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REVIEW

Understanding Cesarean Section Utilization Patterns and Outcomes in Level III Obstetric Facilities: A Robson Classification-Based Narrative Review in Kazakhstan

Patrones de Utilización de la Cesárea y Resultados en Centros Obstétricos de Nivel III: Una revisión narrativa basada en la clasificación de Robson en Kazajstán

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ABSTRACT

Introduction: this review aims to explore the application of Robson's classification of CS at level III obstetric institutions in Kazakhstan.
Method: a comprehensive search of multiple online databases, including the Web of Science, Scopus, Google Scholar, PubMed, and the Cochrane Library, was conducted. A qualitative study of previously published studies was also conducted.
Results: a systematic search identified 37 relevant articles for review. Analysis of caesarean section rates using Robson's classification showed group 5 (women with a history of caesarean section) had the highest rates. At the same time, groups 6 and 7 (breech presentation) also had elevated rates due to complications. The highest contributors were groups 5, 2, 10 and 1 in a level III obstetric facility.
Conclusion: the application of Robson's classification system in Kazakhstan's obstetric population revealed varying cesarean section rates, particularly among women with previous cesarean sections and breech presentations.

Keywords: Robson's Classification; Obstetric Classification; Obstetric Outcomes; Maternal Health.

RESUMEN

Introducción: esta revisión tiene como objetivo explorar la aplicación de la clasificación de Robson de CS en instituciones obstétricas de nivel III en Kazajstán.
Método: se realizó una búsqueda exhaustiva en múltiples bases de datos en línea, incluyendo Web of Science, Scopus, Google Scholar, PubMed y la Biblioteca Cochrane. También se realizó un estudio cualitativo de estudios publicados previamente.
Resultados: una búsqueda sistemática identificó 37 artículos relevantes para su revisión. El análisis de las tasas de cesárea mediante la clasificación de Robson mostró que el grupo 5 (mujeres con antecedentes de cesárea) presentaba las tasas más elevadas. Al mismo tiempo, los grupos 6 y 7 (presentación podálica) también presentaron tasas elevadas debido a complicaciones. En un centro obstétrico de nivel III, los grupos 5, 2, 10 y 1 fueron los que presentaron las tasas más elevadas.
Conclusiones: la aplicación del sistema de clasificación de Robson en la población obstétrica de Kazajstán reveló tasas variables de cesáreas, especialmente entre las mujeres con cesáreas previas y presentaciones de nalgas.

Palabras clave: Clasificación De Robson; Clasificación Obstétrica; Resultados Obstétricos; Salud Materna.

INTRODUCTION

Cesarean section

Cesarean sections (CS) are one of the most common procedures performed on a global scale. These are very important in obstetrics. They are regularly included in the list of procedures aimed at helping mother and child overcome various complications of childbirth. However, the significant worldwide increase in C-sections has caused doubts concerning their appropriateness and effect on maternal and neonatal health outcomes.[1,2]

A previous survey assessed the CS rate globally from 1990 to 2018 and predicted trends for the future until 2030. The survey revealed that the percentage of women in the world who had CS was 21,1 % in the period from 2010 to 2018 when the rates differed by region. Among all the world regions, the rate of CS at national levels has generally grown since 1990, with Eastern Asia, Western Asia, and Northern Africa having the highest increase. The predictions point to a further increase in the rates, with at least 28,5 % of women being born by C-section by 2030. Even though it exists, the comparison between the demographics shows huge gaps, with the CS participation rates projected to vary from 7,1 % in sub-Saharan Africa to 63,4 % in Eastern Asia.[3] In Kazakhstan, a country with a diverse healthcare system, obstetric facilities are the key part of a healthcare system that provides delivery of care services. Among these facilities, the III-level obstetric facilities hold the greatest importance because they deliver comprehensive maternal and neonatal care, including life-saving C-sections and obstetric interventions. Understanding the patterns and outcomes of C-sections within these facilities is essential for ensuring the quality and effectiveness of obstetric care in Kazakhstan. In light of recent findings, the prevalence of CS in Kazakhstan in 2022 was recorded at 21,3 %, a crucial statistic in the field.[4,5,6] Robson's classification system has emerged as a valuable tool for understanding and categorizing C-section rates within different obstetric populations. Developed by Michael Robson in 2001, this classification system categorizes women into 10 mutually exclusive groups based on obstetric characteristics such as parity, gestational age, fetal presentation, and previous uterine scar status. By categorizing pregnancies into distinct groups, Robson's classification allows for the standardized analysis of C-section rates and facilitates meaningful comparisons between different obstetric populations.[7,8,9] Studying C-section rates and outcomes by means of Robson's criteria is of crucial importance for a number of reasons. First of all, it gives us valuable statistics about C-sections in the whole obstetric population of the Kazakh region and thus shows the influence of decision-making on childbirth. Secondly, it enables the recognition of some women who are more vulnerable to an elective cesarean section. Hence, interventions can be designed to solve this problem and improve maternal and neonatal health outcomes. Likewise, Robson's classification will be effective for comparing C-section rates and outcomes against national and international benchmarks, which may be used by obstetric facilities as a starting point for their quality improvement programs.[10,11,12] This paper is intended to be a narrative review that will cover a background of Robson's classification of Cesarean operations in III-level obstetric facilities in Kazakhstan. Through a close overview of the meaning of CS in obstetrics, introducing Robson's classification system, describing the C-section in Kazakhstan healthcare facilities, and identifying the necessity of analyzing C-section rates and outcomes using Robson's classification, we wish to accomplish the goal.

