Research Article

Women's Preferences Regarding Mode of Delivery in Minia District, Upper Egypt

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Abstract
Background: Childbirth is an important life event for women; recently more women choose to give birth by Caesarean section (CS). The aim of this study was to determine the mothers' preference regarding the mode of delivery, reasons and the associated factors behind this preference in Minia Governorate. **Methods:** A cross-sectional study of ٣٥٨ women who had given birth within the past two years attending health centers were recruited during the period from January to end of March ٢٠١٦. A structured interview questionnaire assessed the women preferences for delivery and reasons behind this preference. **Results:** The rate of normal vaginal delivery (NVD) preference was ٨٢.٤%, and faster recovery after VD was the most common reason cited by ٩١.٩٪ of participants, ١٧.٦٪ of participants chose CS as their preferred mode of birth. The most common reason for choosing CS was the fear of labor pain (٧٤.٦ %). The young age of women (≤ ٣٠ years) contribute to the CS preference with OR ٢.١٣ (١.١١-٤.٠٦). On other hand, previous experience of VD associates inversely with CS preference**.** About ٣٥٪ of the study participants gave the last birth via CS. **Conclusion:** Despite the high percentage of natural birth preference among women but the caesarean rate remains high. Thus, women's preference alone couldn't be attributed to the high CS rates.
Keywords: Caesarean section, mode of delivery, women preferences.

Introduction
The childbirth experience is considered one of the most important and unique event in women's life. Generally, spontaneous vaginal delivery (VD) is the main form of delivery, but when it is not judicious, caesarean is carried out. A caesarean section (CS) is a life-saving surgical procedure when it is medically justified and it can effectively prevent maternal and perinatal mortality and morbidity[١,٢]. However, it has been evident that an unnecessary CS particularly in low-resource settings are associated with short and long term maternal and perinatal risk[٣,٤], in addition to the considerable economic burden for society[٥].

The World Health Organization (WHO) recommended that caesarean delivery rates should not exceed ١٠-١٥٪[٦]. However, with advances in reproductive technology, countries worldwide have witnessed an increasing trend toward the use of CS[٧]. In Egypt, there are remarkable increases in the rate of CS. In ١٩٩٢, the rate of CS was only ٥٪. By ٢٠٠٨, the Egyptian Demographic and Health Survey (EDHS) found an increased CS rate up to ٢٧.٦٪[٨]. The ٢٠١٤ EDHS shows that more than one-half of deliveries were by caesarean section[٩].

Caesarean delivery on maternal request was recorded as one of the non-medical reasons contributing to raising the CS rates[١٠-١٢]. However, studies show that few women actually prefer CS[١٣-١٨]. There are several factors influencing women's preference of mode of delivery such as knowledge of risk and benefits, socio-demographic factors, and previous birth experience[١٩].

Lowering the rate of CS on maternal request and encouraging VD are required for maternal and fetal health. Thus, it is of great importance to identify the reasons affecting preferences of delivery. In Upper Egypt, till now there is a few published works about women's preferences

regarding modes of delivery and the factors influencing their choices of delivery. The aim of this study is to determine the mothers' preference regarding the mode of delivery, reasons and the associated factors behind this preference.

Subjects and Methods

Study design and population

This study is a descriptive cross-sectional study conducted among married women in childbearing period (١٨-٤٩ years) in Minia district, Upper Egypt.

The study populations were recruited from two health centers chosen randomly; one urban (Eastern Family Health Center) and one rural (Damaris Health Center). The criteria for inclusion in this study were women in the reproductive age ١٨-٤٩ years old who had given birth within the past two years and attending the health center either for family planning or for vaccination of their children.

The selected health centers were visited twice weekly during the period from January to end of March ٢٠١٦. The sample size was determined by the availability of participants and time span of the study. A sample of ٣٥٨ women was chosen on the basis of their willingness to participate and availability during the study period. All women seeking services in the above mentioned centers were interviewed, and a verbal consent was taken from them after explaining the nature and purpose of the study.

