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Research Article

# A Modern Action: Cesarean Section and Infant Formula Usage by Mothers!!!!!!

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## Abstract

**Introduction:** Breastfeeding protects children from a myriad of illnesses, increases IQ and impacts children's brain, cognitive, and socio-emotional development. It also, helps the mother to reduce her weight back to pre-pregnancy levels, reduces maternal stress levels and the incidence of serious post-partum depression. There is evidence that women who experience birth complications associated with complex medical conditions and interventions such as caesarean section, are less likely to start breastfeeding or stop breastfeeding sooner than other women. In fact, most mothers believe it is impossible to constantly breast feed the infant and it will not suffice the infant's nutrition, therefore, it seems necessary to use food supplements such as infant formula.

**Objective:** The purpose of this study is to determine the relationship between formula usage and cesarean section in women visiting Ahvaz's health centers in Iran.

**Materials and Methods:** The present study is a correlational descriptive-analyzing, one which started in October 2017 and ended in April 2018. The data gathering tool in this study was a questionnaire. The data were analyzed using SPSS 16 software and descriptive statistics and inferential statistic

**Results:** Based on the findings of this study, the amount of cesarean in Ahwaz was four times greater than the proposed amount by WHO in 2017 (75%). The major reasons for conducting cesarean in this study, were anonymous and unknown fear concerning natural delivery, mothers provoked by the family, specialist doctors' suggestion, age, fear of vagina's injury, preterm labor and the failed induction which are known to play a significant role in cesarean outbreak.

In this study, the major reasons for formula using were cesarean section, mother's worry resulted from the insufficiency of milk in her breasts, fear of breast deformity, comfortable feeling by mothers and specialist doctors' suggestion. Due to the findings of the present study there was a relationship between formula usage and cesarean in women (r = 78%). In fact, childbirth through cesarean section and its limitations were among major reasons of formula usage by mothers.

**Conclusion:** It seems that the caregivers' role, especially nurses, gynecologists, and pediatricians are vital for propagating vaginal delivery and breastfeeding. Unexpectedly, it is better those caregivers be the addressee of these two important issues.

***Keywords:*** *Infant Formula; Cesarean Section; Mothers; Infants; Modern Action*

## Introduction

Infancy is considered as the most significant process of man's growth and evolution and the quantity and quality of the breast milk has a vital role in physical, mental and emotional development of today's infant and tomorrow's child [1]. Taken into account by UNICEF and WHO, today breastfeeding is a fundamental policy in supplying infant's growth and is a priority for all infants [2].

Breastfeeding protects children from a myriad of illnesses, increases IQ and impacts children's brain, cognitive, and socio-emotional development, promotes a strong bond between mother and infant, helps the mother to reduce her weight back to pre-pregnancy levels, reduces maternal stress levels and the incidence of serious post-partum depression [3,4]. It also plays a role in decreasing mother's risk

for breast cancer and lowers healthcare costs for family and societies. Although every mother decides how to feed her child, this decision is strongly influenced by economic, environmental, social and political factors. Unfortunately, countries are not adequately protecting, promoting or supporting breastfeeding [5].

In other hand, Despite national and international planning for this issue, some mothers' experiences represent the inappropriate performance concerning breastfeeding [6-8]. Due the importance of breastfeeding for the health of the infant, mother and society, mothers' employment in the modern societies, mental concerns and common diseases such as breast cancer, most mothers believe it is impossible to constantly breast feed the infant and it will not suffice the infant's nutrition, therefore, it seems necessary to use food supplements such as infant formula [1-9].

In fact, the findings indicate the challenges of breastfeeding in a complex world, cut across all groups of women regardless of age, ethnicity or socioeconomic status [10]. For example, the findings by Jayachandran and Ilyana showed that boys breastfed more than girls in India [11].

The results of studies in this context show that the reason of using formula in most countries refers to mother's physical problems [9-12]. These problems could be related to pre-delivery period (nipple inversion and breast cancer) or to postpartum period (mother's stress and anxiety, physical power decrease), insufficiency of breast milk and kind of delivery, (vaginal delivery and Cesarean) [1].

