

Health System Barriers to the Variation of Caesarean Section Rates in Palestinian Governmental Hospitals

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Abstract

Background

Globally, the increased use of cesarean sections has become prevalent in high-income and low and middle-income countries. In Palestine, the rate had risen from 20.3% in 2014 to 25.1% in 2018. The difference is that we have rates as high as 35.8 % in some public hospitals and some as low as 15%. This study aimed to understand better why there is a variation in cesarean rates in public hospitals that use the same protocol.

Methods

A qualitative approach was used. In-depth interviews with 27 specialists, obstetrics and gynecologists, and midwives in five government hospitals were performed. The hospitals were selected based on the 2017 Annual Health Report reported cesarean section rates. The interview guide was created with the support of specialists and researchers and was piloted. Questions focused mainly on adherence to the obstetric guidelines and barriers to the use, sources of information, training for healthcare providers, the hospital system, and the factors that affect decision making.

Results

The results indicated that each public hospital at the system level had a different policy on cesarean sections. One specialist decided for a cesarean section at high-rate hospitals, while low-rate hospitals used collective decision-making with empowered midwives. At the professional level, all hospitals urged for the importance of a continuous training program to refresh the medical team knowledge, in-house training of new members joining the hospital, and to discuss cases that are subjective to obstetrician-gynecologists interpretations.

Conclusion

We recommend strengthening the implementation of support for staff to meet the standards in the national obstetric protocol. Encourage collective decision-making between obstetrician-gynecologists and midwives and use a second opinion. The Robson classification implementation in hospitals will allow medical teams to evaluate delivery management processes and provide a standardized method for reporting and comparison between hospitals, regions, and countries.

Background

The world faces an alarming increase in cesarean sections (C-sections)(1–4). The C-section rate has globally almost doubled in the last 15 years. Experts estimated that 10% – 15% of births warrant a C-

section delivery (2, 3). The C-section procedures were applied in more than 15% of total births in 106 countries, whereas C-section was used in less than 10% of births in 47 countries(3, 5).

The studies (2, 4) investigated the causes of in-country C-section disparities. For example, the rate is five times higher amongst the most affluent communities than those listed as the poorest in low- and middle-income countries. In addition, C-sections use was significantly observed among low-risk deliveries at birth, especially among educated women. Likewise, they were more frequent in both Brazil and China in private facilities than public facilities and saw more planned C-section deliveries in rural populations (6, 7).

The leading causes of C-sections in six Latin countries are breech presentation, fetal distress, previous C-sections, and dystocia (8). Very rarely was it an emergency C-section and some countries showed rates higher than others. C-sections increased in wealthier areas, with many African countries showing in-country inequalities (9).

In Palestine, according to the Ministry of Health and the Palestinian Central Bureau of Statistics (10), 20.3% of births in Palestine were by C-section in 2014, where 22.7% were in the West Bank compared to 17.4% in the Gaza Strip. There is a noticeable increase in the number of C-sections performed at government hospitals in Palestine; the percentage of C-section births reached 24.9% in 2016, compared to 25.8% in 2017(10). Some hospitals' rates reached 35.8% in 2017, while 15% or less in other hospitals. This indicates a difference between hospitals belonging to the same sector. This variation exists may be due to many reasons, such as financial factors and maternal requests(11). However, variation in rates between hospitals in the same sector, which is operating under the same protocol, indicates some form of an anomaly in the working conditions exhibited by the facilities in question(12, 13).

The first study exploring C-section rates in Palestine was conducted in Gaza(13) was limited due to a lack of statistics relating to women who gave birth in private hospitals or public hospitals in the West Bank; these statistics were neglected altogether. In addition, the study(13) did not include information surrounding cesarean section indications, which may assist our understanding as to why differences exist amongst same-sector hospitals. As well as looking at health professional perspectives in why they might think there is a difference among hospitals in the West Bank and the Gaza strip.

This study is the exploratory stage of an implementation project to reduce C-section rates in the West Bank and the Gaza strip. This study aimed to understand why there is a variation in cesarean rates in public hospitals that use the same protocol. The study also hoped to emphasize how decisions are made in the health system of hospital labor wards.

