

Factors Influencing Women's Choice of Vaginal Birth After Cesarean(VBAC): A Narrative Review

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ARTICLE INFO	ABSTRACT
<i>Article type:</i> Original article	Background & aim: High cesarean section rate are primarily due to the frequent occurrence of repeated cesarean sections. The World Health Organization aims to reduce repeated cesarean sections in low-risk women by promoting vaginal birth after cesarean section (VBAC), as an alternative. The objective of this review was to determine the factors that affect the decision to pursue VBAC.
<i>Article History:</i> Received: 26-Sep-2023 Accepted: 06-Dec-2023	Methods: This narrative review was conducted using the scale for narrative review articles (SANRA). To conduct the review, various databases including Scopus, Pub Med, Web of Science, and Embase were searched. The search process was done by relevant keywords including vaginal birth after cesarean section, repeated cesarean section, trial of labor after cesarean section, and their Persian equivalents. The study, which lasted Until January 12, 2023. The retrived studies analysed using a qualitatively synthesis excluding conference papers, short communications, editorials and those without full-text.
<i>Key words:</i> Cesarean Section Repeat Cesarean Section VBAC Trial of Labor	Results: Out of eligible studies, 24 were included in the review. The decision to pursue natural childbirth after a cesarean section is influenced by five primary areas. These areas encompass factors associated with healthcare organizations, gynecologists, midwives, mothers, and the individuals surrounding them. The final decision can be influenced by various factors, either positively or negatively.
	Conclusion: The selection of VBAC is influenced by various factors, which should be considered in intervention programs aimed at increasing VBACs and reducing repeated cesarean sections.

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Introduction

The procedure of cesarean section involves cutting the abdominal wall and uterus to remove the fetus, placenta, and membranes. This practice is essential in necessary situations as it protects the lives of both the mother and child (1). Cesarean delivery is associated with maternal mortality. Complications that may arise from this surgical procedure include bleeding, infection at the surgical site, and venous thromboembolism.

Among the severe maternal complications, blood transfusion disseminated intravascular coagulation, and hysterectomy are the most prevalent (2). Approximately one-third of the infants delivered via cesarean section are admitted to the intensive care unit. The prevailing diagnoses observed in these term infants are transient neonatal tachypnea and respiratory distress syndrome (3). The implementation of cesarean section has proven

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to be an effective measure in reducing the fertility rate of the country. The procedure, however, has potential complications like preeclampsia, abnormal placental penetration, and premature birth, which can hinder future childbirth and decrease overall birth numbers. According to the general policies governing population increase, adopting a reasonable approach to reducing the cesarean rate is deemed imperative (4). As per the report from the World Health Organization, the cesarean section rate accounts for 10-15% of all births (5). The global cesarean rate has surged from 6.7% in 1990 to 21% in 2021, marking a remarkable growth of 14.3%. Data collected from 154 countries revealed that 21.1% of women globally underwent cesarean section deliveries (6). Global cesarean section prevalence is expected to rise significantly over the next decade, accounting for 29% of all births by 2023, accounting for nearly one-third of all deliveries (7). The prevalence of cesarean section procedures in Iran ranges from 40-60%. The rate of cesarean section in Iran has increased from 35% in 2000 to 56% in 2013, while slightly decreased to 50.77% in 2018. In 2021, the cesarean section rate in Iran was 54.02%, which is far from the global standard (8), with the occurrence of prior cesarean sections being the primary factor contributing to this high rate. In the United States, over one-third of cesarean sections are attributed to repeated cesarean sections (9). The increased rates of obstetric complications, such as hysterectomy, blood transfusion, and placental adhesion, are observed in cases of repeated cesarean section. The incidence of placenta previa escalates from 10 per 1000 cases in a single cesarean section to 28 per 1000 cases in three cesarean sections (10). Women who have previously undergone a cesarean section are confronted with two choices, namely ERCS and TOLAC (Trial of labor after cesarean delivery) when selecting the method for their next delivery (11). The World Health Organization aims to decrease the rate of cesarean sections, with a particular focus on reducing repeat cesarean sections in low-risk women (12). VBAC (Vaginal Birth After Cesarean) is considered one of the viable alternatives to repeated cesarean sections. Women who aspire to have a VBAC are required to undergo TOLAC,

