



Dramatic Rise in Cesarean Birth in Iran: A Coalition of Private Medical Practices and Women's Choices

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Abstract

Objectives: Cesarean delivery without medical indication has regularly increased among Iranian women in the last three decades, and Iran has one of the highest rates of cesarean in the world. The present study aimed at reviewing the studies regarding the increase of cesarean in Iran and discussing the root causes for such an increase.

Methods: This literature review focused on the existing quantitative and qualitative studies conducted from January 1990 to January 2019 regarding the reasons for an increase in the cesarean section in Iran. The combination of keywords including “cesarean section”, “C-section”, “cesarean delivery”, and “Iran” was searched in several databases such as MEDLINE/PubMed, Embase, ISI Web of Science and Scopus, along with national databases (e.g., SID, MagIran, Iran Medex, and IranDoc).

Results: A dramatic rise in cesarean birth stems from a number of factors including the role of health care professionals, insurance companies, socio-cultural factors, and the health policies, all of which have their roots in the medicalization of birth.

Conclusions: In general, reducing the cesarean on maternal request necessitates the de-medicalization of birth, cultural awareness through the mass media, informing women of the long-term complications of cesarean, and physical and mental preparation of the mother. In addition, other contributing factors include encouraging inter-professional teamwork and collaboration between midwives and obstetrician-gynecologists, transforming the current curriculum of the midwifery and residency education, applying the midwifery-led care models, and decreasing the fear of litigation in midwifery and obstetrics-gynecology. Otherwise, maternal and fetal mortality will rise in the near future due to increased complications in subsequent pregnancies.

Keywords: Cesarean section, Natural childbirth, Delivery, Medicalization, Iran

Introduction

Cesarean delivery is defined as the birth of a fetus through incisions in abdominal and uterine walls (laparotomy and hysterotomy) when the natural vaginal delivery (NVD) is not simply possible, and the life of the mother or baby may be at risk without a cesarean section (CS). The invention of this surgical technique is one of the human achievements in reducing maternal and fetal mortality and morbidity (1). Currently, CS has dramatically increased in the world and the rate of CS without medical indication is rising (2), which is globally carried out as one of the most common surgical procedures every year, namely, nearly around 18 million cases annually which is 6 million more than the recommended rate by the World Health Organization (3). The number of CS in developed countries increased in the second half of the 20th century, as in the United States where the rate of 4.5% of all births in 1970 rose to 25% and 38% in 1988 and 2007, respectively (4). The steady increase in the rate of CS in the United States was due to reduced fertility rates and, consequently, an increase in the

number of nulliparous women, an increase in the average age of mothers during childbirth, and the increasing use of continuous electronic fetal monitoring during labor. Further, the other reasons included planned CS in breech presentation, reduced operative NVD using a vacuum extractor or forceps, increased use of labor induction, the high prevalence of obesity, increased rate of CS in women with preeclampsia, limited number of vaginal birth after CSs, and litigation for medical malpractice relating to labor and NVD (1).

The ratio of CS to total birth is one of the important health indicators. A ratio of less than 5% of CSs shows that a significant number of women have no access to surgical facilities for pregnancy. On the other hand, the ratio above 15% represents the use of CS for reasons other than saving the lives of the mother and the fetus (3). CS posing extraordinary challenges to the health system imposes extra charges of more than 2 million dollars on the US health system (5). Despite the ideal rate for CS, which has been between 10% and 15% from 1985 until

Received 9 July 2019, Accepted 18 January 2020, Available online 15 February 2020

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now, world organizations and medical associations' efforts are to provide CS to women who need the technique instead of attempting to reach a specific rate. If CS is used in essential cases, it effectively prevents maternal mortality during pregnancy and childbirth. However, research does not list more than 10% of essential CS cases with reduced maternal and fetal mortality rates, and there are no indications on the benefits of CS for women and infants who do not need this procedure (6). According to a Cochrane systematic review, no clinical trial has been conducted to assess the risks and benefits of CS without medical indications so that, based on the results, no clinical recommendations can be made for the planned CS for non-medical reasons (7).

Doing CS without medical indication and based on the physician's suggestion or the mother's preference has normally significant negative consequences in health equity within and among the countries (3). Unequal access to CS in each country can be an indicator of the lack of access to emergency care in areas with a lower socioeconomic level, and consequently, the high range of CS without medical indications in the richest sub-groups of the country, especially in countries with an average income level (8). Although CS has recently become safer because of anesthetic and surgical techniques (7), this technique, like any other surgery, has short-term and long-term complications that can last for years after delivery and affect the health of the women, children, and later pregnancies (6). According to previous evidence, the mortality and morbidity of CS, especially the risk of bleeding, sepsis, thromboembolism, and amniotic fluid embolism are approximately 5 times higher than normal delivery. Furthermore, technical problems due to adhesions increase the risk of injury to the bladder and bowel in future pregnancies. Although CS can save the fetus's life in jeopardy, rising neonatal morbidity and mortality such as iatrogenic preterm delivery and respiratory morbidity has raised in countries in which there is an increase in the CS rate. For example, neonatal adaptation, body temperature maintenance, glycemia, and abdominal respiration are delayed and immune system development is also affected in infants born with CS. Therefore, it is recommended that CS takes place only with medical indications (9). Moreover, although CS decreases the risk of urinary incontinence and pelvic organ prolapse, it increases the risk of obesity in children. The short-term complications of CS are well-described in the literature, but women are less aware of the long-term benefits and risks of CS on themselves, their children, and their future pregnancies. CS is associated with subfertility and some risks in future pregnancies, including placenta previa, uterine rupture, and the need for hysterectomy and stillbirth (10). The short-term potential benefits of CS, in comparison with planned NVD (women with natural childbirth or the ones who will require CS during labor), include the lower risk of bleeding and blood

transfusions, fewer surgical complications, and reduced incontinence in the first year after delivery. Regardless of attention to the balance between the benefits and disadvantages, the American College of Obstetricians and Gynecologists suggests that planning for natural delivery is safer and more suitable in the absence of maternal and fetal indications. Additionally, CS by maternal request is undesirable for mothers who seek to have several children because the risk of placental adhesion disorders, placenta previa, and hysterectomy increases with each CS (11,12).