The purpose of this study is to explore the application of Robson's classification of CS at level III obstetric institutions in Kazakhstan.

Research Question

1. What is Robson's classification?
2. What are the cesarean section utilization patterns and outcomes in Level III obstetrical facilities in Kazakhstan by different obstetric populations?

Research Focus

The study focuses on the cesarean section distribution analysis among Robson groups and the investigation of maternal and neonatal outcomes in Level III obstetric facilities in Kazakhstan.

Research Problem

The research plan seeks to identify a set of various factors that shape cesarean section utilization and outcomes, mainly within a range of Level III obstetric facilities of Kazakhstan, and possible ways to override them with the application of the cepstral analysis approach designed especially for this purpose. This implies the examination of factors accountable for disparities in cesarean section rates and classification of high-risk groups, as well as the comprehension of their implications on maternal and neonatal health status.

Robson's Classification System

Explanation of System

Robson's classification system is a priceless tool in obstetrics. It was created to group and analyze CS rates

among different obstetric populations. In 2001, Michael Robson attempted to classify women based on their direct obstetric characteristics so that better comparisons and studies on CS rates across different settings could be made.

The primary objective of Robson's system of classification is to arrange the women into mutually exclusive groups depending on the key obstetric factors that impact the likelihood of a woman going through a CS. This offers a systematic model for CS rates and CS utilization patterns within obstetric populations. Thus, the information can be used for quality improvement and optimizing clinical decisions.[13]

Description of the 10 groups in Robson's Classification

Robson's classification system consists of ten distinct groups, each defined by a combination of specific obstetric characteristics (table 1).

Table 1. Describes the ten groups of Robson's classification

Group	Description
Group 1	• Nulliparous women (no previous births). • Term pregnancy (≥37 weeks). • Singleton pregnancy (one baby). • Cephalic presentation (baby's head down). • Spontaneous labor.
Group 2	• Nulliparous women. • Term, singleton, cephalic pregnancy. • Induced labor or elective cesarean section before labor.
Group 3	• Multiparous women (previous vaginal birth). • Term, singleton, cephalic pregnancy. • Spontaneous labor.
Group 4	• Multiparous women. • Term, singleton, cephalic pregnancy. • Induced labor or elective cesarean section before labor.
Group 5	• Multiparous women with at least one previous C-section. • Term, singleton, cephalic pregnancy.
Group 6	• Nulliparous women. • Breech presentation (baby not head down).
Group 7	• Multiparous women. • Breech presentation.
Group 8	• Women with multiple pregnancies (twins, triplets, etc.).
Group 9	• Women with a singleton pregnancy. • Transverse or oblique lie (baby lying sideways).
Group 10	• All women with preterm pregnancies (<37 weeks). • Singleton pregnancy, cephalic presentation.

Importance of Robson's Classification in Assessing C-section Rates and Outcomes

Robson's classification system holds significant importance in assessing CS rates and outcomes for several reasons:[14,15,16]

Identifying variations in C-section rates

It lets us make a more detailed assessment of C-section rates and also determine the difference from the overall facility rate. For example, the C-section rate of Group 5 (multiparous women with cephalic presentation and prior C-section) is higher than that of Group 4 (multiparous women with cephalic presentation without previous C-section). This shows that prior uterine surgery affects the type of delivery.

