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CONTRIBUTING FACTORS TOWARDS THE RAISING TREND OF CESAREAN DELIVERY. (REVIEW ARTICLE)

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Abstract

Introduction: Cesarean section (CS), once reserved for medically indicated emergencies, has progressively become a procedure of choice in many parts of the world, pushing global rates well beyond the WHO-recommended ceiling of 10–15%. This study was conducted to identify the factors contributing to this rising trend, with particular focus on cesarean delivery on maternal request (CDMR) in the absence of medical indication, and to provide a base for

future interventions aimed at curbing unnecessary CS rates. **Methods:** A systematic literature review was conducted using research and review articles retrieved from Google Scholar, PubMed, Sci-Hub, and Biomedical Corner. Relevant articles addressing CS as a mode of delivery were downloaded, appraised, and synthesized. **Results:** The reviewed literature confirmed a consistent global rise in CS rates, driven less by medical necessity and increasingly by maternal, professional, and health-system factors. Maternal-level drivers included fear of labor pain, concerns over pelvic damage and sexual function, perceived safety for the baby, social and family influence, and the perception of CS as a marker of modernity or affluence. Provider-level drivers included defensive practice against litigation and convenience, while system-level factors included financial incentives in private care and inadequate training in assisted vaginal delivery. **Conclusion:** The rising CS rate is largely attributable to addressable psychosocial, clinical, and systemic factors rather than medical need. Public awareness, adherence to WHO guidelines, and structured psychological counseling for women requesting CDMR may help reduce unnecessary cesarean sections and move national rates toward the WHO-recommended benchmark.

Keywords: Cesarean delivery on maternal request; Cesarean section; Maternal request; Review article; WHO recommended rate

INTRODUCTION

The term 'caesarean section' originates from the Roman legal code Lex Caesarea, which held that a deceased pregnant woman should not be buried until her child was extracted from the womb; the word itself derives from the Latin caedare, meaning 'to cut' (1). Cesarean section (CS) is a surgical procedure for delivering a baby through incisions in the maternal abdominal wall and uterus, performed when vaginal birth is difficult or unsafe for mother or child (2,3). Recognized indications include cephalopelvic disproportion, breech or transverse presentation, fetal distress, severe pre-eclampsia/eclampsia, active genital herpes, placenta previa or abruption, multiple pregnancy, and maternal comorbidities such as cardiac disease, alongside cesarean delivery on maternal request (CDMR) for non-medical reasons (4–7).

CS performed at a woman's request in the absence of any obstetric contraindication is termed cesarean section on maternal request (CSMR/CDMR) (10). Globally, many women request CS without medical indication, commonly citing fear of labor pain, pelvic floor trauma, or fetal harm; lacerations to the birth canal; prior negative experiences with vaginal delivery or healthcare providers; body-image and socioeconomic concerns; limited awareness; and clinician advice, among other influences (11).

Although the first successful CS was performed in the 16th century, it remained a high-risk, emergency-only procedure until the last century. Advances in surgical and anesthetic technique, blood-bank availability, and changing professional and public attitudes have since made CS markedly more common (12,13). Global CS rates rose from 12.1% in 2000 to 21.1% by 2015, with WHO estimating 6.2 million medically unnecessary CS performed annually, half of them in China and Brazil (14,15). By 2008, national rates reached 45.9% in Brazil and 41.9% in Iran, rising to 62% by 2012 (3); by 2018, CS accounted for over 50% of deliveries in Egypt, Brazil, and Turkey, and roughly one in three births in the USA, Australia, and Germany. In Pakistan, the rate rose from 3.2% in 1990 to 22% in 2017–18, with rates roughly double in private versus public facilities and in urban versus rural areas (6,16). Regionally, rates currently range from 7.3% in Africa to 40.5% in Latin America and the Caribbean (Figure 1) — all exceeding the WHO-recommended ceiling of 10–15%, beyond which CS use is understood to reflect reasons other than saving lives (17,3).