According to statistics, Turkey (47.9%) and Iran (47.5%) have the highest rates of CS in Asia, respectively (13). The prevalence of CS among Iranian women has permanently increased in the last three decades. The statistical analysis of the Demographic and Health Survey showed that 35% of Iranian babies were delivered by CS (14) and this rate increased significantly and reached 48% in 2009 (15). In two recent systematic review and meta-analysis studies in Iran, the prevalence of CS has been reported to be 48% (16,17).

In a recent study (18), the ratio of CS has been reported 72% in Tehran and 91.7% in private hospitals, which is significantly more than public hospitals (62.6%). The prevalence of CS in multiparous women has been reported by 71.8% in Tehran (19). Although the government has attempted to reduce the average of CS in the health reform plan, it seems that, contrary to the original goals of the plan, CS has moved from public to private hospitals (20). Recent studies in other cities and provinces of Iran (i.e., Mazandaran, Fars, Hamedan, and Shiraz) have confirmed the increased prevalence of CS as well (21,22).

It seems that scientific advancements, socio-cultural changes, and medical and legal considerations are the main reasons for increasing the CS rate among the countries (23) to the extent that both mothers and obstetricians consider CS as the safest method of childbirth (24). The policies of the Iranian Ministry of Health and Medical Education, including implementing mother-friendly hospitals, providing standard protocols for pain relief in labor, holding workshops for midwives and gynecologists have not been highly successful (25), and new policies have encountered a long difficult path. The ratio of nearly 50% of CS is extremely alarming and can seriously jeopardize the health of mothers and their children in the near future highlighting the need for in-depth explorations of this area. Therefore, the present study aimed to summarize the literature regarding the increase of CS in recent years in Iran.

Methods

This research is a literature review regarding the reasons for increased CS in Iran. Different related quantitative and qualitative studies (from 1990 to January 2019) from reliable Persian language databases including Magiran and Scientific Information Database (SID) of Academic Center for Education, Culture and Research, and information

database of Iranian medical articles (IranMedex), as well as English databases such as MEDLINE/PubMed, Embase, ISI Web of Science and Scopus and Google Scholar were searched in English and Persian using keywords such as “cesarean section”, “C-section”, “cesarean deliveries”, and “Iran”. Research on CS and the reasons for its increase in Iran published in national and international journals was the main focus of the study. Articles related to the causes of a decrease in normal delivery were included in the research as well. Finally, the findings were classified into four areas including the role of health care professionals, insurance companies, social-cultural factors, and health policies (Figure 1).

Results

Factors Contributing to the Rapid Rise of CS in Iran

In a recent study in Iran (26), the most common causes of CS were repeated CSs (52.9%), CS on maternal request (7.5%), meconium staining (6.1%), fetal distress (5.0%), and breech presentation (4.5%), respectively. In addition, statistically significant associations were observed between CS reasons, and age ($P < 0.001$), the number of previous pregnancies ($P < 0.001$), and the previous delivery method ($P = 0.010$). In a systematic review, women’s educational level, multiparity, previous CS, fear of childbirth, and doctor’s recommendation were the most important reasons for performing CS in Iran (16). Socio-demographic factors such as delays in the age of marriage and childbearing rise among women at the educational level, mothers’ employment, low economic status, living in urban areas, ethnicity, access to health insurance, housing situation, and family size were associated with CS as well. Furthermore, maternal and obstetrical risk factors such as lower parity, previous delivery history, body mass index, weight, head circumference of the newborn, history of abortion, infertility, and assisted conception were also associated with CS (14,17,19,27-29). Further, provincial differences in the rate of CS have a significant relationship with socio-economic development indicators (14). However, the good social-economic situation was

not the only reason for the prevalence of elective CS in nulliparous women in Iran, and elective CS was also increasing among mothers with low socio-economic status. Furthermore, decreasing the fertility rate in Iran, having health insurance, and increasing access to health services have been reported as important factors in increasing elective CS (30).

The woman’s preference for CS has also affected the childbirth method (31). Psychological factors such as self-esteem, self-efficiency, and perceived stress influenced the method of delivery while social support and quality of the marital relationship were not correlated with the delivery method (32). Among individual and social factors affecting CS, the educational level, employment, and maternal age had the greatest impact (17). The perceived picture that CS babies are more intelligent than NVD babies, lower maternal and neonatal morbidity and mortality after elective CS, scheduled delivery, charges for CS supported by supplemental medical insurance, socio-cultural perceptions around prestige, and the mistreatment of women during labor were the factors that persuaded them to select CS in Iran (33, 34). In a qualitative study, the maternal request for CS was related to the fear of NVD (labor pain and damage to mother or fetus), postpartum complications (i.e., vaginal prolapse, urinary incontinence, and sexual dysfunction), trust to the gynecologist, and the lack of trust in the midwife (35).

Health Care Professionals and Their Contribution to the Increasing Cesarean Delivery Rate

Obstetricians-Gynecologists

In studies regarding the main factors of doctors’ tendency and their recommendations toward CS in Iran, several factors were mentioned, including belief in painfulness and long-lasting process of NVD, respect for women’s rights in choosing the mode of delivery, and the possibility of scheduling delivery for saving time for physicians. Further, other factors included less stress and financial incentives, fear of malpractice, heavy costs of blood money and insufficient support of physicians’

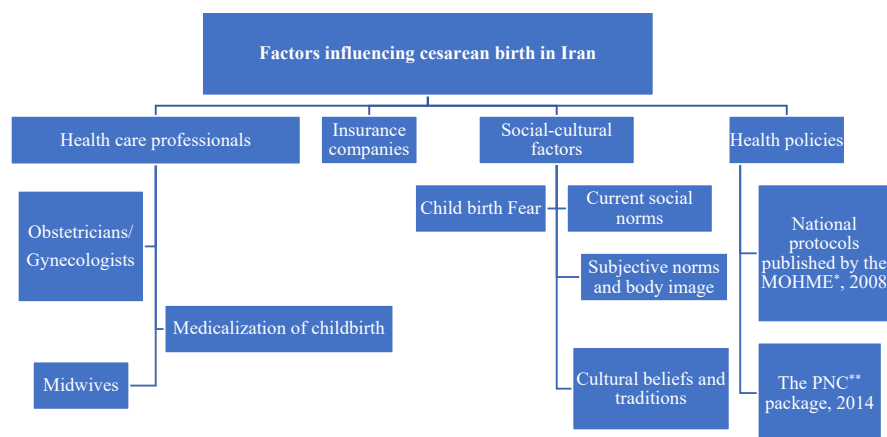


Figure 1. Factors Influencing Cesarean Birth in Iran. Note. *MOHME: Ministry of Health and Medical Education; **PNC: Promotion of natural childbirth.