Identification of High-Risk Groups

Robson's classification proves useful for identifying groups of women, some of whom have more chance of CS. Example: there might be a difference in CS rate among women with a history of CS (group 5) and breech presentations (groups 6 and 7) compared to others. This helps to implement the specific intervention and the Robson's system will be used to monitor CS and different obstetric populations. Health professionals and policy makers can monitor the change in the rates of CS for the Robson groups and identify the impact of interventions, policy changes, and healthcare practices on the utilization and outcomes of CS services.

Monitoring Trends Over Time

Quality Improvement Initiatives

Recognition of the variation in CSs and their prevalence among the perinatal population is crucial if quality improvement efforts to consequently raise neonatal and maternal well-being are to be successful. Through CS rate analysis using Robson's classification, healthcare institutions can pinpoint improvement areas, apply evidence-based practices, and evaluate whether the interventions are effective on a continuous basis.

Obstetric Care in Kazakhstan

Overview of the Healthcare System in Kazakhstan

Healthcare in Kazakhstan, a Central Asian country that gained independence in 1991, has greatly changed over about 3 decades. Public finances ensure the health system of Kazakhstan, and this system includes both public and private hospitals that serve the population.[17] Health management is carried out at the central level by the Ministry of Health of Kazakhstan, and at the local level, regional health departments ensure healthcare delivery. The healthcare system is structured into primary, secondary, and tertiary health systems, where the objective is to provide holistic healthcare services for all.[18]

In Kazakhstan, primary care is given through a complex of polyclinics and family medicine facilities, which are the first participants met by the patients getting medical care. Such primary care centres offer preventive health measures, basic care, and referrals to second-level and above care when required. The secondary healthcare services are provided by the facilities, which are regional and district hospitals that specialize in providing medical care, as well as diagnostic and treatment services for more advanced health conditions. Secondary healthcare establishments consist of tertiary hospitals, specialized clinics, and surgical centres offering advanced medical procedures.[18]

The Kazakhstan`s medical system has undergone substantial reforms in the last years to increase medical care availability, increase the quality of treatment and improve medical facilities. These reforms covered healthcare financing, healthcare coverage expansion, and hospitals and health facilities modernization.

Description of III-level Obstetric Facilities and Their Role in Maternal Healthcare

Maternal healthcare is mainly rendered at the III-level obstetric clinics, which are essential for the proper functioning of the system. The said institutions, often referred to as the secondary obstetric centres, are outfitted with all the necessities to manage high-risk pregnancies, that is, patients who have complicated medical conditions. Obstetric care centres functioning at the third level are commonly situated in major cities and big regional capitals, providing services as a referral to the residents of the nearby municipalities. These were manned by teams of doctors comprising obs-gynecologists, neonatologists, midwives, general practitioners, and many other healthcare professionals trained to handle high-risk pregnancies and complications.

At the high III-level health facility, the offered services are antenatal care, prenatal screening and diagnosis, management of obstetric complications, labour and delivery services, neonatal intensive care unit and postpartum care. The hospital, equipped with modern obstetric technologies, for example, fetal monitoring devices, ultrasound machines as well as neonatal resuscitation units, intends to keep the mother and the child secure and healthy. Obstetric units that can provide level III care not only enable the delivery of healthcare services but also play a vital part in medical education and research. They serve as places for teaching institutions for medical students, physician residents, and other healthcare trainees. Such health centres positively help to develop medical knowledge, skills and capacity in OB/GYN through research, clinical trials and academic partnerships.

Challenges and Opportunities in Obstetric Care in Kazakhstan

Despite a significant progression in maternal healthcare in Kazakhstan, obstetric care still faces several challenges. One of the biggest challenges is a geographic disparity in obstetric services availability in rural and remote areas where the healthcare infrastructure may be limited, and transportation difficulties impede healthcare access. The other issue is the need for specialised healthcare professionals in some areas of Kazakhstan, such as obstetricians, gynaecologists, and midwives.[19] This scarcity may result in overcrowding and understaffing in obstetric faculties, which is detrimental to the quality and safety of maternal care services. Besides that, there are problems relating to the standard of obstetric care, like the variations in clinical practices, the absence of standard protocols for managing obstetric complications, and poor monitoring and evaluation of maternal health outcomes. Such challenges only highlight the importance of continuous quality assurance activities and capacity enhancement of obstetric care.[20]

