

Review

Determinants of caesarean birth on maternal demand in the Islamic Republic of Iran: a review

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محددات الولادة القيصرية حسب طلب الأم في جمهورية إيران الإسلامية: مراجعة

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الخلاصة: استقطبت ظاهرة الولادة القيصرية حسب الطلب الاهتمام، لا سيما وأن الولادة القيصرية الأولى تكون بمثابة مؤشر قوي على خضوع الأم لولادات قيصرية لاحقة. ومن المهم تحديد الأسباب الكامنة وراء الولادة القيصرية حسب الطلب لتخطيط التدخلات الفعالة. وعليه، يورد هذا الاستعراض العوامل التي تسهم في ميل النساء إلى إجراء الولادة القيصرية، استناداً إلى دراسات أجريت في جمهورية إيران الإسلامية. واستُخدمت عدة كلمات رئيسية منها الولادة القيصرية، والوضع، والأسباب، وطلب الأم، واختيارات المريض، للبحث على قواعد البيانات Medline و PubMed و Ovid وقاعدة البيانات العلمية، ومحركات البحث Magiran و Google و Google Scholar. وأجري البحث في مقالات مكتوبة باللغة الفارسية والإنجليزية، دون قيود زمنية. وباستخدام تحليل المحتوى، قُسمت العوامل التي تؤثر على اختيار الولادة القيصرية إلى 3 فئات: عوامل تخص الأم الحامل، وعوامل اجتماعية، وعوامل تتعلق بمقدم الرعاية الصحية. ونظراً لارتفاع معدل انتشار الولادات القيصرية، من المهم تصميم وتنفيذ برامج وتدخلات فعالة مع مراعاة الأسباب الرئيسية التي تدفع النساء إلى اختيار الولادة القيصرية بلا داعي.

ABSTRACT The phenomenon of caesarean birth on demand has gained attention, particularly as a first caesarean birth appears to be strongly predictive of subsequent caesareans. Identification of reasons behind caesarean birth on demand is important for planning effective interventions. Therefore, this review reports the factors involved in the tendency of women to undergo caesarean birth, based on studies in the Islamic Republic of Iran. Several keywords including caesarean delivery, childbirth, causes, maternal request/demand, and patient choice were used to search Medline, PubMed, Ovid, Scientific Information Database, Magiran, Google and Google Scholar. The search was conducted on Persian and English language articles, with no time limitation. Using content analysis, the factors influencing caesarean section were divided into 3 categories: maternal, social and healthcare giver. According to the high prevalence of caesarean section, it is important to design and implement effective programmes and interventions with consideration of the key reasons that lead women to opt for unnecessary caesarean section.

Analyse des déterminants des naissances par césarienne sur demande de la mère en République islamique d'Iran

RÉSUMÉ Le phénomène des naissances par césarienne sur demande fait l'objet de discussions, notamment parce qu'une première césarienne est hautement prédictive d'autres césariennes lors des naissances suivantes. L'identification des raisons d'un accouchement par césarienne sur demande est importante de façon à planifier des interventions efficaces. À ce titre, la présente analyse fait état, sur la base d'études menées en République islamique d'Iran, des facteurs impliqués dans la tendance qu'ont les femmes de recourir à un accouchement par césarienne. Plusieurs mots clés incluant « naissance par césarienne », « accouchement », « causes », « demande/exigence de la mère », ainsi que « choix de la patiente » ont été utilisés pour effectuer des recherches dans Medline, PubMed, Ovid, Scientific Information Database, Magiran, Google et Google Scholar. La recherche a été menée à partir d'articles en persan et en anglais, sans limitation de temps. À l'aide d'une analyse de contenu, les facteurs influençant le recours à une césarienne ont été divisés en trois catégories : les facteurs liés à la mère, les facteurs sociaux, et ceux liés aux dispensateurs de soins. Eu égard à la prévalence élevée de césariennes, il est important de concevoir et de mettre en œuvre des programmes et des interventions efficaces prenant en compte les raisons principales qui conduisent les femmes à opter pour une césarienne non nécessaire.