professional liability insurance, requests for not doing a CS in challenging cases, and lower tariffs and payments for NVD (36). Furthermore, the reasons for prioritizing CS by most doctors were heavy costs of blood money and inappropriate punishment of doctors for medical malpractice, unfair judgments in the court due to the lack of individuals' medical skills to detect medical errors, the lack of liability insurance support from doctors, support of the court from the patient, and doctors' condemnation in most cases of complaints (37). Iranian gynecologists mostly comprising female doctors did not take the risk of managing ambiguous or complicated deliveries apparently due to the fear of legal issues and forensic positions. When encountering ambiguous or complicated cases, they specifically prefer their own security and use alternative methods. In a study by Samadi et al, more than 50% of Iranian gynecologists did not take risks and preferred CS in ambiguous situations (38).

Since women's preference for CS is also related to the mode of delivery, it is known that gynecologists are more likely to recommend CS because of women's requests (31). In a qualitative study by Bagheri et al in Kashan, gynecologists believed that NVD is a painful and prolonged process while CS is a shorter process with less waiting time and higher incomes and less stress for gynecologists. Some gynecologists also indicated that CS is the best way of delivery and women have the right of choice in this case. In this qualitative study, most gynecologists preferred or experienced CS for themselves, and the predictable nature of delivery on elective CS was an advantage for physicians (36).

Gynecologists also believed that low tariffs of the NVD do not worth the tolerated time and stress during NVD and some gynecologists mentioned that natural delivery tariff should be two, three, or five times more than CS. In most hospitals, gynecologists are responsible for NVD and the defined tariff is allocated to them. Gynecologists further claimed that they should receive more than midwives due to their professional and legal responsibilities (37). In public sections, the implementation of more procedures leads to more incomes for doctors, and CS results in more incomes with less spent time. Given that economic issues are one of the important barriers in reducing CS, the Iranian Ministry of Health and Medical Education (MOHME) in the health reform plan increased the tariffs of NVD against CS in the book of the updated relative value units of health services, and the tariff increased from 15k in 2014 to 50k in 2015 (39). The special internal rules of Iran in prohibiting the entry of male doctors in the medical specialties associated with women and limiting the gynecology field merely to female doctors have considerably changed and decreased the situation of risk-taking (38). Given the willingness of gynecologists affiliated to the university (faculty members) to perform CS, the training of gynecologist assistants has also changed, and they have less experience in complicated

NVD (39). Increasing the number of female obstetrics-gynecology (OB/GYN) residents in recent years in addition to reducing the quality of residency education and OB/GYN residents' skills in managing NVD and financial incentives have led to an increase in CS (37).

The physician's efforts to accelerate labor with unnecessary medical interventions due to handover or passing of few patients to another doctor at the end of a shift, incentive, and punitive policies of promotion of natural childbirth package (PNC) and bed shortage have been declared as the barriers of physiologic birth that can increase CS rates. Disregarding the role of doctors and the necessity of their beliefs in physiologic birth to have effective inter-professional collaboration with midwives is also another barrier in this regard (40).

Midwives

The main factors regarding the tendency of midwives and their recommendations to perform CS in Iran can be related to cases such as the allocation of normal labor costs to physicians, the lack of professional autonomy for midwives and the marginalization of midwifery expertise in childbirth-related decisions. In addition, other cases included a change in people's understanding of the professional skills of midwives, the lack of the cooperation of insurance companies with midwives in insurance contracts, and the lack of having insurance coverage for midwives services. Moreover, a reduction in the professional skill of midwives with regard to NVD management and failure in the midwifery education system and training medicalized models of delivery to midwifery students were the other contributing factors. In the job description of midwives approved by MOHME, managing normal pregnancy, labor, delivery, and postnatal care is the main duty of midwives, and they should be trained to prepare patients for delivery and manage NVD (29). Nonetheless, gynecologists know themselves responsible for all deliveries whether NVD or CS and the tariff is allocated to them prior to implementing the PNC package. Therefore, in the situation, when midwives have no responsibility and receive insufficient salaries in accordance with their professional duties, they have no motivation to do their defined educational and professional duties for performing natural delivery and do not try to choose the best delivery method for the patient (37, 41). Accordingly, midwives are marginalized in decision-making for the patient and have no role in making decisions about delivery (36). Medicalization of delivery in Iran has changed people's understanding of the professional skills of midwives and thus gynecologists have been replaced by midwives in NVD (42). Limiting the role of midwives and increasing the authority of gynecologists in Iran are the significant incentives to the increase of CS in the 3 last decades. Using midwives as doctors' assistants and not having professional autonomy had left doctors to have the prime control of pregnancy

and childbirth care (43). The lack of covering midwifery services by insurance providers in Iran is also one of the other important reasons for referring pregnant women to gynecologists and increasing medical interventions like CS (37, 41).

Some unnecessary CSs take place in ambiguous cases and the presence of capable and experienced midwives in this situation can decrease the rate of CS without negative consequences. Thus, training a skilled and professional midwife is of paramount importance. In recent years, the skill of midwives in NVD has decreased due to an increase in CS. The lack of midwives with enough experience in managing women with complicated labor and delivery is an issue that makes the gynecologists prefer CS (29). In a qualitative study on the challenges of physiologic birth, midwives' low motivation for implementing physiologic birth was due to the unfair payment system and the lack of support from gynecologists when encountering problems. Midwives considered the physiologic birth as a costly service and reported that no payment was defined for the attempts of the midwives. Moreover, health insurance providers had no commitment in this regard. Midwives indicated that NVD tariffs do not worth the time and stress. Insufficient numbers of midwifery staff and imbalance between the labor statistics and the number of midwives in addition to inadequate access to physiologic birth retraining courses are the typical challenges of the physiologic birth schedule (40).

