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B Butterfly Campaign: A social marketing campaign to promote normal childbirth among first-time pregnant women

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ABSTRACT

Problem: The steep increase and inappropriateness of caesarean birth represent a healthcare problem in Iran.
Aim: The purpose of study was to evaluate the effect of a campaign based on social marketing to promote normal childbirth.
Method: The study was designed as a prospective case control study. The social marketing campaign was implemented from March 2016 to January 2017. A demographic data questionnaire, obstetrical history questionnaire, maternal knowledge assessment questionnaire, and maternal health belief questionnaire comprised the instruments for this study. Only women planning a caesarean birth without any medical indications for the caesarean were enrolled in the study as a case. Those who met the same inclusion criteria and did not want to participate in the campaign were assigned to the control group.
Findings: In total, 350 first-time pregnant women who composed the campaign group (n = 194) and control group (n = 156) completed the study. The mean baseline level of knowledge and Health Belief Model component score did not differ between the two groups at baseline. However, after the campaign, knowledge scores, perceived severity, perceived susceptibility, self-efficacy, and cues to action scores differed significantly between the campaign and control groups. The follow-up of all participants in both groups showed that 35.6% (n = 69) of participants in the campaign group chose natural birth as their birth method, whereas only 13.5% (n = 21) in the control group delivered their newborn vaginally.
Conclusion: The B Butterfly social marketing campaign successfully targeted first-time pregnant women who chose to have unnecessary elective cesarean births.

Statement of significance

Problem or issue

The steep increase and inappropriateness of caesarean birth represent a healthcare problem in Iran and require the attention of government officials.

What is already known

Clearly, caesarean birth can be life-threatening even in mothers with no underlying medical issues. Since numerous underlying factors bring about the need for caesarean birth, various strategies should be established to avoid unnecessary cesareans.

What this paper adds

Promoting normal childbirth to increase preferences for vaginal birth among first-time pregnant women has great potential to reduce the number of caesarean sections. The "B Butterfly" Campaign is a program-planning process that applied commercial marketing concepts and techniques to encourage first-time pregnant women to change their preferences from cesarean childbirth to vaginal birth.

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1. Introduction

Cesarean birth on maternal request refers to a primary cesarean birth performed because the mother requests this method of birth in the absence of standard medical indications for avoiding normal childbirth. The reasons for requesting cesarean birth vary from one individual to another but can include fear of pain in childbirth, fear of poor outcomes with normal childbirth, and other critical life experiences that have an emotional impact on the anticipation of labor and birth.[1] Potential risks of cesarean birth on maternal request include greater complications in subsequent pregnancies such as uterine rupture, placenta previa, placenta accreta, bladder and bowel injuries, and the need for hysterectomy.[2] The literature on elective cesarean birth without labor also shows an increased rate of complications related to prematurity including respiratory symptoms, other neonatal adaptation problems such as hypothermia and hypoglycemia, and neonatal intensive care unit admissions for infants delivered by cesarean birth.[3] Because of these potential complications, cesarean birth on maternal request should not be encouraged. Clearly, caesarean birth can be life-threatening even in mothers with no underlying medical issues.[4] Although some countries work under the premise that a woman has a human right to choose what happens to her body. They therefore have a 'right' to choose a caesarean section, even though it may be thought medically not appropriate. According to the American College of Obstetrics & Gynecologist, in the absence of maternal or fetal indications for cesarean birth, a plan for normal childbirth is safe and appropriate and should be recommended.[5]

The steep increase and inappropriateness of caesarean birth represent a healthcare problem in Iran and requires the attention of government officials. Since numerous underlying factors bring about the need for caesarean birth, various strategies should be established to avoid unnecessary cesareans. Promoting normal childbirth to increase preferences for vaginal birth among first-time pregnant women has great potential to reduce the number of caesarean sections. The purpose of this study was to plan, develop and evaluate the effect of a campaign based on social marketing to promote normal childbirth.

The term social marketing has been used since the early 1970s[6] and refers primarily to efforts focused on influencing behaviors that will improve health, prevent injuries, protect the environment, and contribute to communities.[7] In plain language, it is a program-planning process that applies commercial marketing concepts and techniques to promote voluntary behavior change of target audiences to improve their personal welfare and that of society.[8] The social marketing process involves identifying an effective "marketing mix" of product, price, place, and promotion with the goal of offering an exchange that has clear and compelling benefits, minimal barriers, and an advantage over the competition.[9]

In social marketing, the product is the desired behavior for the targeted audience. A social marketing approach can provide important support for that uptake by beginning with a critical first step of defining the attributes of the "product" being sold from a potential consumer's point of view, which involves formative research with consumers. This approach suggests that it is important to understand the perspective of the audience and its other perceived needs and desires to provide a satisfactory exchange. In this study, the campaign's product is normal childbirth. The campaign's strategy is to encourage the audience to choose normal childbirth as a birth option.

