,4) vajinal, 313'ü (%41,6) sezaryen ile doğum yaptı. Vajinal yolla doğum yapan kadınlar ile sezaryenle doğum yapanlar arasında, doğuma hazırlık sınıflarına katılım oranlarında anlamlı bir fark bulunmadı (%52,6-%53,0, *p*=0,910). Ayrıca, doğuma hazırlık eğitimini tamamlayan ve sertifika alan kadınlarda (n=72) sezaryen oranı, normal doğumdan daha düşük (%31.9-%68.1) olmakla beraber anlamlı fark saptanmadı *(p*=0,080).

Sonuç: Doğuma hazırlık eğitiminin doğum şekli üzerine belirleyici bir etkisi gözlenmemiştir.

Anahtar kelimeler: Doğuma hazırlık eğitimi, nulliparite, doğum şekli, normal doğum, sezaryen.

Sipahi M. Nullipar gebe kadınlarda doğuma hazırlık eğitimin doğum şekli üzerine etkisi. Pam Tıp Derg 2020;13:61-67.

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Introduction

Vaginal delivery has been the most preferred method of childbirth from past to present as it is a physiological and expected process. Cesarean section is recommended in the presence of an emergency situation where vaginal delivery may put the life of mother or baby at risk [1]. Although the World Health Organization recommends the rate of cesarean section to be around 15% [2], this rate, today, has increased due to the idea of a safer birth process. However; uterine rupture, miscarriages, and maternal and fetal morbidity and mortality are increased as a result of cesarean section performed more than necessary except for medical necessity [3]. Main reasons for women to prefer cesarean section include fear of pain [4, 5], concern about not being able to give vaginal birth, safety of fetus [6], desire to return to sexual activity more quickly [7], and predetermining the date of birth [8]. Nevertheless, decision on mode of delivery is a dynamic process throughout the pregnancy period. It has been reported that almost all pregnant women (90.5%) prefer to undergo vaginal delivery in the first months of pregnancy; however, one-thirds of women (two-fifths of nulliparous women) are observed to have cesarean section according to the evaluation of childbirths [9]. Therefore, both pregnant woman and her partner need to take prenatal education in this dynamic period in order them to obtain adequate knowledge and skills concerning reproductive health, pregnancy, delivery, and neonatal care. Trainings in reducing the fear of childbirth have the effect of the woman's awareness of her own body, turning to conscious behaviors, feeling positive emotions and improving self-confidence as well as improving the birth process and results in a positive way [10, 11].

Prenatal education, which has begun to be routinely implemented as of early 20th century [12], began in 1960s in Turkey and the first childbirth education classes were opened in 1980 [13]. Childbirth preparation education have become widespread in order to increase mother-friendly practices initiated by the Ministry of Health to reduce cesarean rates and support vaginal birth. The topics that prenatal education focuses on can be listed under the following headings [14]: 1) A healthy pregnancy period (adaptation to pregnancy, physiological changes in the body, personal care during pregnancy, clinical examinations during pregnancy, potential problems, and exercises recommended during pregnancy), 2) Informing about labor and techniques for coping with labor pain, 3) Importance of breast milk and breastfeeding techniques, 4) Neonatal care, 5) Lactation period and the methods of family planning. Although Lamaze method is the most popular approach from a philosophical point of view, today a natural birth model is adopted which is a result of mixed philosophy.

The studies about antenatal education are limited in number and have yielded conflicting outcomes. Although there are studies showing that childbirth preparation education increases vaginal birth rates [15, 16], there are also studies that do not support this data [17, 18].

The present study aimed to investigate the effects of prenatal education on the preference of mode of delivery in pregnant nulliparous women.

Materials and methods

The study was designed as a retrospective cross-sectional study. The study sample consisted of 824 nulliparous women, who gave their first birth between May 2017 and May 2018 in the Republic of Turkey Ministry of Health Giresun University Gynecology and Obstetrics and Child Diseases Training and Research Hospital. Data were retrieved from the electronic hospital files and the records of childbirth education classes. The study inclusion criteria were having regular follow-ups (at least 4) in the study center, having healthy singleton pregnancy, and giving birth between 34 and 42 weeks of gestation. Women who gave birth to a stillborn baby, had a breech presentation, had a macrosomia birth, and had their periodic perinatal examinations in a different healthcare center or had inadequate perinatal examinations were excluded. Accordingly, 72 women were excluded in total; 2 were for giving birth to a stillborn baby, 33 were for having a breech presentation, 20 were for having cesarean section due to macrosomia, and 17 were for having periodic examinations in a different healthcare center or having inadequate perinatal examinations. The remaining 752 nulliparous women were included in the analysis.