Additionally, increasing the rate of midwifery students in recent years while reducing the quality of student training and using midwives as nurses or secretaries in hospitals have reduced the motivation of midwifery students (37). On the other hand, inadequate training of midwifery workforce, the lack of training in midwifery care models, and physiologic birth in midwifery schools are the reasons for the lack of the ability and disbelief of midwives in NVD. Only medicalized models of delivery are now taught to midwifery students in Iran and midwifery training is based on Williams' medical book which does not consider childbirth as a normal physiological process. In this condition, midwives do not regard NVD as a normal process and prefer to consider it as medical experience. Therefore, in this condition, it is not uncommon for midwives to shorten labor, clamping umbilical cords immediately after delivery, pulling the cord to remove the placenta faster and separate care for the new mother and infant during the first hours after delivery although none of these actions are now recommended in midwifery care models (43).

The Interaction of Insurance Companies With Doctors and Midwives

The lack of supervision in controlling unnecessary CS, along with the lack of insurance coverage for midwifery services and supplemental insurance support for elective CS in Iran are among the effective factors contributing

to an increase in CS by insurance companies. Following the announcement of CS indications by the MOHME in 2004 (issued 2 years later, starting from 2006 by insurance companies), the expenses of elective CS should not be paid by insurance companies (44). However, studies have shown that private health insurance companies (supplemental insurance) covering the elective CS and the limitations posed on insurance companies regarding hindering them from paying the CS surgery costs have not reduced the number of procedures. The financial relationship between the patient and doctor that forces the doctor to receive their wage from the patient instead of the insurance company is one of the main reasons for not impacting the reduction of CS. Many doctors also believe that indications that are acceptable to insurance companies are limited and impedes the recording of the real indication, which leads to CS, in patient's records. The issue further causes difficulty in identifying accurate data on the indications for CS and unreal increases in the mortality report in pregnant women (37).

Assigning more tariffs and effective roles for midwives in NVD and doing frequently exact monitoring by insurance companies can be partly related to preventing unnecessary CS. NVD tariff must be paid to the services instead of people, and insurance companies should pay to the person who does the service whether a gynecologist or midwife. A gynecologist who does not have the opportunity to monitor the labor process should not take advantage of tariffs which is assigned to midwives' duties. In the current situation, the lack of insurance coverage for midwifery services is considered to be a factor in increasing CS (29).

The Role of Socio-cultural Factors in the Tendency of Women to CS

The Medicalization of Childbirth

In recent decades, the MOHME in Iran has been managed only by physicians (clinicians). Health policy-making by physicians has changed the management of health services and thus has led to medicalization. This type of management has also affected the birth culture. These health policies were fundamentally invested in training medical specialists while neglecting the role of other health care professionals including midwives in maternity care with inappropriate distributions of staff (30 gynecologists compared to 15 midwives for every 1000 births). The gynecologists have autonomy for making decisions in the entire process of pregnancy and childbirth. Andrea Robertson (2006) in her memories indicated that all physicians dictate powerful management in every birth and neglect the evidence on care, midwifery skills, mothers' wishes, or anything else that may affect their practices. These changes in maternal care policies have led to fears of normal delivery among women and increased the rates of CS, which is a high-income source for gynecologists (24).

Child Birth Fear

Fear of normal delivery and labor pain in women is one of the most important non-medical reasons for CS (17). Contrary to claims in the medical field, pain is a physical phenomenon and has socio-cultural aspects, and social, cultural, and environmental factors can influence this experience. More precisely, fear increases the perception of pain and, therefore, pain is a learned and controllable experience. In spite of the general fear of surgery, the fear of normal delivery is magnified in a way that Iranian women are concerned about normal labor rather than the fear of CS and awareness of its complications (29). Accordingly, fear of childbirth or labor pain, concerns about neonatal safety, urogenital injuries, a history of one prior difficult NVD, and advice from relatives, friends, and health care professionals including the genealogists affect women's decisions for selecting the mode of birth (45,46). Women's fear of normal NVD is constructed by the community and it is partially due to the negligence of medical personnel because they have not done proper physical and mental preparations of women before childbirth. In addition, cultural, social, and religious beliefs can determine how a woman understands and interprets the pain of labor and chooses how to manage it. A phenomenological study in Iran about the experiences of women who had normal delivery showed that the woman's choice of the delivery method was not based on scientific evidence and accurate information. In other words, women did not attend educational sessions, did not have the necessary physical fitness, and were not ready to encounter it and even were not aware of its process. Further, most of these women did not evaluate the setting of public hospitals for natural delivery (47).

Subjective Norms and Body Image

Subjective norms on body image also play an important role in choosing the mode of delivery. More precisely, women who have more concerns about their body image are more likely to have a CS in their pregnancies. This factor is related to this belief that after natural delivery, bladder and uterine prolapse will occur but CS prevents the deformation of pelvic floor muscles. Probably, the most important underlying issue is the quality of a sexual relationship after childbirth because there is a fear for couples that the quality of their sexual intercourse will change following genital tract trauma (34,48). Another study also showed that common beliefs about the negative effects of NVD on postpartum sexual functioning play an important role in choosing CS by pregnant women (49).

Social Norms

Social norms also led NVD to be regarded as a traditional and low-social class mode of delivery that relates to the income and socioeconomic position and social prestige. When the mainstream of society ranks this method of delivery as the mode of birth in wealthy people, this

may slowly encourage women to be reluctant to have a normal delivery, and individuals voluntarily choose the CS by attention to the social waves which are formed in the community (47). The prevailing belief of the society occasionally suggests that women are not physically able to have NVD (34, 50). It has pretended that CS is the safest way to deliver a baby and is often very comfortable and predictable and has no pain. The health care professionals do not provide enough information about the potential short-term and long-term consequences of CS. Therefore, social learning plays a role in choosing the mode of delivery, and observing and modelling the behavior of others leads to new learning in every person. Abbaspoor et al also reported that the socio-economical value of society is one of the main factors that influences women's decision making for childbirth. In this qualitative study, participants considered CS as a high prestige, modern, and common way of childbirth, and in fact, a high rate of CS in society was mentioned as a justification for choosing it by women and their partners. Participants also emphasized that their socioeconomic status and the higher charge for CS did not affect their decision-making process for childbirth since, in the Iranian culture and society, it is socially accepted that if someone pays more for something, it is probably more valuable (51).

