



Original Article

The Choice of Delivery Type and Related Factors in Woman Working at Guilan University of Medical Sciences in 2017-2018

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ABSTRACT

Background: Although vaginal delivery is the safest type of childbirth, cesarean section (CS) without any medical indication is currently increasing in the world, especially in Iran. The purpose of this study was to determine the type of delivery and its related factors in women working in the departments of Guilan University of Medical Sciences.

Methods: This cross-sectional study recruited 100 women employed in the departments of Guilan University of Medical Sciences in 2017. Data were collected using a questionnaire including demographic and reproductive details of all participants and the reason for choosing CS among women with previous CS. Fisher's exact test and Chi-square test were used to determine the factors related to delivery type.

Results: The prevalence of cesarean section in this study was 80%. Older age at pregnancy and higher education of the respondent and her husband was significantly associated with higher rate of CS. Spouse and relative suggestion for normal delivery was associated with lower rate of CS. The main reasons for CS were women's fear of childbirth, labor pain, and physician's recommendation.

Conclusion: The rate of CS delivery is very high in working women. Since concern about pain and possible damage to the body was the most important reasons of choosing CS, providing training classes, better facilitation for normal delivery and adding a special course for girls in high school education is recommended to develop a positive attitude toward normal delivery in women.

Keywords: Cesarean Section, Delivery, Working Women

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Introduction

Childbirth is an important event in a woman's life. Although vaginal delivery is the safest type of childbirth, cesarean

section (CS) is sometimes necessary for maternal or neonatal safety. Yet, cesarean section with no medical indication is currently increasing (1-3). In fact, the problem

is that women with low-risk delivery still choose CS despite its high complications in both the current and future pregnancies (4-6). CS has many complications for the mother and the fetus, including bleeding, anesthesia, infection of the suture site, prolonged recovery, infertility, etc. (7). Children born with CS also suffer from more complications and may develop asthma, allergy, obesity, and diabetes (8-10).

The World Health Organization has suggested a rate of 15% for CS with proper midwifery indications, yet different parts of the world report various rates, which are increasing every day (11). According to studies, the likelihood that a woman undergo CS is now three times greater than 20 years ago (12). The prevalence of CS is different according to different statistics, and has only reduced from 4.2% to 3.3% in Guinea, and from 2.9% to 2% in Nigeria, but increased in other countries (13). Countries with a high cesarean rate include Brazil (55.6%) and Dominican Republic (56.4%) in Latin America and the Caribbean, Egypt (51.8%) in Africa, Iran and Turkey (47.9% and 47.5%) in Asia, Italy (38.1%) in Europe, USA (32.8%) in North America, and New Zealand (33.4%) in Oceania (13). The rate of cesarean with no medical indication is still increasing in Iran (14).

According to statistics, the rate of CS in Tehran has been reported to be 66.5% (15). However, such an increase is not owing to surgical and anesthetic techniques, and the actual reason is not fully known, and the following reasons have been proposed: fear of complaint, fear of pain, pelvic damage, and a previous bad experience of vaginal childbirth (16).

The increasing rate of CS in Iran is a major concern for many health experts and policy-makers. Lack of knowledge about CS complications, negative attitude to vaginal delivery, and attributing rumors and false complications to natural childbirth such as greater odds of neurological problems are among the main reasons for women turning to CS (17). Generally, CS has greater complications for the mother than vaginal delivery (18). The financial burden of CS is significantly greater for the community than vaginal delivery (19).

Guilan University of Medical Sciences is the organization responsible for provision of health services in Guilan province, and due to the nature of their work, the staff are expected to have better attitude and performance in relation to health and medical issues. Meanwhile, according to previous study, Guilan has the highest rate of CS (57.6%) among Iranian cities (20). Thus, given the importance of type of childbirth and the increasing trend of CS and its complications for the mother and the fetus, the present study was conducted to investigate some of the factors associated with the choice of type of childbirth in women working in Guilan University of Medical Sciences.

Methods

The present cross-sectional study was conducted on women working at Guilan University of Medical Sciences to investigate the choice of type of delivery and related factors. All women working at Guilan University of Medical Sciences who met inclusion criterion of having at least one previous delivery were entered the study. Delivery was defined as end of pregnancy after 20 week of gestation

irrespective to the outcome of delivery. The list of eligible women were obtained from the logistics office. Then, a self-administered questionnaire was given to eligible women in their workplace. The questionnaires were anonymous and there was no label to identify the participants.

