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ORIGINAL ARTICLE

Cesarean Delivery on Maternal Request: Prevalence and Underlying Factors in Sharkia Governorate, Egypt

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ABSTRACT

Background: Cesarean delivery percentage in Egypt has reached 72% of total deliveries in 2021. It's believed that cesarean delivery on maternal request (CDMR) has been associated with an increase in the frequency of Cesarean section (CS). However, there is a lack of studies reporting the frequency of CDMR in Egypt. So, our objectives were to assess the prevalence of cesarean sections and CDMR in Sharkia governorate, to determine maternal motives, and to explore preferences, attitudes, and practices of obstetricians about CDMR. **Methods:** A cross-sectional study was conducted on 182 pregnant women who were selected using a simple random sampling technique from 4 health units and 2 health centers in Sharika governorate and obstetricians from 2 general hospitals. Data about the characteristics of the women and their motives for undergoing a CS for the current pregnancy also, preferences of health professionals for mode of delivery, their practices, and attitude towards CDMR were collected through semi-structured questionnaires. **Results:** The CS rate was found to be 77.5% while the prevalence of previous CDMR was found to be 22% among the CS population. The most common motives for demanding a CS in the absence of medical indications were fear of pain (37.4%), and fear of episiotomy (31.9%). Most of the obstetricians included in the study preferred Vaginal delivery (84.3%). More than half of obstetricians (56.9%) had a negative attitude towards CDMR. **Conclusions:** Maternal requests for cesarean sections are driven by fear of pain and lack of knowledge. Counseling pregnant women about normal vaginal delivery benefits and risks can influence decision-making and decrease rates. **Keywords:** Cesarean delivery; CDMR; Prevalence; Obstetricians; Sharkia; Egypt.

INTRODUCTION

Despite being a crucial procedure that can save the lives of both mother and child, cesarean sections (CS) have become much more common in the past ten years [1]. A major percentage of cesarean sections in certain countries have been attributed to cesarean delivery on maternal request (CDMR), which is defined as a primary cesarean delivery for a singleton pregnancy on maternal request at term without medical or obstetrical grounds [2]. CDMR has grown dramatically over time.

More than half of births in middle-income nations

including Brazil, Mexico, Egypt, and Turkey now occur via cesarean delivery (CD). According to a recent analysis of medical data for all births made in April 2016 in 13 public hospitals throughout four Egyptian governorates (Cairo, Alexandria, Assiut, and Behera), the overall CD rate was 54.2%, with variations amongst the various centers ranging from 22.9% to 94.3% [3]. The Central Agency of Public Mobilization and Statistics reports that 72% of all births in Egypt in 2021 were cesarean [4]. The results of a systematic review and meta-analysis on the prevalence of CDMR worldwide were found by identifying papers from 14 different nations,

primarily those with high and upper-middle incomes. They discovered that the CDMR rate ranged from 0.2% to 20% of all deliveries and 0.9% to 38% of all CDs, with China having the greatest rate (60%) and Ireland having the lowest rate (0.9%) [5].

Understanding health professionals' preferences for delivery methods is crucial since they participate in decision-making processes. According to research, clinicians' personal opinions about what constitutes clinical or non-clinical care, hospital policies and procedures, financial concerns and private health insurance, fear of legal repercussions, inability to access facilities and resources, and a lack of professional cooperation are some of the factors that influence their decision to perform a CS [6]. Instead of examining the strength of these preferences or how women feel about the possible consequences of choosing to have a planned vaginal delivery over a planned cesarean delivery, the majority of the mode of delivery preference studies to date have only asked women if they would prefer a vaginal or cesarean delivery [7].

Therefore, the current study's objectives were to: 1) Determine the prevalence of cesarean sections and CDMR in Sharkia Governorate; 2) Identify maternal motivations and factors associated with CDMR; 3) Determine the preferred delivery method of health professionals, and 4) Examine the attitudes and practices of obstetricians regarding CDMR.

METHODS

A Cross-sectional study was conducted in two Districts from Sharkia Governorate during the years (2023-2024) on pregnant females allocated. As the prevalence of CDMR was 13.7% [2] and the target population was 154553 women (**Health Directorate at El-Sharkia Governorate, 2023**), at 95% CI and effect size =1 so, the estimated sample was 182 pregnant women, calculated by Open Epi program. A multistage sampling technique was used. Two Districts were chosen from the 19 Districts of Sharkia Governorate followed by 4 health units, 2 health centers, and 2 general hospitals from urban and rural regions. Pregnant females were selected from these locations & all obstetricians from central hospitals were included. The study included pregnant females with a singleton pregnancy at the time of the study. Women with health problems such as Hypertension, Diabetes, Cardiac problems, and primigravidae were excluded. Also, obstetricians who are currently working in the Department of Gynecology and Obstetrics were included. An approval from the

Health Directorate at El Sharkia Governorate, Participants in the study gave their informed consent, and the Institutional Review Board (IRB) for medical research ethics at Zagazig University's Faculty of Medicine granted permission. (ZU-IRB) No. 10784 was obtained.

