Al-Rafidain J Med Sci. 2026;10(1):10-15.
DOI: https://doi.org/10.54133/ajms.v10i1.2481

AJMS

Online ISSN (3219-2789)

Research Article

How Much Do Mothers Know? Evaluating Awareness of Medical Justifications for First Cesarean Deliveries: A Cross-sectional Study

Razzaq Kareem Abdullah[1], Muntaha Mohammed Majeed[2], Weqar Akram Hussein[3], Zahraa Muhmmed Jameel Al-Sattam[3]*
[1]Neonatal Intensive Care Unit, Al-Elwiya Maternity Teaching Hospital, Baghdad, Iraq; [2]Neonatal Intensive Care Unit, Fatima Alzahraa Hospital, Baghdad, Iraq; [3]Department of Obstetrics and Gynecology, Al-Kindy College of Medicine, University of Baghdad, Baghdad, Iraq

Received: 10 September 2025; Revised: 30 November 2025; Accepted: 3 December 2025

Abstract

Background: The rising rate of cesarean deliveries has generated concern about whether all procedures are medically justified. Limited data exist on how well first-time mothers understand the indications for their cesarean section in Iraq. ***Objective***: To assess maternal knowledge of the medical reasons for first cesarean delivery and its relationship with sociodemographic, obstetric, and neonatal characteristics. ***Methods***: A cross-sectional study was conducted from October to December 2023 among 158 Iraqi women who underwent their first cesarean delivery. Data were collected using a structured, self-administered online questionnaire that assessed demographic, obstetric, and knowledge-related factors. ***Results***: Less than half of the mothers (48.1%) demonstrated good knowledge of the reason for their cesarean section, whereas 23.4% showed poor awareness. Knowledge level was significantly associated with residency (p=0.024), history of vaginal birth (p=0.001), place of delivery (p=0.001), type of cesarean section (p=0.001), and hypertension during pregnancy (p=0.025). Mothers from rural areas, those delivering in public hospitals, and those undergoing emergency procedures had the highest proportions of poor knowledge. Poor awareness was also linked with adverse neonatal outcomes, including low birth weight (p=0.036), preterm birth (p=0.003), and neonatal distress (p=0.001). ***Conclusions***: A considerable proportion of first-time Iraqi mothers lack adequate understanding of the medical indications for their cesarean delivery. Educational interventions and improved patient–provider communication, especially in rural areas and public hospitals, are essential to promote informed decision-making and better maternal–neonatal outcomes.

Keywords: Cesarean section; First-time delivery; Iraq; Maternal knowledge; Neonatal outcomes; Obstetric indications.

كم تعرف الأمهات؟ تقييم الوعي بالمبررات الطبية للولادات القيصرية الأولى: دراسة مقطعية

الخلاصة

الخلفية: أدى ارتفاع معدل الولادة القيصرية إلى إثارة القلق حول ما إذا كانت جميع الإجراءات مبررة طبيا. توجد بيانات محدودة حول مدى فهم الأمهات لأول مرة لمؤشرات الولادة القيصرية في العراق. **الهدف**: تقييم معرفة الأم بالأسباب الطبية للولادة القيصرية الأولى وعلاقتها بالخصائص الاجتماعية الديموغرافية والتوليد وحديثي الولادة. **الطرائق**: أجريت دراسة مقطعية من أكتوبر إلى ديسمبر 2023 بين 158 امرأة عراقية خضعن لأول عملية قيصرية لهن. تم جمع البيانات باستخدام استبيان منظم وذاتي الإدارة عبر الإنترنت يقيم العوامل الديموغرافية والتوليد والمعرفة المعرفية. **النتائج**: أقل من نصف الأمهات (48.1٪) أظهرن معرفة جيدة بسبب الولادة القيصرية، في حين أظهرت 23.4٪ ضعف الوعي. كان مستوى المعرفة مرتبطا بشكل كبير بالإقامة (p=0.024)، ومكان الولادة (p=0.001)، وتاريخ الولادة المهبلية (p=0.001)، ونوع العملية القيصرية (p=0.001)، وارتفاع ضغط الدم أثناء الحمل (p=0.025). الأمهات من المناطق الريفية، واللواتي يلدن في المستشفيات العامة، واللواتي يخضعن لإجراءات الطوارئ، كان لديهم أعلى نسب من ضعف المعرفة. كما ارتبط ضعف الوعي بنتائج سلبية لحديثي الولادة، بما في ذلك انخفاض وزن الولادة (p=0.036)، والولادة المبكرة (p=0.003)، وضيق حديثي الولادة (p=0.001). **الاستنتاجات**: نسبة كبيرة من الأمهات العراقيات لأول مرة تفتقر إلى فهم كاف للمؤشرات الطبية للولادة القيصرية. تعد التدخلات التعليمية وتحسين التواصل بين المريض ومقدم الرعاية، خاصة في المناطق الريفية والمستشفيات العامة، ضرورية لتعزيز اتخاذ القرار المستنير وتحسين النتائج بين الأمهات وحديثي الولادة.