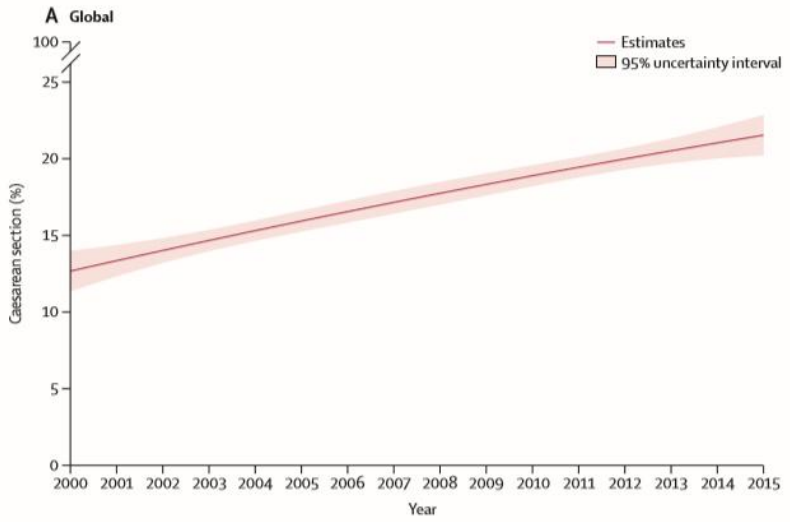

Figure 1. Global trend in cesarean section as a proportion of live births, 2000–2015 (14).

This trend carries clinical consequences: the International Federation of Gynecology and Obstetrics holds that CS for non-medical reasons is unethical (2), and emerging evidence has challenged the assumption that CS is inherently 'safe' (13). CS is associated with a three-fold higher risk of maternal mortality than vaginal birth, and children delivered by CS face an increased risk of asthma, obesity, diabetes, autoimmune disease, and adverse neuropsychiatric outcomes (15,18).

Factors driving excessive use of cesarean section

While CS may be clinically or psychologically justified for the mother, the baby, or both, CS use beyond clinical need is driven by three overlapping domains (Figure 2): factors related to childbearing women, families, and society; factors related to health professionals; and factors related to health systems, financing, and organizational culture.

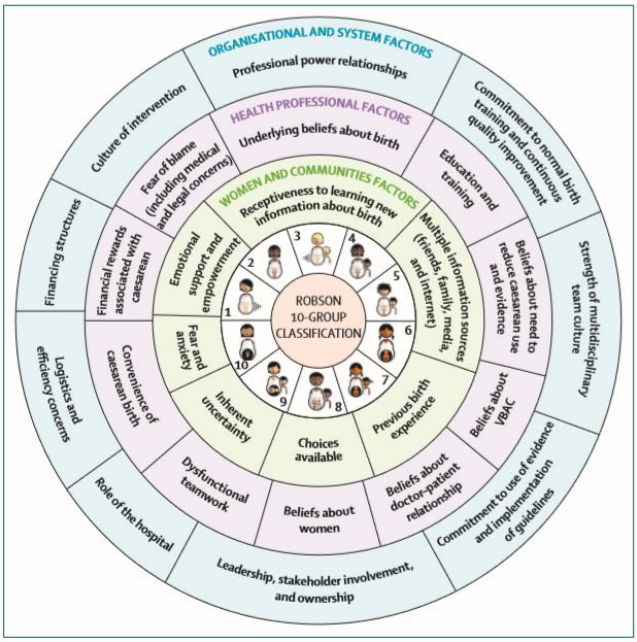

Figure 2. Medical and non-medical factors contributing to higher rates of cesarean section.

Among women and communities, fear of labor pain is the most frequently reported driver of CS preference, compounded by fear of pelvic or sexual trauma, anxiety about fetal injury during vaginal birth, and negative birth stories shared by family and friends (19,3,20). CS is also perceived by some as a marker of modernity, comfort, or higher socioeconomic status, reinforced by celebrity role models and practical motivations such as scheduling convenience or concurrent tubal ligation (6,21).

Among health professionals, reliance on clinician advice that 'CS is safer,' time pressure from unpredictable labor, and defensive practice driven by fear of litigation over adverse vaginal-delivery outcomes all contribute to rising CS rates (19,14,3).

At the health-system level, financial incentives in private obstetric care, limited training and confidence in assisted vaginal delivery among junior obstetricians, and delayed referral from under-resourced primary-care facilities further drive both elective and emergency CS use.