which refers to a trial of labor after cesarean section (13). In 1988, ACOG (Elective repeat cesarean section) recommended that women who have previously undergone a transverse cesarean section should receive counseling regarding their subsequent delivery method unless there are any contraindications (14). The available evidence strongly indicates that VBAC is a safe procedure and a reasonable choice for the majority of women (15). The occurrence of maternal complications and the likelihood of experiencing complications in future pregnancies are significantly reduced with a successful VBAC. Moreover, it diminishes the chances of surgical complications and the need for an extended hospital stay (16). The careful selection of mothers plays a crucial role in decreasing the occurrence of unnecessary cesarean sections. Most women who have previously undergone a cesarean section can safely have a vaginal delivery if the patient's selection is accurate and the procedure is performed under proper supervision (17). Flam et al. proposed a scoring system that incorporates five variables to predict the success of (VBAC), including maternal age (below 40 years), dilatation (4 cm or more), effacement (75% and above), history of the natural childbirth, and cause of the previous cesarean section (specifically, lack of unfavorable progress of labor) are among the predictors of a successful VBAC (18).

The topic of VBAC continues to be a controversial issue. Despite the presence of global recommendations, gynecologists in both private and public healthcare sectors often advise women to opt for a repeat cesarean section (19). The primary cause of the elevated cesarean section rate, as identified by the association of midwives and active women's groups, is the lack of selection of VBAC in pregnant women. However, service providers are unwilling to assume the risk associated with VBAC (19). To enhance the promotion of natural childbirth following a cesarean section, it proves beneficial to identify barriers and address challenges (20). According to a study conducted by Firoozi et al. (2020), the hindrances to perform VBAC included the fear and negative attitudes exhibited by healthcare service providers and pregnant women (21). In a

separate investigation carried out by Firoozi et al. (2020), it was found that the primary determinant affecting women's decision to undergo VBAC is accurate and impartial counseling. Women must have the autonomy to make an informed decision regarding the mode of delivery (22). Unlike previous studies, this study considers all types of quantitative and qualitative studies and even examines the results of interventional studies, presenting a coherent categorization regarding factors influencing the choice of VBAC.

Despite the existence of international and national guidelines, the discussion surrounding VBAC after a cesarean section remains clouded by uncertainties and a lack of compelling statistical evidence. Several influential factors

contribute to the selection and implementation of this approach. Due to the limited number of conducted studies and the fragmented and inconclusive findings of some studies, the current investigation was undertaken to identify the determinants that impact the decision to opt for natural childbirth following a cesarean section. The aim of this study is to identify factors associated with the choice of VBAC, which can be used in planning efforts to reduce the cesarean section rate.

