ORIGINAL ARTICLE

Awareness, Knowledge, and Attitude of Egyptian Women toward Cesarean Delivery: A Cross-sectional Survey

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Abstract

Background: Cesarean section (CS) rates have almost doubled globally from 2000 to 2015, with Egypt having one of the highest rates worldwide. This survey was carried out to highlight the role of poor knowledge in increasing unindicated cesarean deliveries (CDs).

Aim and objective: To assess the awareness of Egyptian women about the indication of their first CD, their knowledge about different modes of delivery, and their attitude toward CD.

Materials and methods: A cross-sectional survey of 2,379 multiparous ladies, with history of at least one CS, was conducted at a tertiary university hospital, from April 2018 to August 2018. A semistructured questionnaire was used which covered sociodemographic aspects, information about previous deliveries, and 13 closed-ended questions assessing awareness, knowledge, and attitude toward CD.

Results: We found that 72.8% of the women had their CS in their first delivery. The private sector is responsible for 48.5% of the primary CD. Nineteen percent of the participants did not know or were not told of their indication for CD, and nine percent had a CS upon demand. Answers showed that 54.6% of women saw CS is safer for the mother, and 63.7% that it is safer for the baby. Participants thought that CS compared to vaginal delivery is less painful (63.4%), associated with less bleeding (69.8%); does not affect emotional bonding (54.1%); protects against prolapse, urinary, and sexual problems (48.7%); and does not affect future fertility (75.8%). In addition, 44% did not know that vaginal birth is possible after a CS, 28% would opt for a CS to avoid the lithotomy position, and 72.5% did not regret delivering by CS.

Conclusion: Egyptian women's awareness about their indication for CD is defective, and their knowledge regarding pros and cons of different modes of delivery is inadequate and incorrect.

Keywords: Attitude, Awareness, Cesarean section, Cross-sectional, Knowledge, Maternal request, Misbelief, Misconception, Questionnaire, Survey.

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Introduction

Cesarean section (CS) is one of the most common major surgical procedures worldwide.[1,2] Despite being a vital obstetric procedure which saves lives of women and infants, it is not free of short- and long-term adverse events for both.[3] Ideally, according to the World Health Organization, cesarean deliveries (CDs) should not exceed 10–15% of all deliveries.[4,5] A recent systematic review concluded that a CS rate above 9–16% does not decrease maternal and infant mortality.[6] However, the rates in many countries seem to be much higher than this advised optimum rate and, unfortunately, are still rising.[7] From the year 2000 to 2015, CS rates have almost doubled globally, with highest rates in Argentina, Colombia, the Dominican Republic, and Egypt.[7,8] Unlike a lot of poor African countries where CS rates are astonishingly as low as less than two percent of all deliveries, the rate in Egypt is tremendously high.[8,9] According to the data in national surveys, CS rates have bounced in Egypt from 10.3% in the year 2000 to 19.9%, 27.6%, and 51.8% in the years 2005, 2008, and 2014, respectively.[10,11] Some reports have recorded rates as high as 63% by the year 2015,[7] and a rate of 70.5% in higher socioeconomic classes,[8] especially in private health facilities.[7,8,10–12]

Several interlacing factors may play a role in this dramatic increment in the rate of unindicated CDs in Egypt.[13] Surprisingly, the healthcare sector in Egypt—almost—lacks national or institutional practice guidelines.[13] Additionally, childbirth classes, education, and counseling do not constitute part of the routine antenatal care.[10] In a survey, a large proportion of Egyptian health care providers—especially in private sectors—replied that they would not opt for obstetric practices which tend to decrease the need for CDs, such as external cephalic version, breech delivery, trial of labor in mild cephalopelvic disproportion (CPD), and instrumental delivery.[14] Another contributing issue is the disparity in vaginal delivery and cesarean delivery fees, which might drive healthcare providers to offer women a cesarean.[15] Childbearing women themselves, their relatives, and the society might prefer delivery by a CS due to lack of general knowledge about advantages of vaginal delivery, fear from pain, widespread misconceptions about urinary and sexual functions after vaginal delivery, and the misbelief that a CS is safer for the baby.[16] Other worldwide factors to which rising rates of CDs can be attributed include convenience to both the woman and obstetrician, fear from medicolegal accusations, lack of training on assisted vaginal deliveries, and overuse of advanced fetal monitoring.[17] Yet, several other factors remain unknown in Egypt and should be explored.[18]