Given the scale and modifiability of these non-medical drivers, this review synthesizes the factors contributing to the global rise in cesarean delivery — particularly CDMR — to inform strategies for reducing unnecessary cesarean sections toward the WHO-recommended rate.

Materials and Methods

Study Design: This was a narrative literature review conducted to identify and synthesize the factors contributing to the global rising trend of cesarean delivery, with particular emphasis on cesarean delivery on maternal request (CDMR) in the absence of medical indication.

Search Strategy: A literature search was performed using Google Scholar, PubMed, and other freely accessible academic and biomedical databases for English-language journal articles, review articles, and reports. Search terms included combinations of "cesarean section," "cesarean delivery on maternal request," "CDMR," "cesarean section trends," "factors influencing cesarean delivery," and "WHO recommended cesarean rate."

Inclusion and Exclusion Criteria: Original research articles, systematic reviews, and institutional reports published in English that addressed the prevalence, trends, or determinants (maternal, provider, or health-system level) of cesarean delivery were included. Articles not available in full text, non-English publications, and sources unrelated to mode of delivery were excluded.

Study Selection and Data Synthesis: Titles and abstracts of retrieved records were screened for relevance, and eligible articles were reviewed in full. Extracted data on global and regional cesarean section rates, clinical indications, and contributing factors were thematically organized into three domains: (i) factors related to childbearing women, families, and society; (ii) factors related to health professionals; and (iii) factors related to health-care systems, financing, and organizational culture. A total of 22 sources meeting the inclusion criteria were reviewed and incorporated into this review.

2-RESULT

By reviewing the literature, we found that cesarean section rate is raising globally. In the developed countries, currently 30% of cesarean sections are repeated after primary cesarean delivery, 30% for dystocia, 11% for breech presentation and 10% are performed for fetal distress(4). Cesarean section was supposed to be a life-saving emergency procedure, but some believes are making it a procedure of choice and comfort which is raising the rate higher than the WHO recommendation.

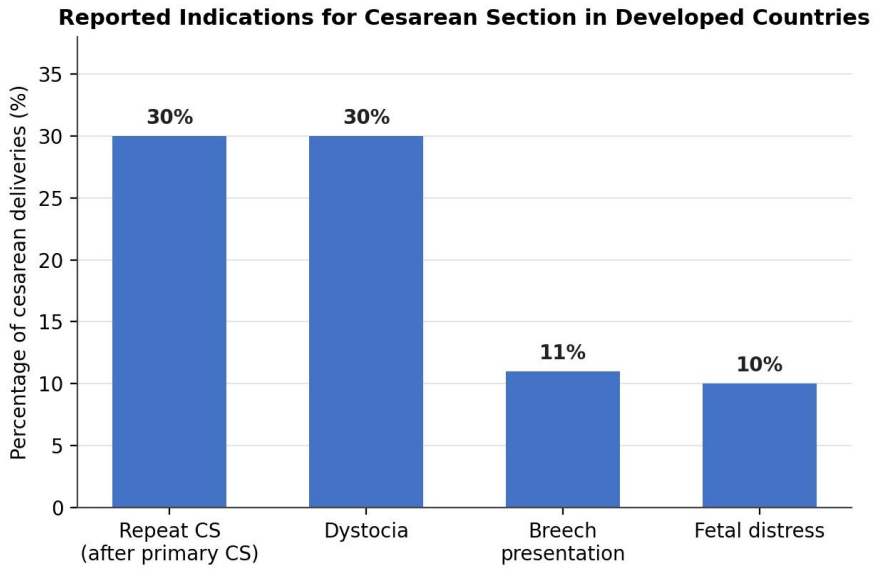

Figure 3. Reported indications for cesarean section in developed countries.