A price sums up the costs that the target audience will "pay" for adopting the desired behavior that leads to the promised benefits. These costs could be diminished pleasure, embarrassment, loss of time, psychological costs or physical discomfort.

Place is largely where and when the target audience will be encouraged to perform the desired behavior. Place must be readily available to enable the desired action.[10] Child birth classes, prenatal care clinics, beauty salons, and virtual social media are among the places that individuals can access. The campaign's strategy is to provide enabling resources (e.g., availability of services and childbirth classes) and enabling resources for personnel/family (e.g., women must know how to access and use childbirth classes).

Promotion occurs at the end of the social marketing process because it ensures that the target markets become aware of the targeted product, its price, and its accessibility. A promotional strategy is needed to maximize the success of communications. Promotional activities may encompass advertising, public relations, printed materials, promotional items, special events and displays, face-to-face sales, and entertainment media.

2. Material & methods

In the present study, we tested the hypothesis that a multicomponent intervention based on a social marketing approach would increase the outcome measures of awareness and behavior change among first-time pregnant women who requested elective cesareans.

2.1. Research design

The study was designed as a prospective case control study that evaluated awareness and behavior change before and after the implementation of a campaign based on the Health Belief Model. The purpose of this study was to plan, develop and implement a campaign based on social marketing to promote normal childbirth.

2.2. Campaign objectives and goals

A clear analysis of the situation leads to specifying the overarching goal and objectives that should be addressed by the campaign. We conceived the "B Butterfly" Campaign to encourage first-time pregnant women to change their preferences from cesarean childbirth to normal childbirth. The immediate objectives of the campaign were as follows: to increase public awareness of the advantages of normal childbirth, to create a more positive image of it and to encourage it. The ultimate goal was to develop educational materials and strategies appropriate for promoting normal childbirth and to reduce the rate of unnecessary cesarean section deliveries.

2.3. Creating a campaign brand

The name of the campaign was originally from a short story about a butterfly by Nikos Kazantzakis that says, "A man found a cocoon of a butterfly. One day, a small opening appeared. He sat and watched the butterfly for several hours. It struggled to force its body through that littlehole. Then, it seemed to stop making any progress. It appeared as if it had gotten as far as it could, and it could go no further. So, the man decided to help the butterfly. He took a pair of scissors and snipped off the remaining bit of the cocoon. The butterfly then emerged easily, but it had a swollen body and small, shriveled wings. He continued to watch the butterfly. He expected that at any moment, the wings would enlarge and the body would contract, but neither occurred! In fact, the butterfly spent the rest of its life crawling around with a swollen body and shriveled wings. It was never able to fly. The man acted with well-intentioned kindness, but he did not understand the consequences. The restricting cocoon and the struggle required to get through the tiny opening were nature's way of forcing fluid

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from the body of the butterfly once it achieved its freedom from the cocoon. Sometimes struggles are exactly what we need in our lives. If nature allowed us to go through life without any obstacles, it would cripple us. We would not be as strong as we could have been, and we would never fly".[11]

2.4. Implementation of the campaign

The social marketing campaign was implemented after obtaining ethical permission from March 2016 to January 2017. The study was approved by the Ethics and Research Committee of the Hormozgan University of Medical Sciences (grant number: 9441). The study was conducted in twelve districts: five private offices of obstetrics and gynecology specialists and seven prenatal clinics from all hospitals across various districts of the city of Bandar Abbas. Of these hospitals, five were public and two were private. The hospitals were purposively selected to represent the different levels of healthcare available in Bandar Abbas.

2.5. Participants

Only women planning a caesarean birth without any medical indications for the caesarean were enrolled in the study. The inclusion criteria included a minimum maternal age of 15 years, first pregnancy, no serious chronic medical conditions, no history of infertility, a singleton pregnancy in the second trimester (20–24 weeks of gestation), fluency in Farsi, ability to read and write, and permanent residency in Bandar Abbas, Hormozgan province. Women were excluded from the study based on the presence of any risk factor leading to an absolute medical indication for a caesarean delivery (e.g., placenta previa, preeclampsia, or mal-presentation). A convenient sampling strategy was adopted to recruit potential participants on the basis of their availability and willingness to participate.