Materials and Methods

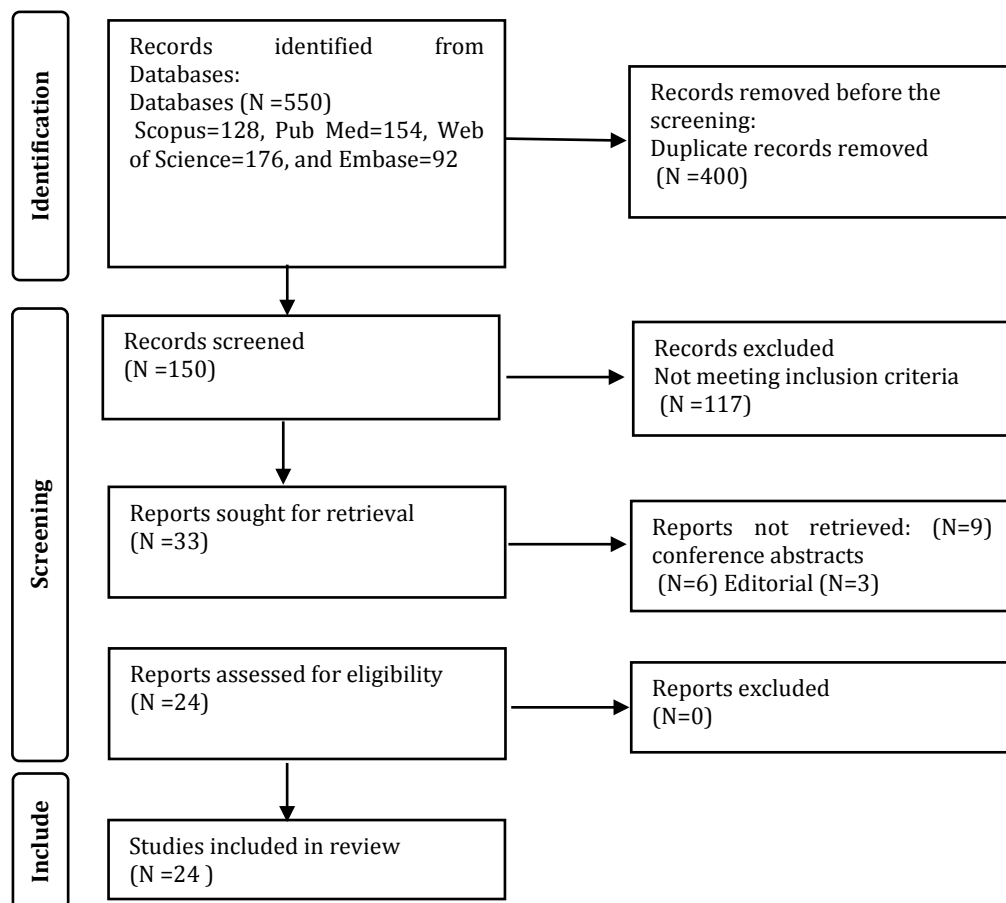


Figure1. PRISMA flowchart of the study selection

It adheres to the six-step evaluation scale for narrative review articles (SANRA), which includes: 1. Elucidating the significance of the study, 2. Establishing the objective of the narrative review, 3. Providing a comprehensive description of the search strategy, 4. Properly referencing sources, 5. Synthesizing pertinent evidence, and 6. Presenting data in an appropriate manner (23).

Resources and search strategy

To locate articles and texts about the factors influencing the decision to opt for a natural delivery following a cesarean section, extensive searches were conducted on various databases, including Scopus, Pub Med, Web of Science, and Embase. The search was not restricted by any time limit and encompassed all relevant material until June 1, 2023. The search terms employed were based on English keywords as per MESH, which included "Vaginal birth after cesareans," "Vaginal Birth after cesarean," "Trial of labor after cesarean," and "Repeated Cesarean section." The Farsi equivalent keywords were utilized to search the Persian SID, MagIran, and Iran Medex databases. Furthermore, the researchers conducted a manual search to identify the sources of articles that met the entry conditions. The search process was independently performed by two researchers (ZJ/MV).

The inclusion criteria in this study reviews all relevant articles, both quantitative and qualitative, that examine the factors influencing natural delivery after a cesarean section, Farsi or English language.

The exclusion criteria in Articles with no full-text access, Paper abstracts delivered at conferences, Letters to the editor or case reports, Non-Farsi or non-English language articles.

In the initial search, a total of 550 articles were discovered. Following the elimination of duplicate articles, a thorough evaluation was conducted on 150 articles to determine their compliance with the inclusion criteria. The study excluded 117 articles that did not meet the inclusion criteria. Furthermore, six article abstracts and three articles (letters to the editor) were excluded from the study due to having the exclusion criteria. The review comprised a total of 24 articles. The selection process for these

Table 1. Characteristics of the articles included in the study

articles adhered to the flowchart outlined in PRISMA 2021(24)(Figure 1).

The study involved a comprehensive examination of the complete content of 24 articles, where two researchers (ZJ/MV) collaborated to extract relevant data. If there was a lack of consensus among researchers regarding the selection of crucial data, the fourth researcher (MM), who holds a senior position would assume the responsibility of thorough examination of the articles and providing the ultimate assessment. The table for data extraction comprises various elements such as the name of the first author, the type of study conducted, the sample size, the year of publication, the country name, and the factors that influenced the decision to opt for VBAC (Table 1). The avoidance of quantitatively combining the results of the studies in this research was due to the nature of review, which was narrative. The data analysis encompassed a comprehensive evaluation of articles, qualitative summaries, and ultimate conclusions.

