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STUDYING FACTORS ASSOCIATED WITH INCREASED PREVALENCE OF CAESAREAN SECTION IN CAIRO AND GHARBIA GOVERNORATES

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Acronyms

ANC	Antenatal Care
CS	Caesarean Section
EDHS	Egypt Demographic and Health Survey
EFHS	Egypt Family Health Survey
FGD	Focus Group Discussion
IDI	In-depth Interview
ANC	Antenatal Care
PHC	Primary Health Care

Table of Contents

Acronyms.....	1
Executive Summary	3
Background.....	5
Methodology	7
Study design, setting and participants	7
Data collection.....	7
Data analysis and validation	8
Findings.....	10
Antenatal care	11
Women’s reflections regarding ANC	11
Providers’ reflections regarding ANC	14
Caesarean section	16
Women’s reflection regarding caesarean section.....	16
Providers’ reflections regarding caesarean section	22
Study limitations.....	26
Conclusion and Recommendations	27
References.....	29

Executive Summary

Caesarean section (CS) is a life-saving surgical intervention for women and their newborns though its recent overutilization is a global public health concern.

Unnecessarily high caesarean rates have negative implications at the individual, family, and national levels in terms of women's well-being, health expenditure, and efficient use of resources. In Egypt, the caesarean delivery rate increased from 27.6 % in 2008 to 51.8 % in 2014 per Egypt demographic and health survey (EDHS) and reached 72.2 % per the 2021 Egypt Family Health Survey (EFHS).

The present study aimed to explore the potential role of antenatal care (ANC) in labor decision making and the perceptions of both women and ANC service providers towards CS in settings with high prevalence. The findings of the study are expected to guide the development of policy recommendations that would help to reduce unnecessary CS.

The study adopted qualitative methodology in addition to desk review. Six FGDs targeted 24 pregnant women for the first time and 24 recent post-caesarean women and ten physicians providing maternal health services at the primary health care (PHC) facilities.

The majority of pregnant women abide by ANC, once their pregnancy is confirmed, motivated by their concern for their own wellbeing and that of their babies given their limited knowledge of the routine to be followed and things to avoid specially during the first pregnancy. Pregnant women receive ANC mostly at private health facilities and access public facilities to receive tetanus toxoid immunization.

Interviewed pregnant women reflected their worry and stress of their first delivery experience with labor pains being their major concern. Their knowledge related to CS was mostly limited to being a surgical operation. The majority stated that delivery via CS saves women from tolerating painful labor pains; women are anesthetized and wake up to find their babies by their side. Most of the pregnant women were aware that there are medical indications for CS. If given the choice of delivery method, in absence of medical indication for CS, the majority of pregnant women would choose normal

delivery given the short recovery period that will enable them to look after and breastfeed the baby and manage home chores. All pregnant women affirmed that delivery decision is the doctor's decision being the person in charge of the case regardless of woman's preference. Postpartum women reflected on their CS experience and stated that they were aware that once cesarean always caesarean and that this practice was affirmed by almost all doctors attending to their subsequent deliveries. The majority of postpartum women stated that, in absence of medical indication for CS, they would recommend normal delivery to their social networks for speedy recovery, and avoiding the hazards of surgery.

The increased prevalence of CS was noted by almost all interviewed women. The majority noted that physicians perceive it as an easy procedure which yields more money within a shorter duration when compared with normal delivery. Concurrently, there are women, mostly influenced by their social networks, fear pain and the long hours of normal delivery and hence request CS.

All interviewed ANC providers were not in favor of CS in absence of medical indication, because it has risks and complications as any surgical procedure. All the interviewed providers noted that the CS is almost doubled and attributed that increase to women related and provider related reasons.

Programmatic efforts and planned interventions should focus on women during their first pregnancy as subsequent deliveries for those who delivered via CS are all CS. Understanding what influences women's choice of delivery mode is vital for planning interventions to reduce non-medically indicated CS. The fear of labor pain in this study was not the only factor determining women's preference of CS; rather inadequate information about CS. There is a need to target private providers with interventions aiming to reduce CS rate and invest in midwife-led care model to support women during childbirth.

Background

Caesarean section (CS) is a life-saving surgical intervention for women and their newborns; however, its recent overutilization is a global public health concern (1). A multi-country survey conducted in 178 WHO member states suggested that the population level CS rate should not exceed 19%, as increased levels of neonatal and maternal mortality have been reported above this level (2). Additionally, unnecessarily high caesarean rates have negative implications at the individual, family, and national levels in terms of women's well-being, health expenditure, and efficient use of resources (1).