Data collection:

A structured interview questionnaire was adapted from other studies done on women's preference for mode of delivery[٧,١٣,٢٠-٢٢]. The questionnaire included; socio-demographic data, obstetric history of participants, questions regarding women preferences for mode of delivery and reasons behind this preference.

Ethical approval was taken by the ethical committee of the Faculty of Medicine, Minia University. Approvals of the managers of the previously mentioned health centers were taken.

Statistical analysis

The Statistical Package for Social Science (SPSS) for Windows (version ٢٢.٠) was used. Quantitative data were presented by mean and standard deviation, while qualitative data were presented by frequency distribution. Chi-square test was used to compare between more than one proportion and Independent sample t test was used to compare between means. Binary logistic regression analysis was performed to determine the independent factors that affect the women's preference of CS. A statistically significant level was considered when *P* value was less than ٠.٠٥.

Results

As shown in table ١, this study includes ٣٥٨ women, whose age ranges between ١٨-٤٩ years with a mean of ٣٢.٢±٨.١٤ years. About half of them (٥٠.٣٪) were older than ٣٠ years of age, ٦٢.٨٪ were urban residents. Majority of participants (٧٢.٢٪) were housewives, and ٢٠.٤٪ were illiterate. Regardless financial and medical considerations, ٢٩٥ out of the ٣٥٨ women (٨٢.٤٪) preferred normal VD, while the remaining ٦٣ women (١٧.٦٪) preferred caesarean delivery. About two-thirds (٦٦.٧٪) of women preferred normal VD, aged below ٣٠ years compared to ٤٦.١٪ of those who preferred caesarean delivery (p =٠.٠٠٠٣) (Table ١).

Figure ١ illustrates that out of ٣٥٨ participants, ٢٣٢ (٦٤.٨٪) gave the last birth vaginally and ١٢٦ (٣٥.٢٪) gave the last birth via CS. According to reasons behind CS, the majority of mothers who delivered by CS ٨٨.٩٪ reported medical reasons while only ١١.١٪ reported non-medical reasons. About ٤٣٪ of mothers reported failure of labor progress and fatal distress as the main medical reasons followed by history of previous CS (٢٥٪). Regarding the non-medical reasons the majority of mothers (٧٨.٦٪) cited fear of labor pain as the main reason followed by (١٤.٣٪) reported safety of baby and ٧.١٪ requested CS to have tubal ligation.

Among the ٢٩٥ participants who chose VD as the preferred mode of birth, the most common reason was that mothers would recover faster (٩١.٩٪), and the next most common was that they dislike the scar of surgery on abdomen (٣٧.٦٪). The least reported causes of preference of VD were the emotional relationship between mother and the infant and early Initiation of breast-feeding (١.٤٪) and (٠.٣٪), respectively. Among the ٦٣ participants who chose CS as their preferred mode of birth, the most common reason for choosing CS was the fear of labor pain (٧٤.٦%), and the next most common was the previous bad experience with normal VD (٣٣.٣%), and (٣١.٧٪) of these participants thought that CS safer for the baby. Only ٦.٣٪ and ٢.٣٪ of participants found that CS was a trendy mode of delivery and it prevents deformation of female genital tract, respectively (Table ٢).

Table ٣ clarifies the multivariable-adjusted OR (٩٥٪ CI) of factors associated with the preference of CS as mode of delivery among the studied women**.** The age of women and previous mode of delivery are significant predictors. The young age of women (≤ ٣٠ years) contribute to the CS preference; OR is ٢.١٣ (١.١١-٤.٠٦). On other hand, previous experience of VD associate inversely with CS preference; OR are ٠.١٥ (٠.٠٧-٠.٣٢) and ٠.٢٨ (٠.١٢-٠.٦٩).