Twelve trained research assistants were employed (one for each district) to invite potential participants to the study. Women were approached as they were entering or leaving the prenatal clinic or private office. The research assistants obtained informed consent after explaining the purpose of the study. Those interested in becoming participants were encouraged to seek clarification where necessary and willing participants signed an informed consent form. Self-administered questionnaires were then distributed. The study initially recruited all eligible women who self-reported planning a caesarean birth in their responses to the questionnaire. Only women planning a caesarean birth without any medical indications for the caesarean were enrolled in the study as a case. Then, each participant was given an ID card with a user and password code that allowed them to access all the activities of the campaign. Those who met the same inclusion criteria and did not want to participate in the campaign were assigned to the control group. The control group received routine prenatal care only.

2.6. Interventions

The research team in cooperation with a graphic and art specialist created and produced the campaign materials. The campaign was based on social marketing theory, but several important principles of the Health Belief Model were compromised in the interest of quickly addressing the apparent problem. The HBM was developed in the early 1950s by social scientists in the United States and integrates components that impact behavior, perceptions of susceptibility and severity of a disease; cues to taking recommended action; perceptions of barriers and benefits of taking action; and self-efficacy.[12]

Table 1
The activities of the campaign.

Distribution of materials	650 palm cards, 25 posters
Website	The website with limited access, was designed exclusively for participants in the case group
Birth center tour	Visiting the birth center during pregnancy with the tour leader, who was a midwife
Social media	Creating a group on social media such as Instagram, telegram, Facebook.
Group discussion	A panel of experts on pregnancy and birth was conducted with participants
Tea party	Group discussion between participants in the case group and women with earlier experiences of normal childbirth under the supervision of a midwife

The interventions included posters, palm cards, websites, social media, group discussion and a tea party. Eight individual palm cards with different information were sending to each participant in intervention group by post each week. The tea party was held each month and participants in intervention group were invited for attending. Web site and social media channel were designed as a form of communication to give information for participants. The birth center tour was held each month and all the participants in intervention group were scheduled to attend it. The different activities of the campaign are listed in Table 1. The main core of all activities was giving enough information about the process of vaginal birth and cesarean, the benefit and barriers of each method of birth, being in touch with other participants as a support group, and also giving examples of true stories about birth experience by women who wanted to share their experience in a form of group discussions at the tea party.

2.7. Evaluation instruments

A structured, self-administered questionnaire was used to collect information from participants. A demographic questionnaire, childbirth knowledge questionnaire and Maternal Health Belief Questionnaire (MHBQ) constituted the instruments for this study. Maternal childbirth knowledge was measured by the childbirth knowledge assessment questionnaire, which consisted of 16 multiple-choice questions (e.g., "In which method of childbirth is postpartum recovery faster?"). Correct answers received one point each, and incorrect answers received no points. Possible scores therefore ranged between 0 and 16, with a higher score indicating more knowledge.[13,14]

Given that no existing standard questionnaire was available, a questionnaire was developed by the research team based on available databases and the results of other studies.The Maternal Health Belief Questionnaire (MHBQ), a 37-item instrument with six subscales, was designed to ask mothers to choose the best answer to each question about their decision to request a caesarean or vaginal birth.[15,16]

Maternal perception of threat related to a caesarean delivery was measured using the MHBQ threat subscale. This was a six-item five-point Likert-type scale that asked the mother to indicate whether she perceived caesarean birth to pose a threat to the mother or child (e.g., "There are concerns about anesthesia complications with caesarean deliveries"). The answer choices for each item ranged from "yes, I believe this" to "no, I do not believe this". Scale scores ranged from 6 to 30, with higher scores indicating that caesarean birth posed a greater perceived threat.

Maternal perception of risks due to caesarean delivery was measured using the MHBQ risk subscale. This was a seven-item five-point Likert-type scale that asked each mother to think about what she believed to be true about a caesarean delivery for her individual situation (e.g., "I am afraid of an abdominal wound

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infection after a caesarean delivery"). The answer choices for each item ranged from "yes, I believe this" to "no, I do not believe this". Scale scores ranged from seven to 35, with higher scores indicating that caesarean birth had a greater perceived risk.