Childbirth preparation education is planned for 4 weeks with a total of 8 hours in an equipped

childbirth preparation class. The trainings were given by midwives who had the certificate of childbirth preparation education to all pregnant women who complete 20th gestational week, and optional partner participation was also provided. A mixed program content consisting of active birth philosophy, hypnobirthing philosophy and Lamaze philosophy was used. The topics that childbirth preparation education focuses on can be listed under the following headings; 1) Anatomy and physiology of reproductive organs, pregnancy controls and possible risk situations, 2) Preparation for birth, symptoms of birth, stages of birth and methods of coping with pain, 3) Characteristics and benefits of breast milk, correct breastfeeding and duration of breastfeeding, newborn care, 4) puerperium and birth control methods.

Among the women (n=752) included in the study, 397 participated in the childbirth preparation education at least once and 72 of them completed the prenatal education and had a certificate.

Statistical analysis

The Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA) version 17.0 for Windows program was used for statistical analyses. Descriptive statistics were expressed as numbers and percentages for categorical variables and as mean and standard deviation for numerical variables. Normality of data was evaluated using Shapiro-Wilks test. In addition to descriptive statistics, Chi-square test and independent t-test were used to evaluate quantitative parameters. A *p* value of <0.05 was considered statistically significant.

Sample size

Accepting that the overall rate of cesarean section was 45% and assuming that this rate could be reduced to 30% via prenatal education (through childbirth preparation education), the sample size was calculated to be 324 pregnant women with a power of 80% at an alpha level of 0.05.

Approval of the ethics committee

The approval for this retrospective study was obtained from the Clinical Researches Ethics Committee of Giresun University (KAEK-72/2018).

Results

The mean age of the women (n=752) included in the study was 25.73±4.66 year and their mean gestational week was 39.02±1.49. The mean birth weight was 3259.28±418.05 g and 51.5% (n=387) of the women gave birth to a boy. The number of women attending the childbirth preparation education for at least once throughout the pregnancy period was 397 (52.8%).

Of the women, 439 (58.4%) gave birth vaginally and 313 (41.6%) gave birth by cesarean section. The leading cause of cesarean sections was abnormal labor progress (47.3%, n=148) followed by fetal stress (31.3%, n=98), head and pelvis disproportion (20.4%, n=64), and anxiety (1%, n=3).

Distribution of the study parameters according to the mode of delivery of women is presented in Table 1. Maternal age and birth weight were significantly higher in the women giving birth by cesarean section as compared with those giving birth vaginally (p=0.009 and p<0.001, respectively).

Among the women (n=752) included in the study, 397 participated in the childbirth preparation education at least once. Although the rates of vaginal delivery were higher both in the women who participated and not participated in the childbirth preparation education compared with the rate of cesarean section, the difference was not statistically significant (p=0.910) (Table 2).

Nulliparous women (n=72) who completed the prenatal education and had a certificate were compared with those (n=680) who never participated in the childbirth preparation education or did not complete the prenatal education and the results are presented in Table 3. Accordingly, although the rate of cesarean section was lower in those who completed the prenatal education, the difference was not statistically significant (p=0.080).

Among three women who gave birth by cesarean section due to anxiety, one completed prenatal education program, one participated in the childbirth preparation education just for one lesson, and one never attended the childbirth preparation education.

Table 1. Comparison of parametric data according to the mode of delivery.

	Mode of Delivery		*p* value
	Vaginal	Cesarean Section	
Sex of a baby, n (%)			
Girls	215 (49.0)	150 (47.9)	0.824
Boys	224 (51.0)	163 (52.1)	
Birth weight, g, mean±SD	3225±413	3306±421	0.009
Birth week, mean±SD	39.03±1.5	39.01±1.4	0.848
Age of women, year, mean±SD	24.91±4.1	26.87±5.2	<0.001
Number of antenatal follow-up, mean±SD	1.24±1.5	1.18±1.3	0.541

SD, standard deviation.

Table 2. Mode of delivery in the women participated and not participated in the childbirth preparation education.