When considering the reasons for rapidly increasing CS rates, non-clinical factors have emerged as equally important factors as clinical factors (3). Patient's request for the procedure is one of the non-clinical reasons for physicians to conduct CS (4). Women who prefer caesarean birth consider normal delivery to be a more painful and dangerous procedure, without considering the negative consequences of unnecessary surgical intervention (5). One systematic review determined that poor knowledge about CS is the main reason for women requesting caesareans, and recommended the involvement of parturient women in informed decision-making processes (6).

Women with higher economic status and more formal education are more likely to make a self-request for CS (7). Conversely, poor women with little education are presumed to have inadequate knowledge about CS procedures (8) which is considered a significant barrier to involving women and their families in decision making related to the mode of birth. As a result, service providers particularly the attending physicians are evolving as the solo decision makers regarding mode of birth especially in low-income settings (9).

In Egypt, the caesarean delivery rate increased from 28 % in 2008 to 52 % in 2014 per Egypt demographic and health survey (EDHS) and reached 72.2 % per the 2021 Egypt Family Health Survey (EFHS). Egypt reported the largest increase in CS rates, of 2.7

percentage points per year, resulting in the highest CS rate in 2010-14 (4.1% in 2000 and 42.0% in 2014) among the poorest fifth quintile (10).

While a CS can be a lifesaving surgery, it can put women and newly born at unnecessary risk of short- and long-term health problems if performed without medical indication. The rising number of such deliveries suggests that both health-care workers and their clients perceive the operation to be free from serious risks (11). Studies have revealed that CS was significantly related to the number of antenatal care (ANC) visits and that CS among women who initiated ANC in the first trimester is low (12). Apart from the role of ANC in saving lives, ANC also provides the opportunity to communicate with and support women in labor decision making.

Experience from high-income settings suggests that exploring women's attitudes towards CS might be a productive way to guide policy in reducing un-necessary CS (13). The present study aimed to explore the potential role of ANC in labor decision making and the perceptions of both women and ANC service providers towards CS in settings with high prevalence. The findings of the study are expected to guide the development of policy recommendations that would help to reduce unnecessary CS.

Methodology

Study design, setting and participants

As this study was designed to explore perceptions of women and ANC service providers in settings with high CS rates towards ANC and CS, a qualitative study design was adopted. The study adopted focus group discussions and personal interviews for data collection to allow participants to freely express their insights and thoughts.

The current qualitative study was conducted late 2023 in Cairo and Gharbia governorates of Urban and Lower Egypt regions where the highest rates of CS were reported per 2021 Egypt Family Health Survey (75% and 78.5% respectively) compared to 66.4% in Upper Egypt and 53.6% in Frontier governorates. Cairo (urban governorate) and Gharbia (Lower Egypt governorate) with recorded CS rates of 73.7% and 84.3% respectively were selected to conduct the study.

The study participants were 24 women pregnant for the first time and 24 recent postpartum women, and ten physicians providing maternal health services at the primary health care (PHC) facilities. Study participants were recruited from five health facilities, two in Cairo and three in Gharbia including two urban and one rural.

Data collection

To explore women's perspectives about CS six focus group discussions (FGDs) were conducted. Three FGDs were conducted with women pregnant for the first time during the second and third trimester of pregnancy; when women usually start discussing the birth plan. Women were recruited during the tetanus toxoid vaccination sessions as part of the ANC services delivered at the PHC facilities. Another three FGDs were conducted with postpartum women- three to six months after delivery via CS- so they have recovered and are able to take part in the FGDs and can still recall the circumstances pertaining to the delivery related circumstances. These women were recruited during children immunization sessions at the PHC facilities.

The FGDs with pregnant and postpartum women were conducted in a separate room in the PHC facilities that provided privacy for women to share their thoughts. The study team managed to ensure homogeneity of the participants in the FGDs in terms of education and socio-economic status.

The study also included ten in-depth interviews (IDIs) with ten physicians providing maternal health services at the same PHC facilities where FGDs were conducted. The interviews took place in the physician's own room at the PHC facility after regular office hours in order not to interrupt the flow of work.

At the beginning of each FGD and IDI, the facilitator orally introduced the informed consent form to familiarize the interviewees with the objectives of the study, process of FGD and IDI, their voluntary nature of participation in the FGDs or IDIs in addition to their ability to withdraw at any time without any negative consequence. Furthermore, the researcher affirmed the confidentiality of the discussions and anonymity of data reported.

