

## The Relationship between Type of Delivery and Successful Breastfeeding

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### Abstract

#### Background

Breastfeeding is an only reliable nutritional source for infants. Many factors could affect breastfeeding such as delivery type. The aim of this study was to evaluate the relationship of delivery type and breastfeeding successful.

#### Materials and Methods

This was a descriptive-analytical study. Subjects of this study were 298 (148 subjects [49.7%] with cesarean and 150 subject [50.3%] with vaginal delivery) mothers who were referred to 4 health care centers in Urmia, Iran. The demographic data, type of delivery, breast feeding characteristics were collected by a researcher-made questionnaire. Statistical analysis was carried out using SPSS version 17.0 software.

#### Results

The mean age of mothers was  $28.2 \pm 4.9$  years old. Of a total 298 mothers, 148 subjects (49.7%) had experienced cesarean delivery and 150 subjects (50.3%) had experienced vaginal delivery. There was no statistically significant difference among mothers who had Vaginal delivery compared to mothers who had Caesarean delivery in terms of the first lactation duration ( $P = 0.406$ ), from delivery to first breastfeeding duration ( $P = 0.125$ ), mean duration of next breastfeeding ( $P = 0.750$ ), mean number of lactation per day ( $P = 0.133$ ), and mean number of lactation per night ( $P = 0.081$ ), and age of onset of auxiliary nutrition ( $P = 0.784$ ).

#### Conclusion

In this study there was no relationship between type of delivery and breastfeeding behaviors; while in the vaginal delivery group, the average distance to first lactation was shorter, so, cesarean delivery can be dangerous for mothers, but also can affect the breastfeeding pattern.

**Key Words:** Breastfeeding, Children, Cesarean section, Mothers, Vaginal delivery.

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## 1- INTRODUCTION

Breastfeeding is the ideal and most natural way of nurturing infants. Breastfeeding is very clearly encouraged in the Quran and breastfeeding by the mother to her new born infant is greatly beneficial as science had proven, and it is mandatory in the Quran. Many countries in the WHO Eastern Mediterranean Region report high rates (> 60%) of early initiation of breastfeeding of infants and more than 60% of infants continue to be breastfed at one year. However, rates of exclusive breastfeeding seem to have declined, with only 40% or less of infants under six months in countries of the Region being exclusively breastfed (1).

The progress of any society depends on its people and the importance of the health of children who are the future of society is obvious. Proper nutrition assures the health of children especially infants and mother's milk is the most complete food in the first months of life (2). There are several valid evidence regarding the relationship between breastfeeding and low prevalence of the disease in neonates in developed and developing countries (3). In addition to the known benefits of breastfeeding, various researchers have concluded that the benefits of mother's milk are decreasing the incidence of diabetes mellitus and lung problems and it raises the intelligence quotient (IQ) of their childhood (4, 5).

According to the American Association of Pediatrics (AAP) guidelines, mother's milk must be started immediately after delivery and it must be considered as the only food of baby in the first six months of life and then it should be preserved one year as one of the main components in the diet of a child (6). In recent years, many studies have been conducted on factors affecting breastfeeding, and the role of some factors have been identified such as diseases of mothers and children, incorrect beliefs of mothers, mothers' occupation,

wrong advice of people, mother's knowledge breastfeeding, the problems that face the mother during hospital care, economic status and social cultural of mother (7, 8). In the study of Parsay et al. (9), the results showed there was no statistically significant difference between the pattern of mothers' breastfeeding and vaginal delivery and cesarean delivery. In the study of Ekhtiari et al. (10), the results showed that there was no relationship between the delivery type and breastfeeding pattern. Another study in England indicated that cesarean delivery does not have any effect on the breastfeeding (11).

A study was conducted in China and showed that cesarean delivery was as a risk factor of breast-feeding failure (12). A survey conducted in Turkey indicated that there was a statistically significant difference between the success of breastfeeding among mothers and vaginal delivery (13). Also, Zanardv et al. (14), in Italy have shown that breastfeeding rates were higher in the early hours of vaginal delivery, and time of delivery to first breastfeeding was significantly lower in this group. Maternal health problems and the effects of anesthetic drugs could explain the late start of breastfeeding in caesarean delivery (15).

Despite that so far the effect delivery in breastfeeding of mothers has been investigated in the numerous studies, but there is no united result to be achieved (14, 16, 17). Therefore, this study was designed to investigate the relationship between the type of delivery and lactation and the success rate of breastfeeding in mothers referred to health centers of Urmia, West Azerbaijan, Iran.