For nearly 30 years, the international healthcare community has considered the ideal rate for cesarean sections to be between 10% and 15%, but The rate of cesarean section have increased significantly in recent decades [3,13]. Several key factors can influence the choice of a cesarean vs. vaginal delivery. Choice of health care provider and their philosophy regarding cesarean, birth setting, Access to labor support and Medical interventions during labor [14,15].

There is evidence that women who experience birth complications associated with complex medical conditions and interventions such as caesarean section, are less likely to start breastfeeding or stop breastfeeding sooner than other women [6].

Based on the findings, the vogue of tendency to Cesarean section in Iran, is more than tripled of global stats in average [16,17]. Also, the findings in Iran, showed that the mothers had wrong belief, low knowledge and inappropriate practice on breastfeeding [18].

Considering statistic from Iranian researchers and comparing it with other findings from researchers from other part of the world, universality of the issue, the importance of breastfeeding its effect on the life quality of children, the present study was conducted to determine the relationship between formula usage and Cesarean section in women visiting Ahvaz's health centers .The result from this study can be applied in different perspectives such as planning to promote the child and woman health, protecting women and children as vulnerable communities in social and cultural scopes by the nurses.

## Research Method

The present study is a correlational descriptive-analyzing, one which started in October 2017 and ended in April 2018. The purpose of this study is to determine the relationship between formula usage and Cesarean section in women visiting Ahvaz's health centers. After the pilot study, sample was obtained by frequency (p=alpha = 0.5, %65.7). 302 women whose age ranged from 25 to 45 were chosen.

### Research tools

The data gathering tool in this study was a questionnaire. Pretested structured questionnaire was used for data collection The questionnaire included 2 parts: demographic factors of women (age, educational level, occupation, parity, the number of the children and the kind of delivery) and interviewing form that was consisted at 28 questions regarding the object.

To determine scientific reliability, content reliability and simultaneous test was used. Using the test person's narrative correlation coefficient (%79) was obtained. Because in Ahwaz there are two health centers-East and West- each of which covers various health centers, multi-stage sampling (cluster-randomized) was used. The samples were categorized in two groups: cesarean section and vaginal delivery.

### Data analysis

The data were analyzed using SPSS 16 software and descriptive statistics (percentage, frequency to determine the rate of cesarean section and vaginal delivery) and inferential statistic (t-test) to compare the mean of variables between two groups of formula usage and reasons related to that with the confidence of 96%.

### Ethical considerations

After choosing the samples based on the participation criteria, the researcher visited the participants, explained the purpose of the study, confirmed the confidentiality of the gathered data, and registered their consent in special forms. Informed consent of all participants was obtained and a regulation of the Declaration of Helsinki was followed throughout the study.

## Results

### Demographic status of participants

In this study, 302 women were interviewed. The age average was 28/2 and most frequency was for ages ranging from 25 - 35 and the least frequency was for ages ranging up 45 in all samples. The age average for the group vaginal delivery was 28.96 ± 5.3 and for the group cesarean was 29.49 ± 4.2. Of all the participants, 21/6% were university educates 54/2% had high school diploma, and 24/2% of them were lower than diploma. 7/1% of them were employed, and 92/9% of them were householders. The most number of the children was (1) 52/1%, 33/3% had 2 children and 2/5% of them had 3 children. 16.8% had daughters, 12.9% had sons, and 70.3% had daughter's sons.

| Delivery | Frequency | Percentage | Mean age | Standard deviation (SD) |
|---|---|---|---|---|
| Vaginal Delivery | 75.5 | 25% | 28/9 | 5.3 |
| Cesarean Section | 226.5 | 75% | 29/49 | 4.2 |
| Total | 302 | 100% | | |

***Table 1:*** *Frequency of kind of Delivery in mothers.*

| Reason | Frequency | Percentage | P value |
|---|---|---|---|
| Anonymous and unknown fear concerning vaginal delivery | 84 | 27/8% | P = 0/01 |
| Specialist doctors' suggestion | 75 | 24/8% | P = 0/02 |
| Mothers provoked by the family | 60 | 19/8% | P = 0/07 |
| Age | 39 | 12/9% | P = 0/03 |
| Fear of vagina's injury | 32 | 10/5% | P = 0/031 |
| Preterm labor | 11 | 3/6% | P = 0/002 |
| Failed induction | 3 | ./99% | P = 0/005 |