Two self-administered Arabic semi-structured questionnaires were used one for pregnant females and one for obstetricians. The validity of the questionnaires was done by three experts in public health and community medicine. The reliability of the questionnaire was tested and calculated by SPSS, version 22 using Cronbach's Alpha (best at 0.7 level). **The pregnant females' questionnaire formed of 5 parts:** 1-First part included sociodemographic data according to **El-Gilany et al. [8]** (age, residency, educational level of the participant and her husband, occupation of the participant and her husband, family income & crowding index). 2-Second part included their medical history (HTN, DM.... etc.). 3-Third part involved 2 questions about their obstetric history including the number of parities, place of delivery, mode of delivery, and its reason). 4-Fourth part included 8 questions to assess factors affecting the decision of mode of delivery (Duration of pregnancy, no. of prenatal visits. Their knowledge about the advantages and disadvantages of vaginal delivery compared to cesarean delivery, source of their knowledge, delivery of surrounding mothers, their preferences about the mode of deliveries, and how the decision of mode of delivery will be made). 5-Fifth part included motives for requesting cesarean delivery and motives for choosing vaginal delivery and additional 3 questions about vaginal delivery with epidural anesthesia. **Obstetricians' questionnaire formed of 3 parts:** 1-First part included 7 questions involving socio-demographic characteristics as (age, gender, marital status, parenthood, length of experience, and institution working at the current time). 2- On a five-point Likert scale, the obstetricians were asked to rate their agreement or disagreement with each statement for reasons why they would perform CDMR. The second section concentrated on their attitudes and practices regarding cesarean delivery at the request of the mother. I severely disagree (1 point), I disagree (2 points), I am indifferent (3 points), I agree (4 points), and I strongly agree (5 points). 60% is the cutoff mark for attitude (less than 60% indicates a bad attitude and more than 60% indicates a positive attitude). 3- The third part

focused on the personal preferences of obstetricians for a mode of delivery for themselves (if female) or their partner (if male) and the reason for this preference.

A pilot study was conducted on 10% of the sample pregnant females (N=19) and obstetricians (N=5) in September 2023 at Hehia Central Hospital, prior to starting the field study to assess the feasibility of the study as well as to test the questionnaires as regards face validity, reliability, clarity of sentences, consistency & to estimate the time needed to complete it, and data collected from the pilot study was included in the analysis.

Statistical analyses: were conducted using SPSS Version 22. Suitable statistical tests were used. A **p-value of ≤0.05** was considered statistically significant.

RESULTS

The mean ages of the studied females were 28.29 years ± 4.13 SD. Most of them live in urban areas (60.4%). According to the whole items collectively, most of the studied females were of high social class (63.2%), and 141 of them had previous CS (77.5%) (Table 1). The main reason for cesarean birth among females who underwent CS was maternal request, which accounted for 22% of all cesarean deliveries; the overall frequency of CDMR was 17% (31/182). Furthermore, oligohydramnios were the following three most common medical indications. (12.8%), slow progress of labor (9.9%) followed by maternal illness and doctor’s decision (8.5%) (Figure 1). The most frequent cause for choosing CS delivery among pregnant females was fear of pain, followed by fear of episiotomy (37.4% & 31.9%) respectively (Figure 2).

A statistically significant association between socioeconomic status (SES) and CS as a mode of delivery; where women in the CDMR group are more likely to come from medium or high socio-economic backgrounds (30.3% & 23.6%) respectively while none of the low SES was in the CDMR group (P=0.02) (Table 2). As regards

willingness for mode of delivery in first pregnancy, there was a significant difference (P< 0.001). Women who had not considered their delivery mode or preferred vaginal delivery are overwhelmingly in the CS group (90.9%), whereas a considerable proportion of women who preferred cesarean delivery are in the CDMR group (40.6%). This indicates a significant relationship between delivery mode preference and group assignment. There was also a highly significant difference regarding the decision for mode of delivery (P< 0.001). In the CDMR group, 85.7% of women decided for cesarean delivery themselves, compared to only 14.3% in the CS group (Table 2).

As for obstetricians’ preferred mode of delivery, most of them preferred Vaginal delivery 84.3% (Figure 3). In full-time public hospitals, a significant majority believed that every woman should have the right to request a CS, while a smaller percentage was willing to perform a patient-requested CS at 39 weeks or later in an uncomplicated pregnancy (73.5% & 50%) respectively. On the other hand, in Public and part-time private hospitals a similar majority believed in a woman's right to request CS and are willing to perform one in uncomplicated pregnancy (62.5% & 68.8%) respectively. The single respondent from a private hospital indicated support for a woman's right to request CS and willingness to perform it (Table 3).