## 2- MATERIALS AND METHODS

### 2-1. Study Design and Population

This was a descriptive-analytical study during March - November 2014. Subjects

of this study were 298 (148 subjects with cesarean and 150 subjects with vaginal delivery) mothers who were referred to health care centers in Urmia, West Azerbaijan, Iran. The sample size was determined based on previous studies (18-20), that had a power of 95% to identify differences with type I error probability of 5%.

## 2-2. Methods

In order to select the health care centers, the map of Urmia city was divided into 4 different geographical and economic areas. Afterwards, a health care center was randomly chosen from each area. The participants were also selected by convenience considering the inclusion criteria. To do so, first a list of attendees who met the inclusion criteria was made and then 298 of them were selected from among the attendees as the participants of the study using convenience sampling. The number of selected participants was in accordance with the number of people who attended the target centers.

## 2-3. Measuring tests

In this study, data collection instrument was a researcher-made questionnaire that was completed by interviews from mothers. If there was any ambiguity on the questions, the questions were described. The researcher-made questionnaire included variables such as age and gender of the child, the mother's demographic information (age, educational level, mother occupation and place of residence), and breastfeeding variables (from delivery to first breastfeeding duration, first breastfeeding duration, mean duration of breastfeeding in first 6 months, mean number of breastfeeding per day, mean number of breastfeeding per night, age of exclusive nutrition with mother's milk, and age of onset of auxiliary nutrition) type of anesthesia and pain of labor in the cesarean delivery. Questions related to the status of breastfeeding included the

delivery interval until the first breastfeeding, time of breastfeeding in the first time, the mean number of lactation per day and per night and the age of onset of axillary nutrition. The researcher-made questionnaire was approved by five academic members of the nursing and midwifery faculty, department of pediatric of Urmia University of Medical Sciences related to our study, and all of requested changes were done after collecting comments and in order to determine the validity, Cronbach's alpha was obtained 0.81 using split-half method. The response of questions related to breastfeeding variables were answered in the form of time (not score).

## 2-4. Inclusion Criteria

Inclusion criteria included Iranian mothers who had 18 – 45 years, had health record, had children with 6 months to 2 years old, and had no specific disease or drug use affecting breastfeeding such as indomethacin, antidepressant, beta – blocker agents and satisfaction to participate in the study.

## 2-5. Exclusion Criteria

Exclusion criteria included mothers who were refused for breastfeeding, had less than 2 years between pregnancies, and used drugs that may have a negative effect on breastfeeding.

## 2-6. Ethical Considerations

This study was approved by the Ethics Committee (with ID code: ir.umsu.rec.1391.119). Centers of interest were visited and the objectives of the study were explained to all participants and all of them accepted to participate and were assured of the confidentiality of their individual information as well as the voluntary nature of participating in the study.

## 2-7. Data Analyses

Statistical analysis was carried out using SPSS version 17.0 software. A Kolmogorov-Smirnov test was used to examine if the data was normally distributed. Descriptive statistics (means, standard deviations) of demographic variables, and breastfeeding variables were calculated. Independent t-tests were employed to evaluate the differences among breastfeeding variables between two groups of delivery. Chi-square was applied to examine the relationships among the demographic variables. P-values less than 5% were considered significant.

### 3-RESULTS

Of a total 298 mothers, 148 subjects (49.7%) had experienced cesarean delivery and 150 subjects (50.3%) had experienced vaginal delivery. 286 subjects (96%) resided in urban area and 12 subjects (4%) were in rural area. The mean age of mothers was  $28.2 \pm 4.9$  years old. 263 subjects (88.3%) were housewives and 35 subjects (11.7%) were employees. In terms of education level, 15 subjects (5.1%) were illiterate, and 121 subjects (40.6%) had high school education and diploma.

According to available data about the cause of 148 cesarean, 31 cases (21%) were voluntary and 117 cases (79%) conducted for Medical reasons. As well as general anesthesia was used in 19 cases

(13%) and spinal anesthesia was used in 129 cases (87%). According to **Table.1**, among the demographic characteristics, there was a significant difference between two groups (cesarean and vaginal delivery) in terms of age ( $P = 0.003$ ), education ( $P = 0.013$ ), and place of residence ( $P = 0.026$ ); but in terms of occupation, there was no statistically significant difference between the two groups ( $P = 0.085$ ).