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Introduction

Caesarean section rates are on the rise worldwide (1). Based on a recent study in the Islamic Republic of Iran, the rate of caesarean section is 49% nationwide (2). Caesarean birth on maternal demand (CBMD) is responsible for some increase in the overall rate. In developed countries, conservative estimates of CBMD range from 4% to 18% of all caesarean deliveries (3). Although the rate of CBMD in the Islamic Republic of Iran remains unclear because of poor documentation, the total rate of caesarean birth is unfortunately high (4). CBMD is defined as elective caesarean delivery for singleton pregnancy on maternal request at term in the absence of any medical or obstetric indications (5). It is now recognized that performing a caesarean section with no medical indication offers no health advantages for the mother and infant, and has increased health risks, from both physical and emotional perspectives, compared to vaginal birth (6).

The problem is that caesarean birth is associated with an increase in maternal and infant mortality and morbidity, and increased healthcare costs. Theoretically, maternal outcomes of fever, infection, pneumonia and thromboembolism are consistently increased with medically indicated caesarean birth and would also be present in instances of CBMD (7). The issue of cost must also be considered in the broader context of burden to the already stressed healthcare system and the impact on finite resources (6).

CBMD has received increasing attention in the social science literature, with a focus on women's motivations. The reasons for CBMD are complex and it appears to have interrelated factors that are not easily explained. As the literature review revealed, elective caesarean section is related to personal, psychological and social factors such as autonomy, self-control, perceptions of safety, fear of childbirth, sexuality, and

perceived quality of obstetric care (8). Limited information is available about how the decision for elective caesarean section comes about in the clinical environment (9,10). CBMD is clinically relevant because of the increasing numbers of women choosing this mode of delivery, the health risks to the mother and infant, and the increased cost associated with the procedure.

There is a need to gather information about the factors involved in the tendency of women to opt for caesarean section, based on studies that have been conducted in the Islamic Republic of Iran. The ultimate goal is to devise interventions to reduce the number of maternal requests for caesarean sections, thereby reducing their associated mortality, morbidity and healthcare costs. Many studies have investigated the reasons for CBMD in the Islamic Republic of Iran. However, these studies have been in a particular geographical area. Hence, there is a need to identify and summarize the different causes in different regions of the country, and the results could be used to design and implement appropriate national plans and interventions to reduce unnecessary caesarean sections.

Methods

This study was a review of the literature regarding elective caesarean birth without specific medical indications. We searched the following databases: Medline, PubMed, Ovid, Google and Google Scholar. To access Iranian studies published in Persian, we also searched Scientific Information Database, Iran Medex and Magiran. We searched using the terms caesarean delivery, childbirth and birth, maternal request/demand, and patient choice for published articles in Persian and English languages, with no time limit. We reviewed articles from all over the Islamic Republic of Iran because of the ethnic and cultural diversity in the country.

Approximately 126 articles were initially obtained including abstracts, quantitative and qualitative research, governmental reports, comprehensive reviews, and opinion/editorial articles. We restricted the search to peer-reviewed full-text articles that explained only CBMD without any medical indications. After excluding irrelevant or repeated articles, experimental and quasi-experimental studies, we analysed 29 articles (24 quantitative and 5 qualitative) related to the objectives of the study. All studies were performed from 2002 to 2014. Selected articles were studied extensively to extract the required information (Figure 1) and we identified the factors influencing the decision for caesarean section.

Results

Several factors influenced women to opt for caesarean birth, which can be divided into 3 groups: maternal, social and healthcare provider. Maternal factors included demographic factors such as age, education, job status and place of living; psychological factors such as fear and anxiety; and other factors such as perception and attitude toward childbirth that was mostly related to individual behaviour and comprehension. The reviewed studies showed that factors influencing women to choose caesarean section included advanced maternal age, high educational level, living in the city, fear of vaginal birth pain, concerns about infant safety, fear of urogenital trauma during vaginal birth, and prior complicated normal childbirth.

The second group were social factors. In some cases CBMD was based on the recommendation of family and friends. Social status was also an influencing factor and women with higher social status were more likely to have an elective caesarean birth.