Data were collected using the questionnaire containing items about demographics, occupation, choice of delivery in the last pregnancy, and reproductive and childbirth history including the number of pregnancies, parity, and number of living children, history of miscarriage and stillbirth, and history of ectopic pregnancy, twin pregnancy, cesarean section, preterm delivery and infertility since the last childbirth. Moreover, women whose last childbirth was made by cesarean section were asked the reasons for choosing CS. Items of choice of CS were adopted from a questionnaire previously designed by Amiri et al. (21). Reliability of the questionnaire was confirmed with the Cronbach's alpha of 0.71 after data collection.

Data were described using absolute and relative frequencies or mean and standard deviation according to the type of variables. Chi-square or Fisher's exact tests were used to compare between groups. Significance level in all tests was set as 0.05. All analysis were carried out in SPSS version 18.

Results

A total of 100 women working at Guilan University of Medical Sciences with a mean age of 43.7 years (standard deviation (SD) = 6.5), minimum 28 years and maximum 60 years) were studied. Mean age at the last pregnancy was 30 years (SD = 5.2). Minimum interval from the last pregnancy was 1 year and the maximum was 35 years. The subjects had experienced from 1 to 5 pregnancies. The rate of CS was 80% among the women under the study. Table 1 presents the frequency of type of delivery in terms of underlying and demographic details. No significant relationship was observed between the participant's present age and type of delivery. There was significant relationship between age at last pregnancy and type of delivery (P-value = 0.035). The frequency of CS was significantly higher in the higher age group (87% and 93%) compared to younger age groups (73%).

The type of delivery was found to have a significant relationship with education level of participants and their spouses' and history of a previous CS. Higher education levels were correlated with more CS. All the 27 participants with CS in their penultimate pregnancy opted for CS again. The type of delivery had no significant relationship with occupation, employment status, place of service, position, number pregnancies, parity, number of living children, history of stillbirth, history of preterm delivery, history of twins, history of ectopic pregnancy, or history of infertility before the last childbirth.

Table 2 presents the frequency of childbirth type by previous pregnancy details. The choice of delivery had no significant relationship with birth spacing, place of last delivery, history of illness or surgery, history of medication use (except for iron and multivitamins), obstetric complications, or suggestion by friends and associates. However, type of delivery had a significant relationship with type of delivery by friends and associates and suggestion by their spouse and mother.

Table 1. Frequency of Type of Delivery According to the Demographic and Underlying Characteristics of the Participants

Variable	Type of Delivery in Last Pregnancy		P-value
	NVD	CS	
Age of respondent (years)			
28-44	7 (12)	51 (88)	0.23
45-60	13 (30)	29 (70)	
Age at last pregnancy (years)			0.035
18-30	15 (27)	41 (73)	
31-35	4 (13)	27 (87)	
>35	1 (7)	12 (93)	
Parity			0.64
1	7 (14)	41 (85)	
2 and more	13 (25)	39 (75)	
Participant's education			0.001
Diploma and below	10 (52.6)	9 (47.4)	
Bachelor's degree	6 (15.8)	32 (84.02)	
Master's degree and higher	4 (9.3)	39 (90.7)	
Spouse's education			0.003
Diploma and below	9 (47.4)	10 (52.6)	
Bachelor's degree	8 (18.2)	36 (81.8)	
Master's degree and higher	3 (8.1)	34 (91.9)	
Serving department			0.147
Health	0	7 (100)	
Treatment	1 (12.5)	7 (87.5)	
Financial	16 (23.2)	53 (76.8)	
Logistics	3 (42.9)	4 (57.1)	
Others	0	9 (100)	
Employment status			0.189
Formal	7 (13)	47 (87)	
Agreement	2 (28.6)	5 (71.4)	
Contractual	10 (29.4)	24 (70.6)	
Others	1 (20)	4 (80)	
Working status			0.58
Full-time	20 (21.1)	75 (78.9)	
Part-time	0	5 (100)	

Abbreviation: NVD, Normal vaginal delivery; CS, Cesarean section. Values in the parenthesis are percent

Spouse's suggestion had an important role in the choice of delivery, such that 100% of those whose spouse had opted

for CS and 58% of those whose spouse had chosen natural childbirth followed their spouse's choice (P-value = 0.01).