For example; a study in Iran(3) shows the relationship between intention of women to go for cesarean section and education level, income status and fertility intention:

• **Education level**	**%age of women choosing C section**
Primary and secondary level	37.2%
Diploma level	70%
University level	86%
• **Income status (per month)**	
High income (more than 10 million rials)	90%
Moderate income (8-10 million rials)	81%
Low income (less than 8 million rials)	39%
• **Intention for number of children**	
One child	83%
Two children	76%
Three children	42%

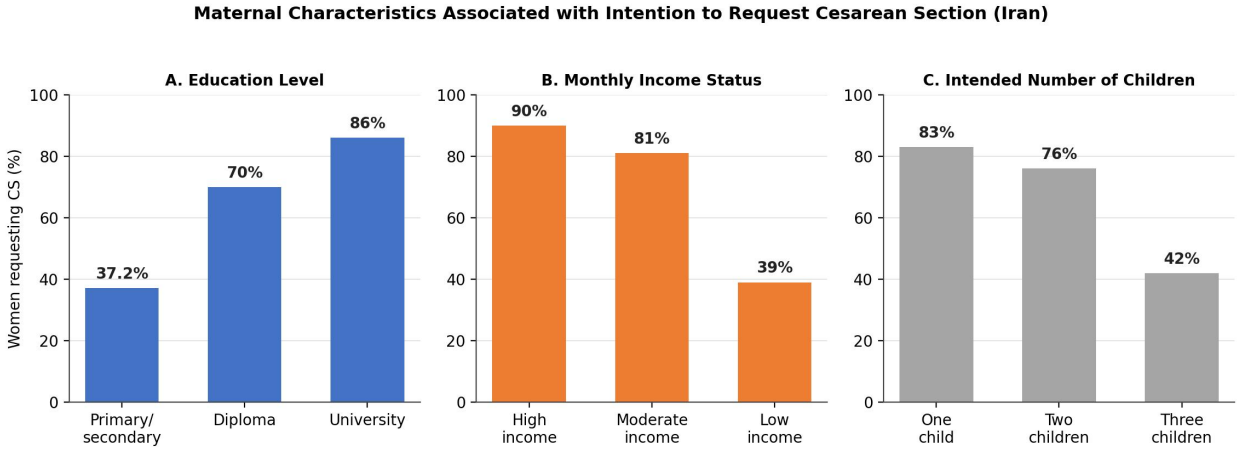

Figure 4. Maternal characteristics associated with intention to request cesarean section: education level, monthly income status, and intended number of children (Iran).

A study conducted between 1st May 2018 and 30th April 2019 at Lahore, Pakistan. The study includes childbearing women of any age who were going for cesarean delivery. During this time 3438 were total births. 2380(69%) were cesarean delivery and there were 1058(31%) normal birth canal deliveries. The %age of cesarean section on maternal request was 7% (167). Out of 167, 72 women were those who already have a previous cesarean delivery and now they do not want the trial of labor. Consequently, most women requested for cesarean delivery were those who had recent trial of labor.(11)

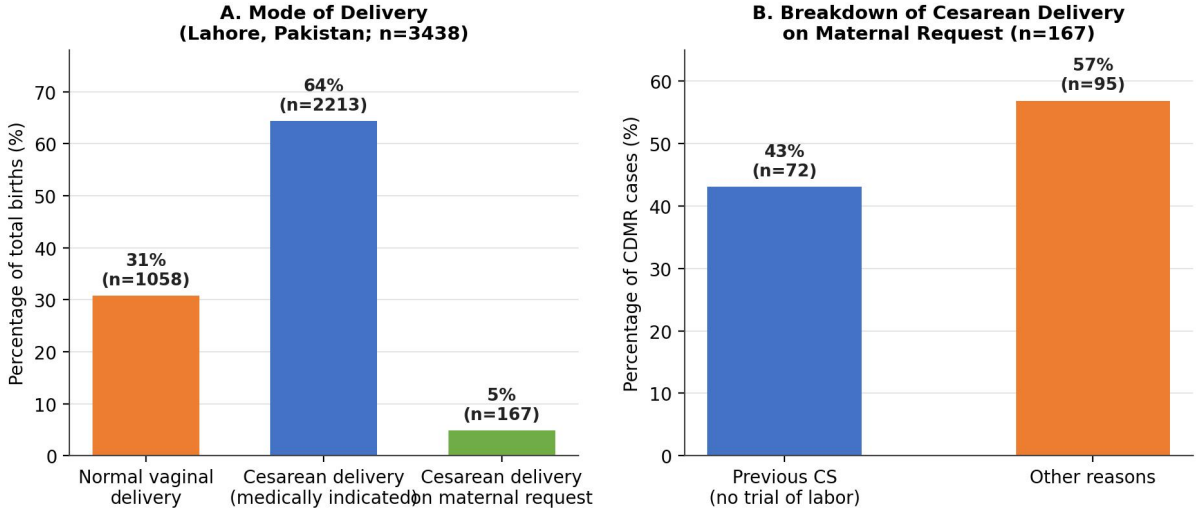

Figure 5. Mode of delivery and breakdown of cesarean delivery on maternal request, Lahore, Pakistan (n=3438).