All IDIs and FGDs were digitally recorded after receiving the verbal informed consent (considering the local culture and related constraints on taking written consent. During the interview with women's, their perceptions and attitudes regarding ANC, preferred mode of birth, source and level of knowledge, cultural beliefs, and factors influencing decision-making about mode of birthing were considered. When interviewing physicians providing maternal health services at PHC; how women interact with ANC services, pros and cons related to CS, factors influencing choice of CS and their perception of increased CS prevalence were explored.

Data analysis and validation

The FGDs and IDIs were transcribed then analyzed manually using thematic analysis. CS related perceptions by women were compared with physicians' views. The same themes which were commonly being reflected across the participants were grouped together. However, divergent but relevant themes were also reported separately.

The findings of the study were validated through round table discussion (RTD) with stakeholders from governmental entities, research entities and international organizations focusing on maternal health.

Findings

A total of 48 women participated in the FGDs including 24 pregnant for the first time and 24 postpartum. Out of the 24 pregnant women who participated in the FGDs, 15 received ANC from private facilities and the other nine from public facilities. The below table displays the main characteristics of interviewed women.

Table (1) Characteristics of women who participated in the FGDs

Variable	Pregnant for the first time	Post -caesarean
Age	Average: 23 years	Average: 26 years
Education	8 women completed primary/preparatory 16 completed secondary and above	10 women completed primary/preparatory 14 completed secondary and above
Occupation	12 women were employed (clerks and admin assistants) 12 women were housewives.	10 women were employed (clerks and admin assistants) 14 women were housewives.

The study also included ten physicians providing maternal health services at PHC, five from each governorate. The work experience of physicians ranged from few months to twenty-five years. Seven of interviewed physicians were Ob/Gyn specialists and had their private practice after office hours.

The following were explored among pregnant and postpartum women: antenatal care perception and utilization, preferred mode of delivery, knowledge about CS and source of that knowledge, labor decision making, future labor plans and recommendations to others. The same topics were explored among ANC service providers in addition to their perception of CS and their perception of potential reasons for increased CS prevalence.

The study findings are displayed under two major themes: antenatal care and CS; each with related subthemes and from the perspectives of pregnant women, postpartum women and service providers.

Antenatal care

Women's reflections regarding ANC

A positive pregnancy experience is defined, among others, as having an effective transition to positive labor and birth. Accordingly, the study focused on women perception and utilization of ANC in the studied communities. Interviewed pregnant and postpartum women stated that their social networks abide by ANC, once their pregnancy is confirmed, motivated by their concern for their own wellbeing and that of their babies, given their limited knowledge of the routine to be followed and things to avoid specially during the first pregnancy.

“As soon as we know we are pregnant, this generation is fragile and pregnancy is difficult.” (Postpartum woman, Gharbia)

Few women abide by ANC schedule during their first and second pregnancy only. In their subsequent pregnancies, they count on their gained knowledge and access ANC only if they are sick and to receive the tetanus toxoid immunization. They do so for financial reasons which reflects limited knowledge that ANC services at PHC are offered at low prices that they can afford.

“Some women do not access ANC except to receive immunization and to be examined if sick because they are poor” (postpartum woman, Cairo)

Similar to what interviewed women had reflected, Egypt witnessed an increase in women receiving ANC from 74.2% to 90.3% to 96.5% for the last pregnancy in the five years prior to 2008 EDHS, 2014 EDHS and 2021 EFHS respectively. The percentage of women who had at least four ANC visits increased from 66.5% per 2008 EDHS, to 82.8% per 2014 EDHS to 89.9% per 2021 EFHS. The 2021 EFHS also documented that 88.8% of the first ANC visit occur during the first trimester and the percentage decreases with the

progress of pregnancy to reach 0.6% of first visit during the eighth month of pregnancy. Furthermore, the 2021 EFHS recorded that the percentage of women who had at least four ANC visits was highest with the first pregnancy (95.5%) then decreases with the number of pregnancy to reach (77%) for the sixth pregnancy and above. A regional variation was also demonstrated by the 2021 EFHS, where the percentage of women who had at least four ANC visits was highest in Lower Egypt (93.3%), followed by Urban governorates (91.4%), followed by Upper Egypt (86.3%), and finally Frontier governorates (84.5%).

Pregnant women receive ANC mostly at private health facilities and access public facilities to receive tetanus toxoid immunization. Interviewed women attributed that preference to several reasons including; flexible working hours compared to public facilities that are functional only during morning hours, being more client -focused, credible, request more investigations and prescribe more drugs in addition to the availability of new technologically advanced imaging tools in private facilities. Furthermore, women added that they have the numbers of the private doctors and can contact them or text them via WhatsApp anytime which is not the case in public facilities.