Like every challenge, there is a solution to increase the quality of obstetric care in Kazakhstan. The other change comes from the reinforcement of primary health care services and the implementation of community-orientated interventions that aim to promote maternal health, prevent obstetric complications, and support access to complete wellness care in undeveloped areas. Moreover, with telemedicine and digital health

technology, the problem of distance can be solved, and the diversity of access to obstetric expertise and specialised care in remote areas can be enhanced. Investing in healthcare workforce training and education programs fills the gap of skilled professionals and improves the provision of obstetric care throughout the country. In rural counties, midwifery care is also seen as an essential way of increasing access to medical care, especially obstetric care. These women's health caregivers are usually involved in focusing on women's health during pregnancy, childbirth and the period shortly after birth, especially in those communities where access to obstetricians or even a functional health facility may not be readily available. The continuity of access to appropriate services is critical to providing culturally sensitive support to women from pre-pregnancy through postpartum periods through the provision of these centres.

In order to boost the affordability and availability of medical care to the rural population, the training of midwives should be enhanced, and the midwifery role expanded. A well-packaged and comprehensive training package, specifically aimed at enhancing the competence of midwives, will ensure that these healthcare givers are competent enough to handle different obstetric-related situations, whether it is regular deliveries, emergencies, or even identifying complicated cases and referring them to specialists for further attention. Further, headship training strategies may cover more on care partnership and multidisciplinary approaches where midwives, alongside other affiliated personnel like obstetricians, family doctors, and nurses, offer optimal patient care.

The applicability of aspects of midwifery care and enhanced delivery of medical care across rural counties achieves a closer fit with Robson's classification system due to the retention of focus on optimising obstetric care and the desirability of reducing unnecessary caesarean sections. For several reasons, obstetric care providers need to increase the emphasis on midwifery services and education in rural environments and work to ensure they are addressing the diverse needs of women in the obstetric population, avoiding excessive use of cesarean sections, and providing education and encouraging normal birth when appropriate. This is in congruence with Robson's study objective of determining ways of enhancing maternity and newborn care targeting the obstetric population groups that require special attention and proper implementation of best practices.[21]

METHOD

General Background

CS rates and outcomes serve as a key measure of the quality of obstetric care. Robson's system of classifying CS usage allows us to scrutinize the phenomenon more thoroughly. Thus, exploring these trends in Level III maternity centres in Kazakhstan will provide a basis for designing specific interventions aimed at improving outcomes related to maternal and newborn health and the delivery of obstetric care. The application of Robson's classification system enables the identification of specific obstetric groups with disproportionately high cesarean section rates. By categorizing women based on key obstetric characteristics, healthcare providers can pinpoint areas where cesarean deliveries may be overused. This targeted approach allows for the implementation of tailored interventions aimed at reducing unnecessary cesarean sections within these high-risk groups. Ultimately, Robson's classification empowers clinicians to optimize obstetric care by promoting evidence-based practices and ensuring that cesarean deliveries are performed judiciously, thus improving maternal and neonatal outcomes. This is a review of previously published papers aimed to explore the application of Robson's classification of CS at level III obstetric institutions in Kazakhstan.

Inclusion Criteria

Research methodology includes RCTs, observational studies, meta-analyses, cohort studies, and case-control studies.

Selected recent articles (i.e. 2019) with a cut-off date to refresh the knowledge.

Studies that highlighted the caesarean section using Robson's classification in the III-level obstetric facility in Kazakhstan.

Exclusion criteria

Non-peer review articles such as study proposals, opinions, and letters to the editor. Articles not related to our topic.

Data Collection

A comprehensive search of multiple online databases, including Web of Science, Scopus, Google Scholar, PubMed, and the Cochrane Library, was conducted. The following keywords were used: "cesarean section," "Robson classification," "obstetric care," and "Kazakhstan."

Data collection

The included studies were reviewed following three stages. The first involved using EndNote Software to

import the findings from electronic databases into a Microsoft Excel sheet. During the second phase, the titles and abstracts of the articles entered into the Excel sheet were screened. The next stage assessed the included citations from Stage 2's full text. In addition, we cross-checked the references for the studies to see if they were missing.

Statistical analysis

A qualitative study of previously published research was conducted. A quantitative analysis was not performed due to the study's narrative review format. To conduct a quantitative analysis, specific outcomes to be measured must be determined, and more than two studies reporting data on these outcomes should be identified and compared to conclude. While efforts were made to perform a quantitative analysis, no specific results relevant to the topic or papers presenting comparable data were identified. To ensure robust evidence and current conclusions, a qualitative analysis was carried out, summarizing the findings of relevant papers and comparing them.