***Table 2:*** *Frequency of reasons for cesarean section in mothers.*

| Reason | Frequency | Percentage |
|---|---|---|
| Cesarean section | 140 | 46/3% |
| mother's worry resulted from the insufficiency of milk in her breasts | 54 | 17/8% |
| fear of breast deformity | 41 | 13/5% |
| specialist doctors' suggestion | 35 | 11/5% |
| Comfortable feeling by mothers | 32 | 10/5% |

***Table 3:*** *Frequency of reasons for formula usage by mothers.*

| Month | Percentage |
|---|---|
| No breastfeeding | 20.5% |
| Less than four months | 54.6% |
| Between four to six months | 24.58% |

***Table 4:*** *Rate of breastfeeding by mothers.*

## Discussion

Based on the findings of this study, the amount of cesarean in Ahwaz was four times greater than the proposed amount by WHO in 2017 (75%). Compared with others studies in Iran, this amount have drastically increased. One of the results of increasing the amount of cesarean operations in Iran is the negative thoughts of women about vaginal delivery. Of course, these negative thoughts could be the implication of inappropriate healthcare workers' behavior and being persuaded by obstetrician-gynecologist to choose cesarean section [16-19]. It is totally vital for Iran, which has altered its policy concerning population increase. Also, there was a significant relationship between high age, higher education, and primipara, with conducting cesarean by women in this study (p = 0/003).

The major reasons for conducting cesarean in this study, like many other studies in this regard, were anonymous and unknown fear concerning natural delivery, mothers provoked by the family, specialist doctors' suggestion, age, fear of vagina's injury, preterm labor and the failed induction which are known to play a significant role in cesarean outbreak. Despite the findings of the present research, Farazmand., *et al.* believed previous cesarean, breach childbirth, unimprovement and Meconual to be major reasons for cesarean in their study [20]. A result of study by Puia indicated, most reasons for caesarean were breech presentation, preterm labor and hypertension [13].

The finding by Rafiei., *et al.* in Iran showed, The prevalence of cesarean in Iran was 48%. The main reasons for the prevalence of cesarean in their study were mothers' higher education, previous cesarean and doctor recommendation. In the same way and according to the evidences, the major reason for cesarean in different countries, especially developed ones, refers to problems and complications of pregnancy and delivery period [21].

In fact cesarean sections are effective in saving maternal and infant lives, but only when they are required for medically indicated reasons [3,22,23].

The age average of women conducting cesarean was 29/4. Moreover, almost all mothers above 35 had cesarean. Based on the census mentioned by Iran's Center of Statistics in 2012, the age range of 25 to 29 made up the majority of the population (11.5%). In the same way, in a study conducted by Jouhari., *et al.* 62% of the childbirth was in the cesarean form by mothers who had the age average of 27.5 [16].

It seems that marriage and pregnancy in old age, due to mothers' being prone to pregnancy complications, is one of the reasons for cesarean. The findings of the study by Naseriasl., *et al.* showed that mothers are eager to delayed childbirth [24]. In fact, delayed childbirth has been known as a norm among married women in recent years. Therefore, if solutions to control cesarean are not proposed, the amount of cesarean will significantly increase because of the increased gestational age.

Different parameters affect women's decision making concerning childbirth method. In this study, fear of pain during vaginal delivery was an incentive provoking women to have cesarean. Although vaginal delivery's pain is a physiological phenomenon, most people believe cesarean to be painless and easy, while it is a complicated surgery. Not only does cesarean increase physical complications such as infection and Uterine adhesion, but it also imposes costs for the family and society [1-13]. Various studies represent that cesarean costs economically and socioculturally more than vaginal delivery do in the society [25,26]. In addition, it is one of the unnecessary medical interventions which contrast health's economy.

As already mentioned, relatives' recommendation and specialists' suggestions are among major reasons for the increase of cesarean in this study. There are many reasons why a health care provider might recommend a cesarean delivery. Some cesareans occur in critical situations, some are used to prevent critical situations, and some are elective [3]. Based on the findings of a study by Azami-Aghdash., *et al.* and to support the above findings, factors influencing the incidence of cesarean section were divided to 3 categories including social and demographic factors, obstetric-medical causes and non-obstetric-medical causes. Maternal education and grand multiparity in the field of demographic and social factors, previous cesarean in the field of obstetric-medical causes and fear of normal-vaginal delivery and doctor's suggestion in the field of non-obstetric-medical causes were major causes of Cesarean [27].