Although CS is related to the socioeconomic status of women, its increase in recent years has caused it to be known as a custom and gradually be valued as a custom in lower classes of the society. Therefore, NVD should change from a low social class process of giving birth to a process that women experience a sense of control and empowerment in childbirth. This culture is prevalent in some Iranian ethnicities such as Kurdi and Luri. The debate over the adverse effect of CS, especially in general belief, has become very complex. Thus, it is needed to change the negative attitudes toward the NVD among women. More serious supervision on organizations and medical centers is needed, some of which push women to CS because of financial incentives. Public campaigns are also useful for increasing the knowledge of people because the social outlook is occasionally distorted, and they claim that CS is safer than a normal birth. Culture-making can be extremely helpful by introducing popular celebrities who have given birth through NVD.

Currently, the negative attitude of physicians and midwives toward NVD is even more worrying, and changing their behavior is more complicated compared to pregnant women (37). The CS is generally the preferred method of delivery in women with higher social and educational levels including health care professionals (i.e., midwives, nurses, and physicians) in Iran (51). Many midwives and gynecologists do not believe in NVD as the safest and best option of childbirth (36). In a study in Ahvaz, only 22.5% of midwives experienced a natural delivery (52). This negative attitude shows that the education system of midwifery and residency needs

fundamental reviewing and revising the existing courses. It is certain that when doctors or midwives themselves do not believe in the advantages of NVD, they cannot encourage pregnant women to have a natural delivery.

Cultural Beliefs, Values, and Traditions

Cultural beliefs, values, and traditions affect people's attitudes toward delivery, their interpretations from various methods, and their decision-making. In fact, natural delivery has not been a pleasant process for mothers in last decades and part of this dissatisfaction is due to the lack of the privacy of mothers in normal delivery and partly because of the inability to carry out CS in emergencies which, ultimately, causes fetal-maternal mortality and morbidity. Insufficient support for women during labor and NVD by medical staff including doctors and midwives, and the limitation of the presence of labor support (a close female relative or husband) are also the other factors that influence the mode of delivery among women. The participants believed that health care professionals usually support women who choose CS (51).

The Role of Health Policies in Controlling and Reducing the CS

The MOHME has adopted several policies in order to reduce the rate of CS. The first five-year plan for reducing CS with the plan to reduce the rate to 25% from 2009 to 2014 was not successful. Designing mother-friendly hospitals, setting up a standard protocol for pain relief in labor, holding workshops for mothers, midwives and gynecologists, changing from pro-natalist to anti-natalist policies, and experiencing free of charge delivery in public hospitals were some of the policies that were implemented with the goal of reducing CS by the MOHME but were unsuccessful (25).

Iranian population policies have shifted from population control to the pro-natalist policies of population increase since 2012 (53). The main objective of new pro-natalist policies in Iran was to increase fertility rates. Given that CS was an anti-natalist procedure, increasing the rate of CS on maternal request by limiting the number of women's deliveries was a significant barrier to population growth (54). The government, in accordance with pro-natalist policies, has taken steps to encourage normal delivery in which, free of charge normal delivery in public hospitals since 2014 can be mentioned (37). In line with the health sector evolution policy, the package for the PNC was introduced in 2014 which was one of the most important supportive packages of the health system. This package included experiencing a free-of-charge natural delivery in public hospitals, holding prenatal childbirth classes, equipping hospitals with labor-delivery-recovery rooms, providing some maternity services such as water birth for pain relief, and improving the patient privacy and financial support of public hospitals which provide natural delivery (25). The instruction of PNC was also

announced in 2018, the specific goals of which were to reduce the rate of CS in accordance with the 2018 target table, considering the dignity and respect of pregnant women, to increase the mother's satisfaction, and to support the mother mentally and spiritually to choose the mode of delivery. Other policies considered in PNC were to reduce the cost of childbirth, to increase the satisfaction of the providers of childbirth services and to provide medical and non-medical pain relief options, to promote prenatal childbirth classes and their free availability, to review the instructions for holding these classes, and to arrange obstetric emergency triage cover round-the-clock (2018). However, there are no birth centers in Iran, and home birth is illegal due to the lack of the referral system. Postpartum care is usually done in public or private clinics and home care is not prevalent (41).

The encouragement policies considered in the PNC (2018) for hospitals providing vaginal birth after CS (VBAC) were not very well appreciated by Iranian gynecologists due to the potential risk of the uterine rupture in such deliveries. Although CS repetition is the most frequent indication of CS in Iran (16,26), women's access to VBAC is limited and gynecologists are concerned about the litigation risk (36).

Discussion

In recent studies in Iran, CS on maternal request has been related to a variety of factors such as the fear of labor pain, lack of knowledge about the long-term complications of CS, exaggerations regarding the postpartum complications of NVD, and the belief in the lower risk of injury and neonatal death during CS. Furthermore, the other factors included the perceived superiority of CS, the shorter process of CS, concerns about sexual satisfactions following NVD, inadequate support during labor, better management and timing of birth in CS, and the possibility of predicting and scheduling CS, a higher social class of CS, and private supplemental health insurance.

According to Williams and McShane, these factors act as a driving force that promotes the disruptive measures and comfort of the stakeholders and reduce their commitment to the standards announced by the World Health Organization regarding monitoring the desirable level of CS (up to a maximum of 15%) to the point where doctors introduce CS delivery as the best option for childbirth. Since abnormality is a theory at a macro-level, the appropriate form of politics may appear to be the goal of a social transformation (55). For example, eliminating the structure of the physician's community in unnecessary CS is a factor for limiting the opportunities for CS. From this point of view, providing greater educational opportunities can be considered as a desirable approach to stress and provides easy access for all mothers during pregnancy through an educational plan. Therefore, increasing the levels of education across the country and providing information to pregnant mothers can reduce

the CS. Accordingly, the doctor's recommendation is one of the important non-medical reasons for CS rather than a fear of natural delivery (17).