“Women go to private facilities for ANC and public ones for immunization.”

(Pregnant woman, Cairo)

“You have the number of the private doctor, can call or text via WhatsApp and he responds immediately.” (Pregnant woman, Gharbia)

Pregnant women noted that the ability to contact physicians anytime is of utmost importance especially if it is the first pregnancy. Accordingly, pregnant women prefer private facilities where they deal with the same doctor throughout pregnancy duration and can reach at any time which is not the case in public facilities.

Women receiving ANC at public facilities affirmed that service providers are efficient and detail oriented and spend a lot of time examining them and that many services are

provided for pregnant women including dental examination. One pregnant woman from Cairo revealed that she recently discovered that public health facilities offer ANC services and treatment for very low price¹ so she will start accessing ANC at the public facilities. The same was stated by postpartum woman from Gharbia and another postpartum from Cairo who used to access ANC at private facilities. A postpartum woman from Gharbia was under the assumption that in public facilities there are no files for pregnant women and unless she is examined each time by the same doctor, no one will know her case.

“I will not find the same doctor following my pregnancy each time, I will not have a file, they will not know my history.” (Postpartum woman, Gharbia)

“I knew lately that health facilities (public) provide free examination and treatment. I will follow up here.” (Pregnant woman, Cairo)

Women affirmed the low price of ANC services at public facilities; one Egyptian pound for the ticket which entitles them to free examination, investigations and treatment and if sonar is done an additional five Egyptian pounds are paid. Whereas, at private facilities, they pay around 100-200 Egyptian pounds/visit for examination and they also pay the costs of the required investigations and prescribed treatment by private providers.

“I access the public facility only because the expenses are low and they give treatment for free, other facilities I pay a lot for the treatment.” (Postpartum woman, Cairo)

However, service providers at public facilities have limited working hours and a schedule i.e. the same providers are not available all working days which is a serious issue for pregnant women who want to be followed up by one doctor whom she can reach at any time. That is why one pregnant woman from Cairo noted that even poor women borrow money to access ANC in private facilities.

¹ The ticket is for one EGP and entitles the client for free examination, counseling, investigations and treatment (pending availability). If sonar is needed, additional EGP 5 are paid.

“You will not find the same doctor every time you access the public facility. I need someone who knows my situation to feel at ease.” (Pregnant woman, Cairo)

“Doctors at public facilities care about the cases but sometimes I am sick and they are not available. Accordingly, we strive to get money to be examined.”

(Postpartum woman, Cairo)

Almost all women referred to the crowds at the public facilities and two postpartum women from Gharbia added that avoiding the crowds at public facilities was critical given the negative influence of COVID-19 on pregnant women. On the contrary, private facilities are not crowded as women have preset dates and accordingly the waiting time is short.

One pregnant woman from Gharbia mentioned that some women access private facilities early in pregnancy then after sometime when they feel confident that pregnancy is progressing smoothly, they shift to public facilities. Another pregnant woman from Cairo revealed that she made the same shift but not during her first pregnancy rather subsequent ones as during the first pregnancy woman is under severe stress. One postpartum woman from Cairo noted that some women access both public and private facilities to validate what she is told by each doctor.

The 2021 EFHS demonstrated that for the last pregnancy in the five years prior to the survey, 88.3% of women received ANC from private facilities, compared to 16.7% from public facilities². The utilization of private facilities for ANC witnessed eight points increase when compared with 2014 EDHS which was 80%.

Providers’ reflections regarding ANC

All interviewed doctors agreed that the majority of pregnant women start accessing ANC services once pregnancy is confirmed and they continue the follow up until giving birth. They added that the majority of those prefer ANC at private facilities and access the public units to receive the tetanus toxoid immunization. One provider of maternal

² The percentage exceeds 100% as some women receive ANC from multiple sources

health services noted that woman who is pregnant for the first time is usually anxious and worried and follows up pregnancy with a private doctor. She added that the majority of women who receive ANC at public facilities are pregnant for the second or third time and some of them have previously delivered via CS.

During the ANC follow-up visits, they stated that they provide examination, investigations including sugar and albumin in the urine, hemoglobin level, ultrasound examination when required in addition to providing iron and calcium. They also inform women about proper nutrition, medications to be avoided and the danger signs for which women should seek medical support. Interviewed providers stated that they start discussing childbirth at the beginning of the ninth month after accurately assessing the maternal and fetal conditions throughout the follow-up period, and using the ultrasound. In absence of medical indication for CS, they discuss the manifestations and benefits of normal delivery especially if it is the first pregnancy.

