

The preferred mode of delivery among primigravida Middle Eastern Women. A questionnaire based study

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Background: Cesarean section (C/S) and Vaginal delivery are two methods of delivery, Cesarean section sometimes indicated for obstetrical reason but primigravida might have a preference of the mode of delivery. Our aim was to explore the preferred mode of delivery chosen by pregnant nulliparous women visiting the out-patient Obstetrics Department at King Abdulaziz University Hospital, Jeddah, Saudi Arabia. A secondary aim was to identify associated factors and investigate reasons for their preference. **Method:** This was a cross-sectional study conducted at KAUH from October 2018–October 2019. All nulliparous women who were willing to participate were included. The questionnaire had 19 questions, containing six domains. **Results:** 104 primigravida women participated; their ages ranged from 18 to 41 years (mean \pm SD 27.31 \pm 5.41). 85.5% preferred spontaneous vaginal delivery (SVD) because they considered it to be natural (OR (95% CI) = 0.696 (0.575–0.842) P < 0.001). They also preferred SVD because of a quick recovery (OR (95% CI) = 0.084 (0.011–0.670) P = 0.003). Pain or concern about the stress to herself or her baby did not affect the mother's decision. The husband influenced the decision (OR (95% CI) = 11.944 (2.710–52.644) P = 0.002), more so than the influence of the woman's mother (OR 95% CI = 0.225 (0.063–0.806) P = 0.029). The influence of doctors and friends was not significant (P = 0.132 and 0.627, respectively). **Conclusion:** The preferred mode of delivery chosen by primigravid pregnant women was SVD, only 13.5% preferred C/S. Factors that have a positive impact on the preference for C/S were anxiety, fear of labor pain, and negative labor experience.

Keywords

Cesarean section; Mode of delivery; Primigravida

1. Introduction

Cesarean section is indicated when the estimated risk to the mother or fetus in a vaginal delivery is greater than the risk associated with a surgical delivery, for example, in cases of prolonged labor, fetal distress, or abnormal presentation. In some circumstances, maternal and fetal mortality is preventable by cesarean section. However, significant complications can result from a cesarean section, especially if done in centers that have minimal resources to perform safe surgeries or manage complications [1].

The international healthcare community suggested in 1985 that an optimal rate of cesarean section would be between 10–15%. Since that time; many studies have shown a

worldwide trend for increased rates of cesarean section. Also, reported data from different regions in Saudi Arabia have shown an increasing rate of cesarean section [2, 3].

Many factors could contribute to the marked increased rate of cesarean section in the last few decades. However, medical indications are not the only reason for this trend [4]. One of the critical factors is patient preference. Women's demand for a cesarean section has become an essential reason for the surgical route of delivery [5]. According to a study conducted in Santiago, USA; private patients were more likely to have cesarean delivery [6].

Furthermore, anxiety and fear of labor pain and vaginal tear are one of the prevalent emotions experienced by nulliparous women during pregnancy and one of the reasons that could lead them to choose cesarean delivery. Also, some multiparous women who have had a negative labor experience prefer cesarean section over vaginal birth [7]. According to a Swedish study, fearful couples have a greater probability of having a planned cesarean section [8].

Cultural and educational factors can contribute to women's beliefs and expectations about the experience of delivery [9]. Previous studies have found that some male partners are more insistent and challenging to convince, compared to their pregnant female partners [8].

Previous studies have drawn attention towards the importance of addressing women's (especially nulliparous) feelings related to the mode of birth. They have encouraged physicians and midwives to address their patients' worries and to explore the psycho-social reasons that influence women to choose a cesarean section, helping to provide more appropriate antenatal care and to increase their patients' awareness and level of knowledge about what to expect going into vaginal or cesarean delivery [10, 11].

The current study aimed to explore the preferred mode of delivery chosen by pregnant nulliparous women visiting the out-patient clinic at the Obstetrics and Gynecology Department in KAUH. A secondary aim was to identify associated factors and investigate reasons for their preference.

2. Material and methods

This cross-sectional study was conducted at the out-patient clinic of the Obstetrics and Gynecology Department in the King Abdulaziz University hospital (KAUH) between October 2018 and October 2019. A total of 104 pregnant nulliparous women were asked about the mode of delivery they preferred, using a simple, brief, self-administrated questionnaire. This was designed and adapted from questionnaires used in other studies that focused on the preferred mode of delivery. It was edited to be more applicable to our community and translated into Arabic by native speakers.

All Nulliparous women who were willing to participate were included. We excluded non-pregnant women, multiparous women, and those who were not willing to participate.

The questionnaire had 19 questions and contained six domains: The first part of the questionnaire focused on personal and socio-demographic information (such as age, education, occupation, nationality). The second part asked for gynecological and obstetric information, including any history of infertility and history of previous abortions, followed by a third part which collected data about the presence of any chronic diseases (e.g., diabetes, hypertension) and any past surgeries or usage of any long-term medication. The fourth part of the questionnaire focused on the current pregnancy (e.g., complications during pregnancy). The last part asked pregnant women about their preferred mode of delivery and the reasons.