Results

Upon conducting the initial search, a total of 550 articles were identified. Following the elimination of duplicate articles, the titles and abstracts of 150 articles were thoroughly assessed based on the inclusion and exclusion criteria. Through the process of screening 117 articles were excluded, because they did not meet the inclusion criteria, and the remaining 33 articles were reviewed. The study excluded six article abstracts and three articles (letters to the editor) due to having exclusion criteria. The review comprised a total of 24 articles. Among them, 17 articles were authored in the last five years, while the remaining articles were written from 2006 onwards. (The articles were obtained from various countries, each exhibiting distinct cultural, social, and economic conditions (Table 1). The publications include four articles from European countries (26-29), ten articles from Middle East countries (20-22, 30-35,46), one article from South or East Asian countries (36), two articles related to Oceania (37, 38), two studies conducted in the African continent (39, 40), and five studies conducted in the North and Central America (41-45).

Author's name	Type of study	Sample size	Year	Country	Study sample	The influencing factor	
						Obstacle	Encouraging factor
Firoozi(20)	Cross-sectional	124	2006	Iran	Gynecologists, female residents, and midwives working in educational hospitals	Lack of legal protection for gynecologists	
McGrath P(37)	A qualitative methodological	20	2010	Australia	Mothers who gave birth at Hospital	-	Doctors' recommendations in support of VBAC during childbirth, midwives' support, awareness, and appropriate counseling Mothers' cooperation and awareness of the benefits of natural childbirth, attendance at childbirth preparation programs, and support of those responsible for natural childbirth
Darvishi(31)	Qualitative	30	2012	Iran	Mothers and gynecologists	-	
Scaffidi(43)	Cross-sectional	51	2014	Mid-Atlantic state	Pregnant women and women who have had a cesarean section in a high-level medical center	-	Mother's adequate knowledge
Lundgren (29)	Qualitative	71	2015	Ireland, Germany, and Italy	Midwives and women specialists	Midwifery's history, women's fear of childbirth, and specialists' concern about legal issues	Midwifery history, positive attitudes of key individuals, and participation in birth preparation classes
Black(26)	Systematic review	507	2016	UK, USA, China and Australia	Women with a history of cesarean section	Long-held birthing expectations and previous childbirth experiences	
Lundgren (27)	Qualitative	44	2016	Finland, Sweden, and the Netherlands	Gynecologists	The structure of the health care system	

Author's name	Type of study	Sample size	Year	Country	Study sample	The influencing factor	
						Obstacle	Encouraging factor
Ucar(33)	Cross-sectional	95	2018	Turkey	Midwives, nurses, and gynecologists in the delivery departments of public and private hospitals	Gynecologists' refusal to accept responsibility for VBAC	-
Chan(44)	Qualitative	11	2019	State of Florida	Maternity care providers and women with VBAC experience	-	Appropriate patient-provider interaction, recognizing and accepting the risk of VBAC, and physician discretion
Keedle(38)	Cross-sectional	11	2019	Australia	Women with a history of cesarean section	-	Confidence and trust in health care providers, control, support from health care providers, and active participation
Linn(36)	Cross-sectional	231	2019	Taiwan	gynecologists	-	Organizational structure and general facilities of the hospital
Firoozi(22)	Qualitative	28	2020	Iran	Gynecologists, midwives, and family physician, as well as mothers who underwent a previous cesarean section in hospital	Psychological obstacles include "fear," "financial dissatisfaction," and "a negative attitude." Operational obstacles include "obstacles to decision making" and "convenience seeking." "Fear of legal issues," "imposed policies,"	Officials' support, mothers' empowerment
Firoozi(46)	Qualitative	26	2020	Iran	Maternity care providers and mothers with previous cesareans	"marginalization of midwives," "the birth team that's not supportive of the mother," "lack of access to specialized	-