RESULTS

Inclure les trouvailles de la revue A systematic search employing a specific search strategy yielded 500 articles initially. Subsequent screening based on titles and abstracts narrowed the selection to 100 articles for full-text evaluation. Upon thorough assessment, 37 articles were deemed relevant and subsequently utilized to inform and construct this review. Refer to figure 1 for a graphical representation (figure 1).

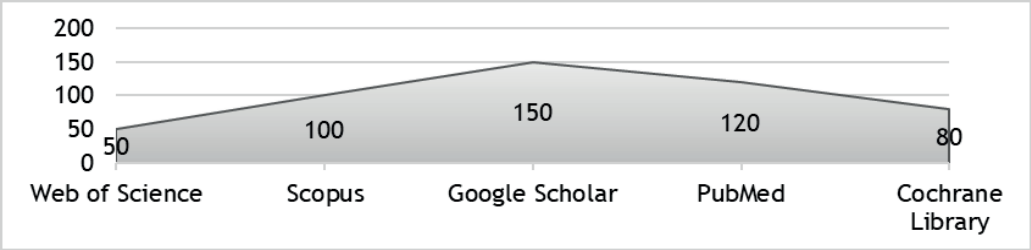

Figure 1. Pie chart of our search results

Rates of CS delivery in the III-level obstetric facility in Kazakhstan

In the Republic of Kazakhstan, the cesarean section frequency had increased from 4,6 % in 1990 to 23,5 % in 2022 (figure 2).

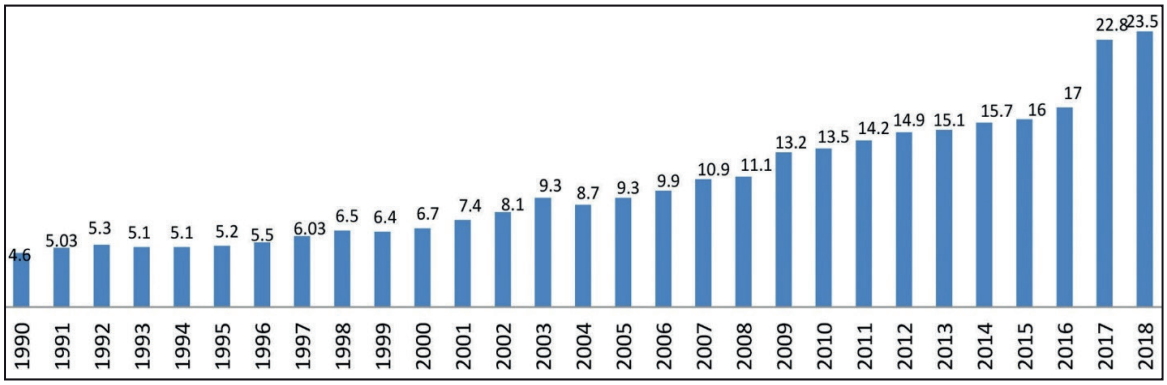

Figure 2. The cesarean section frequency in the Republic of Kazakhstan for 1990–2018[25]

In the Level III obstetric facility, among 6,928 deliveries, 2,502 were made using the cesarean method, which constituted 36,1 % of all deliveries. The main contributors to the overall Caesarean section rate were Groups 5, 2, 10, and 1, which accounted for the greatest number of Cesarean deliveries. For example, Group 5, which was constructed of women with a history of cesarean sections, had 13. 6 % caesarean sections, followed by Groups 2, 10, and 1 with final figures of 4,5 %, 4,1 %, and 3,5, respectively, according to the Robson classification.[25]

In terms of the manner of cesarean section delivery, 52,8 % were planned, and 47,1 % were performed as emergency operative deliveries in the Level III hospital. This indicates a substantial proportion of cesarean sections were conducted as planned procedures, suggesting a proactive approach to managing high-risk pregnancies and obstetric complications in the Level III obstetric facility (figure 3).[25]

During the period from January 1, 2018, to December 31, 2023, the research was carried out at the clinical department of the Department of Obstetrics and Gynecology with a course in clinical genetics of the NAO

KazNMU named after S. D. Asfendiyarov, which is located within a third-level obstetric institution of Almaty. It is where around 7000 babies are born annually. The research methodology was focused on using various analytical tools, such as charts, drawings, and statistical analysis, on the vast amount of data from the obstetric centre's records. They served as efficient tools to observe and analyze the prevalence and consequences of cesarean deliveries among the obstetric population under study in depth.