A cross-sectional study conducted in Iran Isfahan in September 2016 on 200 pregnant women(2). Finally, 53% births were on cesarean section and 47% births happens through normal birth canal (see figure 6).

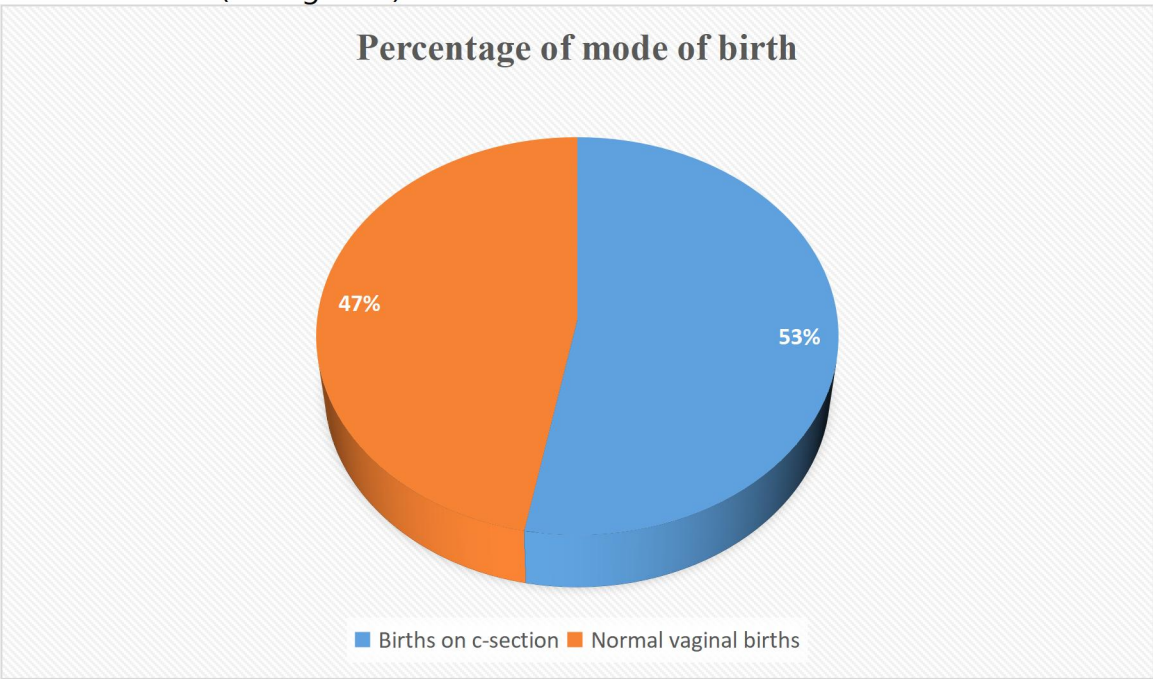

Figure 6. Showing the percentage of mode of birth reported in 2016 in Iran.

The current study defines the medical and non-medical factors behind the raising trend of cesarean section delivery. On reviewing the literature related to our topic, our findings are:

- We can reduce the number of unnecessary c-sections by addressing the factors that leads a woman to request a CS.
- Effective counselling of the women should be ensured. Women requesting CS without any medical indication are in need of psychological help.
- Spreading awareness about the positive and negative aspects of CS to the community should be ensured.
- There should be an investigative body for private sector health care facilities which do not allow unnecessary c-sections.
- Clinicians should show loyalty to their profession by not endangering lives of their patients. If a woman doesn't need CS medically, she should not be cut.

