

Preference of mode of delivery among women in childbearing period in Egypt and factors affecting it

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SUMMARY

Background: Caesarean delivery (CD) rates have increased in Egypt over the past years. Several factors affected this rise including maternal requests for CD. This study aims to determine the preference of mode of delivery among a sample of Egyptian women in the childbearing period and factors affecting it.

Methods: In this cross sectional study, a questionnaire adapted from a previous study was used. Five hundred and thirty seven women filled the questionnaire.

Results: A total of 537 Egyptian women participated in the survey, 78.03% of them declared they would prefer to deliver vaginally if they could choose the mode of delivery. The preference of vaginal delivery (VD) was significantly higher among nulliparous women (81.5%) and those without any previous caesarean (82.9%). The main reasons for preferring a VD were faster postpartum recovery, shorter hospital stay followed by believing that it is easier to breastfeed their babies with a less painful postpartum period. The main reason for preferring a CD was fear of pain followed by wanting to have a scheduled delivery and believing that the baby suffers less. The source of information that most influenced the preference of these women was their friends followed by their obstetricians and the internet.

Conclusion: Most of women in the child bearing period prefer VD. Although, CD preference level is lower than VD, it is much higher than other countries. So, women should be encouraged to choose VD to decrease this level of preference, in order to decrease morbidity and mortality rate resulting from the high rate of CD performed upon maternal request with no obstetrical indication.

Keywords: Mode of delivery; Women; Egypt

INTRODUCTION

Rates of cesarean deliveries (CD) have increased globally without obstetrical indications requiring them. 69 countries have CD rates of more than 15% [1]. In Egypt, the past decade has witnessed a sharp increase in the prevalence of CD with the most recent Egyptian Demographic and Health Survey documenting a CD rate of 52 percent, suggesting that cesarean delivery might be done for inappropriate indications [2]. According to the Brazilian Health Informatics Department the proportion of caesarean sections reached 52% in 2010 [3] which is much higher than the maximum limit (15%) recommended by the world health organization (WHO) for CD [4].

According to WHO, CD rate in any population should lie within the range of 5–15%, and there is no justification to have more than 10–15% CD births [5]. The International Federation of Gynecology and Obstetrics (FIGO) states that CD should be performed for medical indications not maternal preference [6] but maternal requests are often pointed at as one of the forces increasing CD rates [7-10] due to the fear of pain of the VD, fear of having genital trauma during VD, the availability of good and safe surgical and anesthetic skills and the misconception that CD is safer for the baby [11,12].

Another reason for the increasing CD is that obstetricians would agree to perform cesarean sections upon maternal requests without any obstetrical indication [13]. Also, many obstetricians prefer CD for fear of medical litigations and lower tolerance to any complications or outcomes other than the perfect baby [14]. It has been proven in many previous studies about primary cesarean sections with maternal requests that the patient's choice is greatly affected by the physicians' attitudes [15]. In the light of evidence, 31% of female obstetricians in London [16] and 46% of obstetricians in the USA [17] would prefer CD for themselves or their partners in uncomplicated pregnancies.

CD with no maternal or fetal risk is more common in high economic status because it is associated with good healthcare [18]. Although CD rates are slightly higher in the private hospitals, the rates are also increasing consistently in the public hospitals [19].

High CD rates increases the maternal morbidity as CD is associated with higher risk of peripartum blood transfusion,

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puerperal febrile morbidity, unplanned readmission, fall in mean hemoglobin concentration and increased hospital stay [20]. CD is associated with future subfertility and many pregnancy risks as placenta previa, uterine rupture, and stillbirth [21]. CD is the most significant predisposing condition for placenta accreta which is a life threatening condition [22]. CD has a higher risk of life-threatening maternal complications than VD [23].

The role of women's preferences in increasing the rate of cesarean sections remains controversial [24]. Some existing surveys show that most women prefer VD [25-27]. This study aims to determine the preference of mode of delivery among a sample of Egyptian women in the childbearing period and factors affecting it because we need to determine the reasons why women prefer CD and why others prefer vaginal to implement suitable strategies to decrease this rising rate.