The third group were healthcare provider factors. Recommendations

from obstetricians and midwives were the main reasons behind CBMD in some cases. The results are summarized in Table 1.

Discussion

Historically, the management of pregnancy and labour has been primarily associated with high expectation, and until recently, the concept of requesting a caesarean birth was not recognized as a possibility for women. To request a caesarean section is a difficult decision for women planning childbirth, and according to previous studies, too many factors are involved in this decision-making process. The aim of this review was to identify the main factors behind this increased tendency of women to request a caesarean section in the Islamic Republic of Iran. We found that CBMD was influenced by maternal, social and healthcare giver factors.

Maternal factors

Caesarean section among older women (> 35 years old) is more frequent than in younger women (11–13). Consistent research findings indicate that women who choose elective caesarean tend to be older (14). Maternal age has been reported as an independent risk factor for caesarean delivery. The reasons for this increased risk remain unclear, but other studies have suggested that it may be due to physician and patient concern over pregnancy outcomes in older women (15). Advanced maternal age places women in a risk category in which screening and diagnostic tests for chromosomal abnormalities are routinely offered and is associated with infertility and assisted reproductive technology (16). These factors may contribute to a maternal viewpoint of the pregnancy as being high risk and requiring additional medical intervention, which leads to elective caesarean section (17).

Caesarean section among women with higher education is more frequent than among those with lower education (11,12,18). This is consistent with some studies that have reported an increased tendency for caesarean section among women with higher educational level (19) but inconsistent with other reports that more educated women choose vaginal delivery (20). Although some studies have indicated that women who live in a city and who are in employment are more likely to choose caesarean section (13,21,22), these factors have less effect than other demographic factors on choosing caesarean section.

Psychological factors, especially fear of vaginal birth and its associated pain, are related to the demand for caesarean birth (23–32). Anxiety and fear of childbirth have consistently been associated with maternal request for elective caesarean section (33–36). Severe fear of childbirth can lead to pregnancy complications (37), which is thought to increase the percentage of women who demand elective caesarean birth. Hofberg and Brockington described a condition known as tokophobia, a fear of death in childbirth, preceding pregnancy (38). Women with this condition are afraid that they will die if they give birth vaginally. It is reported that about half of women with tokophobia choose an elective caesarean section (38). The emotional status of women during pregnancy and delivery may be associated with interpretation, expectations and decisions concerning the delivery process. Pregnancy-related depression, stress or anxiety may contribute to lessened confidence, fear and dissatisfaction with the birthing process (39), which can encourage women to opt for caesarean section.

Another important factor is negative past experiences – both with regard to pregnancy and childbirth – and this is currently considered to be one of the main causes of fear of childbirth that might lead to elective caesarean section (12,23,28,40). Women who have had a

negative previous birth experience continue to feel fear in subsequent births, especially in relation to labour pain. Labour pain is one of the most stressful episodes in childbirth (41) and a significant association with elective caesarean section has been reported (34,42).

Almost all pregnant women are concerned about the well-being of the fetus and want to provide a safe uterine environment. They desire a type of birth that is safe for the infant. Although there is no evidence to support that caesarean birth with no medical indication offers health advantages for the mother and infant, many women believe that elective caesarean section is safer for the fetus (6). Concerns about fetal safety have been reported in different qualitative studies as a reason for CBMD (43–48).

Many women are concerned about retaining function of their urogenital organs after childbirth. Although there is no consensus that planned caesarean birth preserves the pelvic floor or prevents urinary incontinence or anorectal dysfunction, some women are afraid that having vaginal birth will damage these internal organs (23,24,39).

One study has indicated that some women tend to elective caesarean section because they want their baby to be born on a particular day (27). Studies in Australia and Turkey have suggested that women may opt for caesarean delivery because they can plan for the time of day or week that meets the needs of the obstetricians' and their own schedules (49,50). This practice is more common in private health care where women have more flexibility and financial strength to schedule delivery.