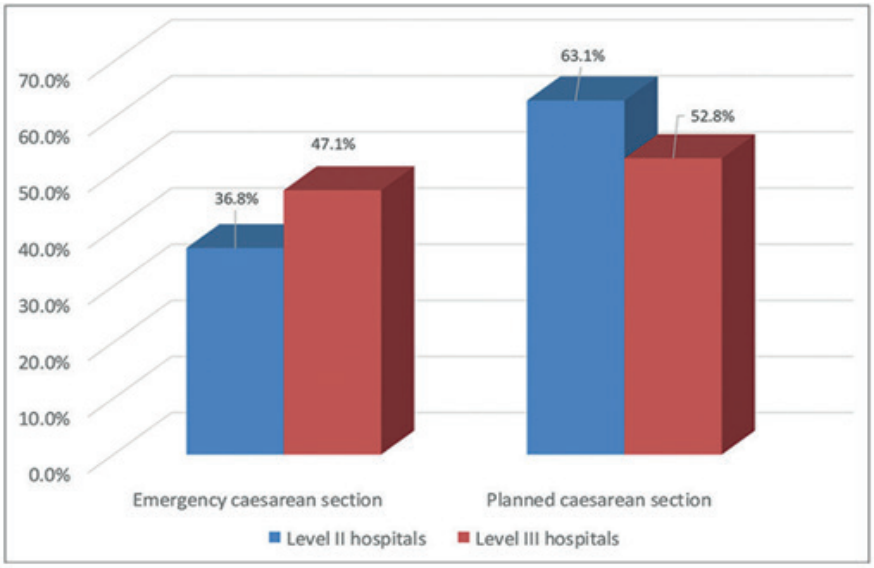

Figure 3. The frequency of planned and emergency cesarean section[25]

DISCUSSION

Presentation of the Findings Related to C-section Rates using Robson's Classification

CS analyses by Robson groups presented key trends and patterns concerning the obstetric population. The study consisted of data from various obstetric centres in Kazakhstan that permitted detailed evaluation of CS use according to various obstetric features. The analysis of the ten Robson groups showed fluctuations in the CS rates, resulting from different obstetric risk factors and clinical indications for a CS. Group 5, among women with previous CS, had the highest CS rates, as expected, because uterine scar history tends to increase the chances of repeat cesarean deliveries.[18] On the other hand, the women with breech presentation groups, namely 6 and 7, also had higher CS rates compared to other groups, which may be due to the high risk of complications associated with breech delivery. On the other hand, groups 1 and 3, made up of nulliparous and multiparous women in spontaneous labour and cephalic presentations at term, had lower CS rates showing that vaginal deliveries were uncomplicated in these groups.[22]

Analysis of C-section Outcomes based on Robson's Classification

The analysis based on CS classification by Robson has presented the morbidity and mortality rate associated with maternal and neonatal, which are linked with cesarean deliveries. In most cases, CS is viewed as an effective and safe way of dealing with obstetric complications, but some groups of women still suffer certain risks.[22]

Maternal complication, including postpartum haemorrhage, surgical site infections, and thromboembolic events, was analyzed in the Robson groups among women who had CS. The incidence of maternal morbidity in Group 5, comprising women with an established cesarean section background, was the highest. This might be explained by the greater surgical complexity and potential for intraoperative and postoperative complications in this group of women compared to other groups.[22]

Moreover, neonatal outcomes, including neonatal intensive care unit (NICU) admission, neonatal respiratory distress syndrome, and neonatal mortality, were the main areas for assessment within each Robson group. Group 6, which included women with breech presentations, had a higher rate of neonatal complications and deaths compared to other groups. Therefore, breech deliveries are challenging to manage and require special attention from obstetrics care providers.[23]