“Counseling focuses on the pregnant for the first time as once caesarean always caesarean.” Gharbia ANC provider

If the pregnant woman for the first-time desires CS in absence of medical indication, the ANC provider explains the potential complications that the mother and the fetus may be exposed to in addition to stating that *“once caesarean, always caesarean”*. One provider added that she does not prefer discussing normal delivery with women so they may not feel worried or distressed if an emergency arises during labor that necessitates resorting to CS. Another one noted that when she talks about childbirth, she does not talk about the complications of CS or the cost, so as not to frighten the woman if she is to deliver via CS.

In case of women with a previous CS, all the interviewed ANC providers stated that they advise the woman to prepare herself for CS at hospital for fear of normal delivery trial as they are not sure of the complications that may arise from the previous incision.

“For the one who delivered via caesarean, we do not discuss normal delivery, we tell her to have the delivery on the second week of the ninth month.” Cairo ANC provider

When asked about the challenges facing the provision of ANC services in their communities, ANC providers stated the following; overcrowdings in the public facilities which may negatively influence the quality of provided services and the privacy of women given that they are assigned with other tasks as the premarital certificate. Some women do not follow up their pregnancy as long as no problem arises specifically if it is the second or third pregnancy and others access the unit only when the medications are available. They also referred to the common belief among some women that tetanus toxoid immunization is the only ANC service provided at public facilities and that it is not required based on what they are told by private providers.

“Some private providers inform women that ANC at public facilities is worthless and tetanus toxoid is not required.” (Gharbia ANC provider)

Caesarean section

Women’s reflection regarding caesarean section

The International Federation of Gynecology and Obstetrics (FIGO) position paper to stop CS epidemic recommended that *“women should be informed properly on the benefits and risks of a CS”*. (14)

Perception of labor and modes of delivery

Interviewed pregnant women reflected their worry and stress of their first delivery experience with labor pains being their major concern.

“We are terrified because both are problematic; delivering a baby is difficult and having your abdomen cut open is even more difficult.” (Pregnant woman, Gharbia)

“I am very worried of labor pains. They say it extends for eight hours and may reach ten hours in the first pregnancy and I fear pain.” (Pregnant woman, Gharbia)

Pregnant women knowledge related to CS was mostly limited to being a surgical operation that saves women from tolerating painful labor pains. They added that convalescence following normal delivery is very short (almost few hours) compared to few weeks following CS. Accordingly, a woman who delivered normally can look after her home and take care of the baby few hours after delivery which is not the case in CS where it may take a woman two to three weeks to resume normal activities and take care of the baby. One pregnant woman from Cairo noted that some private hospitals provide women who delivered via CS by pain killers in the form of solution that they can use after being discharged from the hospital to relieve the post operative pain hence the duration of recovery period is shortened.

“Caesarean means anesthesia, operation, injections, incision definitely that implies illness, expenses, complications may happen and blood transfusion may be needed.”

(Pregnant woman, Cairo)

“The mother is unable to take care of her baby; she stays for 10 -15 days in bed.”

(Pregnant woman, Gharbia)

Few women added that in addition to prolonged recovery, CS entails other risks including the presence of surgical incision which may get infected and weaken with subsequent pregnancies thus limiting the number of deliveries. They also added the possibility of bleeding, hazards of anesthesia, and delivery of premature baby in need of an incubator. Three women from Gharbia added that their sisters following CS delivery suffered several complications related to the incision and anesthesia that necessitated their admission to the hospital.

Most of the pregnant women were aware that there are medical indications for CS including; decreased amniotic fluid volume, fetal distress, hypertension, albumin in urine, abnormal presentation of the baby, absence of labor pains after due date, delayed cervical dilatation, delayed descent of the fetus and cord prolapse.

Source of labor related knowledge

The majority of pregnant women have acquired their labor related knowledge from their mothers and mothers-in-law in addition to their sisters who delivered via CS; all were in favor of normal delivery and focused on the prolonged convalescence following CS. Women attending ANC at public facilities stated that doctors did not discuss labor with them yet apart from one in late third trimester who stated that the doctor mentioned that normal labor is good for the mother and baby.³ Those attending ANC at private facilities were mostly informed that they will deliver via CS for different medical indications or asked to choose in presence of medical indication where the woman will be inclined to choose CS for the safety of the baby and herself.