Advanced maternal age was the most frequently cited cause for obstetricians to perform cesarean sections at the request of the mother, according to the aggregate scores of the reasons (66.6%). "The lack of necessary facilities in the hospital for an emergency cesarean section in case natural delivery trial was unsuccessful so it is best to arrange in advance to perform a cesarean section" and "Anxiety of the patient and her husband and due to their insistence" were the second and third most frequent reasons" (64.7% & 53%) respectively. More than half of the obstetricians had a negative attitude towards CDMR (56.9%) (Table 4).

Table (1) Some sociodemographic characteristics of the studied pregnant females (No=182):

Variables	No.	%
Age (years) <i>Mean ± SD (Range)</i>	28.29 ± 4.13 (19 – 39)	
Residence:		
Rural	72	39.6
Urban	110	60.4

Variables	No.	%
Socio-economic status:		
Low	22	12.1
Middle	45	24.7
High	115	63.2
Mode of delivery in previous labor:		
Normal vaginal delivery	41	22.5
Cesarean delivery	141	77.5

Table (2) Comparison between the studied groups as regards factors affecting the choice of mode of delivery in the current pregnancy:

Variables	CS (n=110)		CDMR (n=31)		P Value
	No	%	No	%	
Age (Mean ± SD)	28.1 ± 3.71		27.5 ± 4.41		0.18 ¹
Socio-economic status:					0.02²
Low (No: 19)	19	100	0	0.0	
Medium (No: 33)	23	69.7	10	30.3	
High (No: 89)	68	76.4	21	23.6	
Pregnancy duration:					0.62 ²
1st trimester (No: 24)	20	83.3	4	16.7	
2 nd trimester (No: 41)	30	73.1	11	26.8	
3 rd trimester (No: 76)	60	78.9	16	21.0	
No. of antenatal visits: Median (IQR)	7 (6)		5 (3)		0.07 ⁴
Information about normal delivery:					0.29 ³
No (No: 54)	45	83.3	9	16.6	
Yes (No: 87)	65	74.7	22	25.2	
Information about CS delivery:					0.28 ³
No (No: 43)	36	83.7	7	16.3	
Yes (No: 98)	74	75.5	24	24.5	
Source of information:					0.97 ²
Doctor/nurse (No: 56)	34	60.7	13	23.2	
Family/friends (No: 20)	15	75.0	5	25.0	
Social media (No: 29)	20	68.9	9	31.0	
Others (No: 35)	25	71.4	10	28.6	
Mode of delivery in surroundings:					0.56 ²
Don't know /No difference (No: 22)	17	77.3	5	22.7	
Normal (No: 19)	17	89.5	2	10.5	
CS (No: 100)	76	76	24	24	
Willingness of delivery mode in first pregnancy:					<0.001²
No consideration (No: 44)	40	90.9	4	9.1	
Was tending to choose CS (No: 64)	38	59.4	26	40.6	
Was tending to choose vaginal (No: 33)	32	97.0	1	3.0	
Decision regarding mode of delivery:					<0.001²
My own decision (No: 14)	2	14.3	12	85.7	
Me & husband (No: 9)	2	22.2	7	77.8	
Obstetrician & us (No: 47)	37	78.7	10	21.3	
Obstetrician (No: 32)	32	100	0	0.0	
Medical reason (No: 39)	37	94.9	2	5.1	

*¹Student T-test, ²Chi-square test with Yates correction, ³Chi-square test, ⁴Mann-Whitney U test, Non-significant: P >0.05, Significant: P ≤0.05

Table (3) Frequency distribution of obstetricians’ attitudes and practices toward CDMR regarding the institution working at the time:

Variables	Institutions working at the time					
	Public (full-time)		Private hospital		public and part-time private hospitals	
	No	%	No	%	No	%
Attitude						
The belief that every woman should have the right to request CS as a mode of delivery:						
Yes	25	73.5	1	100	10	62.5
No	9	26.5	0	0.0	6	37.5
Practice						
Giving detailed information about possible complications of CS during pregnancy to your patients who want CS:						
Yes	9	26.5	0	0.0	3	18.8
No	0	0.0	0	0.0	0	0.0
Partially	25	73.5	1	100	13	81.3
Willingness to perform a patient-requested CS on a woman with a singleton uncomplicated pregnancy in a cephalic presentation at 39 weeks or more of gestation:						
Yes	17	50.0	1	100	11	68.8
No	17	50.0	0	0.0	5	31.3
Total	34	100	1	100	16	100

Table (4) Reasons why obstetricians agree to perform a cesarean section on the mother’s request:

