

# Investigating the delivery type among primiparous women in Bandar Abbas according to the Health Belief Model

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## Abstract

**Introduction:** The past three decades have witnessed a growing rate of cesarean worldwide without causing any improvement in rates of mortality of mother and child. The majority of these deliveries have been due to non-medical reasons. Considering the optional delivery type, this research was conducted on primiparous women in Bandar Abbas based on the health belief model.

**Materials and methods:** The present descriptive/analytic research was conducted on 210 primiparous women visiting the healthcare centers of Bandar Abbas. Sampling was done based on randomized cluster sample selection method. The instrument was a questionnaire designed by the researcher based on the health belief model and perusal of the related literature. Data were collected by a questionnaire and analyzed using SPSS software version 16, chi-square and ANOVA tests. P value less than 0.05 was considered significant.

**Results:** From among the 210 participants, 73.8% of them were found to have had natural delivery, 26.2% had surgical delivery. The average age of mothers was  $24.56 \pm 4.96$

years (minimum 15 and maximum 43 years). Their average age of marriage was  $21.23 \pm 5.16$  years. No significant correlation was found between educational level, occupation, income and delivery type. A significant correlation on the other hand was observed between the constituents of health belief model and delivery types.

**Conclusion:** It appears that enacting appropriate instructional plans by the medical staff can be effective in raising women's susceptibility and perceived severity of the consequences of cesarean. Moreover, it can help to raise women's trust in their ability for natural delivery and to cut down on unnecessary caesarians.

**Key words:** delivery, primiparous women, health belief model, Bandar Abbas

Please cite this article as: Dadipoor, S. et al. Investigating the delivery type among primiparous women in Bandar Abbas according to the Health Belief Model. *World Family Medicine*. 2018;16(1):121-126  
DOI: 10.5742/MEWFM.2018.93214

## Introduction

Natural (vaginal) delivery is considered as the best type of delivery in the majority of pregnant women. However, due to the increasing trend of caesarian (C-section) it is less welcomed than in the past. Although C-section is regarded as a great human achievement and has managed to save the lives of many mothers and infants over the past three decades it has grown vastly without lowering the mortality rate of mothers and infants (1). Unfortunately, there has been a rise of C-section and unnecessary medical interventions currently in such developing countries as Iran (2). In fact, unlike all surgery, C-section is accompanied by certain side effects which are occasionally truly hazardous (3). The mortality rate of C-section is seven times as high as natural delivery. Among its other side effects are uterine infection, postpartum bleeding, surgical problems and pelvic injuries (4). A body of research has indicated that the real rate of C-section in different countries such as developing countries is much higher than that recommended by WHO (10-15%) (5). In the U.S. the rate of C-section has risen from 20.7% in 1996 to 32.8% in 2011 (6). According to the statistics reported in 2013, the rate of C-section in Iran was 46% while the global standard is 5-15% (7). A great many researchers have indicated the high rate of non-emergent Caesarian surgeries in Iran (8-11). Afshari et al.'s investigation entitled 'A survey on the selection of delivery method by nulliparous pregnant women using Health Belief Model' in Samirom found significant divergences between the constructs of the model among the groups (12). Multiple factors have been mentioned in different studies as involved in the choice of the delivery type. Among them are the fear of painful natural delivery, fear of the side effects of natural delivery on the child, unawareness of the side effects of C-section, doctor's advice, prior experience of C-section, parents' higher education, occupation and ethnicity (12-17). One personally used model of behavioral change which is among the most practical theories is the Health Belief Model. One advantage is its inclusion of the construct that takes into account the key aspects of behavioral change (18). The Health Belief Model used as the key framework in the present research is one of the oldest behavioral change theories based on the principle that one shows healthy behavior once s/he feels the threat (the 'perceived susceptibility' construct); when s/he is aware of the hazards of the unhealthy behavior (the 'perceived intensity' construct); when they feel that showing the right behavior is to their own benefit (the 'perceived benefits' construct); when they realize that they can remove the barriers to healthy behavior (the 'perceived barriers' construct); and finally when they see themselves capable of healthy behavior (the 'perceived self-efficacy' construct) (19). The statistics from Hormozgan province showed that 42% of deliveries by C-section were performed in 2014. Considering these statistics and the wide gap between the actual rate of C-section and the ideal one there is a need for certain interventions to look into the factors involved in selecting the type of delivery according to this model. Appropriate instructional programs can help to promote safe and natural delivery. Therefore, this research aims to investigate the type of delivery in primiparous women