DISCUSSION

The debate around cesarean delivery on maternal request (CDMR) centers on safety, cost, autonomy, and maternal satisfaction. CS offers recognized benefits, including

scheduling certainty, avoidance of unpredictable labor and perineal trauma, and reduced fetal exposure to difficult manipulations, trauma, and stress. However, no randomized controlled trial has yet established the true risk-benefit ratio of CDMR relative to vaginal birth (13), and in the absence of such evidence, professional bodies have issued varying guidance, summarized below. The Society of Obstetricians and Gynecologists of Canada restricts CS to cases where vaginal delivery poses a genuine risk to mother or baby, while the American College of Obstetricians and Gynecologists advises against CDMR for women planning more than one child. Australian guidelines instead leave the decision to clinical judgment: after full risk-benefit counseling, the obstetrician may proceed with the patient's informed consent, decline where risk is judged unacceptable or consent inadequate, or refer the woman for a second opinion (13).The UK's NICE guidance takes a more exploratory approach, recommending that the reasons behind a CDMR request be discussed and individually managed rather than accepted or declined outright. Since tocophobia (fear of childbirth) is the most commonly cited reason, structured counseling — ideally involving an obstetrician, midwife, and mental health professional across multiple sessions — has led at least half of women to choose vaginal birth and report satisfaction with that choice; a single session has not proven effective and may risk reinforcing distress. Where a woman's request persists despite adequate counseling, NICE concludes that continued refusal carries its own psychological risk and long-term cost, and recommends that CS be offered for the overall benefit of mother and baby (13).Across these guidelines, the consistent principle is informed, documented decision-making: discussing risks and benefits with the full obstetric team, ensuring the woman has accurate information, and involving her partner or family for support. An obstetrician unwilling to perform CDMR should refer the woman to a colleague who will.

Conclusion

Women requesting a CS without a specific medical indication were anxious, lacking confidence, fear of giving birth, primiparity, in higher education level and better economic condition. This finding suggested psychological counseling and support for women requesting CS, as it may reduce the unnecessary CS. For cesarean section rates to be decreased, the people need awareness and education about the risk factors, morbidity and mortality, the WHO guidelines, and clinicians believes. By addressing the factors for requesting CDMR and by providing psychological support to women requesting cesarean section without medical indication, the overall rate of the cesarean section can be reduced.

Recommendations

Based on the factors identified in this review, the following measures are recommended to curb the unnecessary rise in cesarean delivery:

1. **Structured antenatal counseling** — Women requesting cesarean delivery without medical indication should be offered multi-session counseling involving an obstetrician, midwife, and mental health professional, with particular attention to tocophobia and fear of labor pain.
2. **Public health education** — Community-level awareness campaigns should address the risks, benefits, and WHO-recommended rate of cesarean section to correct misconceptions about its safety relative to vaginal birth.
3. **Regulatory oversight of private healthcare facilities** — An independent monitoring body should audit cesarean section rates in private-sector hospitals, where financial incentives are most strongly associated with elective CS.
4. **Standardized clinical guidelines** — Hospitals should adopt clear, evidence-based protocols for CDMR (modeled on SOGC, ACOG, or NICE guidance) to reduce inter-provider variation in practice and defensive decision-making driven by fear of litigation.
5. **Strengthened training in assisted vaginal delivery** — Continued medical education programs should improve junior obstetricians' confidence and competence in vaginal delivery and instrumental techniques to reduce avoidable CS.
6. **Further research** — Well-designed randomized controlled trials are needed to establish the true risk–benefit ratio of CDMR, given the current absence of high-quality comparative evidence.

Authors' Contribution

Saif Ullah conceptualized the study and designed the research framework.
Muhammad Abrar conducted the literature search and screened articles for eligibility.
Manawar Khan performed data extraction and synthesis of included studies.
Salih Noor contributed to the critical appraisal of the reviewed literature.
Mujeeb Ullah drafted the manuscript and prepared the initial write-up.
Rija Arif reviewed and revised the manuscript for intellectual content.
Tuba Arif prepared the figures, tables, and formatted the references.
Inam Ullah* supervised the overall research process, provided critical revisions, and gave final approval of the version to be submitted. **Inam Ullah** is the corresponding author.

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