	Agree		Ambivalent		Disagree	
	No	%	No	%	No	%
For obstetrician comfort (Save a lot of time and effort)	8	15.7	3	5.9	40	78.4
Comfortable for patient	22	43.2	5	9.8	24	47.0
Urogynecological reasons	23	45.1	6	11.8	22	43.2
Perceived safety and prevention of postpartum bleeding	14	27.5	9	17.6	28	54.9
Lower risk of infection	7	13.7	6	11.8	38	74.5
Fewer effects on patient’s sexual function.	18	35.3	2	3.9	31	60.8
Reduced likelihood of pelvic organ prolapses	23	45.1	5	9.8	23	45.1
Reduced anorectal trauma	23	45.1	8	15.7	20	39.3
Fear of fetal death associated with vaginal delivery	12	23.5	12	23.5	27	52.9
The anxiety of the patient and her husband and due to their insistence	33	64.7	7	13.7	11	21.6

	Agree		Ambivalent		Disagree	
	No	%	No	%	No	%
Advanced maternal age	34	66.6	12	23.5	5	9.8
The desire for fewer children (tubal ligation)	21	41.2	11	21.6	19	37.3
Fear of legal consequences in case of complications during vaginal delivery	15	29.4	7	13.7	29	56.8
The lack of necessary facilities in the hospital for an emergency cesarean section in case a natural delivery trial is not successful so it is best to arrange in advance to perform a cesarean section.	27	53.0	12	23.5	12	23.6
Financial reasons	7	13.8	2	3.9	42	82.4
General obstetricians' attitude towards CDMR	Frequency		percentage			
Positive	22		43.1			
Negative	29		56.9			

Positive $\geq 60\%$ cut-off score, Negative $< 60\%$ cut-off score

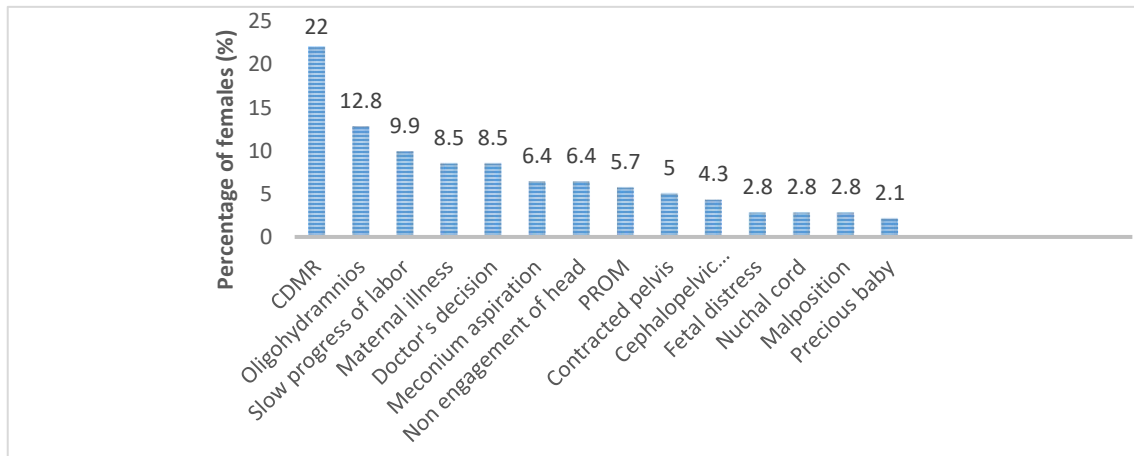
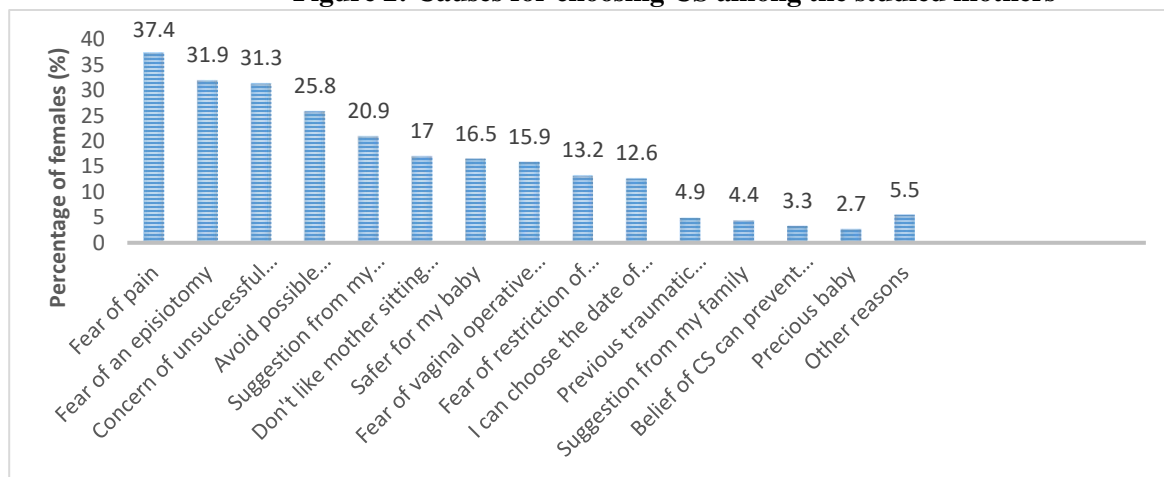


