

The Impact of Healthcare Reform Plan on the Rate of Vaginal Delivery and Cesarean Section in Shiraz (Iran) in 2015

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Abstract

Introduction: The uncontrolled increase in the rate of cesarean section is one of the most controversial issues, and is a primary challenge among health policy makers. This study was conducted to examine the impact of the Iranian health evolution plan on vaginal delivery rate and cesarean section.

Methods: This cross-sectional study was carried out in 2014. Maternal health data for 2013 and 2014 were used in this study and changes in vaginal delivery and cesarean section were compared before and after the reform, using t-test and Wilkison test.

Results: According to the findings of this study, 64.7% of deliveries in 2013 were performed using cesarean section while it was 58.6% in 2014 ($p= 0.772$), of which no significant changes were observed. In addition, the percentage of vaginal delivery in 2013 and 2014 were 35.3% and 41.4% respectively ($p= 0.00$), so a significant increase was found for vaginal delivery.

Conclusion: Healthcare reform has led to an increase in the number of vaginal deliveries in hospitals affiliated to Shiraz University of Medical Sciences (SUMS). Due to the limited number of hospitals adhering to the healthcare reform plan to increase vaginal delivery (using private midwife and implementing painless delivery), the reform for decreasing the cesarean rate was not effective enough.

Keywords: Vaginal delivery, Cesarean section, Healthcare reform plan

1. Introduction

Health is one of the most important dimensions of socioeconomic development in each society. One of the most important health indicators in each country is maternal health (1, 2). Today, the choice of cesarean section is one of the controversial issues in the health system of countries throughout the world (3). Because of its side effects and insensitivity, tendency for women to go ahead with vaginal delivery has decreased. Due to the naturalness of vaginal delivery, the most favoured method of delivery is vaginal delivery (4). Different factors such as the pregnant women's awareness regarding vaginal delivery, lack of awareness about the complications of cesarean section, fear of vaginal delivery, being encouraged by physician and the reduced role of midwives in training, have led to increased willingness of mothers for cesarean section (5). Moreover, other factors such as maternal age, progress in surgical techniques, social and economic factors, supplemental insurance and health insurance coverage, lack of experienced midwives and lack of training in pregnancy period, have led to decreased willingness of vaginal delivery (6). In recent years, according to the ministry of health data, the rate of cesarean section in Iran has increased by 40 to 60% which is three times more than global standards (7). Although, according to WHO

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guidelines, the rate of cesarean section should be 5-15% (8). Complications of unnecessary cesarean section affect the health of the mother and children and increases economic burden. So, elective cesarean section is one of the most important challenges of health systems. It is essential for governments to perform effective changes in maternal health and also decrease the rate of elective cesarean section (9). The uncontrolled increase in the rate of unnecessary cesarean section is a major problem in the health system of Iran (8). Hence, a program called the Healthcare Evolution Plan has been implemented in Iran since May, 4th, 2014 in order to fulfill the goals of the WHO. (Specific goals include health, fairness in financial contribution and meeting the non-treatment expectations of the public). One of the most important packages of this plan was to promote vaginal delivery (10). It was expected that by the end of 2014 the rate of cesarean section would be reduced by as much as 10% (11). Iran was the second highest country in the world to have caesarian section at the start of the project (8). WHO guidelines emphasize that countries must improve maternal and infant health, by reducing the rate of cesarean section. The present study was conducted to assess the impact of healthcare reform plans on the rate of vaginal delivery and cesarean section. Furthermore, the frequency and deviation of deliveries in public and private hospitals of provincial capitals were compared. In order to gain suitable strategies for policy makers in Shiraz University of Medical Sciences, a comparison was made on the statistics related to 2013 (one year before implementation of project) and 2014 (one year after implementation of project).

2. Material and Methods

This was a descriptive-analytic cross-sectional study. The main aim of this study was to examine the impact of the healthcare reform plan on the number of vaginal deliveries and cesarean sections, and its impact on the government adopted policies toward increasing vaginal delivery. The rate of vaginal delivery and cesarean section in public and private hospitals were compared. First, descriptive statistics, related to the investigated period (2013-2014) were mentioned based on the number and percentage. Then the normality in the data was tested using Kolmogorov-Smirnov test. According to data distribution, the statistical assumptions had the conditions of using parametric and non-parametric tests. Finally, paired-samples t-tests and Wilcoxon tests were used for assessing the hypotheses. Data collection was conducted with the authorization from the vice chancellor for research. The accurate date registration, honesty in data analysis, presenting correct statistics according to the collected data, publishing the results in a simple language and presenting them to the authorities for correct decision and policy making, were taken into consideration and emphasized by the researcher. STATA software V 13.1 was used for analyzing data.