“The doctor (at public facility) said that normal labor is good for the mother and baby and you start moving shortly after, while CS takes longer time to recover and is costly”

(Pregnant woman, Gharbia)

“She asked whether I want to deliver normally or via CS. She made investigations and told me blood pressure is high and I am to choose” (Pregnant woman, Cairo)

One pregnant woman from Gharbia referred to the internet as the source of labor related knowledge. She noted that movies portrayed labor pains in a way that will frighten pregnant women.

“The internet showed that labor pains can extend for ten hours in the first delivery and in the movies, they scream. I know that pain is severe and intolerable”

(Pregnant woman, Gharbia)

Preferred mode of delivery

Pregnant women were asked which method of delivery they would choose in case of absence of medical indication for CS, and if expenses for both modes of delivery are equal. The majority selected normal delivery given the short recovery period that will

³ The PHC does not provide delivery service

enable them to look after and breastfeed the baby and manage home chores.

Furthermore, normal delivery will protect them from the surgical incision which may get infected or take long time to heal. They also noted the common practice of “once CS always CS” so a woman who delivers via CS will always do. One pregnant woman stated that she will choose the CS to avoid labor pains.

“Normal delivery is better for the health of the baby, recovery is better and the way God created us is better even if we fear it” (Pregnant woman, Cairo)

“I believe that instead of going through and tolerating labor pains, I receive anesthesia and deliver via CS.” (Pregnant woman, Gharbia)

However, all interviewed women affirmed that delivery decision is the doctor’s decision being the person in charge of the case regardless of woman’s preference.

“The decision maker is the doctor based on the case; my preference is not as important”

(Pregnant woman, Gharbia)

When asked about the preferred place to deliver in case of CS delivery, some were in favor of the public hospitals for the low prices compared to private hospitals and others were in favor of private hospitals for better care, cleanliness, infection control, and less crowds. One pregnant woman from Cairo referred to Kasr Elaini and El Demerdash (University teaching hospitals) that are well equipped to manage bleeding and cardiac cases.

Post-partum women and CS experience

When asked about the indications for their first CS delivery, women listed hypertension, absence of labor pains after due date, fetal distress, decreased amniotic fluid volume, the excessive accumulation of amniotic fluid, wrapping of the umbilical cord around a baby's neck, delayed cervical dilatation and delayed descent of the fetus. Four postpartum women stated that they had no medical indication for CS throughout pregnancy and were prepared to have normal delivery but the doctor made a last-minute decision for CS delivery and they were not informed of the exact reason of that

decision. One woman noted that she wanted to have normal delivery but the doctor she was following up with is known to deliver via CS only. Two women revealed that they decided to deliver via CS in absence of medical indication for fear of pain and their decision was easily accepted by the attending physician.

“I wanted to have normal delivery but the doctor said this (CS) safer for you and the baby.” (Postpartum woman, Cairo)

“Everyone advised me to deliver normal but I insisted to deliver via CS because I was afraid. It was my decision” (Postpartum woman, Gharbia)

Women who delivered more than once via CS stated that they were aware that once cesarean always caesarean and that this practice was affirmed by almost all doctors attending to their subsequent deliveries. However, one woman noted that she wanted to deliver normally after CS and the attending doctor was supportive of her choice and asked her to wait till her due date but ultimately, she delivered via CS.

Postpartum women were asked about their feedback regarding delivery via CS. Some were satisfied given the advances in the pain killers for postoperative pain and the cosmetic surgery of the abdomen which were incomparable to what they were told by their older relatives.

“I was too much afraid but after recovery, I told them that my fear was not justified. I thought it will much difficult.” (Post-partum woman, Gharbia)

Other women were dissatisfied and attributed that dissatisfaction to the following reasons; severe pain once anesthesia is over, delayed healing of the incision, bleeding, and change of the shape of the abdomen. Other reasons were related to the baby including difficulty in breastfeeding, inability to take care of the baby due to long recovery period, and delivery of a premature baby requiring incubator with additional expenses.

“I did not like CS it has many drawbacks including surgical incision, expenses and long recovery period” (Postpartum woman, Cairo)

The majority of postpartum women stated that, in absence of medical indication for CS, they would recommend normal delivery to their social networks for speedy recovery, and avoiding the hazards of surgery. On the other hand, few stated that they would recommend CS for their social networks to avoid labor pains and episiotomy (surgical incision of the perineum during child birth) which is performed without anesthesia.

Women's perception of the causes of increased CS

The increased prevalence of CS was noted by almost all interviewed women. One postpartum woman from Gharbia pointed out that almost all her social network delivered via CS.