RESEARCH METHODOLOGY

Participants and recruitment criteria

This is a cross-sectional study conducted from January 2020 to May 2020. The sample size was calculated using Epi Info 7 program and assuming that 50% of women prefer CD as a mode of delivery with margin of error = 5% and at 95% confidence level, sample size of at least 384 women was needed. Eligible participants were Egyptian women aged between 18 to 50 years of age. A total number of 537 participants were recruited for the study.

Questionnaire

The questionnaire was adapted from a previous study [28]. It consists of four sections. The first section is a closed question asking about the participants preferred mode of delivery; either vaginal or caesarean. The second section contains statements for each route to find out the causes for preferring each of them. The response to each statement was measured by a 5-point Likert scale with 1 denotes "strongly disagree" and 5 means "strongly agree". The third section consisted of a list of sources of information that may have impact on the women's preference, including health professionals, family members, friends and media and participants were asked to tick what counts. The fourth section of the questionnaire consisted of questions about the participant's socio-demographic characteristics (age and education) and their obstetric history (parity and previous CD).

Data collection

The data were collected via self-administered, interviewer administered and online surveys. The interviews were conducted by study researchers. Consent was obtained from each participant. The participants were provided with a clear explanation for the aim of the study and the nature of data being collected. An online form of the questionnaire was created and shared with an explanation of the aim of the study and the nature of the data being collected.

Confidentiality of the participants' data was preserved. Invalid, incomplete responses or those that did not meet the inclusion criteria were excluded. Then the data were encoded in a spreadsheet.

Data analysis

Analysis of data was done using SPSS program version 23. To describe the studied sample, quantitative data were presented as minimum, maximum, mean and standard deviation. Qualitative data were presented as number and percentage. Student t test was used to compare quantitative data between two independent groups and Chi-Square test was used to compare qualitative data between different groups. Logistic regression analysis was done to measure independent effect of different factors on women's preference of CD. P value < 0.05 was considered statistically significant.

ETHICAL CONSIDERATIONS

All the participants were provided with clear information about the nature of the data being collected and purpose for which it was going to be used. Consent was obtained for the self-administered and interviewer administered surveys. Respondents could withdraw their consent at any time by refusing to complete the interview or to send the online response. The study was approved by the ethical committee of Faculty of Medicine, Ain Shams University.

RESULTS

Four hundred nineteen (78.03%) participants in this study preferred VD if they could decide their mode of delivery (Fig. 1.).

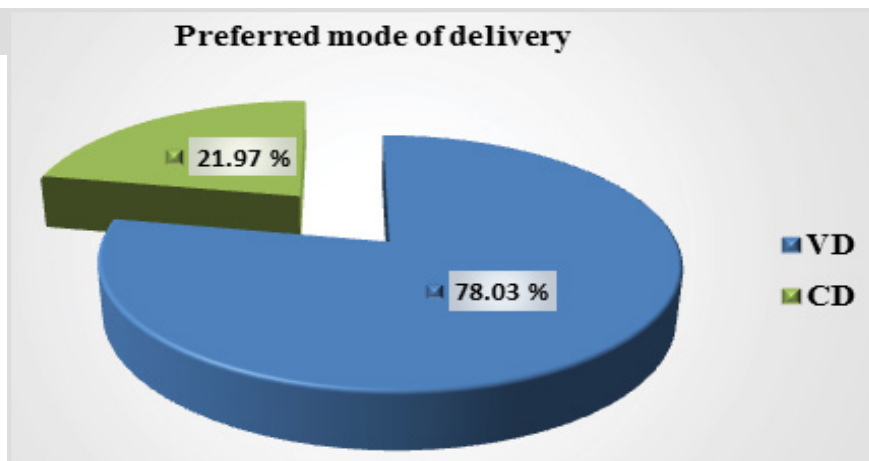
Tab. 1 shows the demographic characteristics of 537 participating woman whose mean age was 27.14 + 6.62 years, 73.9% of them were non-medical personnel, 85.5% received university education or higher, 62.4% were nulliparous and 74.1% had no previous CD (Tab. 1.).