according to the constructs of the Health Belief Model.

## Materials and methods

This cross-sectional research is of a descriptive/analytic type and its population comprised all primiparous pregnant women who visited the healthcare centers of Bandar Abbas in 2015. The sample size was estimated through the formula

$$n = \frac{z^2 \sigma^2}{d^2}$$

(CI=95%, d=1 and attrition rate=10%) to be 210. The sampling method was clustering and the subjects in each cluster were selected through simple randomization. From among the 20 healthcare centers in Bandar Abbas, 12 were selected as clusters for the sampling. The ratio of each cluster was determined based on the population it covered. In the next phase, from among the women subjects, those who met the inclusion criteria were randomly selected and entered the study. The inclusion criteria were: primiparous women being pregnant for 28 weeks or more, no medical indications for C-section and consent to take part in the research. The exclusion criteria were incomplete questionnaires, termination of pregnancy. The data collection instrument was a questionnaire developed by the researcher based on the Health Belief Model. Cronbach's alpha was used to test the reliability of the questionnaire and in a pilot test the questionnaire was submitted twice (before and after a 10-day interval) to 30 subjects who met the inclusion criteria. The awareness section obtained a reliability of 89% while the constructs of the model gained a reliability coefficient of 81%. For the content validity, the comments made by five specialists in healthcare Sciences and Midwifery were used and the required adaptations were made to the items. The questionnaire consisted of three sections, the first of which entailed the subjects' demographic and socioeconomic information. The second section included the awareness items and those based on the Health Belief Model. The awareness questions of either delivery type were 15 in number. They were scored between 0 and 15. Each correct response would receive 1 and each incorrect response would score 0. An overall score between 0 and 5 meant a low awareness level; a score between 6 and 10 implied a moderate awareness level and a score between 11 and 15 pointed to a high level of awareness. The constructs of the model were to be rated in a 5-level Likert scale ranging from totally agree to totally disagree. The 'perceived susceptibility' construct (women's perception of the probability of affliction with the side effects of non-emergent C-section) consisted of 6 items in a 5-level Likert scale. Its score was between 6 and 30. A score between 6 and 14 would mean a low susceptibility while a score of 15-22 implied a moderate susceptibility and a score of 23-30 would be interpreted as high. The 'perceived severity' construct (women's perception of the barriers to natural delivery) included 10 items to be rated in a 5-level Likert scale. Its score was between 10 and 50. A score of 10-23 would be taken as low while a score of 24-37 would be interpreted as moderate and a score of 38-50 would be interpreted as high. The 'perceived self-

interpreted as moderate and a score of 38-50 would be interpreted as high. The 'perceived self-efficacy' construct (women's perception of the benefits of natural delivery) consisted of 10 items which were rated in a 5-level Likert scale as the overall score would range between 10 and 50. A score between 10 and 23 would imply a low perception while a score of 24-37 would mean a moderate perception and a score ranging between 38 and 50 would be taken as high. Mother's choice of the type of delivery was investigated through a behavioral intention item (having three choices: natural delivery, C-section, undecided).

Once the required permission was gained from the deputy of research at Hormozgan University of medical sciences the mothers' full consent to take part in the research was obtained orally. They were ensured of the confidentiality of the data they provided and the research was conducted according to all ethical issues. To see which type of delivery they actually finally opted for, they were followed up through phone calls after delivery. Data were collected by a questionnaire and analyzed using SPSS software version 16, chi-square and ANOVA tests. P value less than 0.05 was considered significant.