Methods

We used a qualitative and qualitative secondary data analysis approach to explore the variation in C-section rates among public hospitals in the West Bank and Gaza. The study is part of a more significant implementation study that aims to lower C-section rates in the country. In addition, we sought to explore

health care providers' perceptions of the factors that influenced decision-making in public hospitals regarding C-sections.

The qualitative approach consisted of in-depth face-to-face interviews with health professionals, midwives, and obstetrician-gynecologists (OB/GYNs), in labor wards in different public hospitals. The interview guide was developed in English, with the OB/GYNs in the research team and the investigation of existing literature on the possibilities of the variation of C-section rates in hospitals with the same policies and guidelines. It was then translated to Arabic and back to English to check accuracy. Interviewers received training on qualitative methods and piloted the interview guide to ensure questions were understandable. The interview guide consisted of questions concerning participants' background, perceptions of vaginal and C-section deliveries, knowledge of women's delivery choices, national guidelines, and human resource training. The interview guide is available in Supplement 1.

The participants were chosen from hospitals that had high and low C-section rates. These hospitals were identified using the C-section rates stated in the Palestinian Ministry of Health Annual Report of 2017 (10). Interviews were conducted with health professionals working the morning shift in the labor wards in each hospital on different days to ensure the participation of a more significant number of health professionals at the selected hospital. Three team members coded the data extracting themes and sub-themes using the transcription and notes taken during interviews. Thematic data analysis was done using Excel.

Two focus group discussions in a workshop format were conducted to discuss the study findings with the medical teams working in the studied hospitals. OB/GYNs, midwives, in addition to the director of the women's health department, hospital administration, and the committee involved in the protocol development, attended the workshops.

Quantitative secondary data analysis was done by requesting one month of deliveries from each hospital included in the study. The computer center within the Ministry of Health in the West Bank provided the OB/GYN notes. The doctor's notes contained all the information about induction, fluid, abdominal soft, dilation, and medical data such as drugs. We managed to extract the indication for C-section deliveries from the notes. In Gaza, patient files are not computerized, and the research team could use these files to extract the indication of C-section for each delivery for one month. Then, using SPSS 24, quantitative analysis was performed.

The author's institutes approved ethical approval. After receiving informed consent from the participants, interviews were recorded and transcribed.

Results

The research team conducted twenty-seven interviews in five hospitals in the West Bank and the Gaza strip between February-March 2019. We interviewed seven OB/GYNs and six midwives from three

different hospitals in the West Bank. In addition, we interviewed twelve OB/GYNs, one nurse, and one midwife from two hospitals in the Gaza Strip.

Palestinian public hospitals' labor wards work follows an unified Palestinian Obstetrics Guideline. All the health care professionals' interviewed found it beneficial for clarity and consistency in their work. Unfortunately, it was not entirely followed by all staff. From the interviews, we were able to identify three main themes related to the implementation of the national guidelines that would be considered health system barriers associated with the variation of C-section rates in public hospitals. These are human resources, hospital factors, leadership, and decision-making in public hospitals regarding C-section deliveries.

Human Resources

The shortage of staff and work overload were critical factors in performing a C-section instead of a vaginal delivery. Staff shortage was seen as a barrier to vaginal delivery in both low and high C-section rate hospitals. In addition, the lack of OB/GYNs does not allow for a second opinion or provide the right scientific discussion environment to reach the right decision. For example, three OB/GYNs are not enough to manage two shifts seven days per week.

"In this department, we have only three specialists." OB/GYN

"We are so tired(laughing)when 20–25 women come in together, and we are only five midwives!" Midwife

Training and coaching are two critical supports for staff as they learn to follow the guidelines. The medical teams mentioned several barriers to why the protocol is not thoroughly followed. The Ministry of Health's training initially provided targeted the head specialist of the department and the head midwife. The Ministry aimed to create trainers within each hospital that would then go back and train their staff. Each health care provider was given a copy of the guidelines. However, the staff working in the ward is high, and it wasn't easy to provide similar training to their other team members. As a result, the training was during brief periods, sporadic, and not comprehensive.