As shown in Tab. 2, only 17.1% of women in medical field preferred CD in comparison to 23.7% of women with other occupations. 91.3%, 76.9%, 81%, 77.1% of illiterate women, women who received primary or preparatory education, women who reached secondary education and women who reached university or higher education respectively preferred VD. 72.3% of multiparous and 81.5% of nulliparous women preferred VD. 82.9% of women who didn't have previous CD preferred vaginal delivery while 64% of women who had previous CD preferred to go for VD (Tab. 2.).

We found that parity and previous CD were significantly affecting the women's preference for mode of delivery with p value (0.01 and <0.001) respectively.

In Tab. 3, more than 80% of participating women agreed or strongly agreed that they preferred VD because it offered faster recovery and shorter hospital stay. More than 60% of participants agreed or strongly agreed that

Fig. 1. Preferred mode of delivery.



Tab. 1. Demographic data (N=537).

Variables	Min.	Max.	Mean	SD
Age	18.0	50.0	27.142	6.6191
Variables	N		%	
Job	Doctors	140	26.1	
	Other occupations	397	73.9	
Education	Illiterate	23	4.3%	
	Primary/ Preparatory	13	2.4%	
	Secondary	42	7.8%	
	University or higher	459	85.5%	
Ever given birth	Yes	202	37.6%	
	No	335	62.4%	
Ever had CD	Yes	139	25.9%	
	No	398	74.1%	

Tab. 2. Factors associated with women's delivery preferences.

Variables	Preferred mode of delivery				t*	P value	
	Vaginal delivery		CS				
	Mean	SD	Mean	SD			
Age	26.9	6.5	28.2	6.9	1.96	0.06	
	N	%	N	%	X2**	P value	
Job	Doctors	116	82.9%	24	17.1%	2.58	0.11
	Others	303	76.3%	94	23.7%		
Education	Illiterate	21	91.3%	2	8.7%	2.80	0.15
	Primary/ Preparatory	10	76.9%	3	23.1%		
	Secondary	34	81.0%	8	19.0%		
	University or higher	354	77.1%	105	22.9%		
Ever given birth	Yes	146	72.3%	56	27.7%	6.24	0.01
	No	273	81.5%	62	18.5%		
Ever had CD	Yes	89	64.0%	50	36.0%	21.43	<0.001
	No	330	82.9%	68	17.1%		

*Student t test **Chi square test

they preferred VD because it made breastfeeding easier (68.8%), they could have a less painful postpartum period (68.2), they could handle the birth pain (63%) and they would have no scar (61.8%). 58.7% agreed and strongly agreed that they didn't want to miss the first hours of life with their baby so they preferred VD. Less than 50% agreed or strongly agreed that they preferred VD because their husband could attend the delivery and that it was a non-surgical way of delivery and it allowed them to have a larger number of babies than CD (Tab. 3.).

Among women who preferred CD, 82.2% agreed or strongly agreed that they feared the pain of birth and

53.4%, 53.3% agreed or strongly agreed that convenience of planning the delivery and that the baby suffers less were their main cause of preference. 52.5% agreed or strongly agreed that they preferred CD because they were influenced by good reports from friends who had delivered by CD. Less than 50% agreed or strongly agreed that easiness to return to sexual life after CD or having a previous CD are factors that influenced them to go for CD. The factors with the lowest rate of agreement among women who preferred CD were that CDs are safer for the mother (38.2%) and some hospitals don't offer epidurals for VDs (37.3%).

40% of the participants stated that the main source

of their information was their friends, followed by their obstetricians (37.2%) and the internet (35.9%) (Fig. 2.).

Logistic regression analysis was done to measure the independent effect of different factors on women's preference of CD and showed that women with University or higher education and those with history of previous CD had higher probability of preferring CD as a mode of delivery (Tab. 4.)