## Results

Among the 210 subjects, 149 (71%) decided to have a natural delivery, 36 (17.1%) decided to go for a C-section and 25 (11.9%) had not yet made up their mind. The average age of the mothers was  $24.56 \pm 4.96$  yrs. (minimum 15, maximum 43) and the average age of marriage was  $21.23 \pm 5.16$  years. 74 subjects (35.2%) had an academic degree (Table 1).

**Table 1: Distribution and significance level of the target variables in terms of the delivery type**

variable	Group	Natural delivery (f)	C-section (f)	Undecided (f)	Total f (%)	P-value
education	uneducated	4	0	0	4(1.9)	<b>.0263</b>
	Primary school	9	1	2	12(5.7)	
	Junior high school	12	3	0	15(7.1)	
	High school	27	5	9	41(19.5)	
	Diploma	46	11	7	64(30.5)	
	University	51	16	7	74(35.2)	
occupation	housewife	124	28	22	174(82.9)	<b>0.627</b>
	Blue-collared	1	0	0	1(0.5)	
	White-collared	20	5	3	28(13.3)	
	others	4	3	0	7(3.3)	
Income	low	22	3	2	27(12.9)	<b>.826</b>
	Average	82	21	17	120(57.1)	
	Above average	43	12	6	61(29)	
	high	2	0	0	2(1)	

The mean score of mothers' awareness of the benefits and barriers of delivery type was 6.63. 74 subjects (53.3%) had a low awareness level while 123 subjects (58.6%) had an average level awareness and 13 (6.2%) had a high awareness (Table 2).

**Table 2: Distribution of mothers' awareness level based on the constructs of the Health Belief Model**

variable	Low level F (%)	Average level F (%)	High level F (%)
Awareness	73(34.8)	123(58.6)	14(6.7)
Perceived susceptibility	58(27.6)	128(61)	24(11.4)
Perceived severity	27(12.9)	156(74.3)	27(12.9)
Perceived barriers	109(51.9)	91(43.3)	10(4.8)
Perceived benefits	8(3.8)	104(49.5)	98(46.7)
Perceived self-efficacy	30(14.3)	71(33.8)	109(51.9)

There was a significant correlation between the awareness score and selection of the delivery type ( $p=.011$ ). According to the statistics (Table 2), subjects' awareness of the type of delivery they selected based on the constructs of the Health Belief Model was average. A significant correlation was observed between the constructs of the model and the three groups of delivery type (Table 3).

**Table 3: Mean and standard deviation of awareness scores and the constructs of the Health Belief Model in terms of delivery type**

variable	Natural delivery	undecided	C-section	Total	P-value
	(SD) mean				
awareness	7.45 (2.61)	5.4(2.70)	6.13(2.67)	6.8(2.67)	.011
Perceived susceptibility	17.42 (4.02)	15.12(2.27)	14.91(2.90)	16.71(3.83)	<0.001
Perceived severity	18.98(3.96)	17(4.14)	16.47(3.22)	18.31(3.99)	<0.001
Perceived barriers	21.22(7.61)	26.6(4.87)	28.58(8.99)	23.12(8.15)	<0.001
Perceived benefits	37.10(6.01)	34.72(4.86)	35(5.97)	36.45(5.94)	.048
Perceived self-efficacy	14.96(4.27)	11.16 (3.07)	11.25(4.39)	12.67(4.39)	<0.001