Author's name	Type of study	Sample size	Year	Country	Study sample	The influencing factor	
						Obstacle	Encouraging factor
Kurtz Landy(42)	Qualitative	39	2020	Canada	Maternity care providers	care," "inadequacy of the incentive system," "modeling in the cesarean section," "physician-centered." Patient clinical characteristics, health system structure, and service provider preferences	
Monari(28)	Clinical trial intervention	20496	2020	Italia	Gynecologists working in maternity service centers Women with previous cesarean sections in a maternity care center	-	Training and motivating female specialists
Keedle (38)	Qualitative	33	2020	Australia	Women with previous cesarean sections in a maternity care center	-	Appropriate interaction with midwives
Hala (40)	Descriptive	66	2020	Egypt	Midwives	-	Knowledge and positive attitudes of midwives about VBAC Mothers' positive attitudes, and normative beliefs (emphasis on VBAC by influential individuals)
Bairami(30)	Qualitative	24	2021	Iran	Women who were pregnant or previously had a cesarean section	Controlling beliefs (individual and social obstacles and facilitators).	
Firoozi(35)	Qualitative	25	2021	Iran	Women with previous cesarean sections and health care workers	"Unsupportive social views," "ineffective care," and "fear of childbirth"	-
Sarah Munro(41)	Cross-sectional	307	2021	British Columbia, Canada	Health care practitioners	-	Timely access to emergency cesarean section, increasing the number of anesthesiologists and their availability, joint decision-making, and teamwork
Pakdaman (32)	Review study	12 studies	2021	Iran	All studies included women with previous cesarean section	Inadequate VBAC studies in Iran	

Author's name	Type of study	Sample size	Year	Country	Study sample	The influencing factor	
						Obstacle	Encouraging factor
Hussein (34)	Cross-sectional	183	2021	Saudi Arabia	Gynecologists and obstetricians	Personal, cultural, organizational, legal factors, financial considerations in the gynecologist's decision to perform CS, doctors' beliefs and personal preferences	-
Ibrahim (45)	Qualitative	1711	2021	USA	Women with a history of VBAC	-	Acquiring knowledge, forming a committee of VBAC supporters
Fatimat M. Akinlusi (39)	Cross-sectional	216	2023	Nigeria	Women with a previous cesarean section who were referred to a prenatal clinic in a third-level hospital		Awareness of women's preferences

The reviewed studies have highlighted that several factors impact the decision of vaginal birth after cesarean section. These factors can either serve as encouraging factors or obstacles when considering a vaginal birth after cesarean section. Factors influencing the choice of VBAC are categorized into five groups: healthcare organizations, Gynecologists, midwives, mothers, and Surrounding people (Table 1).

The selection of natural childbirth after a cesarean section is influenced by various factors that can be categorized into five primary domains: healthcare organizations, gynecologists, midwives, mothers, and the individuals in their immediate environment. Each of these areas can have either a positive or negative impact (Table 2).

Table 2. Influencing factors of the choice of Vaginal birth after cesarean section

Field name	Influencing factors
Healthcare organizations	Teamwork (41) - hospital policy (22) - access to non-drug methods (41, 42) - support of officials (21, 31) - access to emergency cesarean (27, 41) - support committees (45) VBAC-oriented physicians (22)
Gynecologists	Attitude (21, 34) - knowledge (28) - skill (28) - awareness of mother's preferences (39) - financial interest (34) - incentives (22, 28) - legal support (20) - convenience seeking (21), 33) - non-supportive birth team (22) - doctor's personal preference (34, 42)
Midwives	Attitude (21, 29, 40) - knowledge (40) - skill (40) - midwives' position (38) - financial incentives (21) - unsupportive birth team (37)
Mothers	Attitude (21, 30) - awareness (31, 37, 43, 45) - participation in childbirth preparation classes (29, 31) - previous childbirth experience (26)
Surrounding people	Attitude of family (29, 30) - friends' attitude (30) - family support (29)

1. Healthcare organizations

The organization's capacity to create a supportive environment directly affects the frequency of women's VBAC requests. The rate of VBAC can be influenced by effectively organizing the VBAC care team and by motivating hospital administrators and the medical team through the presentation of research project findings on the safety and advantages of VBAC (22). Effective measures to address the challenges hindering VBAC in the healthcare system involve the establishment of specialized VBAC counseling centers, the adoption of policies focused on increasing motivation, fostering a culture that supports natural childbirth, promoting teamwork and joint decision-making, and enhancing the proficiency of maternal care providers in implementing clinical guidelines (21). The determinants for VBAC encompass the organization's characteristics and provisions, such as the time required to move the mother from the delivery room to the operating room and the hospital's overall capabilities in managing birth complications caused by VBAC. VBAC rates are influenced by several organizational factors, including the quality of care received throughout pregnancy and delivery, the decision-making process, and the implementation of fear-reducing strategies (27). Strategies such as gaining a comprehensive understanding of VBAC principles, fostering teamwork, and seeking out advocates for VBAC play a crucial role in influencing the success rates of VBAC procedures (45).

