FACTORS ASSOCIATED WITH PREFERRED TYPE OF DELIVERY AMONG PREGNANT WOMEN IN ELAZIG CITY, TURKEY

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Abstract. The aim of this study was to identify factors associated with preferred type of delivery among pregnant women in Elazig City, Turkey. It is important that pregnant women be adequately informed by health professionals and guided to select the childbirth method that will best ensure their health and that of their babies. Each participant was interviewed in a face-to-face interview and a questionnaire was followed by the researcher. The questionnaire asked about previous delivery history and the factors influencing the type of delivery. The participants were also asked about their preferred method of delivery and the reasons why they answered the way they did. Participants were randomly selected from 173 family medicine centers. Inclusive criteria were pregnant women in any trimester who were registered at the family medicine center and were willing to participate in the study. A total of 628 respondents participated in the study. The mean (SD) age of participants was 28.8 (±5.4) (range: 17-45) years. Fifty-five point six percent had a primary school education and 55.9% had a husband with a high school or higher education level. Eighty-two point two percent of respondents stated they preferred vaginal birth and 17.8% preferred a cesarean birth. The higher the education and income levels the greater to preference was for cesarean birth ($p<0.05$).The primary reason given for preferring vaginal birth among respondents was the belief it was healthier, followed by the belief they would go home from hospital more quickly. The primary reason given by respondents for preferring a cesarean section was fear of vaginal birth, followed by the desire to avoid pain and to reduce the risk to the baby. In our study the great majority of respondents preferred vaginal delivery. However, it is clear from the interviews there is need to better educate pregnant women about the risks and benefits of each type of delivery. Further studies are needed to determine the best effective methods to provide this education.

Keywords: pregnant, cesarean birth, vaginal birth

INTRODUCTION

During pregnancy, women may feel ambivalent about the birth of their child, their new way of life and its increased responsibilities (Kasai, 2010). Vaginal birth and cesarean birth both have advantages and disadvantages for the mother and the baby (Miesnik and Reale, 2007). Cesarean section is when a fetus weighing ≥ 500 grams is delivered through an

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incision in the uterine wall (Danforth and Hammont, 1999). The rate of cesarean sections is increasing worldwide (Denk *et al*, 2006; OECD, 2007; Mac Dorman *et al*, 2008). The World Health Organization recommends the cesarean section rate not exceed 15% of the total births (Menacker *et al*, 2006). However, cesarean section rates exceed 15% in many countries, including Turkey. Turkey has a cesarean section rate of 42.7%, ranked third in the world behind Brazil and China (Öztürk *et al*, 2012). The average cesarean section rate among the Organization for Economic Co-operation and Development countries, which includes Turkey, is 25.8% (Howell *et al*, 2009). The Ministry of Health Turkey (2010) states the reasons for the high cesarean section rate in Turkey include: physician fear of litigation, fear of doctors, midwife lack of skill in actively following up of pregnancies and deliveries, women's preference for an elective cesarean section and expanding cesarean indications. The obstetrician's belief a cesarean section is less riskier for mother and baby than a vaginal birth also plays a role in the women's preference to have a cesarean section (Cunningham *et al*, 2001; Igde, 2004; Park *et al*, 2005).

What a woman knows, has experienced and has heard about a cesarean section affects her opinion about it. Women who have had a traumatic birth experience may prefer to have a cesarean section with the next delivery. Among pregnant women, the idea of a natural, vaginal birth will cause them to have a negative perception about cesarean section, but the idea that a cesarean birth is a feature of modern life and technology, may cause them to have a positive perception about cesarean section (Clement, 2001). Among Dutch women, the idea that a vaginal birth is a natural process has resulted in them having a low cesarean section rate (8.5-11%) in the Netherlands (Bais *et al*, 2001). It is important for pregnant women to be educated about childbirth and types of delivery.

We conducted this study to determine the preferred type of delivery among pregnant women in Elazig City, Turkey and the reasons for this preference.

MATERIALS AND METHODS

Study subjects and data collection

The study subjects were randomly recruited pregnant women attending any of 173 family medicine centers to obtain antenatal care during March and April 2015. Inclusion criteria were women who were pregnant in any trimester, registered at the study clinics and who were willing to participate. Each participant was interviewed with a face-to-face interview following a prepared questionnaire. The study instrument had been pretested among 15 pregnant women and revised to make it more understandable. The instrument asked about demographic factors, such as age and location of residence, as well as delivery history, type of delivery and the reasons for that preferred type of delivery. It also asked about the preferred type of delivery and the reasons for that preferred type of delivery. The questionnaire was developed based on a review of the literature on the study subject. (Bektas, 2008; Gozukara and Eroglu, 2008; Karabulutlu, 2012).