Maternal perception of barriers to vaginal birth was measured using an eight-item five-point Likert-type scale in the MHBQ. Women were asked to think about what they believed to be true about the barriers to vaginal birth (e.g., "A painful labor process is the reason for not choosing vaginal birth"). The answer choices for each item ranged from "strongly agree" to "strongly disagree". Scale scores ranged from 8 to 40, with higher scores reflecting increased perception of barriers to choosing vaginal birth.

Maternal perception of the benefits of vaginal birth was measured using a 10-item five-point Likert-type scale in the MHBQ. Women were asked to consider what they believed to be true about the benefits of vaginal birth (e.g., "Vaginal birth is less costly"). The answer choices for each item ranged from "strongly agree" to "strongly disagree". Scale scores ranged from 10 to 50, with higher scores indicating that vaginal birth had greater perceived benefits.

Maternal self-efficacy, which is defined as a mother's perception of her ability to give birth vaginally, was measured using a single-item five-point Likert-type scale in the MHBQ. Women were asked to consider what they believed labor would be like for them and whether they believed they would be able to give birth vaginally (i.e., "If I am in labor, I will be able to deliver vaginally"). The answer choices ranged from "strongly agree" to "strongly disagree". Scale scores ranged from 5 to 25, with higher scores reflecting higher self-efficacy related to the ability to deliver vaginally.

Cues to action refer to the factors that help individuals make health-related decisions.[17] In this study, cues to action were conceptualized as triggers for requesting a particular mode of birth. Advice from relatives, friends, and healthcare providers is a crucial factor guiding the maternal decision of birth method. Cues to action were measured using the MHBQ subscale about the roles of relatives, friends, and healthcare providers. This single-item eight-point Likert-type scale asked women to reflect on the role that their relatives, friends, and healthcare providers played in influencing their decision regarding mode of birth. The question was as follows: "When deciding the type of birth method you would use, which best describes the role of your relatives, friends, and healthcare providers in influencing your decision?" Participants' answer choices ranged from "no discussion with relatives, friends, and healthcare providers" to "relatives, friends, and healthcare providers made me feel as if I had no other choice". A midrange score reflected that the woman talked to her relatives, friends, and healthcare providers about modes of birth and that the parties made a decision together. Scores ranged from zero to eight, with higher scores indicating that the mother felt less in control of the decision.

A panel of experts that included a professor in the field of health education, an obstetrician, and a midwife was invited to validate the questionnaire. Most of the questionnaire items were evaluated by the three experts, as appropriate and relevant to the study. Minor amendments were made to the wording and order of the questions to achieve a more logical layout. A pilot study was then conducted before the commencement of the study (in April 2015) with 20 women to test the comprehensibility of the items and establish the reliability of the questionnaire. The overall Cronbach's alpha coefficient of the pilot study was calculated to be 0.74 for the maternal knowledge questionnaire and ranged from 0.79 to 0.87 for the MHBQ, indicating that the instrument had a high level of internal consistency. The HBM questionnaire was completed by each participant before the campaign (at a gestational age of 20–24 weeks) and at the end of campaign activity (at a gestational age of 36 weeks). All the participants were followed after delivery by telephone to determine each person's method of birth.

The results were analyzed using SPSS software (version 20). Descriptive statistics, chi-square test, independent t-test, and paired samples t-test were used to identify and compare the demographic information and the health beliefs of the case and control groups.

3. Findings

In total, 350 first-time pregnant women who composed the campaign group (n = 194) and control group (n = 156) completed the study. The groups did not differ significantly in age, gestational age, educational level, employment status, household income, or health insurance (Table 2). The mean baseline level of knowledge and HBM component score did not differ between the two groups

Table 2
Homogeneity test for demographic characteristics.

	Total (n = 350)	Campaign group (n = 194)	Control group (n = 156)	P-value
Age	24.7 ± 4.95	24.7 ± 5.80	24.5 ± 5.24	0.779 t = 0.281 df = 343*
Gestational age	21.4 ± 4.95	21.4 ± 1.17	21.5 ± 1.30	0.772 t = −0.356 df = 314*
Educational level				0.270 df = 1**
Primary school	22(6.3%)	13(6.7%)	9(5.8%)	
Secondary school	127(36.3%)	79(40.7%)	48(30.8%)	
Diploma	146(41.7%)	70(36.1%)	76(48.7%)	
Higher education	55(15.7%)	32(16.5%)	23(14.7%)	
Employment status				0.930 df = 1**
Housewife	148(42.3%)	83(42.8%)	65(41.7%)	
Employee	202(57.7%)	111(57.2%)	91(58.3%)	
Household income				0.621 df = 1**
Poor	21(6%)	12(6.2%)	9(5.8%)	
Average	146(41.7%)	83(42.8%)	63(40.4%)	
Good	183(52.3%)	99(51%)	84(53.8%)	
Health Insurance				0.270 df = 1**
Yes	328(93.7%)	179(92.3%)	149(95.5%)	
No	22(6.3%)	15(7.7%)	7(4.5%)	