"The protocol was delivered to every OB/GYN and midwife." OB/GYN

"Yes, it's available as hard and soft copy." OB/GYN

"There is no time to refer to the protocol because of the workload." Midwife

"I don't know why we didn't receive training, probably because of time limits; we barely can complete our tasks during our shifts." Midwife

Head midwives and OB/GYNs trained their staff during the new protocol implementation, but new staff and residents did not receive formal training upon employment. They usually refer to the books they used during their university training. There was an assumption that the university's protocol is taught, and the

staff and residents will learn about it during their studies. It was distinct that the team needed and desired to receive training, but time was limited, and the way they received training was not sufficient. Due to these barriers, they found the implementation of the protocol difficult.

"No, we did not receive training on the protocol (on employment), but sometimes we try to read certain topics." Midwife

Although most of the staff interviewed use the protocol, they could not see the difference between the older and newer versions, finding it unnecessary to update their information. They also indicated that some points are vague or unclear. Another barrier that came out was detachment or exclusion from the preparation process of the protocol. It seems to be a competition between the OB/GYNs, and people involved in the preparation process. The OB/GYNs used the word "they" to refer to the committee members involved in protocol development to underestimate their experience and knowledge.

"They wrote the protocol." OB/GYN

"There is not a noticeable difference between the old and new version. There are a few changes. I didn't receive training on the new protocols. Anyways, the old version I was still studying when it came out and read it myself." OB/GYN

"A protocol was drawn up in the Palestinian Ministry of Health about ten years ago; this protocol is not complete because it is not this simple in many subjects. This protocol does not cover it." OB/GYN

Those who found points vague or did not receive proper training preferred to use international sources that are updated continuously. They refer to evidence-based papers and universal guidelines such as the Green Top, issued by the Royal College of Obstetricians and Gynecologists(14). In contrast, others refer to medical books, which they used to obtain their degrees.

Hospital Factors

One of the most significant health system barriers to decision-making related to delivery was hospital factors. Poor coordination between primary and secondary care within the Ministry of Health facilities poses a big challenge for the OB/GYNs and midwives. In addition, doctors have to deal with women without having their medical history or information about their antenatal period poses a significant challenge on the medical team.

"The woman comes to us with a women's health booklet from the primary health care (as her only form of patient history). Each line has a different shape and is not clear. I cannot care for her or evaluate her using this booklet. These problems are due to the lack of connection between the primary health care system and government hospitals." Midwife

Also, another factor was the influence of private hospitals on public hospitals. The most common reason described by the health professionals for high C-section rates in public hospitals is that women have had a previous C-section, usually in a private hospital. There is a more significant financial benefit for private hospitals when performing a C-section than a vaginal delivery, so it is felt private hospitals encourage C-section deliveries even when not necessary. Maternal requests for your first C-section are not allowed in public hospitals. Private hospitals promote a C-section delivery with success. When wanting to deliver her second child, the same woman will go to a public hospital for a C-section to save money. The protocol allows for flexibility in performing a C-section per doctor discretion. A higher C-section rate is typical in areas with more private hospitals reported by the Ministry of Health annual report and lower in regions lacking private hospitals. This applies to both the West Bank and the Gaza strip.

"Private hospitals increase the C-section rates for us. They perform a cesarean section in the first pregnancy, so most of the next births will be a cesarean, which they come to public hospitals because of the cost." OB/GYN

Some think the protocol was prepared to be used in ideal conditions, not in Palestinian hospitals. The working environment regarding caseload, staff, beds, and lack of equipment and tools prevent the protocol's full compliance.

"They give us the protocol, but there is no equipment, no tools, no place or environment to apply the protocol." OB/GYN

"We are trying to make the protocol appropriate for our work, but it needs a quieter environment." Midwife

Some hospitals have their own policies that do not adhere to the protocol or allow space for OB/GYN interpretation to accommodate these challenges. For example, the protocol states that a previous C-section is not an indication for C-section. Still, from the interviews in high C-section rate hospitals, OB/GYNs considered it an indication. On the other hand, in the low C-section rate hospitals, they follow the protocol and give women who have had a previous C-section a chance for vaginal delivery before performing a C-section.