* ***Corresponding author***: Zahraa M. J. Al-Sattam. Department of Obstetrics and Gynecology, Al-Kindy College of Medicine, University of Baghdad, Baghdad, Iraq; Email: zahraamjameel@kmc.uobaghdad.edu.iq

Article citation: Abdullah RK, Majeed MM, Hussein WA, Al-Sattam ZMJ. How Much Do Mothers Know? Evaluating Awareness of Medical Justifications for First Cesarean Deliveries: A Cross-sectional Study. *Al-Rafidain J Med Sci.* 2026;10(1):10-15. doi: https://doi.org/10.54133/ajms.v10i1.2481

INTRODUCTION

Cesarean section (CS) is one of the most frequently performed surgical procedures worldwide and a critical intervention for reducing maternal and perinatal morbidity and mortality when medically indicated [1]. However, the global rise in cesarean rates over the past few decades has raised concerns about its appropriate use and the degree to which women understand the reasons for undergoing this procedure [2,3]. The World Health Organization (WHO) recommends that cesarean delivery rates should not exceed 10–15% at the population level, as rates higher than this have not been associated with improved maternal or neonatal outcomes [4]. Despite this, cesarean rates have continued to increase globally, particularly in middle- and low-income countries [5,6]. In Iraq, cesarean delivery rates have risen sharply over the past decade, reaching levels comparable to or

exceeding those in some high-income nations [7]. This upward trend may be attributed to multiple factors, including increased availability of surgical facilities, changing obstetric practices, maternal preference, and fear of labor pain [8,9]. However, limited research has explored women's understanding of the medical indications for cesarean section, especially among first-time mothers. Adequate maternal knowledge is essential for informed consent, patient satisfaction, and trust in healthcare providers [10]. Previous studies in other countries have shown that many women are unaware of the specific medical reasons for their cesarean delivery, particularly when the procedure is performed under emergency conditions [11,12]. Inadequate communication between patients and healthcare professionals, combined with anxiety and time pressure during labor, may contribute to poor understanding [13]. Furthermore, sociodemographic characteristics such as educational level, residency, and prior childbirth experience have been found to influence maternal awareness and perceptions of delivery mode [14-21]. Understanding how much women know about the reasons behind their cesarean section can help identifying gaps in obstetric counseling and guide interventions to improve communication and education. Assessing maternal knowledge is also crucial for promoting patient autonomy and aligning care with ethical and professional standards. Therefore, this study aimed to assess maternal awareness of the medical indications for their first cesarean delivery and to examine the association between knowledge level and sociodemographic, obstetric, and neonatal characteristics among mothers in Iraq.

METHODS

Study design and setting

This cross-sectional study was conducted over a three-month period, from October 1 to December 1, 2023. The primary aim was to evaluate first-time mothers' awareness of the medical reasons behind their cesarean deliveries.

Participants and sampling

A total of 158 women who had undergone their first cesarean section were recruited for the study. Participants were selected through convenience sampling using an online Google Form distributed across various governorates in Iraq. Eligibility criteria included being a first-time mother who delivered via C-section and willingness to voluntarily complete the questionnaire.