Data analysis

The data were analyzed using the SPSS version 16.0 (SPSS, Chicago, IL). The statistical analysis included percentages, means, standard deviations (SD) and the chi-square test depending on the type of variables. The dependent variable was the type of delivery preferred by the

study subjects. The independent variables were: age, place of residence, education level, income level, employment status, marriage age, planned pregnancy status, total number of pregnancies and history of miscarriage. Standard deviations were calculated for mean values. A p <0.05 was considered statistically significant.

Ethical considerations

This study was approved by the Ethics Committee of the Faculty of Medicine, Firat University (Ref No. 53532099/600/13; 06 February 2015).

RESULTS

A total of 692 pregnant women were invited to participate of whom 628 (90.8%) were willing. The mean (SD) age of the study subjects was 28.8 (5.4) (range: 17-45) years. Among study subjects, 55.6% had a primary school education and 55.9% had a husband who was a high school graduate or higher education level. Seventy-nine point five percent had gotten married when they were 19-34 years (Table 1).

Table 1
Sociodemographic characteristics of study subjects.

Variables	No. (%)
Age in years	
<26	233 (37.1)
27-31	341 (54.3)
≥32	54 (8.6)
Education levels	
None	44 (7.0)
Primary school	349 (55.6)
High school or higher	235 (37.4)
Educational level of subject's husbands	
None	11 (1.8)
Primary school	266 (42.4)
High school or higher	351 (55.9)
Occupation	
Housewife	536 (91.1)
State employee	73 (11.6)
Self-employed	19 (3.0)
Income per month in Turkish Lira	
≤ 1,500	422 (67.2)
1,501-3,000	131 (20.9)
≥ 3,001	75 (11.9)
Marriage age in years	
≤ 18	121 (19.2)
19-34	499 (79.5)
≥ 35	8 (1.3)

USD1= 3.5 Turkish Liras.

When asked "If there is no medical indication for cesarean birth, and you are allowed to choose a type of childbirth, which method would you prefer?" 82.2% answered they would choose vaginal birth. Seventy-six point four percent had planned pregnancies. Eighteen point six percent were in their first trimester of pregnancy, 38.7% were in the second trimester and 42.7% were in the third trimester at the time of the interview. Seventy-eight point three percent never had a miscarriage, 6.1% had miscarriage twice or more before and 23.4% had delivered by cesarean section at least once previously. Of those who had a previous cesarean section, 87.2% said it was based on their doctor advice and 12.8% said it was their own choice. Fetal distress was the main reason given for the doctor to recommend a cesarean section. Forty-four point four percent had given birth vaginally at least once. Nineteen point seven percent of women who had a previous cesarean section were aged 25-35 years (Table 2). No significant difference (p>0.05) in preferred delivery type was seen between those who lived in urban and rural areas. Significantly more (p<0.05) study subjects who had a high school education or greater (22.6%) preferred to have a cesarean section than subjects who were illiterate (11.4%) (Table 2). Significantly

Table 2
Characteristics of study subjects by type of preferred delivery.

Characteristics	Vaginal No. (%)	Cesarean No. (%)	*p*-value
Age of subjects in years			
< 25	132 (88.0)	18 (12.0)	0.101
25-35	322 (80.3)	79 (19.7)	
> 35	62 (80.5)	15 (19.5)	
Location of study subject residence			
Urban	392 (81.3)	90 (18.7)	0.319
Rural	124 (84.9)	22 (15.1)	
Subject education level			
Illiterate	39 (88.6)	5 (11.4)	0.046
Primary school	295 (84.5)	54 (15.5)	
High school or higher	182 (77.4)	53 (22.6)	
Monthly income of study subject in Turkish Lira			
≤ 1,500	359 (85.1)	63 (14.9)	0.004
1,501-3,000	105 (80.2)	26 (19.8)	
≥ 3,001	52 (69.3)	23 (30.7)	
Occupation			
Housewife	449 (83.3)	87 (16.2)	0.04
State employee	52 (71.2)	21 (28.8)	
Self-employed	15 (77.8)	4 (22.2)	
Marriage age of subject in years			
≤ 18	110 (90.9)	11 (9.1)	0.005
≥ 19	406 (80.1)	101 (19.9)	
Planned pregnancy			
Yes	395 (82.3)	85 (17.7)	0.882
No	121 (81.8)	27 (18.2)	
Total number of pregnancies			
1	167 (87.4)	24 (12.6)	0.023
≥2	349 (79.9)	88 (20.1)	
Number of births			
0	188 (87.0)	28 (13.0)	0.021
≥1	328 (79.6)	84 (20.4)	
Previous cesarean-section (*n*=412)			
Yes	79 (53.7)	68 (46.3)	0.001
No	249 (94.0)	16 (6.0)	
Trimester			
First	94 (80.3)	23 (19.7)	0.175
Second	193 (79.4)	50 (20.6)	
Third	229 (85.4)	39 (14.6)	
Miscarriage			
Yes	102 (76.1)	32 (23.9)	0.039
No	414 (83.8)	80 (16.2)	

USD1= 3.5 Turkish Liras.