Data entry was performed using Microsoft Excel 2019, and statistical analysis was done using SPSS V21 (IBM Corp., Armonk, NY, USA). Cross tabulation was assessed with the chi squared test and the odds ratios, the 95% confidence intervals, and the *P*-values (<0.05 taken as significant) were calculated.

This study has been approved by the institutional review board of the KAUH and the study was carried out in accordance with the approved guidelines. Participants gave verbal consent.

3. Results

As shown in Table 1, the age of the 104 pregnant women studied ranged from 18 to 41 years old, with a mean \pm SD of 27.31 ± 5.41 . The majority of the women were Saudi 59 (56.7%) and 45 (43.3%) were non-Saudi.

Regarding the level of education, 70 (67.3%) had a university degree and 34 (32.7%) had only finished high school. Family income per month was less than 5000 Saudi Riyals (SR) for 38 (36.5%) women, more than 5000 and less than 10000 SR for 56 (53.8%) women and more than 10000 SR for 10 (9.6%) women. As shown in Table 1, the preferred mode of delivery was spontaneous vaginal delivery (SVD) for 90 (85.5%) women and cesarean section (C/S) for 14 (13.5%) women.

Table 2 shows that two pregnant women used insulin and all of them preferred to deliver by C/S; of the 102 pregnant

Table 1. Personal Data.

	Frequency	Percentage
Nationality		
• Saudi	59	56.7
• Non-Saudi	45	43.3
Education		
• High school	34	32.7
• University	70	67.3
Family income SR/month		
• 5000	38	36.5
• 5000–10,000	56	53.8
• 10,000	10	9.6

SR, Saudi Riyal.

women who did not use insulin, only 12 preferred to deliver by C/S. The difference was statistically significant ($P = 0.017$).

Chronic disease was also a significant variable ($P = 0.05$). Of the 12 pregnant women who had chronic disease, 4 of them preferred to deliver by C/S while among the women who had no chronic disease only 10 out of 92 women preferred the C/S.

In Table 3, we studied the influence of different variables on the preferred mode of delivery. These variables were the duration of marriage, a history of abortion, a history of infertility, and a history of assistant reproductive technology. None of them were associated with the patient's decision for a preferred mode of delivery.

Pregnant women preferred SVD because they considered it to be natural (odds ratio (95% CI) 0.696 (0.575–0.842) $P < 0.001$). Also, they preferred SVD because of a quick recovery (odds ratio (95% CI) = 0.084 (0.011–0.670) $P = 0.003$). Other variables as pain or concern about the stress to herself or her baby did not affect the woman's decision about the mode of delivery (Table 4).

The woman's husband had a significant influence on his wife's decision about the mode of delivery (odds ratio (95% CI) = 11.94 (02.71–52.64) $P = 0.002$), greater than the influence of the woman's mother (odds ratio (95% CI) = 0.225 (0.063–0.806) $P = 0.029$). The influence of doctors and friends was not significant ($P = 0.132, 0.627$, respectively) (Table 5).

4. Discussion

Primigravid women have a variety of opinions about their mode of delivery. It appears to be affected by many variables which usually differ from one woman to another. Therefore, this study was carried out to assess the preferred mode of delivery in 104 primigravid women.

The majority (85.5%) of these women favored SVD as opposed to only 13.5% who favored C/S. This preference is similar to a cross-sectional study done in Iran in 2015 which found that out of 470 patients only 39% preferred C/S while 61% planned to deliver vaginally [10]. This preference is also similar to a prospective cohort study done on 382 nulliparous in 3 private and two public hospitals in Argentina in 2010-

Table 2. Patient's characteristics and preferred mode of delivery.

Variable	SVD (N = 90)	C/S (N = 14)	OR. 95% (Confidence Interval)	P
Nationality				
• Saudi	48	11		
• Non-Saudi	42	3	0.312 (0.081–1.193)	0.066
Education				
• High school	29	5		
• University	61	9	0.856 (0.263–2.783)	0.508
Family income				
• <5000	38	3		
• 5000–10,000	48	8		
• >10,000	7	3		0.183
Chronic disease				
• No	82	10		
• Yes	8	4	4.100 (1.044–16.103)	0.050
Surgical history				
• No	73	9		
• Yes	17	5	2.386 (0.709–8.032)	0.140
Medical issues before preg				
• No	81	13		
• Yes	9	1	0.692 (0.081–5.928)	0.895
Multivitamin				
• No	52	8		
• Yes	38	6	1.026 (0.329–3.203)	0.593
Iron				
• No	43	10		
• Yes	47	4	0.366 (0.107–1.253)	0.086
Folic acids				
• No	50	6		
• Yes	40	8	1.667 (0.535–5.197)	0.274
Insulin				
• No	90	12		
• Yes	0	2	0.118 (0.069–0.200)	0.017
Others				
• No	78	12		
• Yes	12	2	1.083 (0.215–5.450)	0.597

Family income = SR/Month.