Figure 1: Reasons for CS in the previous deliveries
Figure 2: Causes for choosing CS among the studied mothers



DISCUSSION

In the current study, the CS rate was found to be 77.5% which is higher than what was recorded

previously in other Egyptian studies such as findings of a study conducted in Benha district in 2021 that revealed that the CS rate was 55% [9]. Another Egyptian study in 13 public hospitals in

Assiut, Behera, Alexandria, and Cairo by **Elnakib et al.** [3] stated a similar rate for CS (54.2%). A higher rate of CS that is nearly similar to the current study was found in an Egyptian study conducted in 6 Egyptian governorates in 2022 which revealed the CS rate in Sharkia Governorate to be (59.1%) [10]. That may be due to the social and economic factors as well as the occupational status of most of the husbands and the SES of the family, which is better in the present study as 63.2% of the families are of high SES. This may have led to the increase in the number of birth deliveries occurring in the private sector almost, which may be associated with the shift towards CS. That was similar to a study in Brazil that revealed high rates of CS in the private sector (80.1%) [11].

The CDMR prevalence was 17% accounting for 22% of the cesarean delivery population. This finding is similar to that was found in a Chinese study conducted in 2021 [12] where 23.38% of the population who had cesarean sections had an overall CDMR rate of 8.42%. The difference in the high overall rate of CDMR between the two studies may be due to the larger sample size in the Chinese study which was 1283 pregnant women. On the other hand, the results are slightly higher than the results of a study that was conducted in Saudi Arabia in 2019 [2], which found that the CDMR rate in King Abdulaziz Medical City in Riyadh was 13.7% among pregnant women who were undergoing CS. A much lower rate was found in the UK and Northern Europe 6-8% of all primary CSs, whereas USA 11% were performed on maternal request according to a systematic review conducted in 2018 [13].

The variation in CDMR prevalence may be influenced by cultural factors, education levels, healthcare settings, and policy guidelines. The absence of information on birth certificates and discharge sheets, which neglects to address CS at maternal request, maybe the cause of the difficulty in correctly recognizing CDMR. The most important motives for choosing CS in this study were fear of pain and episiotomy, followed by concerns of unsuccessful Vaginal birth after cesarean section (VBAC), avoiding complications, and being safer for the baby (Figure 2). Tokophobia, or fear of pain, is a significant driving force for cesarean delivery, as shown in a 2017 Chinese study by **Xu and Deng** [14] where fear of pain and short-term maternal risks including perineal tear or cut represented 47.7% & 25.2% respectively of the maternal motives to choose CS.

Also, results of the Saudi Arabian study [2] found that the most common reason for women choosing cesarean delivery (60%), followed by fear of pain (46%), and concerns about unsuccessful VBAC (30%), is avoiding complications, as some women perceive cesarean sections as safer, less painful, or more controlled. This high desire may be due to inadequate prenatal education or counseling about vaginal birth's advantages and disadvantages.

As for concerns about unsuccessful VBAC that may be explained by the fact that 31.3% (Figure 2) of the women in the current study and all women in the Saudi Arabian study had at least one previous CS and it is known that not all attempts at VBAC are successful, fear of failure is a serious problem. Many times, women fear that if they go into labor, they may need an emergency cesarean section if the VBAC doesn't work [15]. Also, the current study showed that a doctor's suggestion is a more important motivation for pregnant women to choose CS (20.9%) than the influence of family was only (4.4%). That is in parallel to the findings of **Deng et al.**, [12] where the doctor's suggestion was the second most important motive among women in the cesarean section group. Safety concerns, trust in medical knowledge, and preventing difficulties are key factors.

Also, the current study found a significant difference in socio-economic status between women who underwent medically indicated cesarean sections and those who underwent CDMR. While women in the CDMR group are more likely to be from medium or high socioeconomic backgrounds, women from lower socioeconomic backgrounds appear to be more likely to be in the CS group. Similar to a Brazilian study in 2020 by **Carlotto et al.** [16] where higher-income households and those with more education were more likely to address cesarean section urges. That may be because childbirth preferences may be influenced by cultural and societal conventions, with higher socioeconomic status individuals more likely to adopt Westernized conceptions that prioritize ease and minimize discomfort.