According to **Table.2**, there was no statistically significant difference among mothers who had vaginal delivery compared to mothers who had Caesarean delivery in terms of the first lactation duration ( $P = 0.406$ ), from delivery to first breastfeeding duration ( $P = 0.125$ ), mean duration of breastfeeding in first 6 months ( $P = 0.750$ ), mean number of breastfeeding per day ( $P = 0.133$ ), and mean number of breastfeeding per night ( $P = 0.081$ ), and age of onset of auxiliary nutrition in babies ( $P = 0.784$ ).

As showed in **Tables.3 and 4**, there was a statistically significant difference between first breastfeeding duration ( $P = 0.01$ ) and first breastfeeding duration ( $P = 0.000$ ) in two type of anesthesia. As well as there was a statistically significant difference between cesarean deliveries with pain or without pain in terms of first breastfeeding duration ( $P = 0.000$ ).

**Table-1:** The comparison of the demographic characteristic of mothers in two groups (vaginal and cesarean delivery)

Variables		Type of delivery		P-value
		Cesarean Delivery (n=148)	Vaginal Delivery (n=150)	
Age (years)	Less Than 25 Years	25	54	0.003
	25-35 Years	99	81	
	More Than 35 Years	24	15	
Education Levels	Illiterate	7	8	0.013
	Elementary And Middle	30	52	

	High School And Diploma	58	63	
	Collegiate	53	27	
Mother Occupation	Housewife	125	138	0.085
	Employee	23	12	
Place of Residence	Urban Area	146	140	0.026
	Rural Area	2	10	

**Table-2:** The comparison of success rate of breastfeeding in the cesarean and vaginal delivery groups

Variables	Cesarean delivery	Vaginal delivery	P-value
From delivery to first breastfeeding duration (hour)	9.34±18.86	14.6 ±5.71	0.12
First breastfeeding duration(minute)	242.97±2.846	5±4.97	0.40
Mean duration of breastfeeding in first 6 months (minute)	13.89±7.74	13.55±7.43	0.75
Mean number of breastfeeding per day	9.28±2.39	8.65±3.40	0.13
Mean number of breastfeeding per night	4.13±4.78	3.37±1.53	0.08
Age of exclusive nutrition with mother's milk(month)	5.34±4.23	5.30±1.97	0.12
Age of onset of auxiliary nutrition (month)	5.66±1.42	5.59±1.87	0.78

**Table-3:** The comparison of success rate of breastfeeding in the general and spinal anesthesia groups

Variables	Spinal anesthesia (n=129)	General anesthesia (n=19)	P-value
From delivery to first breastfeeding duration (hour)	18.84 ± 9.35	5.40 ± 4.57	0.01
First breastfeeding duration (minute)	28.50±25.40	4.89±3.44	0.00
Mean duration of breastfeeding in first 6 months (minute)	13.52±7.63	11.94±5.93	0.06
Mean number of breastfeeding per day	8.49±3.49	8.94±2.73	0.42
Mean number of breastfeeding per night	3.42±1.63	3.36±1.34	0.31
Age of exclusive nutrition with mother's milk (month)	5.51±4.23	4.63±2.26	0.15
Age of onset of auxiliary nutrition (month)	5.65±1.44	5.69±1.37	0.32

**Table-4:** The comparison of success rate of breastfeeding between cesarean delivery with pain and without pain groups

Variables	With pain (n=52)	Without pain (n=96)	P-value
From delivery to first breastfeeding duration (hour)	18.40 ± 9.05	18.91 ± 9.18	0.43
First breastfeeding duration (minute)	35.78±29.49	7.49±8.90	0.00
Mean duration of breastfeeding in first 6 months (minute)	13.87±8.10	12.98±7.02	0.07
Mean number of breastfeeding per day	8.42±3.35	8.70±3.47	0.15
Mean number of breastfeeding per night	3.36±1.65	3.52±1.50	0.22
Age of exclusive nutrition with mother's milk (month)	5.42±4.67	5.33±2.58	0.19
Age of onset of auxiliary nutrition (month)	5.51±1.50	5.90±1.30	0.09

#### 4- DISCUSSION

The results of this study showed that there was no significant difference between breastfeeding success rate and type of delivery (normal vaginal and caesarean delivery). In the present study, there was a statistically significant difference between age, education levels and place of residence of mothers and type of delivery. The frequency of cesarean delivery among mothers who had academic education was more than others and these results were consistent with the study of Karimi et al. (21). In the study of Farimani (22), the results showed that 5.22 % of mothers with academic education were in the cesarean group (versus 7% in the vaginal group) which was consistent with our results.