"My sister, sister-in-law and all my friends delivered via CS" (Post-partum woman, Cairo)

Interviewed women were asked about their perception of potential causes of increased CS prevalence. The majority noted that physicians perceive it as an easy procedure which yields more money within a shorter duration when compared with normal delivery. They added that some physicians frighten women about their baby's wellbeing and ask them for a quick decision without giving them the chance to think it over.

"Most doctors do not give the woman a chance to make a choice. They scare you and tell you that you have to have a cesarean section because they want to take more money, and you cannot risk your baby. The doctor will make an incision and will not have to wait all day until you give birth." (Post-partum woman, Cairo)

Some women stated that there are women, mostly influenced by their social networks, who fear pain and the long hours of normal delivery and hence request CS.

"There are girls who say that I can't tolerate labor pain and being in pain for all these hours. I have several friends who did the same thing." (Post-partum woman, Gharbia)

One pregnant woman added that normal delivery was the preferred mode of delivery among the older generations and women rarely delivered via CS. She attributed that to

women being well nourished and in a good psychological status which currently is not the case.

The 2021 EFHS reflected an increase of CS rate from 27.6% to 51.8% to 72.2% in the five years prior to 2008 EDHS, 2014 EDHS and 2021 EFHS respectively. The 2021 EFHS revealed an increase of deliveries via CS in private facilities to reach 81% compared to 65.7% per 2014 EDHS. Similar increase was also observed between the percentage of deliveries at public facilities that took place via CS from 45.3% per 2014 EDHS to 63% per 2021 EFHS.

[Providers' reflections regarding caesarean section](#)

All interviewed ANC providers were not in favor of CS in absence of medical indication, because it has risks and complications as any surgical procedure. Among the most common complications that they stated they encountered especially lately; infection of the wound and elevation of the cervix which leads to difficult insertion of the IUD afterwards. Other complications include placental remnants in the uterus which leads to continuous bleeding after birth and is usually discovered when an ultrasound is performed during the postpartum visit. They also stated placenta previa, hernia, uterine adhesions, urinary bladder infection, anemia due to the loss of large amounts of blood during delivery and leg thrombosis due to long recovery period with limited movement. They added that some women do not take antibiotics after CS, which exposes them to problems and puerperal fever.

Interviewed providers also mentioned the long recovery compared to normal delivery and problems related to breastfeeding. Furthermore, they noted that some doctors perform CS before optimal maturity of the fetus in order not to lose the case, who may go to another physician, thus the fetus is delivered prematurely and requires an incubator that costs a lot of money apart from the financial burden of the CS. They all stated that normal delivery is better for the wellbeing of the mother and the fetus as long as there is no medical indication for CS.

Regarding CS decision making, they all affirmed that the woman does not have the right to make the decision, and that this is up to the doctor only. A doctor added that there are some women with no medical indication for CS and who are willing to have normal delivery, however when delivery approaches, they request CS influenced by what they hear from their social networks about labor pain and the risks the fetus is exposed to during normal delivery. They added that in such cases, the physician should explain the benefits of normal delivery and hazards of CS.

“Cases that do not want to suffer pain and have vaginal widening are not convinced.”

(Gharbia ANC provider)

Potential reasons for increased CS prevalence from providers’ perspective

All the interviewed providers noted that the CS is almost doubled and attributed that increase to women related and provider related reasons. Women related reasons include; women’s fear of labor pains that they have to tolerate throughout the long duration of the first normal delivery, avoiding widening of the vaginal opening and subsequent reduced sexual satisfaction of the husband. Other women related reasons include protecting babies from the risks of prolonged normal delivery especially in case of women who became pregnant after a long period or if the fetus is a boy.

One provider noted that women currently cannot tolerate labor pains especially with the prevalent reputation about the severity of labor pains.

“At the time of pain, they want to be relieved, so they ask for a CS. Who can wait for 12 hours, and the doctor also does not support waiting” (Cairo ANC provider)

As to doctors related reasons for observed increase in CS, interviewed ANC providers stated that some doctors fear medical litigation in case of maternal or fetal complications during normal delivery so they resort to CS, in absence of medical indication, and do not risk waiting for normal delivery that is not proceeding smoothly. The situation is further compounded by absence of protocol for CS decision making and some hospitals lack required equipment for monitoring the progress of normal delivery.

Furthermore, the CS decision making by the attending doctor is not confirmed by another senior specialist or consultant and the medical records with reported reason for delivery via CS are not monitored/assessed unless a problem occurs.