Data collection tool

Data were collected using a self-administered, structured questionnaire comprising 40 items. The tool was developed specifically for this study and designed to explore both demographic and obstetric characteristics, as well as participants' understanding of cesarean section indications. The questionnaire consisted of two main sections: Section I: Demographic and Reproductive History. This part collected information on age at time of delivery, employment status, urban or rural residence, place of birth (private vs. public hospital), type of cesarean (elective or emergency), history of infertility, previous vaginal birth, miscarriage history, medical conditions, and social habits such as smoking or alcohol use. Section II: Awareness of Cesarean Section Indications; this section assesses mothers' understanding of the reason for their C-section, gestational age at delivery, and self-rated knowledge level regarding the indication for surgery. A panel of two pediatricians and two obstetrics and gynecology specialists examined the questionnaire for content validity. A pilot study involving 15 participants was performed to ensure clarity and reliability, and the internal consistency of the instrument was confirmed (Cronbach's alpha = 0.81).

Ethical considerations

The study was conducted by the ethical standards of the institutional research committee and the principles of the Declaration of Helsinki. Ethical approval was obtained from the Scientific and Ethical Committee of Al-Kindy College of Medicine, University of Baghdad. Participation was entirely voluntary, and informed verbal or electronic consent was obtained from all participants before inclusion in the study. Data confidentiality and participant anonymity were maintained throughout the research process.

Data analysis

All responses were coded and analyzed using IBM SPSS Statistics version 26. Descriptive statistics, including means and standard deviations for continuous variables and frequencies with percentages for categorical variables, were calculated. The chi-square test was used to explore associations between maternal knowledge levels and sociodemographic factors. A p-value < 0.05 was considered statistically significant.

RESULTS

A total of 158 women who underwent their first cesarean section taken part in this study. This study found a significant association between maternal knowledge level and residency, history of vaginal birth, place of delivery, type of cesarean section, and hypertension. The highest percentage of poor knowledge was among mothers who lived in rural areas (40.6%, $p= 0.024$), mothers who had no history of vaginal birth (35.6%, $p= 0.001$), mothers who delivered at public hospitals

(42.6%, p= 0.001), mothers who underwent urgent cesarean section (31.3%, p= 0.001), and mothers who had hypertension during pregnancy (40.9%, p= 0.025). Other variables revealed no significant association with knowledge level (Table 1).

Table 1: Maternal knowledge level classified according to sociodemographic and clinical characteristics

Variable	Knowledge level			Total	*p*-value
	Poor	Fair	Good		
Age groups (year)					
≤ 20	7(26.9)	7(26.9)	12(46.2)	26(16.5)	
21 – 30	22(20)	31(28.2)	57(51.8)	110(69.6)	0.416
≥ 31	8(36.4)	7(31.8)	7(31.8)	22(13.9)	
Employment status					
Employed	10(22.2)	14(31.1)	21(46.7)	45(28.5)	0.896
Housewife	27(23.9)	31(27.4)	55(48.7)	113(71.5)	
Residency					
Rural	13(40.6)	9(28.1)	10(31.3)	32(20.3)	0.024
Urban	24(19)	36(28.6)	66(52.4)	126(79.7)	
History of vaginal birth					
Yes	5(7.4)	17(25)	46(67.6)	68(43)	0.001
No	32(35.6)	28(31.1)	30(33.3)	90(57)	
History of miscarriage					
Positive	12(30.8)	8(20.5)	19(48.7)	39(24.7)	0.308
Negative	25(21)	37(31.1)	57(47.9)	119(75.3)	
History of infertility					
Yes	7(16.7)	11(26.2)	24(57.1)	42(26.6)	0.334
No	30(25.9)	34(29.3)	52(44.8)	116(73.4)	
Place of delivery					
Private hospital	8(8.9)	26(28.9)	56(62.2)	90(57)	0.001
Public hospital	29(42.6)	19 (27.9)	20(29.4)	68(43)	
Type of cesarean section					
Elective	8(12.7)	10(15.9)	45(71.4)	63(39.9)	
Emergency	26(31.3)	30(36.1)	27(32.5)	83(52.5)	0.001
Unknown	3 (25)	5(41.7)	4(33.3)	12 (7.6)	
Hypertension					
Yes	9(40.9)	8(36.4)	5(22.7)	22(13.9)	
No	28(20.6)	37(27.2)	71(52.2)	136(86.1)	0.025
Diabetes					
Yes	4(30.8)	5(38.5)	4(30.8)	13(8.2)	0.425
No	33(22.8)	40(27.6)	72(49.7)	145(91.8)	

Values are presented as frequency and percentage.