Having one of the highest CS rates in the world, and in an attempt to highlight the role of poor knowledge in increasing

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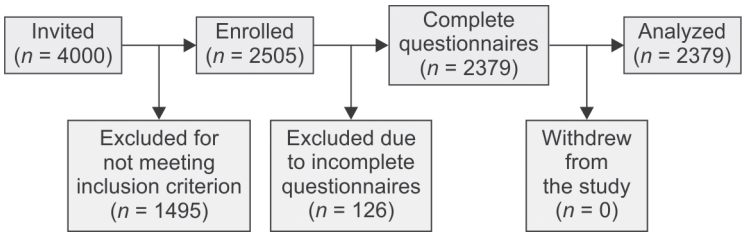
Flowchart 1: Flowchart showing enrollment of participants in the survey



the percentage of women having unindicated CDs, this study was carried out. The objective of our study was to assess the awareness of Egyptian women about the indication of their first CD, their knowledge about common misbeliefs regarding different modes of delivery, and their attitude toward CD.

Materials and Methods

A cross-sectional survey was conducted in Kasr Al Ainy Hospital, Cairo University, Cairo, Egypt, from the 1st of April 2018 to the 31st of August 2018. Kasr Al Ainy Hospital is a tertiary university teaching hospital, whose obstetrics and gynecology clinics serve around 200–300 patients every day. Multiparous women with a history of at least one CS attending the obstetrics and gynecology clinics were invited to participate in the study. Primigravidae and multiparous women with no history of CS at the time of the survey were not recruited in the study.

The survey was approved by the institute research ethics committee. Women attending the clinics were offered to participate in the survey upon their exit from the clinic, after they had been fully served, to avoid exploitation. They were asked to reply to an anonymous paper questionnaire. All participants consented to engage in the survey and were ensured confidentiality and the ability to withdraw at any time.

The questionnaire was peer-reviewed and pilot-tested on 20 eligible candidates to ensure clarity of questions and that it would take around 15 minutes to fill. It was initially written in the English language, then translated to Arabic for convenience. Translation of the questionnaire to the Arabic language was carried out by a bilingual native Arabic speaker. Back-translation from Arabic into English was carried out by a bilingual native English speaker to ensure consistency. Illiterate women read the questions in a private one-to-one interview by one of the authors who filled the paper on behalf of the participant. The questionnaire was a semistructured one, its first half consisted of enquiries about the participant's age, residence, education, employment, whether pregnant or not, parity, number of CSs, mode and place of her first delivery, as well as timing and place of the first CD. The second half consisted of 13 closed-ended questions aiming to assess the participants' awareness, knowledge, and attitude toward CD, and their main source of knowledge.

Collected data were analyzed using IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, NY, USA), and the values were expressed as mean ± standard deviation for numerical values, and as number and percentage for categorical values.

Results

Four thousand women were invited to participate in the survey. 1,495 were excluded for not meeting the inclusion criterion of having at least 1 CS, and another 126 were excluded due to incomplete questionnaires. From the participating 2,379 women, no one withdrew from the study (Flowchart 1).

Sociodemographic criteria of our participants are shown in Table 1. The age of the participants ranged from 19 to 48 years, and their parity ranged between 1 and 12. Sixty percent of the participants were of urban residence, and the rest came from rural areas. Around one-third of them received only technical or trade training, and around a quarter were illiterate. Approximately 85% of the enrolled women were housewives, and the same percent were pregnant at the time of the survey.

Data about their previous deliveries are also shown in Table 1. The number of CDs per participant ranged from 1 to 6, with a mean of 1.89 ± 1.15, and more than half of the participants had at least one CS in their lifetime. 73% had their first delivery by CS, and only 4 women (0.2%) of the 2,379 were delivered instrumentally in their first delivery. Around half of the women's first CS took place in a private facility. With regard to the type of anesthesia, regional anesthesia was experienced by only half of the surveyed women.