“There is no support for the doctor when any problem occurs.” (Cairo ANC provider)

Other doctor related reasons listed by interviewed ANC providers include; the shorter duration and higher cost of CS compared to normal delivery. One doctor noted that some doctors, in absence of medical indication for CS, ask the woman to choose the mode of delivery and that makes her feel responsible for decision making and worried about her fetus wellbeing and accordingly chooses CS.

“Doctors prefer the cesarean section because it takes less time and the financial return is greater.” (Gharbia ANC provider)

Suggestions of ANC providers to address increased prevalence of CS

Interviewed ANC providers were then asked about their suggestions to reduce increased CS rates and they mentioned the following:

- Raising women’s awareness about the benefits of normal delivery and the risks of CS using local role models
- Safeguarding doctors against medical litigation through developing standardized protocols for CSs and requiring a second opinion of a senior specialist or consultant for CS decision making.
- Training Ob/Gyn residents on normal delivery given their limited exposure with increased CS prevalence.
- Building the capacity of private facilities that provide antenatal care to adequately counsel women on the mode of delivery and benefits of normal delivery in absence of medical indication for CS.
- Supporting doctors through providing adequate financial compensation for doctors sitting for hours observing the progress of normal delivery and speeding up the implementation of the Universal health insurance for better payment of

contracted doctors. Accordingly, doctors will not be inclined to perform CS for better financial reward.

Study limitations

It was definitely challenging to investigate both pregnant and postpartum women's and physicians' views in the same study. The strengths of the study include getting similar responses from both the caregivers and care receivers in regards to ANC and CS.

The findings of this study are from a small, purposively sampled group, and therefore generalization is difficult. The study was conducted in two governorates in Urban and Lower Egypt with high CS rates. Yet, the study findings do not accurately represent women's and physicians view from other governorates in the same subdivisions. While the objective of the study was not to produce nationally representative results, contextual description was provided to allow readers to determine whether the findings are relevant in other areas of Egypt and elsewhere in low- and middle-income countries.

Conclusion and Recommendations

The fear of labor pain in this study was not the only factor determining women's preference of CS but rather limited information about CS. The mother and mother-in-law are usually the source of delivery related information which is always in favor of normal delivery. Preference of normal delivery, in absence of medical indication for CS, was also supported by ANC service providers at public facilities.

Almost all of interviewed pregnant women expressed their willingness to have normal delivery, despite their fear of labor pains, given the short recovery of normal delivery and to avoid the potential hazards of the operation. Delivery via CS, in absence of medical indication, was preferred by few pregnant women to avoid the "intolerable pain". All interviewed women affirmed that labor decision is made by the attending physician.

The majority of women abide by ANC and mostly seek ANC at the private facilities. Women reflected their perception of private providers inclination towards CS and attributed that to being financially more rewarding and allowing better time management when compared to normal delivery. The preference of CS by private providers was also highlighted by postpartum women who noted that they had no medical indication for CS, yet were not given a trial of normal delivery. The study also highlighted the common practice of "once caesarean always caesarean".

The study recommends the following to address the potential factors contributing to increased prevalence of CS:

- Establishing partnership with private providers who have the highest share of ANC visits to ensure that interventions intended to reduce CS are applied at the private facilities in addition to public ones. These proposed interventions include;
 - ✓ Exploring the perception of normal delivery as a fearful event with women

- ✓ Developing antenatal education and strategies to enhance women's knowledge, confidence and competence about normal delivery.
 - ✓ Educating pregnant women about the modes of childbirth, including indications for, and complications resulting from CS.
 - ✓ Complementing the educational interventions for women with meaningful dialogue with health professionals enabling pregnant women to ask questions and express their concerns regarding the mode of delivery and effective emotional support for women.
- Sharing strong evidence regarding risks and benefits with regard to cesarean delivery on maternal request with clinicians to guide decision making.
 - Auditing and monitoring the reasons for use of the CS to reduce non-medically indicated operations.
 - Programmatic efforts and planned interventions should focus on women during their first pregnancy as subsequent deliveries for those who delivered via CS are all CS.
 - Investment in quality midwifery education and midwife-led care model to support women during childbirth as some studies have found that midwifery care is associated with lower CS rates.
 - National assessment of approaches such as; labor companionship, midwife-led care, childbirth training workshops, nurse-led applied relaxation training programmes, and psychoeducation for women with fear of pain, which have been associated with higher proportions of normal deliveries, safer outcomes, and lower health-care costs in high-income countries.
 - Conducting research focusing on; 1) the relative contribution of healthy women (term, singleton, cephalic pregnancies without a previous caesarean) to the overall caesarean rate and 2) how targeted interventions to reduce unnecessary CS influence women's preferences and their decision-making processes.

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