3. Results

The average number of vaginal delivery in 2013 was less than the average number of vaginal delivery in 2014 (Table 1), it revealed that there is a significant difference between the number of vaginal delivery in 2013 and 2014 ($p \leq 0.01$) (Table 2).

Table 1. The rate and percentage of vaginal delivery and cesarean section in 2013 and 2014

Year	Vaginal delivery		Cesarean section		Total
	n	%	n	%	
2013	23361	35.3	42871	64.7	66232
2014	30560	41.4	43319	58.6	73879
Total	53921		86190		

Table 2. Comparing the difference of means of indicators at a glance

Variables	Type of test	Test name	Test statistics	p-value
Vaginal delivery in 2013-vaginal delivery in 2014	Non-parametric	z	-5.695a	0.000
Cesarean section in 2013-cesarean section in 2014	Non-parametric	z	-0.290a	0.772
Vaginal delivery in 2013-vaginal delivery in 2014- private hospitals	Non-parametric	z	-3.480a	0.001
Vaginal delivery in 2013-vaginal delivery in 2014 public hospitals in center of province	Parametric	t	-1.643	0.019
Vaginal delivery in 2013-vaginal delivery in 2014 public hospitals other than center of province	Parametric	t	-3.943	0.001
Painless delivery in 2013- painless delivery in 2014	Parametric	t	-0.609	0.652
Delivery by midwife in 2013- delivery by midwife in 2014	Parametric	t	-0.987	0.428

By observing the average number of deliveries, it was concluded that the Health Evolution Plan was effective in increasing the number of vaginal delivery (Table 1). However, the number of cesarean sections in 2014 had decreased in comparison to 2013 (Table 1), was not significant ($p=0.772$) (Table 2). In this study, the nulliparous cesarean sections were not separated from the repeated ones. Moreover, different indications for cesarean section were not considered. By observing the average number of deliveries, it is obvious that the healthcare reform plan has been influential in increasing the number of vaginal delivery. In addition, implementing healthcare reform has increased the number of vaginal delivery in public hospitals and decreased it in private hospitals. Statistical analysis indicated that there was a significant difference between implementing the healthcare reform plan and the number of vaginal deliveries in public hospitals ($p=0.019$) (Table 2). This means that implementing the healthcare reform plan has been influential in public hospitals. The findings showed that there was not a significant difference between implementing the healthcare reform plan and the number of painless deliveries ($p=0.652$). Despite the increasing number of painless deliveries in 2014, (due to the limited number of hospitals contributing in painless delivery), no significant difference could be seen and it could be concluded that the healthcare reform plan was not influential in this aspect. This study also revealed that there was not a significant difference between implementing the healthcare reform plan and the number of deliveries carried out by midwives ($p=0.428$). Despite the increasing number of deliveries done by midwives in 2014, due to the limited number of hospital using private midwives or lack of equipment for physiological delivery, no significant differences were found and the healthcare reform plan was not influential.