Table ١: Sociodemographic characteristics of participants by mode of birth preference

Variables	All participants (no= ٣٥٨) No (%)	CS preference (no=٦٣) No (%)	NVD preference (no=٢٩٥) No (%)	χ^2 value	p-value
Age					
≤ ٣٠	١٧٨ (٤٩.٧)	٤٢ (٦٦.٧)	١٣٦ (٤٦.١)	٨.٧٨	٠.٠٠٣
> ٣٠	١٨٠ (٥٠.٣)	٢١ (٣٣.٣)	١٥٩ (٥٣.٩)		
Residence					
Rural	١٣٣ (٣٧.٢)	٢٥ (٣٩.٧)	١٠٨ (٣٦.٦)	٠.٢٠١	٠.٦
Urban	٢٢٥ (٦٢.٨)	٣٨ (٦٠.٣)	١٨٧ (٦٣.٤)		
Education					
Illiterate	٧٣ (٢٠.٤)	٨ (١٢.٧)	٦٥ (٢٢)	٦.٤٩	٠.١
Read and write	٣٦ (١٠)	٥ (٧.٩)	٣١ (١٠.٥)		
Basic	٣٥ (٩.٨)	٨ (١٢.٧)	٢٧ (٩.٢)		
Secondary	١٤٤ (٤٠.٢)	٢٤ (٣٨.١)	١٢٠ (٤٠.٧)		
University	٧٠ (١٩.٦)	١٨ (٢٨.٦)	٥٢ (١٧.٦)		
Occupation					
House wife	٢٥٨ (٧٢.٢)	٤٣ (٦٨.٣)	٢١٥ (٧٢.٩)	٠.٥٥٢	٠.٤
Worker	١٠٠ (٢٧.٩)	٢٠ (٣١.٧)	٨٠ (٢٧.١)		
Husband education					
Illiterate	٥١ (١٤.٢)	٦ (٩.٥)	٤٥ (١٥.٣)	٦.٥٨	٠.١
Read and write	٢٣ (٦.٤)	٥ (٧.٩)	١٨ (٦.١)		
Basic	٣٤ (٩.٥)	٧ (١١.١)	٢٧ (٩.٢)		
Secondary	١٧٣ (٤٨.٤)	٢٥ (٣٩.٧)	١٤٨ (٥٠.٢)		
University	٧٧ (٢١.٥)	٢٠ (٣١.٧)	٥٧ (١٩.٣)		
Husband occupation					
Farmer	٦٧ (١٨.٧)	٨ (١٢.٧)	٥٩ (٢٠.٠)		
Private sector/free worker	٩١ (٢٥.٤)	١٨ (٢٨.٦)	٧٣ (٢٤.٧)	١.٨٩	٠.٣
Employee	٢٠٠ (٥٥.٩)	٣٧ (٥٨.٧)	١٦٣ (٥٥.٣)		