Social factors

The support of family and friends is associated with CBMD (24,26,27). Sharing childbirth experiences within the family may affect a woman's decision about the method of birth. Women who benefit from the support of family and friends take a more active role in the

Table 1 Summary of reviewed studies

Authors	Type of research	Participants	Results
Aram et al. (2002) (22)	Cross-sectional	500 parturients	Fearing vaginal delivery pain, doctor's recommendation, concern about infant health and mother's fitness, associated disease, high educational level, having job were associated with caesarean section.
Shareat et al. (2002) (67)	Cross-sectional	824 parturients	13.5% of caesarean sections were due to fear of vaginal delivery pain, or doctor's recommendation.
Alimohamadian et al. (2003) (62)	Cross-sectional	824 parturients	Mother's request or doctor's recommendation was the main reason for caesarean section.
Moradan (2004) (37)	Cross-sectional	400 pregnant women	The most common cause of tendency to caesarean section was fear from pain during vaginal delivery.
Mobaraki et al. (2005) (59)	Cross-sectional	7649 parturients	Doctor's recommendation, fear of vaginal delivery pain, and mother's request were the factors leading to elective caesarean section.
Mohammad et al. (2006) (73)	Cross-sectional	1473 parturients	Older age of women, higher level of education, higher socioeconomic status and hospitalization in private hospitals were associated with caesarean section.
Khosrovi et al. (2006) (55)	Cross-sectional	473 parturients	Caesarean section was more common in women with a better job, higher educational level and living in a city.
Seyed Noori et al. (2006) (46)	Cross-sectional	210 pregnant women	Infant health, fear of vaginal delivery pain, mother's safety, infant's safety, and friend's recommendation were the main factors leading to elective caesarean section.
Negahban et al. (2006) (27)	Cross-sectional	256 pregnant women	Fearing vaginal delivery pain, tube ligation, fearing infant's harm, fearing harm to female reproductive system, maternal health, views of partner and family, and living in a city were the factors associated with caesarean section.
Tabande & Kashani (2007) (40)	Cross-sectional	187 pregnant women	Low pain, fearing harm to female reproductive system, concern about infant safety, medical condition, and negative experience from previous childbirth were the factors leading to elective caesarean section.
Mohammaditabar et al. (2009) (30)	Cross-sectional	618 primiparous	Fear of labour pain and medical staff play a role in high caesarean section rate.
Mohammad et al. (2009) (58)	Cross-sectional	250 pregnant women	Doctor's recommendation, fearing vaginal delivery pain, previous caesarean section, and care given by private physician were the main factors leading to elective caesarean section.
Alavije et al. (2010) (32)	Cross-sectional	342 parturients	Lower pain, infant's health, maternal health and friends' opinion were associated with elective caesarean section.
Sharghi et al. (2010) (60)	Cohort study	396 pregnant women	Caesarean section was chosen as the most popular method for delivery. The most effective factor in decision-making was physician's suggestion.
Atghaei & Nouhi (2010) (29)	Cross-sectional	400 pregnant women	Fear of vaginal delivery pain was the main factor for elective caesarean section.
Fathian et al. (2010) (57)	Cross-sectional	195 parturients	Doctor's persistence, personal belief and mother's persistence were the factors leading to elective caesarean section.
Bahonar et al. (2010) (78)	Case-control	210 parturients	High educational level and family recommendation were associated with elective caesarean section.
Naseh et al. (2010) (72)	Cross-sectional	1500 parturients	Old age and education, and previous delivery experience were associated with elective caesarean section.
Moeini et al. (2011) (44)	Cross-sectional	346 pregnant women	Doctor's opinion, low pain, infant's safety, awareness of delivery time, and partner's suggestion were the factors leading to elective caesarean section.
Ghooshchian et al. (2011) (28)	Descriptive-analytical	300 pregnant women	Fearing vaginal delivery pain, advanced age, and negative previous childbirth experience led to elective caesarean section.