1. Gynecologists

Gynecologists wield significant influence over the selection of delivery methods for mothers. Moreover, mothers must be empowered to make informed decisions in partnership with the healthcare providers and receive unwavering support for their choice of birth. The correct and unbiased consultation of gynecologists is vital in assisting this group of mothers (37). Gynecologists' decisions regarding cesarean sections are influenced by personal beliefs, doctor's preferences, and understanding of risks associated with birth after VBAC (34). Gynecologists recognize the entitlement of pregnant women to pursue VBAC;

however, they exhibit hesitancy in bearing responsibility for it. They perceive VBAC as a dangerous procedure and emphasize the absence of legal protection as the foremost obstacle concerning VBAC (20). Training and inspiring gynecologists to conduct VBAC procedures results in enhanced healthcare standards and increased VBAC rates (28).

2. Midwives

In the decision-making process for mothers with a history of cesarean section, midwives and their interactions are pivotal factors that determine the type of delivery. Additionally, it is the right of mothers to receive accurate and non-biased advice from competent and skilled midwives, ensuring they make informed choices (21). Mothers who actively involve midwives are better able to assert control over their decisions and emotions, as midwives provide positive reinforcement for their choice to undergo a VBAC (38). Women who exhibit a higher likelihood of being active and independent during childbirth are often observed in this group. Conversely, those women who have experienced fragmented care tend to possess a diminished sense of independence and respect (38).

3. Mother

The decision regarding the type of delivery is significantly influenced by the knowledge possessed by mothers. The preference for VBAC is positively correlated with a better understanding of the advantages and disadvantages of both delivery methods (43). The increase in knowledge significantly reduces the fear and anxiety experienced by mothers during childbirth. The decision regarding the mode of childbirth is greatly influenced by deep-rooted societal expectations and past experiences of giving birth (26). Mothers face a dilemma in deciding whether to have a VBAC due to various emotional, social, and healthcare system issues. Adequate physical and mental preparations are essential during pregnancy to promote a natural childbirth experience for mothers. Possessing a comprehensive understanding of the risks and advantages of cesarean section and natural childbirth is crucial for mothers to make informed decisions and better choices (31). Mothers with a sense of

control and high self-confidence are more likely to establish a continuous supportive relationship with their healthcare provider and actively participate in their work (38). Policymakers should prioritize individual factors influencing pregnant women's decision-making regarding delivery type when expanding VBAC. The factors considered include mothers' awareness and attitudes towards childbirth (30).

4. Surrounding individuals

The significance of encouraging pregnant mothers and fostering their self-assurance cannot be overstated, as it significantly impacts their decision to pursue a vaginal birth after a cesarean section (27). Mothers who enjoy the support of their husbands, friends, and family will grasp this support and excel in handling the fear of natural childbirth (47). Beta-endorphins, derived from proopiomelanocortin, released by neurons in the hypothalamus, spinal cord, brain, and pituitary gland exhibit a strong affinity for opioid receptors, effectively inhibiting the release of pain neurotransmitters while simultaneously enhancing the release of dopamine along nerve pathways. Consequently, they provide significant pain relief (48). The mother's persistent and intense anxiety has a significant impact on the fetus, increasing its vulnerability to glucocorticoids. However, the husband's presence and his supportive role are effective in alleviating the mother's fear and anxiety. This, in turn, results in a reduction in negative attitudes (49).

Discussion

The objective of this study was to identify the factors that influence the occurrence of natural childbirth following a cesarean section. either serve as encouraging factors or obstacles when considering a vaginal birth after cesarean section . Factors influencing the choice of VBAC are categorized into five groups: healthcare organizations, gynecologists, midwives, mothers, and surrounding people.