"If everything is normal and the baby is in a cephalic position, we give her a trial period for a vaginal delivery." Midwife

"In the past, we tried to give them a chance for vaginal delivery (previous C-section), but now, no! We mostly go for a cesarean section." OB/GYN

One OB/GYN had described the protocol as similar to a traffic light: green- clear statement to go for C-section delivery; red- clear statement not to go for C-section delivery; orange- this depends on OB/GYN's experience, consultation, and other sources utilized. Variation in C-section rates arises from the imbalance between decisions based on experiences only, based on the protocol only, and based on both.

Leadership

Leadership is critical in decision-making related to the mode of delivery. Some hospitals reported classic, hierarchical power structures. The head OB/GYN holds the highest power, then the OB/GYNs, residents, head midwives, midwives, and the nurses if available in departments, such as in Gaza. With this structure, an OB/GYN makes the decision, and in some hospitals, one OB/GYN decides without having a second opinion. This was seen in high C-section rate hospitals. Midwives that spent most of the time with the patients were not consulted in the decision-making process.

"One OB/GYN can decide to do a cesarean section." Midwife

"It is clear; one OB/GYN can decide to do a cesarean section. This depends on the indications, but the OB/GYN can make the decision." OB/GYN

"We cannot influence the OB/GYN's decisions." Midwife

In low C-section rate hospitals, collective decision-making involving the residents and the midwives and getting second opinions differed from high C-section rate hospitals. If a resident presented an argument for or against C-section, their opinion was valued and taken into consideration. Midwives can influence OB/GYN decisions.

"There are always discussions between the OB/GYN and the resident in the decision to go for a C-section." Midwife

"In other settings, midwives are not able to influence the OB/GYNs, but here roles are distributed between the team as well as mutual respect." Midwife

"The decisions are shared by the OB/GYN, senior OB/GYN, and midwives responsible for following up with women." OB/GYN

In addition to the guidelines and protocols, OB/GYN's scientific qualifications and experience affected the decision-making process. For example, it was clear that the mentor, hospital, or university where the OB/GYN got their qualifications significantly influenced how decisions were made. This was common among all interviewed OB/GYNs.

"Decisions sometimes have to be made based on qualifications and experience when having to act fast." OB/GYN

An interesting observation was regarding the gender of the OB/GYN. Low C-section rate hospitals have more female OB/GYNs. Whether female OB/GYNs are more patient or sympathize with the women is unclear, but it is an observation.

"We have female OB/GYNs; they have more patience with the women." Midwife

Hospital Records

The indications for C-sections as recorded in the hospital records are presented in Table 1. The most common C-section indication in high-rate hospitals is women who have had a previous one C-section or previous two or more C-sections, followed by a breech presentation and fetal distress. In low-rate hospitals, the most common indications are women who have had previous two or more C-sections, a previous one C-section, followed by a breech presentation. Results can be found in Table 1.

Table 1
Indication of Caesarean Section according to the Ministry of Health Protocol

	High C-section Hospital 1	High C-Section Hospital 2	High C-Section Hospital 3	Low C-section Hospital 1	Low C-section Hospital 2
1-Indication of C-section in the protocol (clear)					
Previous C-section2+	27.20%	40.30%	32.90%	25.00%	28.70%
Breech	9.50%	9.70%	19.40%	16.70%	9.50%
Fetal distress	1.80%	3.20%	1.80%	17.90%	11.00%
2-Indication of C-section in the protocol (not clear)					
Previous 1 C-section	39.1%	29.00%	22.40%	11.90%	17.0%
Placenta Previa	5.30%	0.00%	0.30%	3.60%	1.00%
Failure of Induction/ Failed Progress	3.60%	6.50%	5.40%	3.60%	8.40%
In vitro Fertilization	3.00%	1.60%	5.00%	1.20%	6.00%
3-Indication of C-section (No mention in the protocol)					
Twins -Triplet	2.40%	3.20%	2.00%	10.70%	6.10%
4- Other indications:	8.40%	6.40%	9.80%	10.80%	8.81%
Total	100%	100%	100%	100%	100%

Comparing the high-rate and low-rate hospitals, we noticed that the breech presentation and previous two or more C-section rates matched and followed the protocol to deal with these medical indications. Table 1 separates the indications for C-sections into three different types: those that are clear in the protocol, not clear, and not mentioned in the protocol.