DISCUSSION

Betrán, et al. stated that during the last 2 decades, Egypt witnessed the largest rise in CD rate in the African region. Rates in Egypt rose from 4.6% to 51.8% from 1990 to 2014. After Brazil (55.6%) and Dominican Republic (56.4%), Egypt represented the third highest country in CD rate worldwide [29].

According to Egypt Demographic and Health Survey 2014, more than half of all women give birth by CD

without much difference between urban and rural areas in Egypt [30]. The prevalence of CD among our participants was 68.81%. It is more than four times the maximum limit of CD prevalence recommended by the WHO (15%). It is also higher than the prevalence documented by the most recent Egyptian Demographic and Health Survey (52%) [2].

The increasing number of CD has many obstetrical indications. Many Egyptian women who preferred vaginal delivery ended up having CD due to obstetrical indications. In our study we measured the preference for mode of delivery of the Egyptian women in Child bearing period regardless their actual mode of delivery.

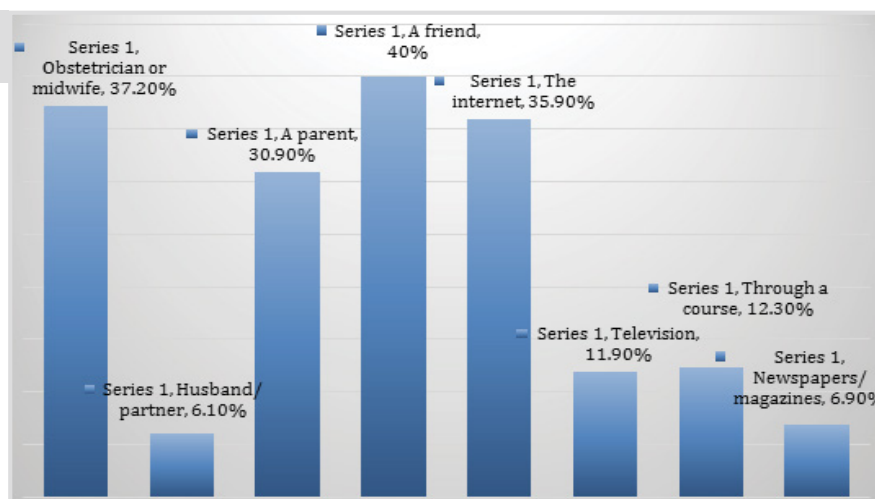
According to the results of this study, 78.03% of Egyptian women (82.9% among doctors and 76.3% among other occupations) would choose to deliver vaginally if they were given the choice.

Although, the majority of the Egyptian females in

Tab. 3. Reasons for preference of mode of delivery.

Variables	Reasons for preference of CD									
	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	N	%	N	%	N	%	N	%	N	%
Fear of pain	5	4.2%	4	3.4%	12	10.2%	16	13.6%	81	68.6%
Planning	16	13.6%	10	8.5%	29	24.6%	31	26.3%	32	27.1%
Baby suffers less	16	13.6%	9	7.6%	30	25.4%	22	18.6%	41	34.7%
No epidural	38	32.2%	14	11.9%	22	18.6%	14	11.9%	30	25.4%
Previous CS	64	54.2%	2	1.7%	3	2.5%	1	0.8%	48	40.7%
Easier to get back to sexual life	24	20.3%	13	11.0%	31	26.3%	21	17.8%	29	24.6%
Experience of others	36	30.5%	6	5.1%	14	11.9%	21	17.8%	41	34.7%
Safer for mother	26	22.0%	12	10.2%	35	29.7%	14	11.9%	31	26.3%
Reasons for preference of vaginal delivery										
No scar	62	14.8%	31	7.4%	67	16.0%	111	26.5%	148	35.3%
Not missing first hours	68	16.2%	33	7.9%	72	17.2%	86	20.5%	160	38.2%
Less painful post-partum	40	9.5%	17	4.1%	76	18.1%	94	22.4%	192	45.8%
I can handle the pain	46	11.0%	36	8.6%	73	17.4%	132	31.5%	132	31.5%
Birth is not a surgery	98	23.4%	54	12.9%	96	22.9%	73	17.4%	98	23.4%
Easier breastfeeding	42	10.0%	23	5.5%	66	15.8%	103	24.6%	185	44.2%
Husband attendance	89	21.2%	30	7.2%	96	22.9%	86	20.5%	118	28.2%
Unlimited no. of children	129	30.8%	67	16.0%	90	21.5%	62	14.8%	71	16.9%
Faster recovery	27	6.4%	10	2.4%	31	7.4%	92	22.0%	259	61.8%
Shorter hospital stay	23	5.5%	14	3.3%	39	9.3%	109	26.0%	234	55.8%