* Based on independent samples t-test.
** Based on chi-square test.

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Table 3
Comparison of the mean HBM component score between groups at baseline.

Score	Campaign group (n = 194)	Control group (n = 156)	P-value
Knowledge	7.4 ± 2.10	7.7 ± 2.21	0.182 t = −1.33 df = 324
Perceived severity	8.9 ± 3.70	9 ± 3.84	0.914 t = −0.108 df = 329
Perceived susceptibility	9.4 ± 3.71	8.4 ± 2.33	0.103 t = 3.12 df = 329
Perceived barriers	17 ± 6.88	17.9 ± 6.05	0.183 t = −1.335 df = 344
Perceived benefits	30.5 ± 6.31	31.3 ± 6.1	0.189 t = −1.3 df = 336
Self-efficacy	13.9 ± 7.36	13.5 ± 6.69	0.630 t = −0.482 df = 343
Cues to action	2.1 ± 1.76	2.3 ± 1.81	0.378 t = −0.883 df = 172

Based on independent samples t-test.

Table 4
Comparison of the mean HBM component scores between groups after the campaign.

Score	Campaign group (n = 194)	Control group (n = 156)	P-value
Knowledge	10.6 ± 2.35	8.8 ± 2.35	**<0.001 t = 7.24 df = 331**
Perceived severity	17.7 ± 6.85	9.5 ± 4.27	**<0.001 t = 13.68 df = 329**
Perceived susceptibility	18.1 ± 6.65	9.7 ± 1.80	**<0.001 t = 16.81 df = 227**
Perceived barriers	16.9 ± 6.21	17.6 ± 7.13	0.389 t = −0.863 df = 309
Perceived benefits	30.5 ± 6.29	31.4 ± 5.9	0.167 t = −1.38 df = 336
Self-efficacy	22.7 ± 4.15	13.9 ± 6.77	**<0.001 t = 14.11 df = 244**
Cues to action	0.86 ± 0.51	2.6 ± 1.95	**<0.001 t = −11.13 df = 172**

Bold values signifies P-Value less than 0.05.

Table 5
Comparison of the mean HBM component scores before and after the campaign.

Score	Campaign group			Control group		
	Before	After	P-value	Before	After	P-value
Knowledge	7.4 ± 2.10	10.6 ± 2.35	**<0.001**	7.7 ± 2.21	8.8 ± 2.35	**<0.001**
Perceived severity	8.9 ± 3.70	17.7 ± 6.85	**<0.001**	9 ± 3.84	9.5 ± 4.27	0.273
Perceived susceptibility	9.4 ± 3.71	18.1 ± 6.65	**<0.001**	8.4 ± 2.33	9.7 ± 1.80	0.176
Perceived barriers	17 ± 6.88	16.9 ± 6.21	0.923	17.9 ± 6.05	17.6 ± 7.13	0.609
Perceived benefits	30.5 ± 6.31	30.5 ± 6.29	0.914	31.3 ± 6.1	31.4 ± 5.9	0.881
Self-efficacy	13.9 ± 7.36	22.7 ± 4.15	**<0.001**	13.5 ± 6.69	13.9 ± 6.77	0.176
Cues to action	2.1 ± ± 1.76	0.86 ± 0.51	**<0.001**	2.3 ± 1.81	2.6 ± 1.95	0.081

Based on paired samples T test.
Bold values signifies P-Value less than 0.05.

Table 6
Method of birth of participants.

	Total (n = 350)	Campaign group (n = 194)	Control group (n = 156)	P-value
Birth method				**<0.001df = 1**
CS	260(74.3%)	125(64.4%)	135(86.5%)	
NVD	90(25.7%)	69(35.6%)	21(13.5%)	

Bold values signifies P-Value less than 0.05.

at baseline (Table 3). However, after the campaign, knowledge scores, perceived severity, perceived susceptibility, self-efficacy, and cues to action scores differed significantly between the campaign and control groups, as shown in Table 4.