Sexuality and sexual satisfaction have been shown to be important components of romantic relation in couples and it affects lives and relationship. The transition to parenthood brings about changing in the relationship, believes in the mother and her husband. In other hands, a woman's body goes through substantial changes across pregnancy and postnatal periods. The birth of child also changes situation. Feeling unhappy with the baby by mother, affects pregnancy, birth, breastfeeding. and her perspective of her body as sexual. So, Couples have to cope with children and patterning as well as dealing with their changing relatives [28,29].

In the same way, another reason for conducting cesarean in this study was mothers' fear of vaginal injury followed by vaginal delivery and sexual disorder. In postpartum period, physical, psychological and social changes lead to changes in sexual desire and sexual activity. Evidences prove that beliefs concerning disorder in sexual relations resulted from vaginal delivery (as a probable effect of vaginal delivery) lead to choosing voluntary cesarean among many women [30]. However, the findings of a study by Hantooshzadeh., *et al.* revealed that marital relations satisfaction is significantly higher in vaginal delivery group than in cesarean group [31]. As a result, in spite of the fact that most women choose cesarean because of no disorder in marital relations, ability in successful sexual relations and postpartum satisfaction, requesting voluntary cesarean for postpartum sexual satisfaction seems unjustified.

According to the results of this study, there was a significant difference between the physical situation of cesarean section mothers and vaginal delivery mothers. Thus, the incidence of physical problems such as headache, back pain, sore neck, fever, nausea, flatulency, sleep disorders were more prevalent in cesarean section mothers. Also, they needed more medical cares and treatments, which could cause the reduction of mother's energy level and her abilities to perform her daily activities. All of these factors can lead to dropping the physical situation of cesarean section mothers in compare with vaginal delivery and can rationalize the failing of breastfeeding by cesarean section mothers [19]. By the same token, there are evidences explaining that successful experiences of breastfeeding in first two weeks after vaginal delivery can impress the mothers' activities. Positive impressions of vaginal delivery experience can lead the mother to admit her maternal role and execute her motherhood duties such as breastfeeding [32].

In this regards, findings by Zielinski., *et al.* showed, planned home birth associated with, lower rates of maternal morbidity, such as postpartum hemorrhage, perineal lacerations and lower rates of interventions such as episiotomy, instrumental vaginal delivery and cesarean section [33].

According to the findings of the present study, 20/5% of mothers had no breastfeeding.54/6 % have had breastfeeding for less than four months, and 24/5% have had breastfeeding between four to six months. The findings of this study are consistent with the reports of Iran's Health Organization (2017) that only 28% of infants less than six months enjoy breastfeeding exclusively, and more than half of the infant under four months were exclusively deprived of breastfeeding [2].

Also, the result of this study indicated the mothers' knowledge and awareness about the advantages of breastfeeding and positive thoughts about it were impressing factors in selecting the infant's nutrition method in future. Therefore, mothers at their second and later birth select breastfeeding method and mothers at their first birth prefer formula to nourish the infants ($p < 0/003$).

The quantity of formula usage was also significant in this study. Thus, most of mothers (67%) foster their newborns via formula usage. Accordingly, this stat was higher in cesarean section mothers in comparison with vaginal delivery mothers ($P < 0/005$).

In this study, the major reasons for formula using were cesarean section, mother's worry resulted from the insufficiency of milk in her breasts, fear of breast deformity, comfortable feeling by mothers and specialist doctors' suggestion. Analyzing different aspects of formula usage, many studies have conducted some of which are consistent with the findings of the present study [7,8,34]. The evidences show that the lack of nurses' supportive role, lack of serious and continual recommendations to mothers and not provoking mothers to breastfeed during pregnancy lead to increasing formula usage [6].