Table 2. Frequency of Type of Delivery According to the Previous Pregnancy Characteristics and Relative Suggestion

Variable	Type of Delivery in Last Pregnancy		P-value
	NVD	CS	
History of miscarriage or stillbirth			0.55
Yes	3 (13.6)	19 (86.4)	
No	17 (21.8)	61 (78.2)	
History of preterm childbirth			0.99
Yes	0	2 (100)	
No	20 (20.4)	78 (79.6)	
History of twin birth			0.11
Yes	4 (40)	6 (60)	
No	16 (17.8)	74 (82.2)	
History of ectopic pregnancy			0.99
Yes	0	2 (100)	
No	20 (20.4)	78 (79.6)	
History of infertility before the last childbirth			0.58
Yes	0	5 (100)	
No	20 (21.1)	75 (78.9)	
History of CS before the last childbirth			0.001
Yes	0	27 (100)	
No	20 (27.4)	53 (72.6)	
Choosing the closest friend's type of delivery			0.01
CS	10 (13.5)	64 (86.5)	
NVD	10 (38.5)	16 (61.5)	
Spouse's suggestion for type of delivery			0.001
CS	0	27 (100)	
NVD	10 (58.8)	7 (41.2)	
No specific suggestion	10 (17.9)	46 (82.1)	
Mother's suggestion for type of delivery			0.011
CS	1 (4.3)	22 (95.7)	
NVD	11 (37.9)	18 (62.1)	
No specific suggestion	8 (16.7)	40 (83.3)	

Abbreviation: NVD, Normal vaginal delivery; CS, Cesarean section. Values in the parenthesis are percent

In relation to the type of delivery chosen by the closest friend, 86% chose CS and 38% natural childbirth as had been chosen by their friends. In relation to mother's suggestion, 96% chose CS and 38% natural childbirth as had been suggested by their mothers (P-value < 0.01).

Table 3 presents the reasons for choosing CS by those who had had CS before.

Table 3. Reasons for Choosing Cesarean Section Given by Women with Previous Cesarean Section

Variable	Frequency	Percent
Physician's advice		
Yes	62	77.5
Somewhat	8	10
No	10	12.5
Midwife's advice		
Yes	9	11.25
Somewhat	9	11.25
No	62	77.5
Health personnel's advice		
Yes	10	12.5
Somewhat	11	13.75
No	59	73.75
Not feeling pain		
Yes	43	53.75
Somewhat	15	18.75
No	22	27.5
Spouse's suggestion		
Yes	29	36.25
Somewhat	18	22.5
No	33	41.25
Maintaining body shape		
Yes	25	31.25
Somewhat	21	26.25
No	34	42.5
Friend's and relatives' suggestion		
Yes	8	10
Somewhat	14	17.5
No	58	72.5
Good financial status		
Yes	22	27.5
Somewhat	26	32.5
No	32	40
Concern about damage to birth canal and genitalia		
Yes	35	43.75
Somewhat	14	17.5
No	31	38.75
Bad previous experience		
Yes	13	16.25
Somewhat	4	5.0
No	63	75.75
Medical conditions		
Yes	33	41.25
Somewhat	21	26.25
No	26	32.5
Fear of delivery pain		
Yes	32	40.0
Somewhat	19	23.75
No	29	36.25
Desire for tubectomy		
Yes	9	11.25
Somewhat	1	1.25
No	70	87.5
Multiple pregnancy		
Yes	3	3.75
No	77	96.25
Unknown delivery time		
Yes	17	21.25
Somewhat	11	13.75
No	52	65.8
Prolonged delivery time		
Yes	8	10.0
Somewhat	2	2.5
No	70	87.5

The reasons for choosing CS was separately asked from 80 out of 100 participants who had previous experience of CS. The most common reason for choosing CS was physician's advice, as reported by 77.5%. More than half of the participants (54%) reported not feeling of pain during CS as the major reason for choosing CS. While 44% reported concern about damage to the birth canal and genitalia, and 40% recorded fear of delivery pain as their reasons for opting of CS.