One of the factors influencing VBAC is **healthcare organizations**. In the research conducted by Keedle et al. (2019) , the assistance provided by officials and the support team and Healthcare organizations emerges as a significant factor influencing VBAC. This finding

has been corroborated by three additional studies (22, 31, 38, 45). The structure of a country's maternity care system is a significant factor in countries with high VBAC rates, according to professionals and childbirth specialists (27). It appears imperative to implement policies aimed at enhancing the endorsement and preference of health organization officials and medical personnel towards VBAC. The authorities should prioritize addressing the deficiencies and establishing optimal conditions for natural childbirth in maternity hospitals (31). The knowledge and assistance provided by hospital managers and heads of natural childbirth programs, particularly in the case of VBAC, hold immense significance (60). The knowledge and assistance provided by hospital managers and heads of natural childbirth programs, particularly in the case of VBAC, hold immense significance (60). Therefore, it is recommended that the Ministry of Health places greater emphasis on this issue by introducing training programs or instructional guidelines that should be enforced by the heads.

Another factor influencing VBAC is **gynecologists**. The financial incentives of the Gynecologists have been confirmed to be a significant factor in influencing the decision for natural delivery after a cesarean section, as evidenced by three studies (22, 28, 34). It appears imperative for governments to prioritize this category while devising strategies to minimize the occurrence of repeated cesarean sections.

The majority of the aforementioned articles employ qualitative or descriptive-analytical approaches in their research methodology. The findings of this study provide a comprehensive analysis of the various factors that impact the decision to opt for a vaginal birth following a previous cesarean section. The findings of study suggest that the choice of natural childbirth after a cesarean section is influenced by multiple factors, rather than a single effective factor. Moreover, these factors have interdependent effects on each other. Five studies have been conducted, revealing that the fear of legal complications plays a significant role in the decision-making process for opting for natural childbirth after a cesarean section (20, 22, 27, 33, 34). Moreover, it appears that the presence

of legal support from experts and midwives plays a crucial role in promoting the increase of VBAC Darvishi et al (2012) and Lundgren et al (2016) found that attending childbirth preparation classes is a significant factor influencing the likelihood of having natural childbirth after a cesarean (27) (31). These classes are designed to alleviate the anxiety experienced by pregnant women and empower them to make informed decisions about natural childbirth. Additionally, these classes play a crucial role in reshaping individuals' perceptions of natural childbirth, fostering a positive mental image (50). These classes have demonstrated a remarkable positive influence on mothers who have undergone a transverse section cesarean, as their participation significantly enhances the likelihood of achieving a successful VBAC.

Another factor influencing VBAC is **midwives**. Three studies emphasized the pivotal role of midwives and their interaction in the context of VBAC (22, 38, 40). The support provided by midwives holds immense value, with some mothers considering them as their main advocates (37). Midwives' continuous assistance, coupled with adherence to the principles of natural childbirth, proves highly effective in diminishing the intensity of pain experienced during the second stage of labor (51). Midwives actively contribute to empowering women (52). Midwives' continuous support of mothers has several physiological and psychological benefits. It effectively reduces the intensity of labor pain, leading to a significant decrease in painkiller usage and improved outcomes during pregnancy and childbirth (53). Nevertheless, midwives frequently confront various challenges in their work environment (54). In addition to the great responsibility and the demanding workload they face, midwives also encounter insufficient income, minimal leave, and a lack of motivational incentives (55). The analysis suggests the need for strategies that provide substantial support to maintain the dynamic nature of the midwifery profession for an extended period. These policies should enhance the role of midwives in society and promote increased maternal-midwifery engagement. The role of mothers' awareness in VBAC has been highlighted in the studies conducted by McGrath P et al (2010), Darvishi et al (2012), and Scaffidi et al (2014) (31, 37, 43).

It is a requirement for mothers who have previously undergone a cesarean section to participate in childbirth preparation classes to increase their awareness regarding the benefits of natural childbirth and the risks associated with repeated cesarean sections.