	Mode of Delivery		Total (n)
	Vaginal n (%)	Cesarean Section n (%)	
Participating in the childbirth preparation education	231 (58.2)	166 (41.8)	397
Not participating in the childbirth preparation education	208 (58.6)	147 (41.4)	355

Pearson Chi-square, p=0.910

Table 3. Mode of delivery in the women having and not having prenatal education certificate.

	Mode of Delivery		Total (n)
	Vaginal n (%)	Cesarean Section n (%)	
Having prenatal education certificate	49 (68.1)	23 (31.9)	72
Not having prenatal education certificate	390 (57.4)	290 (42.6)	680

Pearson Chi-square, p=0.080

Discussion

In the present study which investigated the effects of prenatal education on mode of delivery of the nulliparous women, the rate of cesarean section was found to be lower in the women who attended to the childbirth preparation education and had prenatal education certificate as compared with the women who neither attended to the childbirth preparation education nor had prenatal education certificate, although the difference was not statistically significant.

Knowledge and expectations of women concerning childbirth can be quite different. These differences play a basic role in determining the preferences of women for mode of delivery. In addition, partner, family, friends, and economic status of a woman as well as health care workers and other environmental factors affect the preferences of women for mode of delivery [5, 15, 19]. For this reason, prenatal education comes into prominence to identify the main expectations of women about childbirth, to enhance their knowledge, to correct what they

know wrong, and ensure their participation in the decision-making process related to mode of delivery. Even if the preparation for childbirth education has been taken, the characteristics of hospital in which the child is born and the expectations of the pregnant woman have an effect on the mode of delivery. Yılmaz Esencan et al. [20] showed that cesarean section rates were higher in those who delivered in private hospitals comparing to state hospitals (68,9% vs 31,1%, $p<0.01$).

The studies about antenatal education are limited in number and have yielded conflicting outcomes. Although there are studies showing that childbirth preparation education increases vaginal birth rates [15, 16], there are also studies that do not support this data [17, 18]. In a study investigated 1,193 pregnant nulliparous women in two groups as having and not having antenatal education, the rate of hospital admittance during active labor was higher among those having education (relative risk [RR]: 1.45, 95% confidence interval [CI]: 1.26–1.65, p<0.01) and their need for epidural anesthesia was lower during labor (RR: 0.99, 95% CI: 0.73–0.97, p<0.01). The rate of cesarean section was found to be similar between the groups [21]. In another study, 200 low-risk pregnant nulliparous women were investigated in two groups as receiving and not receiving antenatal education and the rate of vaginal delivery was found to be 97% in the educated group and 90% in the uneducated group (p=0.044) [22]. In another study comparing 197 nulliparous women having prenatal education or not, no statistically significant difference was determined between the groups in terms of mode of delivery and pain scores, whereas the need for epidural anesthesia was observed to be higher in the educated group (50% vs. 41%, p=0.05) [23]. In a prospective observational study, 616 nulliparous women were dichotomized as receiving and not receiving antenatal education and the rate of vaginal delivery was found to be 55.8% in those receiving education while it was 75.6% in those not receiving education (p=0.030) [24]. In the present study, attending to the childbirth preparation education had no impact on the preferences of women for mode of delivery; however, the rate of vaginal delivery was higher in the nulliparous women who had a prenatal education certificate; with no statistically significant difference between the groups. Studies investigating the effect of antenatal education on anxiety and reporting favorable outcomes have determined that prenatal education has no effect on the mode of delivery [24-26]. Similarly, in this study, among three women who gave birth by cesarean section due to anxiety, one completed prenatal education program, one participated in the childbirth preparation education just for one lesson, and one never attended the childbirth preparation education.

Pregnancy- and labor-related complications increase with maternal age [27]. Therefore, the rate of cesarean section also increases with age [28]. In the present study, maternal age and birth weight were higher in nulliparous women giving birth by cesarean section as compared with the women giving birth vaginally ($p=0.009$ and $p<0.001$, respectively). Today, postponing pregnancy to a later age thereby results in an increase in the rate of cesarean section [29].

In conclusion, although there is no significant effect of childbirth preparation education on the mode of delivery, it can be considered that birth preference will be positively affected by increasing participation to the prenatal education and adopting a training program that supports vaginal delivery.

Limitation

The main limitation of the present study is not designing a questionnaire to evaluate additional conditions of women, such as anxiety level, pain, breastfeeding and socioeconomic status. Other limitations of the study are the use of single center data and a retrospective study design.

Conflict of interest: The author declare that there is no conflict of interest.

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