On exploring factors that might affect women's choice, as regards willingness for mode of delivery in first pregnancy there was a significant difference, where a considerable proportion of women in the CDMR group are more likely to have actively considered and preferred cesarean delivery (40.6%), whereas women in the CS group may not have had a strong preference or initially preferred vaginal delivery but ultimately required a cesarean for other

reasons (Table 2). This is similar to the findings of **Deng et al., [12]** which showed that among the CDMR group, 40.6% tended to choose CS in late pregnancy.

Results of the current study show that (85.7%) of females in the CDMR group decided on their own in comparison to only (14.3%) in the CS group. The data suggests that women opting for CDMR tend to have more autonomy in making their delivery decisions compared to those who undergo cesarean sections for medical reasons. That was not consistent with the finding of **Loke et al., [17]** where interestingly the decision for cesarean section delivery among women is not autonomous but heavily influenced by their maternity care providers, particularly obstetricians. Despite perceived autonomy, women often follow their obstetrician's guidance due to safety concerns for the mother and baby.

Also, results were somehow different from an Indian study in 2024 that compared women who gave birth vaginally vs women who had CDMR by **Stützer et al., [18]** where the majority of participants (CS 61% vs. VD 82%, $p = 0.328$) had selected their preferred delivery method before becoming pregnant. Partner recommendations (85 and 90%) were crucial in determining the delivery method. Of the women who gave birth using CDMR, 82% said they had no regrets about their choice of this mode of delivery.

On the contrary, the results of **Wahdan et al., [10]** and **Alkalash et al., [9]** showed that CS was higher in rural areas but the difference wasn't significant. The study suggests that CS is more linked to higher SES, not necessarily urban areas, and may reveal a cultural norm where a husband willingly pays more for CS to spare his wife labor pain.

The mean age of the included females was 28 which was similar to **Ahmed and Mohammad, [2]** and **Deng et al., [12]**. Age had no significant association with the prevalence of CS or CDMR in the present study. That was not consistent with the results of another American study **[19]**, where women who wanted elective cesarean sections were typically about 35 years old or older. Due to worries about possible problems with vaginal delivery, older women especially those expecting their first child later in life were more likely to choose a cesarean delivery method.

Furthermore, we looked into 51 obstetricians' preferences on the technique of delivery for either their own or their patients' CDMR. 84% stated that they preferred vaginal delivery and the most

common reason was "Fewer complications". This comes in parallel to a Turkish study by **Arikan et al., [20]** where the majority of respondents/partners who gave birth vaginally were older, while the majority of young obstetricians/partners favored cesarean sections. Additionally, 61.8% of the included obstetricians had already performed a cesarean section. Additionally, a 2019 German investigation by **Bihler et al., [21]** found that 90% of obstetricians preferred vaginal delivery, with urogynecologists being more likely to choose CS for themselves or their partners. A 2022 French study by **Boucherie et al., [22]**. Found that 94.8% of OB/GYN seniors and residents preferred a vaginal labor trial. The decreasing number of preferred elective CS could be due to growing awareness of the pros and cons of CS and the relationship between pregnancy and pelvic floor disorders. Recent research suggests that CS doesn't necessarily protect women from pelvic floor disorders **[23]**.

The current study found a discrepancy between the belief and practice of Cesarean Section Management across all institution types. While most support women's right to choose CS, fewer are willing to perform one solely on patient request. This may be due to participants working in public hospitals and having a shorter experience (37.3%). Private hospital obstetricians were more likely to support and perform CDMR. This aligns with a survey in Argentina, where 74.4% of providers supported patient choice and 66.7% would perform a CS upon request **[24]**. Additionally, a French study discovered that OB/GYN seniors in exclusive private practices or private maternity centers were more inclined to conduct a C-section. **[22]**, while an Argentinian study found that CDMR was 10% higher in private maternity units than in public ones in 2016 **[25]**. This may be due to higher financial incentives and convenience of scheduling, saving time and effort **[26]**. That was somehow different from **Arikan et al., [21]** where 53.2% of respondents said they were doing CDMR for their patients, which is comparable to our result that only 40.8% of obstetricians thought women had the right to request a CS. This discrepancy raises the possibility of moral and pragmatic factors affecting judgment.

Also, the results of this study revealed that the general attitude of obstetricians toward CDMR was negative attitude with 56.9% of the total score of the reasons why they would perform CDMR at the cut-off point of 60%. In **Loke et al., [17]**, In Denmark,

37.6% of obstetricians said that women should be able to have a cesarean section if there was no medical reason for it. Obstetricians who performed a vaginal birth without the use of instruments, however, were less inclined to support this right. Furthermore, more than half of Turkish obstetricians, either themselves or their partners, performed cesarean deliveries at the request of mothers. As stated by **Boucherie et al., [22]** there is also great variation in the rate of OB/GYN willingness to perform it (84% in Australia, 79% in the UK, 77% in the USA, 40% in Italy and 15% in Spain). The percentage of obstetricians choosing Cs and willing to perform CDMR for patients could significantly contribute to the increase of CS in the country [27].