In the present study, the results of the paired t-test showed that knowledge scores increased in both groups ($p < 0.001$). When the effect of the campaign was observed, a statistically significant difference was found between the participants' pre-campaign and post-campaign HBM score in some components in the campaign group ($p < 0.001$), whereas the score in the control group did not differ significantly (Table 5). The follow-up of all participants in both groups showed that 35.6% (n = 69) of participants in the campaign group chose natural birth as their birth method, whereas only 13.5% (n = 21) in the control group delivered their newborn vaginally (Table 6).

4. Discussion

The increasing number of caesarean births is a great concern in many countries.[18,19] Unfortunately, it has become increasingly common for newly pregnant women to request a cesarean birth. Of all cesareans worldwide, estimates of the prevalence of cesarean births on maternal request range from 1 to 18%.[20] In Iran, the number of caesarean births has increased and is currently very high. In a referral hospital in Tehran, over the past 30 years, a six-fold increase in caesarean births has been reported.[21] The general prevalence of caesarean births in Iran in 2014 was 48%, with a prevalence of 87% reported in some private hospitals.[22] Thus, to reduce the overall caesarean rate, reducing the proportion of first deliveries by elective caesarean appears pertinent. An effective way to address the problem is through educational interventions

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based on social marketing by which pregnant women can make informed choices.[23]

Social marketing has been more recently defined as the systematic application of marketing in addition to other concepts and techniques to achieve specific behavioral goals for a social good. The idea that the principles of marketing could be adopted in health promotion and education to achieve social or healthy goals is not new and has grown in popularity and usage within the public health community.[24] Finding the right mix of interventions is essential to the success of a social marketing campaign. Social marketing strategies include the "4 Ps" (Place, Price, Product, Promotion), audience segmentation, targeting, tailoring, counter marketing and risk communication.[25] The widespread adoption of social marketing in public health has garnered important successes.[26] For research in the field of health education and health promotion, we can use behavioral patterns related to health theories.[27] Selecting a model for health education is the first step in the process of education planning. One of the educational models is the Health Belief Model.[28] The HBM is based on the principle that people adopt healthy behaviors if they feel that they are at risk (perceived susceptibility construct); risks of unsafe behaviors are serious (perceived severity); healthy behaviors are beneficial for them (perceived benefits); barriers to healthy behaviors can be removed (perceived barriers); and they are able to adopt healthy behaviors (self-efficacy).[29]

The findings revealed a significant difference between awareness scores in the two groups after the campaign. This is consistent with the results obtained by Sharifirad et al.[30] Moreover, the findings of the present research are consistent with those from previous research conducted on this topic.[31–33] The results showed that there was a significant difference between the scores of perceived susceptibility and severity of the experimental group before and after the intervention. Based on the results of one study that aimed to examine pregnant women's decisions about delivery methods, perceived susceptibility was a relevant factor in the selection of a delivery method, and perceived risk factors of delivery methods for each mother and baby were relevant to the chosen delivery method.[34]

The findings showed a significant difference between the two groups' self-efficacy scores after the intervention. A myriad of research had already attested to the important role of self-efficacy in selecting natural delivery.[35,36]

This social marketing campaign aimed to promote normal childbirth among first-time pregnant women. In terms of the primary outcome measure, to increase public awareness of normal childbirth based on the HBM, the campaign was successful, as there were significant differences in some components of the HBM. The results also revealed that 35.6% of participants in the campaign group chose natural birth as a birth method, whereas only 13.5% in the control group delivered their newborns vaginally. The findings of this study are consistent with those reported in other health communication campaigns in which effect sizes have been assessed as associations between awareness of a campaign and behavioral outcomes.[37,38]

5. Conclusion

Currently, public services are not only tackling the determinants of ill health and discouraging "bad" behavior but also incentivizing positive choices and creating conditions for people to feel able and want to make healthy choices for the benefit of their own families and society. The B Butterfly social marketing campaign successfully targeted first-time pregnant women who chose to have unnecessary elective cesarean births. This evaluation supports the expansion of the pilot campaign to other rural and racially diverse areas to increase normal childbirth among first-time pregnant women.

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Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

Approved by the Ethics and Research Committee of the Hormozgan University of Medical Sciences (number: HUMS. REC.1394.87 approved on Feb 2015).

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