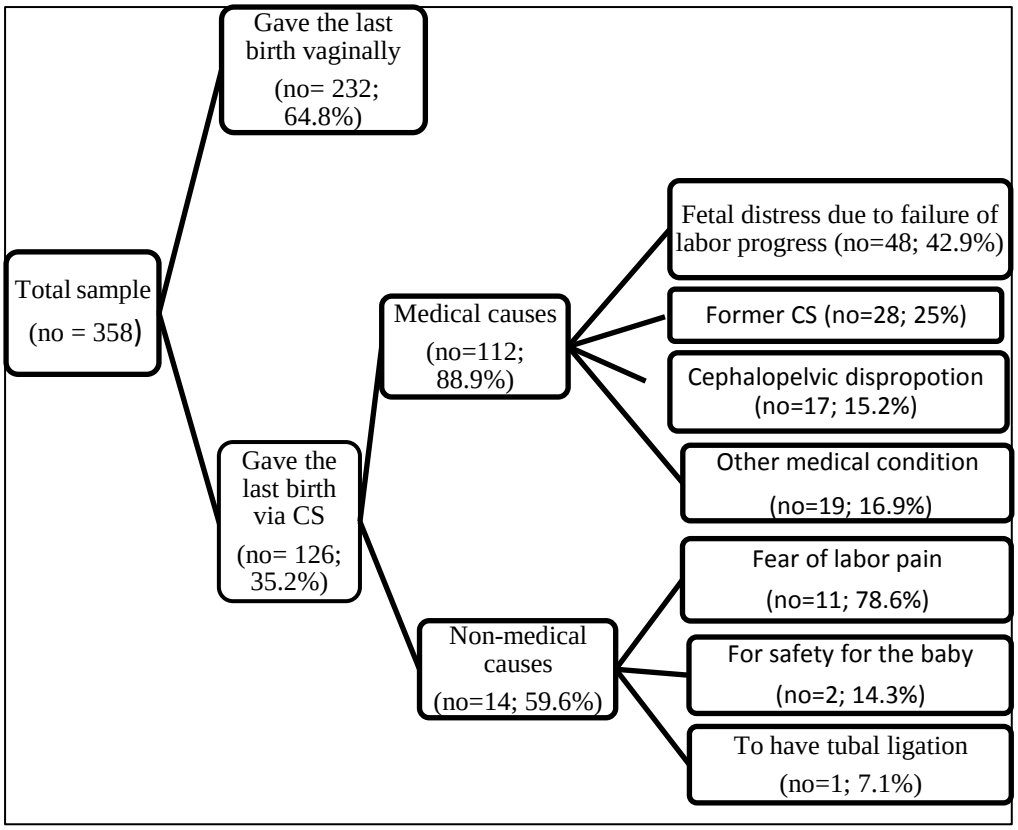

Figure ١: Flowchart distribution of the studied women according to their last birth

Table ٢: Main reasons for the mode of birth preference among participants

Reasons for the mode of birth preference	All participants No (%)[a]
Reasons for Vaginal delivery (N = ٢٩٥)	
The mother recovers sooner after vaginal delivery	٢٧١ (٩١.٩)
I don't like the scars of surgery on my abdomen	١١١ (٣٧.٦)
Because of anesthesia, vaginal delivery is much better	٥٤ (١٨.٣)
Vaginal delivery is less risky and healthier for the mother	٤٦ (١٥.٦)
Vaginal delivery healthier for the baby	٢٥ (٨.٥)
Don't necessitates long hospital stay	١٣ (٤.٤)
Emotional bond between mother and the infant is better	٤ (١.٤)
Initiate breast feeding faster	١ (٠.٣)
Reasons for caesarean section (N = ٦٣)	
Fear of labor pain	٤٧ (٧٤.٦)
Bad experience with NVD	٢١ (٣٣.٣)
Safer for the baby	٢٠ (٣١.٧)
Fear of long lasting labor and lose her control	١٤ (٢٢.٢)
Fear of sexual life disturbance due to losing pelvic muscle integrity	٨ (١٢.٧)
I don't like mother's position on the gynecology bed	٦ (٩.٥)
Finds CS a trendy mode of delivery	٤ (٦.٣)
CS prevents deformation and malformation of female genital tract	٢ (٢.٣)

[a]Numbers do not add to ١٠٠٪ as respondents might have more than ١ reason

Table ٣: Multivariate logistic regression of factors influencing mode of birth preference