Table 2 presents the association between maternal knowledge level and neonatal outcomes. Poor knowledge was more common among mothers who delivered infants with low birth weight (44.4%, p= 0.036), mothers whose infants were preterm (52%, p= 0.003), and those whose infants suffered from neonatal distress requiring NICU admission (61.1%, p= 0.001).

Table 2: Maternal knowledge level classified according to neonatal

Variable	Knowledge level			Total	*p*-value
	Poor	Fair	Good		
Birth weight (kg)					
< 2.5	12(44.4)	7(25.9)	8(29.6)	27(17.1)	
2.5–3.9	21(17.9)	33(28.2)	63(53.8)	117(74.1)	0.036
≥ 4	4(28.6)	5(35.7)	5(35.7)	14(8.9)	
Gestational age (week)					
< 37	13(52)	7(28)	5(20)	25(15.8)	
37–41	18 (16.8)	32(29.9)	57 (53.3)	107(67.7)	0.003
≥ 42	6(23.1)	6(23.1)	14 (53.8)	26(16.5)	
Neonatal condition at birth					
Normal	17(16.8)	27(26.7)	57(56.4)	101(63.9)	
Mild distress	9(23.1)	14(35.9)	16(41)	39(24.7)	0.001
Severe distress	11(61.1)	4(22.2)	3(16.7)	18(11.4)	

Values are presented as frequency and percentage.

Figure 1 demonstrates the distribution of medical indications (causes) for cesarean section among the study group. The most common indications were fetal distress (26.6%), cephalopelvic disproportion (18.4%), and failure to progress in labor (15.2%), followed by malpresentation (12.7%) and placenta previa (8.2%). Less frequent causes include hypertensive disorders (7.0%), multiple pregnancy (5.7%), and previous uterine surgery (6.4%).

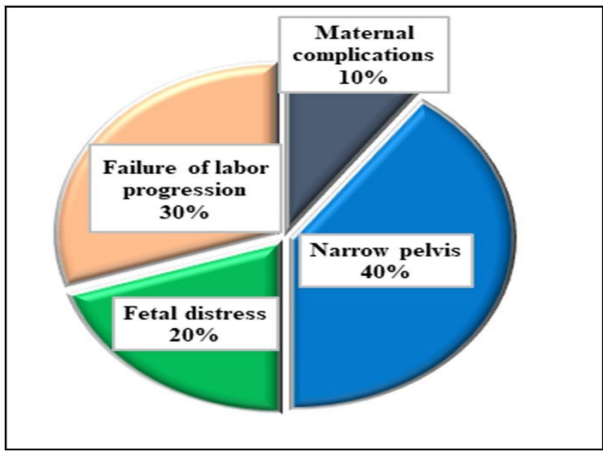

Figure 1: Causes of cesarean sections among the study group.