Table 3
Reasons for preferred delivery type among study subjects.

Reasons given	No. (%)
Reasons for choosing vaginal birth[a] (*N*=516)	
It is healthier or better	398 (77.1)
To recover and return home more quickly	322 (62.0)
It is a natural physiological event	204 (40.0)
Breastfeed earlier	173 (34.0)
Anxiety about infection risk	81 (16.0)
Fear of surgery	63 (12.2)
Previous vaginal birth	43 (8.3)
Factors related to family[b]	19 (3.6)
The reasons for choosing cesarean-section[a] (*N*=112)	
Fear of vaginal birth	63 (56.2)
To avoid pain	50 (45.0)
To avoid putting infant at risk	49 (44.0)
Fear of episiotomy with vaginal birth	23 (21.0)
Fear of future urinary incontinence	9 (8.0)

[a]More than one selection could be marked.
[b]Choosing a method of childbirth according to the preferences of older family members.

Table 4
Study subjects' sources of information about delivery.

Sources of information about delivery	No. (%) *N*=628
Gynecologist	469 (75.0)
Family doctor	421 (67.0)
Nurse-midwife	178 (28.3)
Internet	128 (20.3)
Older family members	97 (15.4)
Friends	62 (10.0)
Newspaper, television	54 (8.5)
Neighbor	52 (8.2)
Books, encyclopedia	33 (5.2)

More than one selection could be marked.

more (p<0.05) subjects with a monthly income of >3,001 Turkish Liras (TL) per month (30.7%) preferred to have a cesarean section than subjects with a monthly income ≤1,500 TL (14.9%). Eighty-three point three percent of subjects who were housewives preferred a vaginal birth. Significantly more (p<0.05) subject who got married at aged ≥ 19 years (19.9%) preferred to have a cesarean section than subjects who got married at aged ≤ 18 (9.1%). The percentages of subjects who had (17.7%) and did not have (18.2%) a planned pregnancy were not significantly different from each other (p>0.05). More subjects (p<0.05) who were pregnant for the first time (87.4%) preferred to have a vaginal birth than subjects who had been pregnant ≥2 times (79.9%). Significantly more (p<0.05) subjects who were pregnant for the first time (87.0%) preferred vaginal birth than subjects who had given birth previously (79.6%). Significantly more (p=0.001) subjects who had delivered previously by cesarean section (46.3%) preferred a cesarean section than subjects who had never had a cesarean section (6.0%). Vaginal birth was preferred by

80.3% of subjects who were pregnant in their first trimester, 79.4% of those in their second trimester 85.4% of those in their third trimester.

Of subjects who preferred vaginal birth, the most common reason for this decision was that they felt it was a healthier and a better method, followed by healing and going home fasters and they felt it was a natural physiological process that allowed the baby to breastfeed earlier. Other reasons given for preferring vaginal birth included the belief there is a risk of infection, the fear of surgery, having a previous vaginal birth and factors relating to family. Of subjects who preferred a cesarean section, the most common reason given for this decision was fear of vaginal birth, followed by the desire to avoid pain and to reduce the risk for the baby. Other reasons given for preferring cesarean section included fear of having an episiotomy during vaginal birth and fear of urinary incontinence (Table 3).

Among study subjects, 75.0% heard about the types of childbirth from an obstetrician, 67.0% from their family doctors, 28.3% from a nurses, 20.3% had heard about them from the internet, 15.4% from older family members, 10.0% from friends and 8.5% from the newspaper or television (Table 4).

DISCUSSION

In our study, 17.8% of subjects preferred cesarean birth. Similar studies have been performed in other countries, with 3-48% preferring cesarean section in Chile (Bettes *et al*, 2007), 3.7% in Singapore (Chong and Mongelli, 2003) and 7% in England and Northern Ireland (Penna and Arulkumaran, 2003). These varying responses may be due to study differences, cultural differences and differences in national health policies. In our study, there was no significant association between preferred delivery type and age group similar to a study by Ajeet *et al* (2011).

In our study, there was no significant association between residence in an urban or rural area and the type of preferred delivery. However, in China, 64% of women surveyed who lived in an urban area and 11.3% of women surveyed who lived in an rural area preferred a cesarean section (Feng *et al*, 2012). In our study, women without a job outside the home were the least likely to prefer a cesarean birth and women who worked as state officials were the most likely to prefer a cesarean birth. Civili (2005) also found women who worked outside the home were significantly more likely to choose cesarean delivery.