Fig. 2. Sources of information concerning mode of delivery.



Tab. 4. Logistic regression analysis for factors affecting preference of CD.

Variables	B	S.E.	Wald	Sig.	Odds ratio	95% C.I. for odds ratio	
						Lower	Upper
Age	.026	.021	1.442	.230	1.026	.984	1.069
Working as a doctor	.501	.271	3.423	.064	1.651	.971	2.809
Education*							
Primary/prep	1.451	1.015	2.042	.153	4.266	.583	31.204
Secondary	.729	.854	.729	.393	2.073	.389	11.047
University or higher	1.579	.771	4.192	.041	4.852	1.070	22.005
Ever given birth	-.700	.462	2.291	.130	.497	.201	1.229
Ever had CD	1.542	.424	13.248	.000	4.675	2.037	10.725
Constant	-3.149	.931	11.453	.001	.043	-	-

*Reference group is illiterate

childbearing period preferred VD, CD has increased in recent years. Our CD preference rate (21.97%) is higher than 15.6% which is the overall rate reported by a recent systematic review on women's preference that analyzed 38 studies involving over 19,403 women from many countries, and also higher than the rate for African women in the same review, which was 14.2%, according to a study performed in south Africa that involved 221 women [30]. Also, in a study done in Turkey on pregnant women presenting to hospitals in The Erzurum city center, 17.2% of the women prefer a cesarean delivery [6].

CD upon maternal request has been given as a possible cause of the increase in CD rate [31]. According to our study, fear of pain of VD is the most common cause why women tend to choose cesarean delivery. more than four fifths (82.2%) of women who preferred CD in our study agreed or strongly agreed that they chose CD over VD because they were afraid of pain of VD, as mothers request cesarean delivery to avoid the labor pain for so many hours. 53.4% agreed or strongly agreed that their reason for preferring CD was the ability to schedule the delivery. 53.3% agreed or strongly agreed that the baby suffered less during CD and that was their reason for preferring CD.

Zakherah, et al. performed a cross sectional study in Assiut, Egypt in 2017 to determine the causes of requesting CD with no medical indications. The study included 64 women aged between 18-40 years old who had CD on demand. Fear of pain was the main cause of CD demanding among all the participants (57.8%). In primipara, the main cause was fear of pain (62.5%) followed by fear on the baby (45%). While in multipara, the main cause was history of bad previous experience (60%) followed by fear of pain (50%)[32]. Torloni, et al. also reported that 77% of their participants agreed or strongly agreed that fear of pain was the reason why they preferred CD, 74.5% agreed or strongly agreed that the convenience of scheduling the delivery was their cause and 64.1% agreed or strongly agreed with the statement that baby suffered less during CD [28]. In our study, 37.3% preferred CD over VD for the absence of epidural use in hospitals. This can make the pain unbearable for some women.

When we compared the factors affecting the women's choice of mode of delivery in other studies, we found

interesting similarities and differences. A study was done in Turkey and aimed to assess the preference of pregnant women for mode of delivery in an uncomplicated pregnancy and reasons for their choice. They found that the most common reasons for choosing CD in their study group were fear of vaginal delivery (45.2%), safe way of birth for the baby (16.7%) [31]. A similar study in Singapore (Chong, et al.) showed that the most popular reasons for requesting a CD was 'avoidance of labor and stress' (60%) which is similar to our results [33]. A study performed in Iran found a statistically significant relation between women's preference of CD and fear of delivery [34]. A study done in pregnant Argentinian women gave similar results. 10 out of 16 women in the public sector and 4 out of 11 women in the private sector cited fear of the pain associated with vaginal delivery as the main reason for preferring CD. Other responses included: possibility to schedule a date, safer, avoidance of episiotomy [35].