Another factor influencing VBAC is **mothers**. According to the studies conducted by Firozi et al (2020) and Lundgren et al (2016), the reduction in VBAC rates can be attributed to the fear of natural childbirth among cesarean section mothers (21, 27). The fear associated with childbirth poses a significant challenge for women throughout their pregnancy and after giving birth. This psychological concern often leads women to request medical intervention and the physiological termination of labor (56). The primary reason behind the fear of childbirth is the apprehension of experiencing pain. It is crucial to acknowledge that fear is an inseparable component of the childbirth process while examining the key factors contributing to this fear. Consequently, it becomes imperative to adopt strategies that effectively alleviate this fear (57). Providing fear control and management techniques as part of an educational program in childbirth preparation classes should be given greater consideration. The effectiveness of introducing novel educational programs appears to be successful in managing the fear associated with natural childbirth.

Another factor influencing VBAC is surrounding individuals. The endorsement of surrounding individuals in VBAC has been substantiated in three studies (27, 30, 32), signifying its effectiveness as a contributing factor. The emotional interaction between the husband and the pregnant woman holds immense value during childbirth. In the past, the birth process was traditionally associated with femininity; however, contemporary perspectives on pregnancy and childbirth have transformed. The emotional bond between partners during the childbirth journey begins with the optimistic emotional disposition of the spouse before delivery. This influence can emotionally inspire women to opt for natural childbirth and contribute to cultivating a positive perception of natural childbirth among mothers (58). During the childbirth preparation sessions, the wives are expected to actively engage in the third and

eight sessions, where counseling will be provided exclusively for them. Participating in these classes can increase the emotional support from spouses, alleviate childbirth fear, and enhance the positive birthing experience for wives, thereby gaining empowerment as mothers (49, 59). In the planning stages of VBAC, it is vital for men to actively participate in counseling sessions and the birth process. In addition to women's knowledge, men must acquire a comprehensive understanding of the natural childbirth process following a cesarean section.

This research has identified the variables that impact the decision to opt for natural childbirth following a cesarean section, considering different aspects and perspectives, including gynecologists, midwives, and mothers. This research demonstrates a significant strength in its incorporation of geographically dispersed studies. Notably, it is the first study to effectively examine factors of importance from diverse aspects. The failure to assess the quality of the articles incorporated in the study can be attributed to the diverse range of methodologies and approaches employed, along with the constraints imposed by language when searching for sources that deviate from the limitations of this particular study. In future research endeavors, it is recommended that other scholars investigate alternative factors through the perspective of various key individuals (including wives, family members, and friends), and accord precedence to the most crucial and impactful factors. The findings of this study can serve as a basis for intervention planning to increase the rates of natural childbirth and decrease the occurrence of repeated cesarean sections, thereby minimizing the complications associated with cesarean deliveries.

Conclusion

The examined studies in this review revealed factors influencing the decision to opt for natural childbirth following a cesarean section. The findings indicate that numerous factors play a role in the decision-making process for VBAC, with each factor having the potential to yield positive or negative outcomes. It is crucial to consider all these factors when designing intervention programs aimed at promoting VBAC and minimizing the need for repeat

cesarean sections. Appropriate strategies are necessary to secure the support of hospital managers, cultivate a culture that promotes natural childbirth, provide VBAC consultations, raise awareness, counselling with spouses and key individuals, enhance the knowledge and skills of service providers regarding VBAC, and implement motivational incentives for the treatment team to improve the quality of childbirth preparation classes. Hence, the findings of this research can be utilized in the development of intervention strategies aimed at promoting vaginal birth after cesarean section and reducing the occurrence of repeated cesarean sections.

Declarations

Acknowledgments

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Conflicts of interest

The authors declared no conflicts of interest.

Ethical considerations

Throughout the implementation of this study, utmost attention was given to ethical considerations associated with review studies. These considerations encompassed maintaining accuracy in the evaluation process, involving all authors in the review process, clarifying the roles of study authors, protecting the intellectual property of studies through appropriate citation, and avoiding data manipulation or distortion when selecting, excluding, or interpreting the results from the evaluated articles (25).

Code of Ethics

This research is classified as a narrative review, following the ethical guidelines of IR.MUI.NUREMA.REC.1401.175.

Ethical approval

Not applicable.

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Authors' contribution

All authors participated in gathering information, searching, and contributing. The initial draft was prepared by the first and second authors(MV/ZJ), and all authors oversaw it(MV/ZJ/MM/FA).

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