Table 1 Summary of reviewed studies (concluded)

Authors	Type of research	Participants	Results
Bagheri et al. (2012) (45)	Qualitative study	11 pregnant women	Fearing vaginal delivery pain led to elective caesarean section.
Movahed et al. (2012) (77)	Cross-sectional	600 pregnant women	Significant relation among these factors (age, age at marriage, education, spouse's education, occupational status, place of birth, social status, previous childbirth method, record of barrenness, place of previous childbirth, place of pregnancy care, record of caesarean in family and attitude toward caesarean (with choice of caesarean having been approved).
Shahraki Sanavi et al. (2012) (27)	Qualitative study	200 pregnant women in third trimester	Fear of pain, inability to withstand vaginal childbirth pain, encouragement from family members, partner's and physician's confidence about the infant's safety, and earlier preparation knowledge of exact time of delivery were the main reasons to have elective caesarean section.
Davari et al. (2012) (54)	Cross-sectional	459 Nulliparous women	High educational level and social status were associated with elective caesarean section.
Abbaspoor et al. (2014) (25)	Qualitative study	18 pregnant and postnatal women	Fear of normal childbirth process and concern about normal delivery complications resulted in most participants deciding to have caesarean section.
Akbari & Ahmadi (2014) (24)	Cross-sectional	200 primiparous women	Major reasons declared by mothers in the caesarean group were fear of vaginal delivery pain, concerns about vaginal delivery complications, and recommendation of friends and their delivery method.
Faisal et al. (2014) (23)	Qualitative study	14 primigravidae	Reasons for requesting a caesarean section were related to fear of childbirth (labour pain, injury to mother or infant), complications after vaginal delivery (vaginal prolapse, urinary incontinence or sexual dysfunction), trust in obstetricians, and lack of trust in maternity ward staff.

birth process, and women without such support are more fatalistic about their role in the birth process (51). Some research has shown that women who receive social support in pregnancy and during labour have lower rates of caesarean section (52).

Another social factor that might influence the type of birth decision is social status. Some studies have suggested that caesarean sections are more likely in women of higher social status (53). In contrast, one retrospective study of a large number of caesarean sections in England stratified by social status found that caesarean sections were not more likely in women of higher social status (54).

Healthcare provider factors

Recommendation by physicians and midwives is one of the main reasons for caesarean section (4,55–61).

Traditionally, the role of obstetricians has been paternalistic, and women have complied with their recommendations based on the balance of power in the physician–patient relationship. Many complex factors may contribute to obstetricians' viewpoint about maternal choice and elective caesarean birth, and attitudes among obstetrician appear to be changing.

Several studies have examined maternal choice of caesarean section from the obstetricians' point of view and found that physicians may play an important role in promoting elective caesarean delivery to individual women (62,63). Physicians may push their patients toward requesting caesarean section with remarks that imply that it may be needed. The result of one European study exploring the attitudes of obstetricians showed that > 75% of German and British obstetricians

accepted CBMD, as did even 22% of obstetricians in the Netherlands where the caesarean rate was lowest (64). Wax and colleagues found that 8.3% of obstetricians surveyed cited convenience as a reason for giving birth by CBMD. Timing of caesarean deliveries is important to physicians. Lo has suggested that an increased rate of caesarean sections in the United States of America may occur in the last week of December so parents can take advantage of a tax deduction (65). Physicians have to juggle office visits, surgeries and deliveries during the day. Vaginal deliveries and emergency caesarean deliveries may keep a physician awake all night and result in significant fatigue. Planned elective caesarean deliveries can improve the schedule of the physician who schedules deliveries at their convenience (66). A caesarean section takes about 30 minutes compared to assisting with vaginal birth,