As for the reasons why obstetricians would agree to perform a CDMR, the most common reasons were “Anxiety of the patient and her husband and their insistence” which was similar to the findings of **Arikan et al., [20]** followed by “Advanced maternal age” and “The lack of necessary facilities in the hospital for an emergency CS in case natural delivery trial wasn’t successful so it is best to arrange in advance for a CS”. That may be explained by the fact that most of the obstetricians in this study worked in public hospitals where there is a lack of proper emergency support so, CS might be seen as a safer option to avoid last-minute complications. A similar finding was found in an Iranian study in 2019 [28] where some doctors agreed to perform a CDMR due to Pressure from patients and families who requested and pushed for CS. The study suggests that reduced pregnancies and increased marriage age are driving families to choose CS, along with doctors’ concerns about safety, convenience, time-saving, legal issues, and financial incentives. Most providers in the current study disagreed, with only 27.5% believing CS offers safety benefits in reducing postpartum bleeding.

On the other hand, results by **Boucherie et al., [22]** found that the majority of the OB/GYN seniors in the sample (55%) believed that none of their justifications could support a CDMR when it came to maternal considerations. In the event of a birth phobia, 19 out of 83 would consent to a CDMR. Just 23% of respondents would consent to execute it if the patient was afraid or anxious. The difficulties in striking a balance between medical ethics, patient autonomy, medicolegal issues, and clinical judgment may be the reason for the intense debate

among obstetricians regarding the willingness and rationale for performing CDMR.

CONCLUSIONS

One of the main reasons for the high CS rates is women's preference for CS. Urban locations have greater rates of CS and are related to higher socioeconomic status and their most common motivation was fear of pain and episiotomy. Obstetricians generally prefer vaginal delivery being less risk for complications. Therefore, healthcare practitioners should emphasize the advantages of vaginal delivery by offering prenatal seminars and encouraging informed decision-making through education and counseling. Use mass media to raise awareness and share pleasant peer birth experiences. To maximize the usage of CS, more study is needed to pinpoint regional obstacles and/or best practices incorporated into health systems.

Conflicts of Interest

The authors report no conflicts of interest.

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REFERENCES

- 1- **Nosratabadi M, Hekmat K, Dencker A, Abbaspoor Z.** Individual and group psycho-educational counseling on knowledge, attitude, and preference for birth method in nulliparous women: A randomized controlled trial. *J. fam. reprod. health*, 2018; 12(2), 103.
- 2- **Ahmed AE, Mohammad RS.** Motives for - And prevalence of - cesarean delivery on maternal request: A survey in Saudi Arabia. *Qatar Med. J.*, 2019; (1): 1–7.
- 3- **Elnakib S, Abdel-Tawab N, Orbay D, Hassanein N.** Medical and non-medical reasons for cesarean section delivery in Egypt: a hospital-based retrospective study. *BMC Pregnancy Childbirth*, 2019; 19, 1-11.
- 4- **CAPMAS, (Central Agency of Public Mobilization and Statistics in Egypt).** Egypt Health Survey 2021 is available from www.capmas.gov.eg.
- 5- **Begum T, Saif-Ur-Rahman KM, Yaqoot F, Stekelenburg J, Anuradha S, Biswas T, et al.** Global incidence of cesarean deliveries on maternal request: a systematic review and meta-regression. *BJOG-INT J OBSTET GY*, 2021; 128(5), 798-806.
- 6- **Panda S, Begley C, Daly D.** Clinicians’ views of factors influencing decision-