## Discussion

In this research no significant correlation was observed between age and the type of delivery. Our findings were dissimilar to those reported by Piri et al. (22) and Mohammadi Tabar (23) which indicated a significant correlation of age and delivery type. However, the findings were not similar to those of Afshari and Ghaffari (12) Chang et al (20), Sharifi Rad et al (25), and Negahban et al (26). The findings were not similar to those reported by Mohammadi Tabar who found a significant correlation between education and the delivery type (23). No significant correlation between mother's age, occupation and education and deciding on the delivery type in the present research can be due to the homogeneity of the subjects in terms of age and being primiparous. According to the findings, the majority of mother subjects had an average or low awareness of the benefits or barriers of the types of delivery. Among the factors involved are the first experience of childbirth, lack of prior experience and insufficient pregnancy instructions from the health centers. In research by Yarandi et al. (27), Sharghi et al. (28), Ghaffari et al. (29), Afshari and Ghaffari (12), Sharifi Rad et al., mothers' awareness was average. The present findings were similar to the results of the body of research just mentioned (25). In their research, Faramarzi et al concluded that women's awareness of pregnancy is the result of other women's experience and that does not have a scientific basis. Therefore, negative attitudes towards natural delivery and unawareness of the side effects of C-section lead them towards selecting C-section (30). Awareness seems to be a key factor involved in health and is a primary step in deciding on a health-related decision. Therefore, due to the role awareness plays in selecting the type of delivery, holding consultation sessions with pregnant women and their spouses as well as making them aware of the side effects and hazards of C-section by medical centers can be helpful. The results revealed a significant divergence between the perceived susceptibility and severity scores. These findings were consistent with the results gained by Sharifi Rad et al. (25), Pakenham et al. (2006) (13), Fuglenes et al. (2009) (31), Afshari and Ghaffari (2014) (12). It is estimated that mother's perceived susceptibility and threat of the side effects of each delivery type on both mother and child can affect their choice of delivery. There was a significant correlation between the perceived benefits construct of the model and the types of delivery in the present research. The

natural delivery group had a higher mean score. According to the findings, this was not far from expectation. Mothers who had a higher score of perceived benefits opted more for the safe natural delivery. On the other hand, in terms of perceived barriers as one component of the Health Belief Model the higher score was that of the C-section group. In fact, women who intended to have a C-section viewed more barriers on natural delivery. The findings of the present research were consistent with those reported by Afshari and Ghaffari (12), Negahban et al. (26), Bagheri et al. (32) that mentioned the pain of natural delivery (perceived barriers) as a key factor involved in the choice of the delivery type. They are also similar to the findings found by Zamani et al. (33) as well as Khorsandi et al. (23). The above-mentioned body of research indicates that the perceived barriers and benefits can affect the choice of the delivery type. Accordingly, pregnant women go for the natural delivery once they: 1. perceive fewer barriers, 2. perceive many benefits for natural delivery, 3. feel the threats of C-section and its health-related hazards for both mother and child, 4. are encouraged by those who care to opt for natural delivery. Therefore, making proper decisions to remove the barriers to natural delivery can be effective with this respect. Another finding of this research was the significant correlation of the perceived self-efficacy score and the types of delivery. In the group which intended to have a natural delivery the self-efficacy score was higher. In a study by Afshari et al, the mean score of self-efficacy in the natural delivery group was higher than the C-section group (12). In Dilks and Beal's investigation, women with a higher self-efficacy score had a higher tendency towards natural delivery (35). Ridley et al's research indicated that the self-efficacy score of women who had a prior experience of C-section was lower than those who experienced natural delivery after a C-section (36). In their research, Khorsandi et al pointed out the role of self-efficacy in opting for the type of delivery is the fear of natural delivery (34). Therefore, appropriate strategies for promoting pregnant women's perception of the capability of natural delivery as well as instructions during pregnancy can be effective in this respect(37,38).

## Conclusion

According to the findings of this research, the majority of mothers were shown to have an average or low level of awareness of the negative side effects of the C-section. It seems that the implementation of the right instructional programs by the medical staff helps to raise women's perceived susceptibility and severity of the side effects of C-section. It also helps increase their trust in their capabilities of a natural delivery which cuts down the rate of unnecessary C-sections.

## Acknowledgements

The authors are grateful to the Hormozgan University of Medical Sciences, Bandar Abbas, Iran and all people who helps us to complete this study is appreciated

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