DISCUSSION

This study evaluated maternal awareness of the medical indications for the first cesarean section and examined its association with sociodemographic, obstetric, and neonatal factors among Iraqi women. The findings reveal a substantial gap in mothers' understanding of the medical reasons behind their cesarean delivery, highlighting the need for stronger patient education and improved communication between healthcare providers and expectant mothers. A significant association was observed between residency and maternal knowledge level, where women from rural areas exhibited poorer awareness compared to urban residents. Similar findings have been reported in studies from Nepal and Nigeria, where rural residence was linked to lower maternal health literacy and limited access to antenatal counseling services [22,23]. These results underscore the importance of targeted educational programs to bridge the rural–urban divide in maternal awareness and access to obstetric information. The association between previous vaginal birth and higher levels of knowledge suggests that prior childbirth experience improves maternal understanding of delivery methods and related risks. Studies from Ghana and Turkey reported comparable findings, showing that multiparous women demonstrated better awareness of obstetric indications due to their previous exposure to counseling and clinical experiences [24,25]. Such exposure likely enhances women's capacity to engage in informed decision-making during subsequent pregnancies. The place of delivery also significantly influenced knowledge level. Mothers delivering in public hospitals showed poorer understanding of their cesarean indications than those who delivered in private hospitals. This pattern aligns with studies conducted in Brazil and Pakistan, where communication barriers, limited physician availability, and high patient volumes in public facilities negatively impacted the quality of patient education [26,27]. Private hospitals, by contrast, often allow more individualized attention and extended counseling time. Another critical finding was the significant association between type of cesarean section and maternal knowledge. Women who underwent emergency cesarean sections were less likely to understand the indication compared with those who had elective procedures. Time constraints and anxiety during emergencies often limit the opportunity for proper explanation or informed consent. This aligns with previous research from Canada and Egypt showing that emergency cesarean sections were associated with reduced patient satisfaction and understanding of the surgical indication [28–30]. Early antenatal discussions about potential indications and emergency scenarios could help mitigate these communication gaps. Additionally, mothers who experienced hypertension during pregnancy had lower awareness regarding the reason for their cesarean. Hypertensive disorders often necessitate urgent decisions, leaving minimal time for detailed counseling. This observation is consistent with evidence showing that women with hypertensive pregnancies often experience reduced comprehension of care plans and less involvement in decision-making [31]. Importantly, poor maternal knowledge was significantly associated with adverse neonatal outcomes, including low birth weight, prematurity, and neonatal distress requiring NICU admission. This may reflect overlapping risk factors such as inadequate antenatal care, delayed healthcare-seeking behavior, and limited understanding of pregnancy complications. Comparable findings were reported in studies from Bangladesh and Ethiopia, where low maternal awareness was associated with increased neonatal morbidity and mortality [32,33]. Overall, these findings show that a combination of sociodemographic, clinical, and systemic factors influences maternal knowledge. By strengthening communication during prenatal appointments, clearly explaining when a cesarean section might be necessary, and focusing on patient-centered counseling, women can be better equipped to make informed choices. Implementing structured health education sessions—particularly in public hospitals and rural areas—could improve both maternal understanding and neonatal outcomes.

Study limitations

This cross-sectional study relied on self-reported data, which may introduce recall and social desirability biases. The online survey format may have limited participation from women without internet access, especially those from rural or low-literacy backgrounds. Future studies using mixed methods, including interviews with healthcare providers, could further explore the barriers to effective communication regarding cesarean indications.

Conclusion

The study demonstrates that a significant proportion of Iraqi first-time mothers have insufficient knowledge

about the medical reasons for their cesarean section. Poor understanding was more frequent among rural residents, those delivering in public hospitals, and women undergoing emergency procedures. Furthermore, lower maternal knowledge was associated with adverse neonatal outcomes. These findings emphasize the need for improved antenatal counseling, better documentation of cesarean indications, and continuous education programs to strengthen informed decision-making in maternity care.

Conflict of interests

The authors declared no conflict of interest.

Funding source

The authors did not receive any source of funds.

Data sharing statement

Supplementary data can be shared with the corresponding author upon reasonable request.