This study showed that there was no significant difference between two groups in terms of the duration of the first breastfeeding and from delivery to first breastfeeding duration. In the study of Parsay et al. (9), the results showed there was no statistically significant difference between the pattern of mothers' breastfeeding and vaginal delivery and cesarean delivery that was consistent with our study. In the study of Ekhtiari et al. (10), the results showed that there was no

relationship between the delivery type and breast-feeding pattern. Another study in England indicated that cesarean delivery does not have any effect on the breastfeeding (11); but Eslami et al. (23), showed that mothers with cesarean delivery started breastfeeding 2 hours after delivery. The mothers with cesarean section may not be able to have a proper position for breastfeeding due to the pain and discomfort caused by surgery.

In addition, they tend to start breastfeeding later due to the effects of anesthesia drugs (24). The current results showed that there was not statistically significant difference between the two groups (normal vaginal and caesarean section delivery) in terms of the age of exclusive breastfeeding with mother's milk. A study was conducted in China that showed cesarean delivery was as a risk factor of breast-feeding failure (12). In a study concluded on 200 mothers in Turkey, the results showed that there was a significant difference between first, second and third sessions of breastfeeding in cesarean and vaginal delivery, so that mothers who had cesarean delivery, had un-successful exclusive nitrating compared to mother with normal vaginal delivery (13).

In one of the studies in this field, Liu et al. in China (2012) (25), the relationship between cesarean delivery and breastfeeding were studied that 92% of mothers experienced the breastfeeding in the first hours after delivery, but 1.1% of them had been used the formula milk before to hospital discharge, so that a majority of them were mothers who had cesarean delivery (25). Also, Zanardo et al. (14), in Italy have shown that breastfeeding rates were higher in the early hours of vaginal delivery, and time of delivery to first breastfeeding was significantly lower in this group, but there was no difference between elective and emergency cesarean (14).

In our study, there was a statistical difference between type of anesthesia and the first breastfeeding duration in cesarean deliveries, so that in spinal anesthesia, the first breastfeeding duration was successful than general anesthesia. In the study of Ekhtiari et al. (10), there was no relationship between the type of anesthesia in cesarean delivery and breastfeeding, probably because there was low cesarean delivery using spinal anesthesia (n = 6).

In other studies such as the study of Prior et al. (17), which was consistent with the results of our study, a higher success rate of breastfeeding were observed in cesarean deliveries with spinal anesthesia compared to general anesthesia (17). The anesthetic and analgesic drugs that are used in cesarean surgery, can effects on the secretion of oxytocin for instance morphine sulfate, can stop the secretion of milk from the breast. In an extensive study morphine sulfate did not change the electrical activity of oxytocin-secreting cells in the hypothalamus, but it inhibited the release of oxytocin from the posterior pituitary (5). In this study, there were statistically significant difference in terms of the first breastfeeding duration among mothers who had painful delivery and those who were had no painful delivery.

Perhaps the lack of significance among some variables was due to the limited sample size compared to other similar studies, so that in the study of Liu et al. (25), 431,704 subjects, Leung et al. (26), 7,825 subjects, and Zanardo et al. (14), 2,137, were studied.

#### **4-1. Limitations of the study**

The small sample size of our study was potential limitation. Another limitation of the current study, were low of the same study in this field and low of the schools surveyed in Urmia. The type of this study was retrospective. It is suggested that further research be conducted prospectively. It is also recommended that the type of anesthesia used in cesarean delivery on the breastfeeding success also be addressed in future studies.

#### **5- CONCLUSION**

According to the results, there was no relationship between type of delivery and breastfeeding behaviors; while in the vaginal delivery group, the average distance to first lactation was shorter, but there was a statistically significant difference between the type of anesthesia and the pain of the cesarean group. Therefore, the survey of breastfeeding variables can determine the breastfeeding problems and appropriate planning for midwifery interventional. Not only cesarean delivery can be dangerous for mothers, but also can affect the breastfeeding pattern after delivery and subsequently the child's health can be also affected. Unfortunately literate mothers more tendency to have a cesarean delivery and proper planning to reduce unnecessary caesarean and helping to promote mother and child's health are the basic measures in this field.

#### **6- AUTHORS CONTRIBUTIONS**

- Study design: SR, PH.

- Data Collection and Analysis: ES, SR, PH
- Manuscript Writing: ES, SR.
- Critical Revision: SR, ES.

**7- CONFLICT OF INTEREST:** None.

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