- making for cesarean section: A systematic review and meta-synthesis of qualitative, quantitative and mixed methods studies. *PLoS one*, 2018; 13(7), e0200941
- 7- **Yee LM, Kaimal AJ, Houston KA, Wu E, Thiet MP, Nakagawa S, et al.** Mode of delivery preferences in a diverse population of pregnant women. *AJOG*, 2015; 212(3), 377-e1.
 - 8- **El-Gilany A, El-Wehady A, El-Wasify M.** Updating and validation of the socioeconomic status scale for health research in Egypt. *East Mediterr Health J*, 2012; 18(9).
 - 9- **Alkalash SH, El OA, Zayed MI.** Cesarean sections rate and maternal knowledge and attitude towards the mode of delivery in Egypt. *MMJ*, 2020; 34(2), 528-37.
 - 10- **Wahdan M, Hakim S, El Gaafary M, Sos D, Wassif G, Hussein W, et al.** Rising trends in Caesarean section in 6 Egyptian governorates. *East Mediterr. Health J.*, 2022; 28(5).
 - 11- **Piva VMR, Voget V, Nucci LB.** Cesarean section rates according to the Robson Classification and its association with adequacy levels of prenatal care: a cross-sectional hospital-based study in Brazil. *BMC Pregnancy Childbirth*, 2023; 23(1): 455.
 - 12- **Deng R, Tang X, Liu J, Gao Y, Zhong X.** Cesarean delivery on maternal request and its influencing factors in Chongqing, China. *BMC Pregnancy Childbirth*, 2021; 21(1), 384.
 - 13- **Friese and Mylona.** Indications for and Risks of Elective Cesarean Section. *Dtsch Arztebl Int*, 2018; 5 2799–808.
 - 14- **Xu LL, Deng LL.** Impact of ‘two children policy’ on pregnant outcome of nulliparous pregnant women and related factors analysis. *Chin Gen Pract Nurs*, 2017; 15(26): 3304–5.
 - 15- **Birara M, Gebrehiwot Y.** Factors associated with the success of vaginal birth after one cesarean section (VBAC) at three teaching hospitals in Addis Ababa, Ethiopia: a case-control study. *BMC Pregnancy Childbirth*, 2013; 13 1–6.
 - 16- **Carlotto K, Marmitt LP, Cesar JA.** On-demand cesarean section: assessing trends and socioeconomic disparities. *Rev Saude Publica*, 2020; 54, 01.
 - 17- **Loke AY, Davies L, Mak Y.** Is it the decision of women to choose a cesarean section as the mode of birth? A review of literature on the views of stakeholders. *BMC Pregnancy Childbirth*, 2019; 19(1): 286.
 - 18- **Stützer PP, Berlit S, Lis S, Schmahl C, Sütterlin M, Tuschy B.** Elective Caesarean section on maternal request in Germany: factors affecting decision making concerning mode of delivery. *Arch. Gynecol. Obstet.*, 2017; 295, 1151-6.
 - 19- **MacDorman MF, Menacker F, Declercq E.** Cesarean Birth in the United States: Epidemiology, Trends, and Outcomes. *Clin Perinatol*, 2008; 35(2): 293–307.
 - 20- **Arikan DC, Özer A, Arikan I, Coskun A, Kiran H.** Turkish obstetricians’ personal preference for mode of delivery and attitude toward cesarean delivery on maternal request. *Arch. Gynecol. Obstet.*, 2011; 284(3), 543-9.
 - 21- **Bihler J, Tunn R, Reisenauer C, Kolenic GE, Pauluschke-Froehlich J, Wagner P, et al.** The preferred mode of delivery of medical professionals and non-medical professional mothers-to-be and the impact of additional information on their decision: an online questionnaire cohort study. *Arch. Gynecol. Obstet.*, 2019; 299, 371-84.
 - 22- **Boucherie AS, Girault A, Berlingo L, Goffinet F, Le Ray C.** Cesarean delivery on maternal request: How do French obstetricians feel about it? *Eur J Obstet Gynecol Reprod Biol*, 2022; 269, 84-9.
 - 23- **Huebner M, Brucker SY, Tunn R, Naumann G, Reisenauer C, Abele H.** Intrapartur pelvic floor protection: a pragmatic and interdisciplinary approach between obstetrics and urogynecology. *Arch. Gynecol. Obstet.*, 2017; 295, 795-8.
 - 24- **Rivo, J. C., Amyx, M., Pingray, V., Casale, R. A., Fiorillo, A. E., Krupitzki, H. B.** Obstetrical providers’ preferred mode of delivery and attitude towards non-medically indicated cesarean sections: a cross-sectional study. *BJOG: An International Journal of Obstetrics & Gynaecology*; 2018, 125(10): 1294–1302.
 - 25- **Mazzoni A, Althabe F, Gutierrez L, Gibbons L, Liu NH, Bonotti AM, et al.** Women’s preferences and mode of delivery

in public and private hospitals: a prospective cohort study. *BMC Pregnancy Childbirth*, 2016; 16, 1-8.

- 26- Peel A, Bhartia A, Spicer N, Gautham M.** 'If I do 10–15 normal deliveries in a month I hardly ever sleep at home.' A qualitative study of health providers' reasons for high rates of cesarean deliveries in private sector maternity care in Delhi, India. *BMC Pregnancy Childbirth*, 2018; 18, 1-11.
- 27- Coates D, Donnelly N, Henry A.** The attitudes and beliefs of Australian midwives

and obstetricians about birth options and labor interventions. *JMWH*, 2021; 66(2): 161–73.

- 28- Shirzad M, Shakibazadeh E, Hajimiri K, Betran AP, Jahanfar S, Bohren MA, et al.** Prevalence of and reasons for women's, family members, and health professionals' preferences for cesarean section in Iran: a mixed-method systematic review. *Reprod. Health*, 2021;18,1-30.

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