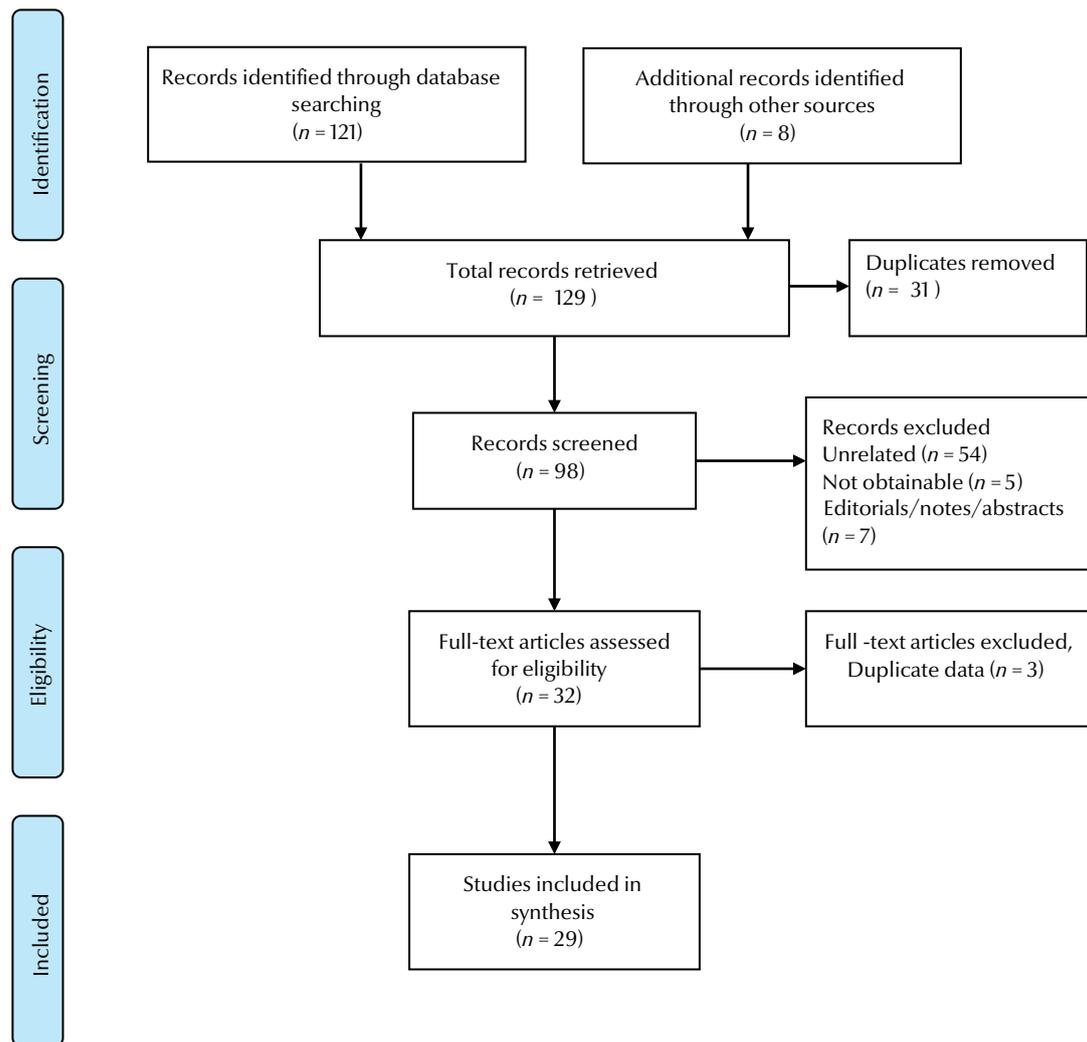


Figure 1. PRISMA flow diagram for systematic review

which may take up to 12 hours or more (67). In summary, physicians play an important role in a woman's decision to request a caesarean section. Convenience, physician fatigue and legal issues play a role in the attitude of physicians to encourage women to request a caesarean section.

Study limitations

There were some limitations to this review. First, the quality of studies that were analysed in this review was not examined. Second, some of the studies evaluated women's preferences and not actual demand for caesarean section. Therefore, the actual factor behind

CBMD cannot be inferred from those data.

Conclusion

This review may have implications for the health system, researchers and clinicians. The results suggest that the following factors may influence women's childbirth decisions: fear of vaginal birth pain, concern about infant safety, fear of urogenital trauma during vaginal birth, prior complicated vaginal childbirth, recommendation of family and friends, and opinion of healthcare providers (obstetricians or midwives). Considering the key reasons for caesarean section, providing effective interventions

such as educational programmes to gain appropriate knowledge, enhancing the quality of vaginal birth services, and solutions to reduce the healthcare providers' recommendation for unnecessary and not-indicated caesarean sections are important.

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