Group 10 in Robson's classification system consists of women with preterm labour, typically defined as labour occurring before 37 weeks of gestation. In a level 3 obstetric hospital, Group 10 often exhibits a high rate of cesarean sections due to the complex nature of managing preterm births. Cesarean deliveries may be recommended in cases where there are concerns about fetal well-being, such as fetal distress or non-reassuring fetal heart rate patterns, or if there are maternal complications that warrant expedited delivery to prevent

further risks to both mother and baby. Additionally, preterm labour presents unique challenges in terms of assessing cervical readiness for vaginal delivery and the potential for rapid progression of labour, leading to a higher likelihood of cesarean section. The multidisciplinary team in a level 3 obstetric hospital is equipped to provide specialized care for women in Group 10, with interventions aimed at optimizing outcomes for both mother and baby while minimizing the risks associated with preterm birth.[23]

Comparison of C-section Rates and Outcomes with National or International Benchmarks

Along with measuring CS rates and outcomes in the obstetric population, comparisons were made with national or international benchmarks to contextualize the findings and develop further improvement plans. Benchmarking enables the assessment of obstetric care's performance vs. well-established norms or standards, providing a basis for the development of quality improvement initiatives and the dissemination of evidence-based practice.[24]

The study's results were benchmarked against Kazakhstan's national CS statistics and outcomes. Additionally, comparisons have been made between C-section rates and outcomes in neighbouring countries and regions with similar healthcare contexts, giving more details about regional differences and patterns in obstetric care.

Relation between the economic status and CS rate

In general, there is a discernible relationship between women's economic status and the rates of CS procedures. The data indicates that CS rates tend to be lower among women from economically disadvantaged backgrounds and increase as economic status rises. For instance, the median CS rate among the poorest fifth of women was 3,7 %, significantly lower than the 18,4 % rate observed among the wealthiest fifth of women.

Notably, there is a considerable variation in CS rates between countries, particularly among the wealthiest fifth of women. In 42 countries, over half reported CS rates exceeding 15 % among the wealthiest fifth, compared to only 12 countries among the poorest fifth. This suggests that CS procedures are more prevalent in countries with higher economic status.

Furthermore, disparities in CS rates between economic strata are evident. In 16 countries, at least one-third of women in the wealthiest fifth underwent CS procedures, while only three countries reported similar rates among the poorest fifth. Conversely, rates of less than 10 % were reported in 71 % of countries among the poorest fifth, compared to 26 % among the wealthiest fifth. Focusing on Kazakhstan, the CS rate was 15 % among the poorest fifth, exceeding 18 % in the wealthiest fifth.[26]

The narrative review analyzed the delivery rate and consequences of the CS, which was implemented using the Robson classification system. The main emphasis was on Level III obstetric facilities in Kazakhstan. The variability across the CS rates for the Robson groups showed that it was higher among women with a history of CS or breech presentation. CS findings pointed to unique care specifically for individuals at risk, with the main purpose being safety and effectiveness. According to data, the CS rate in Kazakhstan increased from 4,6 % in 1990 to 23,5 % in 2022.

Moreover, prior research indicated a higher likelihood of CS with rising income. In Kazakhstan, it's 15 % for the poorest fifth, while exceeding 18 % high. Groups 7, 8, and 9 in Robson's classification system, which consists of women with abnormal fetal presentations (such as transverse lie or face/brow presentation), multiple pregnancies, or women with a single, breech presentation, respectively, often exhibit high cesarean section rates as well. These groups present unique challenges during labour and delivery, increasing the likelihood of cesarean delivery to ensure the safety of both the mother and the baby. Therefore, in a level 3 obstetric hospital, it's crucial to consider the high cesarean rates across Groups 5, 6, 7, 8, and 9 when implementing strategies to optimize obstetric care and reduce unnecessary cesarean sections. Thank you for highlighting this important aspect of Robson's classification system.[27] The study by Altayeva[25] found that Group 5, comprising multiparous women with uterine scars, contributed significantly to the overall cesarean section frequency in Level II and Level III hospitals, with rates of 8,02 % and 13,6 %, respectively. These findings align with WHO studies across various countries, which also indicated that cesarean sections were most frequently performed on women with previous uterine scars.[28]

In Group 1, where the women were nulliparous with spontaneous labour and cephalic presentation, the main indications for cesarean section were related to fetal distress, placenta abruption prematurely detaching from the uterus, and placenta presentation with the insufficient progression of labour. Fetal distress was the foremost cause of cesarean section in this patient group, which was often due to the interpretation of cardiotocograms that may not have been correct. The research has shown that the cesarean section rate in patients with continuous cardiotocography monitoring during the hospital stay had been 20 % higher than in patients with intermittent auscultation.[29]