The following terms in vitro fertilization, old primigravida, uncooperative patient, high blood pressure, uncontrolled diabetes mellitus, big baby, and fibroids are all non-medical indications for C-section mentioned in the interviews, and some were found in doctor notes. These results are found in Table 2.

Table 2
Other Indications for Caesarean Sections in Hospitals

Other Indications	High C-section Hospital 1	High C-section Hospital 2	Low C-section Hospital 1	Low C-section Hospital 2	Low C-section Hospital 3
Big Baby	-	-	-	2.40%	-
Fibroids	1.20%	0.00%	-	0.00%	-
Thick Meconium	0.00%	1.60%	-	0.00%	-
High Blood Pressure	0.60%	0.00%	2.00%	0.00%	1.00%
Old Primi	0.60%	0.00%	-	1.20%	-
Uncontrolled Diabetes Mellitus	0.00%	0.00%	-	0.00%	-
Uncooperative Patient	0.60%	0.00%	0.90%	2.40%	3.40%

After the interviews, two workshops were conducted to discuss the study findings with the medical teams working in the study's hospitals. Obstetricians, midwives, and the women's health department director, hospital administration, and OB/GYNs involved in the protocol development attended the workshops. There was an agreement on the main finding regarding the need to continue staff training and find the best modalities while addressing the workload and infrastructure limitations. There were debates and long discussions regarding updating the protocol and having some statements that are not specific, which give the space and flexibility for the medical team to make a delivery, a decision based on their experience and consultations. All participants appreciated the importance of having a proper referral system between primary and secondary care. Most of the time, hospitals receive women with no information about their antenatal care and conditions. All also agreed on the private sector's influence in encouraging C-section deliveries and that there should be clear regulations with the private sector.

Discussion

Our study was able to open the door to discussion, although the same national obstetric guidelines and protocols are to be used at all public hospitals alike. There is a variation in cesarean section rates among different hospitals. It was essential to understand why there was a variation and if appropriate. We were able to find that hospitals followed the guidelines and protocols to the best of their abilities, but a variance in training and coaching of staff, the leadership style of the department, and ambiguity of

specific indications of C-section in the protocol allowed for differences in C-section rates among the hospitals.

All hospital labor departments included in the study suffered from a shortage of staff and excessive workloads. Head specialists and head midwives received training from the Ministry of Health on the national obstetric guidelines and protocols and were required to train their staff. The training of trainers can be a valuable model to train staff Yolsal, Bulut (15) if trainers are given the proper time and resources to train their needed staff (16). Unfortunately, head staff were not given the time because of patient load; no efficient time was available for training. Also, staff hired after the implementation of guidelines were not given guideline orientation. Assumptions were made to be aware of the new policies and act accordingly. Continuous education will allow for more successful implementation of the guidelines and protocol (17). To combat the lack of time for trainers, the implementation of continuous online education has become an effective and acceptable form of training (18). Allowing the staff to view the training on their own time, with interactive videos, and allowing for group discussions makes online training almost equivalent to in-house training (19).

One of the main differences between the high and low C-section rate hospitals was the leadership style. Low-rate hospitals empowered their midwives and junior medical staff involved them in their decision-making and made most C-section decisions as a team and not individually. Midwife-led models, midwife continuity of care, and mandatory second opinions are known interventions to show a significant association with reducing C-section rates in high-class countries and could be tested in low-and middle - income countries (1). For example, a hospital in Sweden saw a decline in C-section deliveries in adapting a 9-item list of changes in delivery practices. One of the changes was ensuring that the OB/GYN, midwife, and nurse worked together to discuss each woman and any complications they might face(20). In essence, low-rate hospitals applied these interventions to help them with unnecessary C-section operations. Another observation in low C-section rate hospitals was that they had more female OB/GYNs than males. A systematic review and meta-analysis of delivering physicians and C-section rates found that women were 25% less likely to perform a C-section, especially without medical indication, compared to men(21).