4. Discussion

Promotion of vaginal delivery and reducing the rate of cesarean section are the primary objectives of the healthcare reform plan in Iran. This plan started throughout the country in May 2014. Various surveys have shown that the main reason of cesarean section is the repeated cesarean (12). Hence, proper planning is needed to reduce the number of cesarean sections in nulliparous women in order to prevent repeated cesarean sections in future. Fear of vaginal delivery, mother's age and physician's recommendations are the most influential factors which encourage mothers to undergo cesarean section. So, holding consultation sessions before and during pregnancy could help mothers to choose the best method of delivery (13). Furthermore, familiarity with delivery room, staffs, equipment, analgesia, presence of visitors and making the delivery room pleasant (14) are the factors reducing maternal anxiety, and aid the mother in choosing the best method of delivery. Based on the instructions of mother-friendly hospitals, hospitals are obliged to set up physiological delivery rooms (5). Training staff and physicians, limiting the use of elective cesarean section and cross section on uterus for possible vaginal delivery after cesarean section, were other factors which had influenced mothers' choice and it had increased the number of vaginal delivery, and had decreased the number of cesarean section (15). After the implementation of the health evolution plan, due to increase in the number of vaginal delivery, the government decreased the franchise of vaginal delivery to zero. It was expected that with the zero franchise of vaginal delivery, the number of patrons in public hospitals would increase and the number of vaginal deliveries would increase too. The results of the present study showed that the percentage and number of vaginal delivery in public hospitals has been increased. However, implementation of healthcare reform not only decreased the number of vaginal delivery in private hospitals but also increased the number of cesarean section in those hospitals. The main reason of decline in vaginal delivery in private hospitals was making vaginal delivery free in public hospitals and physicians' limitations for cesarean section in public hospitals. Fear was the most important reason - and also the main reason for nonmedical demand of mothers for elective cesarean section (11). Increase in the number of painless delivery was another policy adopted by the ministry of health to promote vaginal delivery. Despite the increased number of painless deliveries after the reform, only two hospitals carried out painless deliveries. So, the number of samples for this type of delivery was little, and no significant difference was found between implementing healthcare reform and painless delivery. It can be predicted that the development of painless delivery facilities in other centers not only increase the number of vaginal delivery, but also improve equity in access of painless delivery. Another reason for mothers' willingness for cesarean section is the fear of maternity units and lack of visitors. By the presence of trained visitors and providing the facilities with physiological delivery in hospitals, the percentage of vaginal delivery could be increased (16). Using midwives and making contracts with them in hospitals is another adopted policy to promote vaginal delivery (17). Despite the increased number of deliveries performed by midwives in 2014, in comparison with 2013, the limited number of hospitals having the facilities for vaginal delivery, and private midwives, led to the fact that there was no significant difference between the healthcare reform plan and delivery by midwife. With the launch of physiological delivery in all hospitals and benefiting from private midwives who have private offices, the number of vaginal delivery can be increased. In 2014, Tabrizi et al. also evaluated the health evolution plan. According to their nationwide study, the rate of cesarean section was 56.1% in 2013, and in the first quarter of the project it had been

decreased to 53.6%. Besides this, the rate of cesarean section in public hospitals decreased from 47% to 42% after the reform however, the rate of cesarean section in private hospitals was 88%. It was revealed that the highest rate of decrease in cesarean section was related to public hospitals (5.3%). Other hospitals such as social security hospitals (0.2%), and private hospitals (0.4%) did not have any significant decrease. It indicated that the success of this project is in the public hospitals with more slope, thus more intervention is needed in private hospitals (18). In 2013 Afshari et al. carried out another study to show the rate of cesarean section in the first eight months of implementing the healthcare reform plan in the hospitals affiliated to Isfahan University of Medical Sciences. They found that cesarean section had decreased by 12.5% (19). Finally, it can be concluded that implementation of the healthcare reform plan has been effective on the rate of vaginal delivery but it did not have such influence on private hospitals. According to the negative impact of the healthcare reform plan in the private hospitals, it is suggested to increase tariffs of basic and supplementary insurance for delivery in private hospitals (20). Furthermore, in a number of private hospitals there are no facilities for vaginal delivery. As a result of equipping these centers with delivery rooms and vaginal delivery facilities, developing physiologic delivery rooms, performing painless delivery, having contract with midwives, the number and percentage of vaginal delivery would be increased. It is suggested to determine the causes of cesarean section and separate the nulliparous cesarean section from repeated cesarean section in the study (21). This study had some limitations. First, data for painless delivery and delivery by midwives in some centers were not available. Second, we were not able to compare the reform with other studies because no similar reforms had been implemented in other countries.

5. Conclusions

One of the main aims of the health sector evolution plan in Iran was to decrease cesarean section and increase vaginal delivery. Our study showed that however the number of vaginal deliveries has increased during the reform, cesarean section has not been changed after the reform. Policy makers must find solutions to decrease cesarean section in the health care private sector. In this article, some solutions are proposed. For future studies it is suggested that other effects of the reform on Iran health care delivery should be tested.

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Conflict of Interest:

There is no conflict of interest to be declared.

Authors' contributions:

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

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