The participants' answers to the closed-ended questions are shown in Table 2. The answer of 19% of the participants to the

Table 1: Sociodemographic criteria of participants and data about their previous deliveries

	Value (n = 2379)
Age, years	29.52 ± 5.98[a]
Residence	
Urban	1436 (60.4)
Rural	943 (39.6)
Education	
Illiterate	647 (27.2)
Elementary school	363 (15.3)
High school	218 (9.2)
Technical or trade training	863 (36.3)
College or university	288 (12.1)
Postgraduate	0 (0.0)
Employment	
Employed	362 (15.2)
Nonemployed	2017 (84.8)
Pregnancy	
Pregnant	2085 (87.6)
Not pregnant (or unsure)	294 (12.4)
Parity	2.41 ± 1.40[a]
1	939 (39.5)
2	360 (15.1)

Contd…

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	Value (n = 2379)
3	432 (18.2)
4	502 (21.1)
5	128 (5.4)
>5	18 (0.8)
Number of cesarean section (CS)	1.89 ± 1.15[a]
1	1280 (53.8)
2	439 (18.5)
3	369 (15.5)
4	220 (9.2)
5	69 (2.9)
6	2 (0.1)
Mode of first delivery	
Vaginal	644 (27.1)
Instrumental	4 (0.2)
CS	1731 (72.8)
First CS in which delivery	
1st	1731 (72.8)
2nd	292 (12.3)
3rd	224 (9.4)
4th	76 (3.2)
5th	44 (1.8)
>5th	12 (0.5)
Place of first vaginal delivery	
Home	214 (9)
Private facility	144 (6.1)
Public hospital	216 (9.1)
Tertiary hospital	74 (3.1)
Not applicable (No vaginal deliveries)	1731 (72.8)
Place of first cesarean delivery	
Private facility	1154 (48.5)
Public hospital	719 (30.2)
Tertiary hospital	506 (21.3)
Anesthesia	
Regional	1122 (47.2)
General	1257 (52.8)

[a]Values expressed as mean ± SD, while rest of the values as frequency (percentage)

question "What was the indication of your first CS?" was "I don't know or I was not told." In 9%, the indication of CS was maternal request, and 6% had a CS for expected CPD before labor pains. The rest of the indications are shown in Figure 1.

Cesarean delivery was seen as safer for the mother by more than half of the surveyed women and safer for the baby by nearly two-thirds of them. Also, around two-thirds saw that CD is associated with less pain and less bleeding than vaginal delivery.

More than a half agreed that CS may affect mothers' emotional bonding with their babies. Almost half of our study population chose that having a CS instead of delivering vaginally protects from prolapse, urinary, and sexual problems. Three quarters believed that CD did not affect future fertility, and 44% agreed that a woman can never deliver vaginally after a CS.

Answers to questions about attitude toward CD revealed that 28% would opt for a CS to avoid the lithotomy position and that 72.5% did not regret delivering by CS. Finally, when asked about their source of knowledge regarding their reproductive health, one-third chose "healthcare provider," another third chose "I am not sure/I cannot recall," and the remaining third's answers included family, friends, reading, radio, internet, and television.

Discussion

Several local and international studies have reported the high rate of CDs in Egypt. However, in our search, we only found one survey that addressed the level of knowledge of Egyptian women regarding CD. In their survey, Al-Rifai and Aziz deduced that the Egyptian women's basic knowledge about CD is inadequate.[12] Their questionnaire—as they mention—was very basic and consisted only of five questions. In our work, we used a more expanded questionnaire in an attempt to better assess Egyptian women's knowledge and beliefs regarding advantages and disadvantages of different modes of deliveries. Only women with at least one previous CD were included in our survey with an aim of asking the question "Do you know why you had a CS?"

Our hospital is a tertiary university hospital in the capital "Cairo" with a high CS rate. According to a retrospective study, our rate was as high as 38.84%, 37.88%, 39.08%, 37.72%, and 41.17% in 2008, 2009, 2010, 2011, and 2012, respectively.[19] It appears from other studies conducted at university hospitals in other governorates that their CS rates are similarly high with rates 41%, 45%, and 46% in 2013, 2014, and 2015 at Tanta University Hospital.[20] Another example is Mansoura University Hospital in which the rate was 42.65% in 2006 and 55.33% by 2010.[21] General district hospitals also have the same high rates: 57.9% in 2004 in Alexandria, 36.5% in 2008 in Al Mattaria, and 32.6% in 2015–2016 in Beni-Suef.[22–24] In all these studies, the most common indication for CD was repeated CS.[19–24] Studies have mentioned that patients' records sometimes lacked crucial information such as antenatal data and even the indication for CD.[20,22,23]

Surprisingly, 19% of the surveyed women did not know or were not told the indication of their CS, and only 33% obtained their information from a healthcare provider. Such figures possibly reflect a defect in patient counseling in the Egyptian healthcare system. The national health survey states that 90% of Egyptian women receive at least one antenatal visit during their pregnancy;[10] however, this visit seems unsatisfactory. The private sector was responsible for 48.5% of primary CDs of the surveyed population, a finding which is common in countries with high CS rates.[8] This might indicate the compelling need for clear guidelines and protocols for a standard procedure as the CS in all Egyptian hospitals, especially private ones.