REFERENCES

1. Betrán AP, Ye J, Moller AB, Zhang J, Gülmezoglu AM, Torloni MR. The increasing trend in cesarean section rates: global, regional and national estimates: 1990–2014. *PLoS One.* 2016;11(2):e0148343. doi: 10.1371/journal.pone.0148343.
2. Boerma T, Ronsmans C, Melesse DY, Barros AJD, Barros FC, Juan L, et al. Global epidemiology of use of and disparities in caesarean sections. *Lancet.* 2018;392(10155):1341–1348. doi: 10.1016/S0140-6736(18)31928-7.
3. Keag OE, Norman JE, Stock SJ. Long-term risks and benefits associated with cesarean delivery for mother, baby, and subsequent pregnancies: systematic review and meta-analysis. *PLoS Med.* 2018;15(1):e1002494. doi: 10.1371/journal.pmed.1002494.
4. World Health Organization. WHO statement on caesarean section rates. Geneva: WHO; 2015.
5. Molina G, Weiser TG, Lipsitz SR, Esquivel MM, Uribe-Leitz T, Azad T, et al. Relationship between cesarean delivery rate and maternal and neonatal mortality. *JAMA.* 2015;314(21):2263–2270. doi: 10.1001/jama.2015.15553.
6. Betrán AP, Torloni MR, Zhang JJ, Gülmezoglu AM. WHO Working Group on Caesarean Section. WHO statement on caesarean section rates. *BJOG.* 2016;123(5):667–670. doi: 10.1111/14710528.13526.
7. Al-Kazaz F, Al-Hakeim H, Al-Rawi Z. Trends and determinants of cesarean section deliveries in Iraq: a hospital-based study. *Iraqi J Med Sci.* 2020;18(2):125–134.
8. Lumbiganon P, Laopaiboon M, Gülmezoglu AM, Souza JP, Taneepanichskul S, Ruyan P, et al. Method of delivery and pregnancy outcomes in Asia: the WHO global survey on maternal and perinatal health 2007–08. *Lancet.* 2010;375(9713):490–499. doi: 10.1016/S0140-6736(09)61870-5.
9. Redshaw M, Martin CR, Savage-McGlynn E, Harrison S. Women's experiences of maternity care in England: preliminary development of a standard measure. *BMC Pregnancy Childbirth*. 2019;19(1):167. doi: 10.1186/s12884-019-2284-9.
10. Potter JE, Berquó E, Perpétuo IHO, Leal OF, Hopkins K, Souza MR, et al. Unwanted caesarean sections among public and private patients in Brazil: prospective study. *BMJ.* 2001;323(7322):1155–1158. doi: 10.1136/bmj.323.7322.1155.
11. Stjernholm YV, Petersson K, Eneroth E. Changed indications for cesarean sections. *Acta Obstet Gynecol Scand.* 2010;89(1):49–53. doi: 10.3109/00016340903418777.
12. Panda S, Begley C, Daly D. Clinicians' views of factors influencing decision-making for caesarean section: a systematic review and metasynthesis of qualitative, quantitative, and mixed methods studies. *PLoS One.* 2018;13(7):e0200941. doi: 10.1371/journal.pone.0200941.
13. Maharlouei N, Moalaee M, Ajdari S, Zarei M, Lankarani KB. Caesarean delivery in south-western Iran: trends and determinants in a community-based survey. *Med Princ Pract.* 2013;22(2):184–188. doi: 10.1159/000341764.
14. Hellerstein S, Feldman S, Duan T. China's 50% caesarean delivery rate: is it too high? *BJOG.* 2015;122(2):160–164. doi: 10.1111/1471-0528.12971.
15. Long Q, Kingdon C, Yang F, Renecle MD, Jahanfar S, Bohren MA, et al. Prevalence of and reasons for women's, family members', and health professionals' preferences for cesarean section in China: A mixed-methods systematic review. *PLoS Med.* 2018;15(10):e1002672. doi: 10.1371/journal.pmed.1002672.
16. Bayrampour H, Heaman M. Advanced maternal age and the risk of cesarean birth: a systematic review. *Birth.* 2010;37(3):219-226. doi: 10.1111/j.1523-536X.2010.00409.x.
17. Zhang J, Troendle J, Reddy UM, Laughon SK, Branch DW, Burkman R, et al. Contemporary cesarean delivery practice in the United States. *Am J Obstet Gynecol.* 2010;203(4):326.e1-10. doi: 10.1016/j.ajog.2010.07.010.
18. Lin HC, Sheen TC, Tang CH, Kao S. Association between maternal age and the likelihood of a cesarean section: a population-based multivariate logistic regression analysis. *Acta Obstet Gynecol Scand.* 2004;83(12):1178-1183. doi: 10.1111/j.0001-6349.2004.00506.x.
19. Kozhimannil KB, Hardeman RR, Henning-Smith C, Attanasio LB, Blauer-Peterson C, O'Brien M. Employment during pregnancy and obstetric intervention. *Womens Health Issues.* 2014;24(5):469476. doi: 10.1016/j.whi.2014.05.005.
20. Béhague DP, Victora CG, Barros FC. Consumer demand for caesarean sections in Brazil: informed decision making, patient choice, or social inequality? *BMJ.* 2002;324:942-945. doi: 10.1136/bmj.324.7343.942.
21. Cavallaro FL, Cresswell JA, França GV, Victora CG, Barros AJ, Ronsmans C. Trends in caesarean delivery by country and wealth quintile: cross-sectional surveys in southern Asia and sub-Saharan Africa. *Bull World Health Organ.* 2013;91(12):914-922D. doi: 10.2471/BLT.13.117598.
22. Khanal V, Adhikari M, Karkee R, Gavidia T. Rural–urban differences in institutional delivery in Nepal: evidence from a multilevel analysis. *Reprod Health.* 2016;13:17. doi: 10.1186/s12978-0160139-2.
23. Iliyasu Z, Abubakar IS, Galadanci HS, Aliyu MH. Birth preparedness, complication readiness and fathers' participation in maternity care in a northern Nigerian community. *Afr J Reprod Health.* 2010;14(1):21–32. PMID: 20695136.
24. Osei E, Anash JC, Osei A, Appiah EO. Awareness and perception of caesarean section among antenatal attendants in Ghana. *Int J Reprod Contracept Obstet Gynecol.* 2016;5(10):3434–3439. doi: 10.18203/2320-1770.ijrcog20163460.
25. Balcı O, Mahmutoğlu S, Karataylı R, Yılmaz E. Knowledge and attitudes of Turkish women toward cesarean section. *J Obstet Gynaecol Res.* 2017;43(7):1152–1158. doi: 10.1111/jog.13324.
26. Vieira GO, Fernandes LG, de Oliveira NF, Silva LR, Vieira TO. Factors associated with cesarean delivery in public and private hospitals in northeastern Brazil: a cross-sectional study. *BMC Pregnancy Childbirth.* 2015;15:132. doi: 10.1186/s12884-015-0602-8.
27. Najmi RS, Rehan N. Prevalence and determinants of cesarean section in a teaching hospital in Pakistan. *J Obstet Gynaecol.* 2000;20(5):479–483. doi: 10.1080/01443610043495.
28. Chaillet N, Dubé E, Dugas M, Francoeur D, Dubois J, Gagnon S, et al. Barriers and facilitators to implementing guidelines to