Coordinating the turbulent state of childbirth requires corrective measures that will be implemented through a proper educational system and the re-experiencing of socialization. In other words, the deviation from the normal path of delivery is associated with the absence of a social process and full socialization and will partly be compensated by the use of educational systems and social media. Previous research shows that organizing and monitoring are relevant to a low rate of deviation and can well prevent further damage (55).

Changing Women's Attitude Toward Vaginal Delivery

Pregnancy, delivery, and the postpartum period are like a physical and psychological chain and none of them are considered separate and distinct states. Anxiety about delivery is also the heritage of human evolution. Most women naturally seek a positive birth experience. Historically, women have often had the support of their close family members during delivery. This support includes continuous support and ongoing and reassuring presence by providing full information and collaboration on the process of delivery. Scientific, emotional, and planned support can increase the sense of perceived control over their conditions, reduce fear of labor pain, and improve the women's childbirth satisfaction (56). Unfortunately, there is currently no continuous emotional support during labor in most hospitals in Iran. Continuous support can help relieve the fear of labor, reduce elective CS, and promote the health of mothers and babies around the world (57). In the absence of family support, the first step should be to plan for the continuous support of women during pregnancy and delivery and reassure them about the safety of a normal delivery. According to a systematic review study, maternal and neonatal outcomes improved by the continuous support of women during childbirth. Moreover, continuous support decreased the duration of labor, CS, and operative NVD, the use of any analgesia, the use of regional anesthesia, low five-minute Apgar score, and negative emotional experiences about childbirth (58).

Ensuring the Management of Labor Pain

The sense of having no control over the NVD can lead some women to opt for CS. With correct and proper planning, women's fear of childbirth and anxiety can be managed in order to help them not to choose CS because of the unavailability of effective pain relief methods. Emotional support in labor and the use of pharmacological and non-pharmacological labor pain management can ensure pregnant women of care in delivery (12). Fortunately, new guidelines for the promotion of normal delivery (PNC) have emphasized the increasing use of various pharmacological and non-pharmacological methods

and training mothers in childbirth classes. However, a few midwives participated in 60-hour courses for childbirth preparation and pain management methods in Iran. Additionally, women should be adequately informed about the use of different pain relief options in labor and be given a choice so that interventions during the labor would be reduced notably. The results of a qualitative study in Iran on the experiences of women with an uncomplicated natural delivery and no medical intervention, who previously participated in childbirth classes, showed that women's experiences of pain during delivery have been described as "A time for psycho-spiritual transcendence" (59). Interestingly, ethnographic studies from other cultures also confirm the findings of this study and highlight the importance of giving birth naturally and even unattended in some cases. Among these cultures, even until recent times, giving birth naturally, without any help from the others, has meant self-reliance and the assertion of personhood by women, establishing their credibility as accomplished members of their social group. In such cultures, the intervention of outsiders, especially doctors and midwives is perceived as a threat to the existing authoritative knowledge of the elderly and received wisdom, as opposed to that of the biomedical expert (60).

Ensuring the Sexual Function Following Natural Delivery

One of the important issues regarding choosing CS by convinced couples is the concern about sexual satisfaction later in life which has been previously highlighted in qualitative studies in Iran. It seems that the psychological impact of these advertised deployments has a significant effect on couples' socio-cultural beliefs (61). With suitable consulting, pregnant women should be assured that normal delivery does not have a negative and considerable impact on their sexual function in the future so that to correct negative attitudes.

Demedicalization of Labor and Childbirth Process

The medicalization of childbirth has changed the concept of pregnancy, and thus delivery and childbirth are not considered as the natural events of life but as medical events in Iran (62,63). Medicalized childbirth, unlike the physiologic birth which is based on woman's self-confidence and empowerment, will cause fear, anxiety, uncertainty, and the lack of self-confidence in pregnant women. Considering only the medical aspect of care causes fears, anxiety, and non-indicated medical interventions in pregnant women (64). The concept of informed choice and informed consent are also unreal and many women accept medical advice without any more inquiry. However, in medicalized delivery, women are actually treated like children and passive recipients, and the personal identity of women is ignored in hospital environments because of the lack of control over their bodies (65). It is not surprising that invasive interventions during labor,

CS, and maternal mortality and morbidity increase by eliminating the traditional system of support with family members and gradually removing the midwifery system in managing pregnant women (64).

Increasing unnecessary medical interventions in the course of pregnancy and childbirth in Iran has reduced the positive experience of women with childbirth. The medicalized and non-physiologic processes of labor include early admissions, the lack of opportunity for mothers to initiate physiological pain, the unnecessary induction of labor pain with oxytocin, and frequent vaginal examinations during labor. In addition, other processes are the impossibility of changing the position of the mother for monitoring the fetal heart, shortening the length of the labor in different ways, and the early tearing of amniotic sac and routine episiotomy. The impossibility of the presence of spousal attendance during labor, separation care for the mother and the baby after birth, few seconds of symbolic mother-and-baby skin-to-skin contact after birth, and the mistreatment of women during labor creates negative birth experiences. Afshari et al showed that 94% of the evaluated centers in this study administered oxytocin for mothers. Further, 70% of these centers immediately clamp the umbilical cord and 65% of them applied controlled cord tractions (66). Many of these unnecessary medical interventions in pregnancy and childbirth lead to the loss of self-confidence and decrease the value of women's experiences and abilities (Johnson, 2018).

Williams and McShane pointed to structural problems and insisted that structural flaws can be the basis of disruptive behaviors (55). In the management area of the MOHME and at highest levels, most top officials or ministry-level deputies are physicians and specialists, therefore, they cannot be expected to act for the benefit of all involved individuals. Preserving oneself and individual interests and reaching satisfaction contentment are considered as inherent human characteristics. Hence, human behavior is toward his profits. Unfortunately, individual interests are preferred to the collective interests in less developed countries and the tendency to deviate in these societies is higher and sharper. This concern is clearly observed in the top layers of the health system, and non-doctors and basic medical science specialists do not have a position in the high level of management and major decision-making.