In 2003, the US estimate of CD on maternal request was 2.6% of all CDs and was considered high.[25] Cesarean section on maternal request constituted 9.1% of primary CDs in our survey, which appears to be exceptionally high at 3.5 times that in the US. Till more data are available, the American College does not recommend CS

Table 2: Participants' answers to the closed-ended questions

	Questions	*n (%)*
Awareness		
1	What was the indication of your first cesarean section (CS)?	
	I don't know/I was not told	456 (19.2)
	Abruption	29 (1.2)
	Cephalopelvic disproportion (CPD) (in labor)	216 (9.1)
	Failed induction	144 (6.1)
	Failure to progress	347 (14.6)
	Fetal distress	84 (3.5)
	Malpresentation	132 (5.5)
	Maternal viral infection	1 (0.0)
	Maternal request	217 (9.1)
	Morbidly adherent placenta	1 (0.0)
	Multiple pregnancy	156 (6.6)
	Predicted CPD	146 (6.1)
	Preterm/small for gestational age	138 (5.8)
	Previa	19 (0.8)
	Severe hypertension	143 (6)
	Others	150 (6.3)
Knowledge		
2	Is CS safer for the mother?	
	Yes	1300 (54.6)
	No	791 (33.2)
	I don't know	288 (12.1)
3	Is CS safer for the baby?	
	Yes	1516 (63.7)
	No	287 (12.1)
	I don't know	576 (24.2)
4	Is CS less painful than vaginal delivery?	
	Yes	1509 (63.4)
	No	866 (36.4)
	I don't know	4 (0.2)
5	Which is associated with more bleeding?	
	Vaginal delivery	1660 (69.8)
	CS	430 (18.1)
	I don't know	289 (12.1)
6	CS may affect emotional bonding with the baby	
	Agree	1288 (54.1)
	Disagree	801 (33.7)
	I don't know	290 (12.2)
7	CS can protect from prolapse, urinary, and sexual problems	
	Agree	1158 (48.7)
	Disagree	645 (27.1)
	I don't know	576 (24.2)
8	CS doesn't affect future fertility	
	Agree	1803 (75.8)
	Disagree	434 (18.2)
	I don't know	142 (6.0)
9	After having a CS, a woman can never deliver vaginally	
	Agree	1046 (44)
	Disagree	638 (26.8)
	I don't know	695 (29.2)
10	Have you experienced any complications from CS?	
	Yes	71 (3)
	No	2301 (96.7)
	I am not sure	7 (0.3)
Attitude		
11	Would you prefer a CS to avoid lithotomy position?	
	Yes	656 (27.6)
	No	794 (33.4)
	I am not sure	929 (39.1)
12	Do you regret delivering by CS?	
	Yes	323 (13.6)
	No	1725 (72.5)
	I am not sure	331 (13.9)
Source of information		
13	What is your main source of information regarding your reproductive health?	
	Reading newspaper/magazine	8 (0.3)
	Listening to the radio	4 (0.2)
	Watching television	291 (12.2)
	Accessing the internet	144 (6.1)
	Family and relatives	367 (15.4)
	Healthcare provider	791 (33.2)
	I am not sure/I cannot recall	774 (32.5)

on maternal request as an alternative to planned vaginal delivery due to possible adverse maternal and neonatal outcomes.[26]

In our surveyed population, 6.1% had a CS for anticipated CPD without any trial of labor. Also, performing an instrumental delivery seems to be a dying art at our hospitals, as only four ladies (0.2%) reported having instrumental delivery. Performing unindicated CSs and abandoning the practice of instrumental delivery will definitely increase the CS rates.

Another astonishing practice in Egypt is the exaggerated preference of general anesthesia when regional neuraxial anesthesia should be a safer alternative. 47.2% of our population had their CS under general anesthesia, which in our opinion is a malpractice, considering the possible risks on the parturient and her baby, and knowing that in the US only 5.6% of CDs are performed under general anesthesia.[27] Solid practice entails that general anesthesia should be restricted to emergency CS or in the situation of regional anesthesia being contraindicated or failed.[28]

Moreover, the survey has revealed the prevailing misbeliefs and misconceptions of Egyptian ladies. Cesarean delivery is thought to be safer for the mother and baby, less painful, less bloody, and protective against prolapse, urinary and sexual problems while having no effect on future fertility. Also, 44% were not aware of the possibility of vaginal birth after CS. Educational programs should be implemented to fill this huge gap of deficient knowledge.