Variables	Adjusted OR (٩٥٪ CI)	p-value
Age		
> ٣٠	١.٠٠ (reference)	
≤ ٣٠	٢.١٣ (١.١١-٤.٠٦)	٠.٠٢
Residence		
Rural	١.٠٠ (reference)	
Urban	١.٨١ (٠.٦٣-٢.١٩)	٠.٥
Education		
Illiterate	١.٠٠ (reference)	
Read and write	١.٣٦ (٠.٣٦-٥.٠٢)	٠.٦
Basic	١.٤١ (٠.٣٩-٥.٠٦)	٠.٥
Secondary	١.٣١ (٠.٤٤-٣.٨١)	٠.٦
University	٠.٩٣ (٠.٢١-٤.١٤)	٠.٩
Occupation		
House wife	١.٠٠ (reference)	
Worker	٠.٩٩ (٠.٤٦-٢.٢٥)	٠.٩
Husband education		
Illiterate	١.٠٠ (reference)	
Read and write	٢.٤٤ (٠.٥٤-١١.٠١)	٠.٢
Basic	١.٥١ (٠.٣٨-٦.٠٦)	٠.٥
Secondary	٠.٩١ (٠.٢٥-٣.٢٠)	٠.٨
University	٢.٠٢ (٠.٤٣-٩.٤٩)	٠.٣
Husband occupation		
Farmer	١.٠٠ (reference)	
Private sector/free worker	١.٧١ (٠.٦١-٤.٧١)	٠.٣
Employee	١.٣٦ (٠.٤٧-٣.٩١)	٠.٥
Previous mode delivery		
only CS	١.٠٠ (reference)	
Only vaginal delivery	٠.١٥ (٠.٠٧-٠.٣٢)	٠.٠٠٠١
Combined vaginal and CS	٠.٢٨ (٠.١٢-٠.٦٩)	٠.٠٠٦
Parity		
One child	١.٠٠ (reference)	
>١	١.٧٦ (٠.٦٩-٤.٤٩)	٠.٢
History of abortion		
No	١.٠٠ (reference)	
Yes	٠.٦٤ (٠.٣٣-١.٢٨)	٠.٢

Discussion

The CS rate among the studied women was (٣٥.٢٪). This was lower than another Egyptian study in Ismailia[٢٣] where the CS rate was ٥٢.٣٪, this could be attributed partially to the place of the study. Ismailia governorate is one of the Lower Egypt governorates with higher socioeconomic level. This is matching the trends reported by the ٢٠١٤ EDHS which show that more than one-half of deliveries were by caesarean section and the rate of CS in Upper Egypt was (٣٩.٧٪)[٩]. It's worth mentioning her that, in Egypt, the rate CS is higher than the rate of ١٥٪ which is the recommended CS rate by the World Health Organization[٦]. On the other hand, the ٣٥.٢٪ CS rate in our studied women was midway the range (٧.٣٪ in Africa to ٤٠.٥٪ in Latin American and in the Caribbean) of percentage of CS in different countries are; ٥٥.٦٪ in Brazil, ٤٧.٩٪ in Iran, ٤٧.٥٪ in Turkey, ٣٨.١٪ in Italy and ٣٢.٨٪ in United States[٢٤].

The current study revealed that the majority of mothers (٨٨.٩٪) reported medical reasons behind their C-section. Fetal distress has always been one of the most important medical indications for CS[٢٥-٢٨]. In line with this context, we found that fetal distress was the main medical reason behind the CS.

About ١١٪ gave birth via CS upon their request. The rate of elective CS was comparable to that in Turkey, ١٨.٥٪[٢٩]; Australia, ١٨.٢ and Sweden, ٨.٧٪[٣٠]. However, it was higher than reported by Chigbu et al.,[٣١] who found that ٤.٤٪ of CS among Nigerian women performed on maternal request. CS on maternal request is often caused by fear of pain,[٣٢] this is emphasized by the present study as fear of labor pain was stated as the main reason for the request of CS by ٧٨.٦٪ of women.

Regardless financial and medical considerations, VD is highly valued by most women, ٨٢.٤٪ of the studied participants preferred VD. Fouly et al., reported lower rates for VD preference in Assiut; ٦٠.٩٪ and in Zagazig; ٦٨٪[٣٣]. While Shabaan et al., found higher rate in Ismailia governorate[٣٣]. There is evidence from studies conducted worldwide that most women prefer vaginal delivery[٣٤].