No country accepts a rate higher than 15% for CS. However, its rate was estimated at 48% in Iran. In a qualitative study entitled "Factors That Affect CS" in Sweden, midwives and gynecologists suggested that Aurora (the midwifery team that advises women on childbirth fear) plays an important role in changing the mother's opinion who are applying for CS. In this study, gynecologists emphasized that those women who still desire to do CS even after adequate counseling should be visited by senior obstetricians rather than junior

specialists. Based on the findings of this study, belief in a normal delivery and multidisciplinary team approach had a positive impact on CS reduction. The teamwork of gynecologists and midwives improved the outcomes, and group discussion and retrospective case analysis helped the teams to learn lessons from poor outcomes and improve the quality of care without blaming the team members (67). Therefore, some steps should be taken in new policies to strengthen the collaboration between midwives and obstetricians/gynecologists in delivery in Iran.

Design and Implementation of the New Model of Maternity Care

Replacing the family support process with a midwifery system and midwives who are familiar with their activities and expertise throughout the entire period of pregnancy and childbirth and its subsequent care is highly important for women. "One-to-one" and "continuity of care" approaches are the main components of promoting natural delivery and reducing the CS in Sweden. More precisely, the provision of systematic midwifery care and highly qualified midwives is extremely essential for women (68). Women's emotional support and care continuity during pregnancy and childbirth have partially been considered in the package of PNC in Iran through the presence of skilled birth attendant (midwife) in the labor process.

The theoretical and practical training in physiologic birth, its related skills, and non-pharmacological pain management should be added to the midwifery curriculum, and these courses should not be postponed until after graduation. Moreover, providing the opportunity to gain experience regarding complicated deliveries for midwifery students and eliminating the constraints created for midwifery students in learning natural delivery in educational hospitals should be considered in future planning.

Midwifery counseling can improve the self-confidence of women for delivery and make the pain of delivery manageable (69). In addition, pregnant women need useful and reliable information to assist them in decision-making for the delivery method, and it is assumed that giving information to a pregnant woman may affect this choice. However, limited and unsystematic clinical trials have not shown significant efficiency in encouraging women to attempt NVD. The defects in designing these studies also show that the results are unreliable and thus more research is needed in this area (70). Contracts of midwifery counseling centers, midwives, and gynecologists with public and private hospitals in the country is a major step toward the continuity of care and promotion of NVD. However, the current model of maternity care is still far apart from continuous midwifery care models in developed countries. The refusal of some hospitals to contract with midwives was the first resistance to the PNC in Iran. These conditions emphasize the importance of a

performance bond for the PNC package. Providing home birth and home care should also be considered in future policies. Although almost all Iranian women have access to prenatal care, the physical and psychological preparation of women for pregnancy and childbirth has not received adequate attention. In a qualitative study conducted in Iran, women were informed that the presence of a birth attendant (the husband and a family member or a doula) helps them to better deal with the birth process (71). In recent years, in line with efforts made to encourage pregnant women to have a normal delivery, preparing for birth is offered over 8 sessions of childbirth education classes to pregnant women, and the husband is also present in one of these sessions. However, it is practically done in a limited number of hospitals and health centers and there are some problems regarding its implementation (72). However, the possibility of the presence of a husband or an unskilled birth attendant during the labor process is not clear in the PNC package.

The Safe Way of Delivery in Case of Precious or Golden Babies

Some of the cases where gynecologists agree with CS on maternal request are pregnancy following in vitro fertilization (IVF) or intracytoplasmic sperm injection (ICSI), namely, precious or golden babies, recurrent abortions, and pregnancy in advanced ages. To the best of our knowledge, no study has reported information about the CS rate on these types of deliveries in Iran. Considering the increasing prevalence of pregnancy through assisted reproductive techniques and the typical process of delivery of cesarean, CS seems to be worthwhile. However, in a study in Belgium, one in five gynecologists agreed with the request of a nulliparous mother at high ages for doing CS after ICSI/IVF (73).

In another study in Australia, the rate of CS in singleton pregnancy after ICSI/IVF was also reported to be about 50%. Regardless of how stressful and worrying the pregnancy process is in these couples, they are not interested in accepting the risk of natural delivery, and gynecologists usually do not accept the risk of normal delivery and offer CS. Whichever decision made to choose the delivery method should be evidence-based (74). Therefore, normal delivery after assisted pregnancy should be encouraged in the future policies of MOHME in Iran because of the high prevalence of CS among women with infertility history.

MOHME Policies

Following providing the PNC by the MOHME, gynecologists tried to defend women's rights in decision-making regarding the mode of birth. Among the merits of the new guideline, considering the rate of CS in nulliparous women is mandatory in the hospital grading system. The other benefits of this guideline include the possibility of the presence of a trained birth attendant

beside the mother and possibility of taking care of her in personal rooms in delivery block, as well as emphasizing the reduction of unnecessary interventions and setting criteria for establishing independent birthing facilities (Birth centers).

Some conflicts between gynecologists and midwives need to be further explored in new guidelines. For example, increasing the responsibility and power of the midwives and the professional independence of the midwife in managing low-risk pregnancies and delivery has remained a point of disagreement in Iran. Additionally, article 4, working guide 20 on the PNC required to pay 35% of the professional part of a doctor's wage from NVD in addition to fee-for-service payment model to midwives as an incentive fee of a natural delivery. However, the article invoked protests by physicians, and thus needs further analysis. Gynecologists also opposed contracting with private midwives due to an increase in patients out-of-pocket costs which needs to be paid by patients.