Discussion

The present study was conducted to investigate the choice of delivery type and related factors among women working in various departments of Guilan University of Medical Sciences. In the present study, 27% had a history of CS before their last childbirth, and 80% had their childbirth by CS, which is much higher than the rate in previous studies conducted in Iran. Maroufi et al. reported the prevalence of CS and related factors in primiparous women in Tehran as 72.1%. In a study by Hamilton et al., data were based on 99.93% of childbirths in America in 2017, and the results showed a prevalence of 32% for CS (22). In a study by Edmonds et al., data were extracted from birth records in American hospitals between 2010 and 2015, and CS rate varied from 8.3% to 28% (23).

The present study results showed that choice of delivery depends on the couple's education level, friends' and associates' type of delivery, and suggestions by mother and spouse. The main reasons for choosing CS given by women whose last delivery was by CS were delivery pain, fear of pain, and physician's advice. Our finding that choosing CS increases with the mothers' higher education level agrees with that obtained by Maroufi et al., Amiri et al., Fabri et al., and Mendoza et al. (21, 24-26). According to a study conducted in England by Donati et al., most gynecologists do not reject CS with no medical indication, which agrees with the present study results (27).

A study by Mohammadian et al. to investigate the effect of mother's request for elective CS in Tehran, 824 delivering mothers were selected in 2001. The results showed that 66.5% of childbirths were CS and 33.5% natural childbirth. Also, 72% of the CS were elective, of which, 22% had been at mother's request. Moreover, 71% of mothers had requested CS for fear of pain. Their results also showed that 65% of gynecologists had recommended termination of pregnancy by CS for unnecessary reasons and with no indication for cesarean. The medical and midwifery reason for elective cesarean was repetitive cesarean in 73.5% of cases. Furthermore, mothers' higher education, occupation and first pregnancy significantly increases the request for cesarean section. Hence, the results obtained by Mohammadian agree with those of the present study (28).

The results obtained by Signorelli et al. showed that the physician has the greatest effect on the choice of CS (29). Gomez et al. reported physician's advice and mother's environmental conditions as the main reasons for choosing CS (30).

Kiani et al. investigated attitude toward elective CS in midwives working in Tehran in 2011, and reported that 24.6% of midwives were in favor of elective CS (31).

Anderson and Lomas showed that in some cultures, insistence by the patient and her family also affects physician's decision about CS, and is one of the reasons for the increasing rate of CS (32).

Darsareh et al. conducted a cross-sectional study in Bandarabbas, south of Iran between May and October 2015 on eligible women requesting CS or vaginal delivery using a questionnaire. Of 470 employed women, 183 (38.9%) had CS with no medical indication. Women's decision was affected by their characteristics (age, education, and occupation, participation in medicine, profession, and household income) and obstetric variables (type of health services provided, place of maternity care, and the number of future planned children). Natural childbirth was opted by 61.1% of the women and CS was chosen by 38.9% of them. There was a significant difference in knowledge of childbirth between mothers who had chosen CS and those who had opted for vaginal childbirth (33).

To determine Iranian women's request for CS in their first pregnancy, Faisal et al. performed individual interviews in a private room to collect the data. Interviews were conducted in four health centers affiliated to Hamedan University of Medical Sciences, lasting between 40 minutes and 90 minutes each. A total of 14 primiparous mothers with no medical indications for choosing CS were assessed, and their reasons for choosing CS included fear of childbirth, complications after vaginal childbirth, trust in gynecologists, and distrust in maternity ward personnel (34). Conducting the present study on a particular group of employees was one of its limitations. Hence, studying other groups with larger sample size can provide better estimation of CS prevalence and its association with background characteristics of the women. This study recommends, it is recommended that Along with providing more facilitation for normal delivery, training classes be held for young women, and a special course be added to the high school course to develop a positive attitude toward natural delivery in women.

Conclusion

The prevalence of cesarean delivery among women working at Guilan University of Medical Sciences is greater than the average in Iran. The physician's advice was the most common reason for choosing CS in the present study. The women's and their spouse's education, type of delivery of the closest friend, and suggestion by spouse and mother were the main factors associated with the chosen type of delivery.

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Ethical consideration

The present study was approved by the Ethics Review Board of Guilan University of Medical Sciences (IR.GUMS.REC.1396.414) in 2017.

Conflicts of interests

Authors declared no conflict of interest.

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