SVD, spontaneous vaginal delivery; C/S, cesarean section.

Table 3. Variables affecting the preferred mode of delivery.

Variable	SVD (N = 90)	C/S (N = 14)	OR. 95% Confidence Interval	P
Duration of marriage				
• Less than 1 year	33	4		
• More than 1 year	57	10	1.447 (0.420–4.983)	0.395
H/O previous abortion				
• No	71	9		
• Yes	19	5	2.076 (0.622–6.925)	0.190
Infertility				
• No	77	10		
• Yes	13	4	2.369 (0.646–8.693)	0.170
Assisted reproductive technology				
• No	87	14	0.861 (0.797–0.931)	0.645
• Yes	3	0		

H/O Previous Abortion, History of previous abortion.

Table 4. Reasons for preferring one mode of delivery more than another.

Variable	SVD (N = 90)	C/S (N = 14)	OR. 95% Confidence Interval	P
Pain				
• Yes	81	11		
• No	9	3	2.455 (0.575–10.469)	0.203
Natural				
• Yes	32	14		
• No	68	0	0.696 (0.575–0.842)	0.001
Quick recovery				
• Yes	43	1		
• No	47	13	0.084 (0.011–0.670)	0.003
Fear				
• Yes	90	9		
• No	0	5	0.091 (0.049–0.169)	0.001
Less stress to mother				
• No	87	12		
• Yes	3	2	4.833 (0.731–31.938)	0.133
Less stress to baby				
• No	85	13		
• Yes	5	1	1.308 (0.141–12.100)	0.590

Table 5. People who influence the pregnant woman's decision regarding mode of delivery.

Variable	SVD (N = 90)	C/S (N = 14)	OR. 95% Confidence Interval	P
Doctors				
• No	83	11		
• Yes	7	4	3.234 (0.728–14.371)	0.132
Mother				
• Yes	10	5		
• No	80	9	0.225 (0.063–0.806)	0.029
Friend				
• Yes	20	3		
• No	70	11	1.048 (0.266–4.122)	0.627
Husband or partner				
• Yes	86	9		
• No	4	5	11.944 (02.710–52.644)	0.002

2011. Their results showed that only 6% of women from private hospitals and 8% of women from public hospitals preferred to deliver by C/S [12]. This similarity in the results across countries suggests that many women prefer SVD because it is considered a natural method with fewer complications [12, 13]. When we assessed the reasons for the preference of one mode rather than another, we discovered that considerations such as having a natural birth, fear of pain, and a quick recovery affect the mother's decision. These results are similar to a qualitative study done in Iran which showed that fear of pain was the most common reason for some women to prefer C/S [14].

Among the primigravid women there are many factors that may affect the preferred mode of delivery. One of them is their educational level; this appeared to be significant ($P < 0.001$) in the previous study done in Iran in 2011 on 797 women, but in our research study, it was not significant ($P = 0.508$) [15].

Other relevant factors are the influence of the husbands and mothers of pregnant women; we found that they affect the pregnant woman's decision about the mode of delivery while doctors do not affect the decision at all (P -value = 0.132). This finding was not expected and differs from previous studies [16]. A study done in Turkey in 2012 on 223 nulliparous women showed that doctors play a significant effect (P -value = 0.001) [4]. Another study was done in Sweden in 2007 on 1105 fathers (536 fathers for the first time), where 88.9% of all fathers preferred vaginal delivery and only 4.5% of first-time fathers preferred C/S [16]. Also, there was a study done in Ardebil in 2016 on 300 pregnant women which showed that relatives, friends, husbands, and mothers all affect the pregnant woman's delivery decision ($P = 0.000$) and the influence of the doctors was also significant ($P = 0.001$) [13]. These study differences may be due to trust and good relations between doctors and patients in other countries [11].

Our study focused on the preferred mode of delivery of primigravid women of different nationalities, and this makes

it different from other studies. Also, we studied many variables including patient characteristics, patient history, feeling about the pregnancy, and the influence of others and compared them with the preferred mode of delivery, making this a comprehensive study.

5. Conclusions

The preferred mode of delivery chosen by primigravid pregnant women was SVD and only 13.5% preferred C/S. Factors that have a positive impact on a preference for C/S were anxiety, fear of labor pain, and negative labor experience.

Author contributions

HA: Principal Investigator, planning, statistical analysis and final approval. BA: Study idea, literature review, data collection, data entry, and drafting the manuscript. MH: Data collection, and drafting the manuscript. IA: Data interpretation and drafting the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate

All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of King Abdulaziz University Hospital. Reference Number (31-19).

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Conflict of interest

The authors declare no conflict of interest.

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