Not one female obstetrician and gynecologist (OB/GYN) was included in the protocol revision. The women included were nurses and associate professors, with all the male contributors being OB/GYNs. The last edit was in 2015; we hope that contributions from more OB/GYNs will help them take ownership of the protocol for future modifications.

Lastly, the national labor and obstetric protocol or guidelines have left some indications of C-sections to be ambiguous and left up to the OB/GYN. We find that it would be necessary for these indications to be revised to be more transparent in the protocol. Guidelines and protocols developed by the implementation group are more likely to be implemented correctly (22). In an observational study, looking at the compliance of general practitioners to guideline use, the study showed that when the recommendations were ambiguous and non-specific, they were followed 36% of the time compared to 67% when

recommendations were explicit (23). Guidelines or protocols that include information on how to use them contain specific and easy words (24), and give concrete details on certain situations and how they can be used to address the situation are more likely to be implemented (25). The protocol or guideline should also be exact and include complex information of all possibilities (26).

A reasonable C-section rate is essential but should not be at the expense of women or babies. All evidence should be collected to ensure the best quality of care is provided. The secondary data from charts and hospital documentation was fragmented. OB/GYN notes were not complete and designed to be used only by the medical staff, not for decision-making or analysis. Applying for the Multidisciplinary Quality Assurance Programme and collecting quality information will help ensure quality care is given (27). A slight modification in the system could help the team group all deliveries according to the Robson Classification and help understand the management process of the whole child birthing process, including C-section decision making. The classification will categorize women attending the labor ward into one out of ten categories based on their gestational weeks, fetus position, and the number of fetuses. The Robson Classification system will allow for more information on the patients and their fetal outcomes to analyze the use of C-sections(28). This categorization will help decide whether the C-sections are not being overused, and the rates are not considered high but necessary. The Robson classification implementation in hospitals will allow medical teams to evaluate delivery management processes and provide a standardized method for reporting and comparison between hospitals, regions, and countries(29).

Conclusions

This study is an exploration phase of implementing the obstetric protocol and assessing the barriers in decision-making regarding C-section births. At this stage, we could identify leadership, competencies, and organizational drivers to help correctly scale up the obstetric protocol implementation. Updating the protocol based on recent evidence and continuous feedback from the medical staff will help with ownership of the protocol. It will be essential to find creative ways to train and coach on the current protocols with the limited resources and work overload currently faced. Providing a supportive environment is crucial in proper implementation and addressing the lack of sufficient infrastructure and health staff. Future research to be explored would be the regulation of the non-public sector and its exact influence on the C-section rates of public hospitals. Also, increasing awareness about normal birth/delivery during the antenatal care period would be critical in helping reduce the C-section rate overall.

Limitations

The analysis was limited to C-section cases in one month and did not include vaginal delivery, which may mask each hospital's workload. Another challenge faced by this study was working with the medical team in the labor ward to find the best time to talk freely. The medical team is constantly under pressure

and has a very high load. This challenge was faced by the study researchers and will be met in any future training or capacity-building activity planned with the medical team.

Abbreviations

C-Section Caesarean Section

OB/GYN *Obstetrician-gynecologists*

Declarations

Ethics approval and consent to participate

Ethical approval was approved by the Birzeit University, Institute of Community and Public Health ethical review committee containing reference number **2018 (12-2)**. Ethical approval was also obtained from the Ministry of Health in the West Bank and the Ministry of Health's Helsinki Committee in the Gaza strip. Informed consent to participate was obtained from all participants.

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare they have no competing interests

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Author's contributions

AS, YW, NMER were involved in the conception, data collection, interpretation of data, and manuscript draft. HA, AJKS, TA, HA, IS, NJ, AH were involved in the conception, data collection, interpretation of data, and manuscript editing. All authors read and approved the final draft of the manuscript.

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