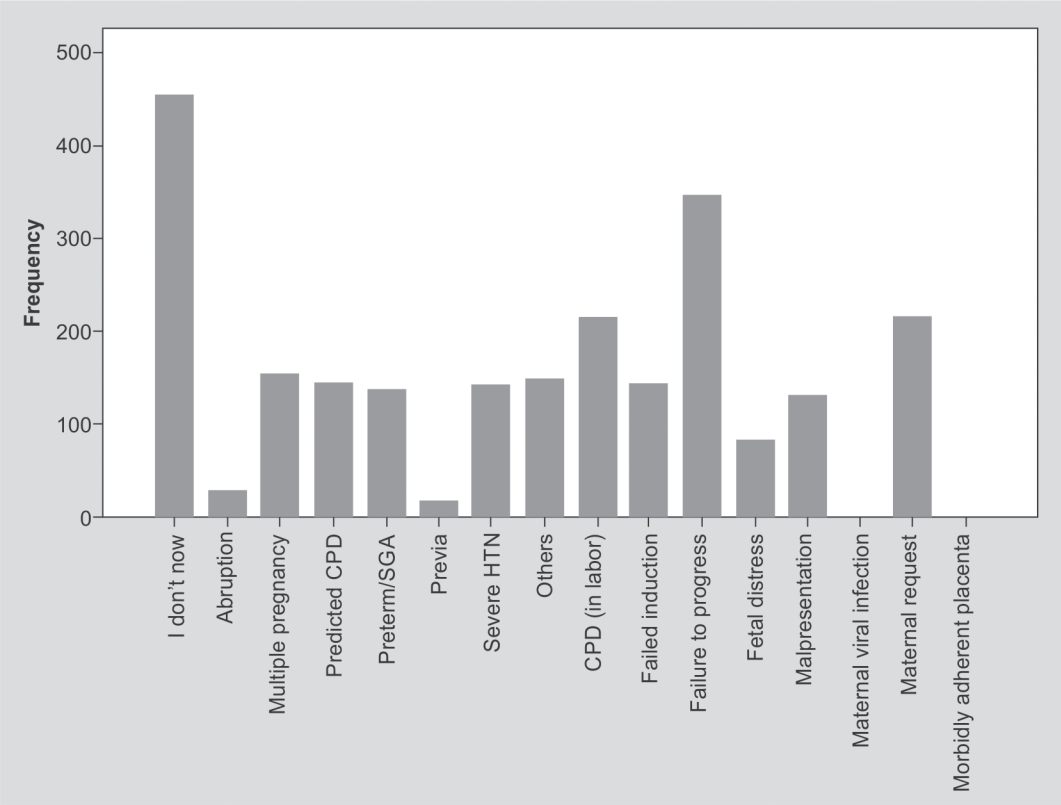

Fig. 1: Participants' answers to the question "What was the indication of your first CS?" CS, cesarean section; CPD, cephalopelvic disproportion, SGA, small for gestational age; HTN, hypertention

Strengths and Weaknesses

The strength of the survey lies in the large number of participating women and in targeting the problem of increasing CS rates which is a problem both in Egypt and worldwide.

However, our survey had some points of weakness: being a cross-sectional one, definite cause-and-effect interpretation may not be entirely precise. Another point is that Kasr Al Ainy Hospital of Cairo University attracts healthcare seekers who come from low-to-medium socioeconomic classes, so usually studies carried out at our hospital do not fully represent all socioeconomic and educational categories of the population.

Conclusion

A considerable proportion of Egyptian women are unaware of their indication for CD. Their knowledge regarding pros and cons of different modes of delivery is defective. Most of them do not regret delivery by CS.

Relevance and Possible Implications of Our Findings

It can be assumed from this survey that programs to promote women's knowledge and awareness are strongly needed in our community. National and institutional policies and guidelines should be enforced to restrict CS to indicated cases. Registration must be improved at all healthcare institutes. Healthcare providers should provide better counseling and education to their patients. Encouraging abandoned obstetric practices as external cephalic version, breech delivery, and instrumental delivery could lower CS rates.

Ethics Approval and Consent to Participate

The survey was approved by the research ethics committee of the Obstetrics and Gynecology Department, Faculty of Medicine, Cairo University. A written informed consent was obtained from each participant.

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