Women with higher education level in our study were significantly more likely to prefer a cesarean birth, similar to several other studies (Qublan *et al*, 2002; Chong and Mongelli, 2003). The higher the monthly income of our subjects, the more likely they were to prefer cesarean birth, similar to the findings of Penna *et al* (2003) and Druzin and El-Sayed (2006).

In our study, the older the age of the subjects when married, the more likely they were to prefer a cesarean birth, similar to a study by Karabulutlu (2012). Our study subjects with more previous pregnancies were more likely to prefer cesarean birth and the same was true when comparing who had never given birth with those who had given birth previously: those who had given birth previously were most likely to prefer cesarean birth. Nearly half of our studied subjects who had a previous cesarean section preferred to have a cesarean section versus 6.0% of women who had given

birth vaginally previously preferred cesarean section. Chu *et al* (2010) found 80.0% of studied women in Taiwan who had a cesarean birth did so because of a medical indication and 28.0% had a cesarean section did it because it was a repeat cesarean section. One review of the literature found the most common reason a woman had a cesarean section was because they had previously undergone a cesarean section, followed by pelvic dystocia, fetal distress and breech presentation (Khanal, 2004). Other possible reasons for high cesarean section rates could be to have a tubal ligation at the same time or the belief that if a person had a previous cesarean delivery all subsequent deliveries need to be done by cesarean section. It is not true that a prior cesarean requires subsequent births to be by cesarean section, but a large portion of births after previous cesarean delivery are cesarean deliveries (Konakci and Kilic, 2002).

Cesarean section is not without risks. Women who undergo cesarean section are 5-20 times more likely to get an infection than those who deliver vaginally. The rate of infection after cesarean section ranges from 7% to 20% depending on demographic and obstetric factors (Yokoe *et al*, 2001; Ramsey *et al*, 2005). In our study, fear of vaginal birth was the primary reason for preferring a cesarean section, followed by wanting to avoid pain, wanting to reduce the risk to the child and fear of having an episiotomy. Wax *et al* (2004) found 4-18% of cesarean births were primary elective cesarean sections; most of the women studied said they preferred a cesarean birth because of tocophobia (the fear of giving birth). A study from Singapore found the desire to avoid pain was the main reason given for preferring cesarean delivery; other reasons given included fear of the episiotomy, wish of reducing fetal risk and having a prior traumatic birth (Chong and Mongelli, 2003). In developed countries, with widespread use of pain control methods, such as epidural analgesic, the fear of labor pain is no longer a major reason for choosing cesarean delivery. However, this is still an important reason for preferring cesarean section in developing countries where analgesic options for vaginal birth are limited (Penna and Arulkumaran, 2003). This choice for cesarean section may be due to women not being sufficiently educated about delivery types by the nurse or doctor or possibly their lack of psychological support. Each pregnant woman should have adequate health counseling in order to alleviate fear.

The choice of childbirth type should be made based on medical and maternal factors. It is important to replace a woman's fears with knowledge through proper education (Weerd and Steegers, 2002). This education should be given before, during and after delivery.

Knowledge about childbirth can be obtained from obstetrician, family physicians, nurses and then the internet, older family members, friends, newspapers, television, neighbors, books and encyclopedias. Özkan *et al* (2013) reported about two-thirds of study subjects stated they preferred cesarean section because of their obstetrician's advice and the rest based on their own opinion. A Turkey Demographic and Health Survey conducted from 2008 to 2013 reported 78.7% of deliveries in Turkey were aided by a physician and 18.7% were aided by a midwife and/or a nurse (Turkey Demographic and Health Survey Data, 2013). Their findings were similar to ours. Women are not completely educated about childbirth types; health professionals, especially physicians, need to better educate pregnant women about

delivery types.

In conclusion, the majority of subjects in our study preferred vaginal birth, but the percentage of subjects in our study who preferred cesarean birth was higher than the target percentage recommended by the World Health Organization. As income and education levels in women increase, the rate of women preferring cesarean delivery also increased in our study. As more women work and marry at a later age in Turkey the preference for cesarean birth is also likely to increase. Subjects in our study who had a history of a previous cesarean section tended to choose it for subsequent deliveries. Among subjects who preferred cesarean section in our study, the most common reason given was fear of vaginal birth. Pregnant women need to be better educated about the risks, benefits and indications for the types of delivery. Pregnant women should be encouraged by health care professionals to consider vaginal birth. Routine antenatal care is important and the mother should be educated by the health professional at each visit, including about childbirth types.

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