In the present study, most mothers (86%) were not trained about the importance of skin contact with the infant immediately after birth, the importance of mothers' being beside the infant during the first 24 hours after the birth, the importance of healthy nutrition, the amount of sufficient sleep, and mothers' drinking liquids. Moreover, in the first confrontation with the infant, few mothers were guided by caregivers to continue breastfeeding (such as the correct position of breastfeeding and entering the nipple and areola in the infant's mouth). Based on the findings of a study by Seskaki and Kheirkhah in Iran, teaching correct positions of breastfeeding leads to the increase of the breastfeeding [7].

Based on evidences, many women felt that they had been given unrealistic expectations of breastfeeding by professionals keen to promote the benefits [35]. So, midwives and health professionals working in hospital and other birth settings can encourage breastfeeding uptake by ensuring skin to skin contact as soon as possible following birth, not separating mothers and babies within the first hour post-birth unless medically indicated, avoiding supplemental feeding of breast fed infants and not advertising or promoting artificial milk [6,36].

Family is the smallest building block of the society and good family relations is the guarantee of the future of the society. We found that most of the women's family were part of a nuclear family and had one or two children. In this survey a significant correlation was derived between mother's relatives' role (sponsoring by her husband and family) and breastfeeding in first four weeks of postpartum period. So, nourishing the infant by breastfeeding method has increased by raising the consciousness of mother's relatives. It's worthier that the family and relatives encourage and persuade the mother and father to be to vaginal delivery and breast-feeding. Mutlu., *et al.* (2018) showed that the maternal attachment level is higher for mothers who have supported by their spouses help care for the baby [37]. In addition, the amount of exclusive nutrition by breastfeeding in infants of mothers who are supported by husbands or mothers will significantly increase [7]. Ziaee., *et al.* found out that mothers' continual support during breastfeeding and hugging the infant immediately after birth are important principles of breastfeeding [8].

In this study, one of the important points during breastfeeding was mothers' using cellphone. It can disrupt the emotional strategy concerning continuing breastfeeding or mother's eye contact with the infant. Based on the evidences, strategies to increase the amount of breastfeeding has been successful through consulting health caregivers. Technological advances and accessibility to cell phones have contributed to effective sharing of information to promote the health of pregnant women and their families. In fact, cell phone can be effective as a means to teaching and consulting concerning breastfeeding [38]. However, mothers in this study never took advantage of cell phones to consult with caregivers. The findings of a study by Lukenze Jacques showed that training and consultancy through cell phones lead to promotion of breastfeeding [39]. Also results indicate that breastfeeding promotion programs delivered via the Internet may be an appealing alternative to time-consuming and expensive provider-based breastfeeding education and support [40].

Since the kind of childbirth include various variables and the spouse know nothing about face to face events, parents' planning for pregnancy and childbirth can contribute to understanding the importance of priorities in infant's birth. It is feasible to increase mothers' awareness through communicating by caregivers [41,42]. Based on the findings of the present study, most mothers are not trained about the birth and caring of the infant while receiving pre-marriage counseling. The findings, also showed that there was a significant relationship between pre-marriage love and breastfeeding so that mothers who married with love continued responsible parenthood like breastfeeding enthusiastically (r = .69)

The administration for children and families' healthy marriage and responsible parenthood program needed to sustain healthy marriages and relationship. Research finds that administration for children and families has emphasized the importance of developing healthy marriage and relationship education and responsible parenthood [43].

## Conclusion

Due to the findings of the present study there was a relationship between formula usage and kind of delivery in women (r = 78%). In fact, childbirth through cesarean section and its limitations were among major reasons of formula usage by mothers. On the other hand, the evidences show that most cesarean section are unnecessary and are conducted for non- medical reasons. It seems that the caregivers' role, especially nurses, gynecologists, and pediatricians are vital for propagating vaginal delivery and breastfeeding. Unexpectedly, it is better those caregivers be the addressee of these two important issues. Nowadays, powerful forces in society affect the role of caregivers such as demographic changes in societies (longevity among the elders, modern technologies and patient's request for health and cure activities requesting cesarean section). Therefore, caregivers require modern ways of thought and insight to respond such forces [44]. In fact, caregivers are major factors in propagating vaginal delivery and breastfeeding, and, as efficient leaders, they should provoke mothers to choose natural delivery and breastfeeding.

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