The majority (٩١.٩٪) of women attributed their preference for vaginal delivery due to faster recovery. This is consistent with the findings of Yilmaz et al.,[٢٩] in which ٨٨.٦٪ preferred VD because of rapid postpartum recovery. In a study conducted by Shi et al.,[٣٢], it was found that most common reason for choosing VD was that mothers would recover faster (٧٨.٧٪).

It was found that ١٥.٦٪ of women in our study thought that VD is less risky and healthier for the mother, ٨.٥٪ healthy for baby. On contrary, many studies have reported that the majority of women considered VB to be a safer mode of birth for the mother and for baby[٧,٣٥]. Moreover, only ١.٤٪ and ٠.٣٪ of those in our study thought that VD enhance the emotional relationship between mother and the infant and Initiate breast feeding faster. It is notable that there are many unknown advantages of VD. So, women are recommended to be well-informed by healthcare professionals about VD.

In the present study it was found that ١٧.٦٪ of women prefer CS. Similar rates for caesarean preference ١٦.٩٪ in Italy [٣٦] and ١٦.٧٪ in Hong Kong [٣٧]. However, in a previous study conducted by Shabaan et al.,[٣٣]. in Ismailia governorate, Egypt it was found that ٧.٧٪ of participants preferred CS as mode of delivery. Another study conducted by Pevzner et al.,[٣٥] showed that only ٧٪ of women in USA prefer to deliver by CS. Hildingsson et al.,[٣٤] reported similar findings in Sweden as ٨.٢٪ of the study Participants preferred caesarean delivery.

About three-quarters of participants stated their preference of CS due to fear of labor pain. In parallel to our findings, many studies showed that fear of labor pain was the main reason for choosing caesarean delivery[٢٩,٣٨]. In addition, belief that CS safer for baby stated by (٣١.٧٪) and uncertainty of giving birth and losing the control during VD (٢٢.٢٪) were also important factors influencing the preference of CS in this study. Similarly, Buyukbayrak et al.,[٣٩] reported that a fifth of the participants in their study prefer CS due to finding it safer for babies. Another study conducted in China found that the top reasons for preferring CS were a lack of confidence in VB (٣٧.٣٪), and the perception that the baby would suffer fewer risks (٣٤.٨٪)[٢٢].

In the current study, age and previous mode of delivery were significantly associated with women's preference of CS in the multivariable-adjusted regression model. The young age of women (≤٣٠ years) contribute to the CS preference; (OR=٢.١٣). This was in disagreement with Yilmaz et al.,[٢٩] who found that being at the age of ≤٣٠ (OR=٠.٦) years decrease the CS preference, another study in Saudi Arabia[٤٠] revealed that women who preferred CS were more likely to be: ≥٣٥ years. This may be attributed to the elevated childbirth fear among young women; in our study women who cited fear of labor pain had lower mean age (not shown in tables).

Additionally, fear of potential pelvic floor damage and sexual dysfunction after VD may be another concern.

Besides, previous mode of delivery is another factor affecting the women's preference of CS. previous experience of vaginal delivery associate inversely with CS preference. In parallel to our findings, many studies found that women who had vaginal birth and cesarean sections, stated preference for natural childbirth[٣١,٤١,٤٢]. Similar findings were reported among Chinese women where it was reported that previous caesarean section is a main determinant for women preferences for elective CS[٣٧]. In a study conducted by Yilmaz et al.,[٣٩] in Turkey, women undergoing CS (OR=٤.٨) increased the risk for preferring CS.

Conclusion

The study found that ٨٢.٤٪ of women preferred VD because it has faster postpartum recovery and they believe it is safer, while those who chose CS reported that fear of labor pain was the main reason for their choice. The young age of women (≤ ٣٠ years) and their previous birth experience contribute to the CS preference. Despite the high percentage of natural birth preference among women but the caesarean rate remains high. Thus, women's preference alone is unlikely to be attributed to the high CS rates. The obstetricians' opinions and attitude towards indication of CS in Minia governorate warrant to be investigated in further studies.

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