Again, similarly to earlier findings, the highest cesarean section rates were observed in Latin American countries, which also demonstrated the most pronounced level of absolute inequality.[3,28] Latin America also has the highest combined income inequality. However, the weak connection between income inequality and

wealth-related inequality in caesarean section rates among the countries in the study was observed.[31] In Africa, the cesarean section rates are very low regardless of wealth, and absolute inequalities are negligible. The case differed in three European countries where the caesarean section rates were higher among the poorest fifth than the richest fifth, going against the global trends. Country-based investigations should be aimed at clarifying the issue of this abnormality.[32] Several factors contribute to the differences in cesarean section rates both within a country and between different countries. Reasons for low cesarean section rates could be an inadequacy of trained healthcare professionals and infrastructure, the presence of user fees, and cultural beliefs about the safety and benefit of the procedure.[31,32]

On the contrary, the overuse of cesarean section may be fueled by a network of interrelated individual, socio-cultural, and organizational factors. One of the individual determinants for the decision on the mode of delivery is fear of childbirth pain, beliefs regarding birth dates, and perception of the impact of vaginal delivery on appearance and health. Societal notions of prestige could be the other factor that may lead to maternal demands for caesarean section.[33,34] Organizational factors, for example, convenience for healthcare professionals, financial incentives, risk of lawsuits, and the medicalization of childbirth, in turn, can lead to over-prescription of drugs. Understanding country-level dynamics, local cultures, and specific barriers to access will allow tailored approaches to the underuse and overuse of cesarean section.[35,36,37]

There were 1672 spontaneous vaginal deliveries (43,3 %) and 2188 caesarean sections (56,6 % of all births). Their results were consistent with our results as they found that Group 5, which has been identified as a significant customer for the treatment, accounts for the largest percentage of C-sections. According to the Robson technique, the incidence of cesarean sections was significantly greater in high-risk groups.[38]

The largest contribution to the overall CS rate (53,2 %) came from Group 5 (multiparous, term, cephalic, and prior cesarean section). With 10,2 % and 8,9 % of the total CS rate, respectively, Group 10 (cephalic preterm pregnancies) and Group 2 (nulliparous, single, term, cephalic prelabor) were the second and third largest contributors.[39] These findings were tha same as ours.

The overall cesarean section (CS) rate was 51,2 %. The largest contributors to this rate were: multiparous women with a previous CS, carrying a single, cephalic, term pregnancy (group 5) at 34,5 %; nulliparous women with a single, cephalic, term pregnancy who underwent induced labor or pre-labor CS (group 2) at 14,0 %; women with preterm, single, cephalic pregnancies (group 10) at 12,6 %; and multiparous women with single, cephalic, term pregnancies who experienced spontaneous labor (group 3) at 10,0 %. The most frequent reason for CS was a history of previous CS (87 cases; 38,0 %), followed by poor labor progression (24 cases; 10,5 %).[40]

85 (50,9 %) of the patients were found to be from TGCS Group-10. With 24 instances (14,4 %) and 19 cases (11,4 %), respectively, Group-5 and Group-1 were the second and third most prevalent groups. The most frequent reasons for caesarean sections were found to be foetal discomfort (19,8 %) and prior caesarean section (20,4 %).[41]

Limitation

The major drawback of our study is that it is an overview in the form of a narrative review covering most observational studies. The summarised trials' data is apportioned into paragraphs and compared to each other without being pooled together. Therefore, true objectivity and subjects combined as one are impossible. A narrative review is the most recent publication presenting a complete published evidence roundup. Such a case can also be used for a complete examination of evidence. Since it fully disregards the hypothesis with which it disagrees, it does not guarantee what is now believed to be true.

CONCLUSION

The analysis based on Robson's system of stratification in Kazakhstan's obstetric population brought to the fore uneven cesarean section rates, particularly in the groups of women with previous cesarean sections and breech presentations. According to a previous study from 2020, in a level 3 obstetric hospital, high cesarean section rates were in groups 5,10,1,2. You write about this on page 2, Results above. Breech presentations 6,7,8,9 in these groups will always have high c-section rates. These effects included increased maternal morbidity, in particular, with repeat cesarean cases, and underscored newborn obstacles such as breech presentation. Reviewing figures and averages concerning national and regional data exposed growing trends of cesareans. Firstly, it is worth noting that most planned cesarean sections suggest the management of obstetricians was proactive. These data support the need for targeted interventions and best-quality improvement to get the maximum benefit of Kazakhstan's obstetric care system for the mother's and the child's health.

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