Also, in our study we found that their sexual life had an association with their decision to choose their mode of delivery. 42.4% agreed or strongly agreed that they chose CD because it is easier to get back to their sexual life after delivery. In another study, the quality of sex after childbirth exhibited a strong association [35].

In our study, 36% of women with a previous CD stated that they would prefer to have another CD, about half that percentage (17%) of women who never had CD would prefer a CD.

Similar results were reported by Torloni, et al. with 40% of women with a previous CD preferring this route, compared to 5.8% of those with no previous CD [28]. Also, Kosan, et al. stated that 33.7% of women who had their last delivery by a CD would prefer to have another CD, while 11% of women who lastly delivered via VD would prefer to have a CD [6].

On the other hand, there are multiple factors that affect women's preference of vaginal delivery. 83.8% agreed or strongly agreed that faster recovery after vaginal delivery is the reason why they preferred it. 81.8% agreed or strongly agreed that the shorter hospital stay postpartum was the reason. 68.2% agreed or strongly agreed that it is because it is less painful postpartum. 68.8% agreed or strongly agreed that it is due to easier breastfeeding after vaginal

delivery than after caesarean. 61.8% agreed or strongly agreed that they want to deliver vaginally to avoid the scar of the operation. In the Argentinian study, the most frequent reasons were that vaginal delivery was viewed as a more “natural” way of giving birth (34.7 and 44.8% of women in the public and private sectors, respectively), and due to easier recovery (21.1% and 21.9% in the public and private sectors, respectively) [35].

In this study, 40% of the women included, got their information about modes of delivery from their friends and relatives, followed by their obstetricians then the internet, 30.9% got it from their parents.

When comparing medical doctors to other occupations, doctors had higher preference for VD with a rate of 82.9% compared to 76.3% for other occupations. Faas-Fehervary, et al. performed a study on German gynecologists regarding their preferred way of delivery for themselves or their partners, 90% of them opted for vaginal delivery. However, when asked about their attitude towards CD on demand, 59% of all participants stated that they would approve to do CD on maternal request, with huge statistically significant variations according to age, personal birth experience and working field [36]. In a study conducted among Turkish obstetricians, they found that about two-thirds of the Turkish obstetricians prefer CD as mode of delivery for themselves/partners. Also 40.8% of the participants declared that a woman has the right to request and obtain a CD on demand, and 53.2% of them would agree to perform one [37].

By doing multivariate Logistic regression analysis,

we found that university or higher education and the percentage of ever given CD has a positive correlation with their preferences while the percentage of ever given birth has no positive relation. The same analysis was performed by Kosan, et al. and revealed that having a caesarean section at the last delivery was positively associated with CD preference, while presence of cesarean-related problems among relatives had a negative impact on CD preference. Education level also had a significant impact on preference of mode of delivery where preference rate for CD increased with an education level up to high school but the rate of preference for VD was higher among women with degrees or associate degrees [6].

CONCLUSION

Most of participants in this study (78.03%) prefer VD. Although, CD preference level is lower than VD, it is much higher than other countries. So, women should be encouraged to choose VD to decrease this level of preference, in order to decrease morbidity rate resulting from the high rate of performed CD upon maternal request with no obstetrical indication. On the other hand, women preferring CD should be well informed of the risks versus benefits of CD before they choose it as their mode of delivery. The vast majority of women received their information about their mode of delivery from their friends and relatives. So, awareness campaigns should be conducted to raise the awareness about the benefits of VD and risks of CD. Further studies are recommended to find the correlation between CD upon maternal request and the rising rate of CD worldwide.

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