reduce cesarean rates in Quebec. *Bull World Health Organ.* 2007;85(10):791–797. doi: 10.2471/BLT.06.039289.

29. Chalmers B, Kaczorowski J, Darling E, Heaman M, Fell D, O'Brien B, et al. Caesarean and vaginal birth in Canadian women: a comparison of experiences. *Birth.* 2012;39(2):109–118. doi: 10.1111/j.1523-536X.2012.00535.x.
30. Abdel-Aleem H, Amin AF, Shokry M, Radwan RA. Therapeutic amnioinfusion for intrapartum fetal distress using a pediatric feeding tube. *Int J Gynaecol Obstet.* 2005;90(2):94–98. doi: 10.1016/j.ijgo.2005.04.023.
31. Bayrampour H, Heaman M. Advanced maternal age and the risk of cesarean birth: a systematic review. *Birth.* 2010;37(3):219–226. doi: 10.1111/j.1523-536X.2010.00409.x.
32. Aminu M, Utz B, Halim A, van den Broek N. Reasons for performing caesarean section in public hospitals in rural Bangladesh. *BMC Pregnancy Childbirth.* 2014;14:130. doi: 10.1186/1471-239314-130.
33. Bedford J, Gandhi M, Admassu M, Girma A. "A normal delivery takes place at home": a qualitative study of the location of childbirth in rural Ethiopia. *Matern Child Health J.* 2013;17(2):230–239. doi: 10.1007/s10995-012-0965-3.