Closing Reflections

The findings of this study showed that the practice of CS is disproportionately high in Iran compared to the rest of the world. This increase stems from a number of factors, which have been highlighted throughout this article and have their roots in the medicalization of birth, which is itself a reflection of the position gained by biomedicine in society as a source of authoritative knowledge. An indisputable factor in choosing CS over natural birth is the pervasive influence of biomedical sciences challenging traditional and natural birth practices. Two distinct factors merit attention when analyzing social and cultural factors that are responsible for the rise of CS to this extent. The first one is the role of biomedicine and the power of physicians over their patients. Brigit Jordan first coined the term "authoritative knowledge" in her groundbreaking work *"Birth in four cultures"* (1993). According to her, authoritative knowledge means "having the power of special knowledge or showing the confidence of having special knowledge, which is not simply produced by access to complex technology or an abstract will to hierarchy. It is a way of organizing power relations in a room that makes them seem literally unthinkable in any other way." In Jordan's word, "The power of authoritative knowledge is not that it is correct but that it counts, on the basis of which decisions are made and action was taken" (75,76). In such a relationship of power and subordination, women believe that their doctors know best about their pregnancy and what they should or should not do. Thus, they frequently follow medical advice without any question. As Foucault argues, in entering the field of knowledge, the human body also enters the field of power, becoming a possible target for manipulation. In case of childbirth, therefore, reproductive politics become the guiding principle in the interaction between the physicians and the patients, and the financial gains by the physicians besides the process of

childbirth practices becomes a game of power and control by all involved parties. In 'guiding' women to opt for CS, indirect pressure is applied by the physicians, apparently by giving them a choice, but in reality, placing them in an inferior and even humiliating position if they choose the natural birth over the physician's advice. For example, cases that are abound of conversations between expecting mothers and their gynecologists in Iran, when the woman asks for natural birth delivery and the gynecologist indicates that "I only perform CS and not NVD. If you want natural birth delivery you had better go to another doctor who does it". This statement is often told with a hint of dismissing the woman suggesting that she should not waste the gynecologist's time and has an undertone of humiliation, implying that the woman is ignorant and backward.

Moving on from the power of physicians, who believe to be the custodians of knowledge, interestingly, in case of Iran, the second factor stems not only from what may appear as the imposition of medical knowledge on women and a one-way procedure but also, in reality, from the coalescence of the agenda of a medical profession with that of women's themselves. The interest of the physicians in persuading women to opt for CS over natural birth is instrumental in choices that women make on what they deem the 'best' method of childbirth. Women's enthusiastic responses to CS has its roots, predominantly, in social changes which have taken place altering women's reproductive values and practices and in the way they perceive and manage their reproductive life. These changes have their roots in a number of factors, which have opened up new possibilities for women to express their identity through means other than motherhood. Education has played a major role in offering women alternatives as the producers of future generations alone. It has paved the way for women's participation in all spheres of life such as industry, arts, sports, agriculture, or other social activities. However, the most crucial factor responsible for the transformation of values on childbearing has been Iran's population policies implemented in 1986 to reduce population growth. Policy-makers realized that policies would not succeed without the full inclusion of women and their cooperation, and thus addressed women directly, asking for their cooperation in refraining from having large families (77). These policies were also strongly endorsed and supported by the Islamic leaders, a fact that made them acceptable to the majority of people, especially men, who might otherwise have objected to them. More importantly, policies effectively paved the way for women to take control of their reproductive life and reduce the size of their families (77, 78). In other words, the objectives of these policies were then inculcated into the generation of school children, who grew up to believe in the merits of having fewer children and, who are now at the reproductive age and reject the idea of larger families. The total fertility rate has currently fallen to 1.2 per

woman, which is below the replacement level. In addition, having fewer children further relies on a choice rather than any other reason in spite of the reversal of population policies to pronatalist ones by the state. This trend applies to rural and urban areas, educated and less educated, as well as wealthy and less well-off families, who either do not want any children or only one child or a maximum of two children (79).

As women have gradually taken charge of their reproductive life, they have also realized that having no children may not be an option in a society which still greatly values children. Therefore, whether voluntarily or reluctantly, women do have children, but they opt for the most suitable method which meets their other agendas when deciding about pregnancy. Accordingly, CS seems to be the solution in allowing them the overall control of their reproductive life, from managing the time of their child's birth to making the labor painless, keeping their body intact and more desirable, and establishing their positions in society through adopting the most fashionable method of giving birth, which all have been discussed throughout this study. Among the prior reasons stated by women in opting for CS, avoiding the pain was also another reason. Some women mentioned that having witnessed their mothers or other close female relatives going through the pain of natural birth, they would not dream of going through that kind of agony. In their words 'it is stupid to endure so much pain if one can avoid it'. Another main factor for the choice of CS was the complications involved in childbirth through the natural way. Examples are given of female relatives having suffered from the consequences of going down the route of natural birth, which has been traumatic and a decisive factor in choosing CS. In addition, women are sending the signal that, if they have to reproduce, they will do so on their own terms and with a minimum effort albeit at higher costs. However, the findings of this study demonstrated that CS itself is not without serious negative consequences. This is not readily disclosed by the physicians, who have no incentive to do so and mislead women into blindly stepping into unknown territories.

Finally, two further but important factors in favoring CS over the other methods of childbirth in women's viewpoints are the trust in the superiority of the Western medical technologies offering the state-of-the-art solution, which promise a safe way of giving birth tally with the 'modern' woman's image and status in society. In such cases, CS, as a Western-imported technology, becomes a signifier of modernity and wealth and acts as a social equalizer for women from all walks of life to aspire to in this regard.

The Way Forward

The reduction in the rate of CS needs the de-medicalization of birth, creating cultural awareness through the mass media, and informing women of the long-term

complications of CS. Additionally, several measures should be taken seriously in conjunction with specialized training in the new policies of MOHME, including changing the attitudes of midwives and gynecologists toward collaborative activities in planning and implementing successful delivery and teaching various aspects of medical ethics and related professional rules. The other actions include defining duties for midwives and gynecologists, resolving inter-professional disagreements between these two groups, and more legal support of delivery against medical complaints. Examining the impact of successful policies of other countries, including the provision of midwifery-led care, continuous support and the integrated care system, and home birth and home care, it can be concluded that such systems need to be localized based on the social and cultural context of Iran.

Solving all issues and problems needs a precise and long-term policy although short-term policies are not welcomed in this regard. The current interdisciplinary teamwork for childbirth management is inadequate thus gynecologists, midwives, and social media should work together to stop this process, otherwise, maternal and neonatal mortality rates rise in subsequent pregnancies in women with one previous CS in the near future.

Conflict of Interests

Authors declare that they have no conflict of interests.

Ethical Issues

Not applicable.

Financial Support

This research received no specific grant from any funding agency, commercial entity, or not-for-profit organization.

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