

Research Article

Cesarean section and some socio-demographics related factors in the north of Iran: an epidemiologic study

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ABSTRACT

Background: The rate of caesarean section as a social and therapeutic problem In Iran is more than the global average and the main aim of this study is to assess the prevalence of cesarean section and some related factors in a rural area in the north of Iran in 2013. **Materials and Methods:** This is a retrospective, cross-sectional study with analytical approach that carried out on the 2257 mothers of under -five children. Among 118 villages, 20 of them were randomly selected and all the mothers who have under-five children for completing of the questionnaire have been called to health house. P-value under 0.05 included signification. **Results:** Generally, the prevalence of Caesarean section was % 39.4 (888 cases) and it is significantly more in Fars-native than in Turkmen ($P = 0.001$) and in Sistani groups ($P = 0.001$). The rate of cesarean delivery in women with college educated and 1-12 years schooling are significantly higher up 32.0% and 21.1% of uneducated mothers, respectively ($P = 0.001$). The odds ratio of cesarean section in Fars-native was 3.162 ($P=0.001$) times more than in Sistani group. Also, compared with uneducated mothers, this ratio was 4.312 ($P=0.001$) in college educated and was 1.657 in 1-12 schooling mothers ($P=0.002$). The risk of cesarean section in good economic group was 1.752 times more than in the poor group ($P=0.001$). In addition, the odds ratio was 2.472 ($P=0.001$) in college educated mother compare with uneducated mother and 1.828 ($P=0.002$) in employee compared with free job father. **Conclusion:** Cesarean section was common in more than one-third of deliveries in rural areas in the north of Iran and it was more prevalent in Fars-native than in other ethnic groups. Higher education and income are two risk factors for cesarean section in this area.

Keywords: Cesarean section, Ethnicity, Education level, Economic status, Iran

INTRODUCTION

Delivery is an automatic mechanism and without the need for intervention is a spontaneous process that has been done for years with its natural course.(1-5) This is done both vaginal delivery and caesarean section.(1, 6) Caesarean is predicated to exit the foetus, placenta and membranes by cutting the wall of the abdomen and uterus. (7, 8) Although labour is often recommended as the best delivery method, but

due to increase of caesarean, labour rate is decreasing in recent years.(9, 10) During the past few decades cesarean rate has been rising in every region of the world and The Demographic and Health Surveys (DHS) program also has emphasized this issue. The amount of women who breed their child by cesarean is increasing in both developed and developing countries.(11, 12) According to recent studies, the cesarean rate was

reported 22%, 25% & 27% in the United States, Brazil and Chile, respectively.(1, 13, 14) According to the goals of the World Health Organization (WHO) cesarean rate should kept below 15% of all deliveries.(1,15) Nowadays cesarean rate in Iran is 43-59%, which 90% of them operate in towns and private hospitals.(9,16) However, in many cases, caesarean section is not done for medical necessities.(7, 17) Studies showed that fear, anxiety and pain have important role in delivery type selection.(1, 18) In some cases, cesarean section has taken a luxury mood and the real reason for these decisions is uncertain.(11) Nowadays, feminine educate in higher levels, so their pregnancy age enhanced which may be one of the reason of increased cesarean rate. In general, many reasons such as maternal age at first pregnancy, cesarean recommended in cases of breech, reducing the use of forceps and vacuum, increasing the rate of induction of labour, the fear of judicial sentences, fear of damage to the pelvic floor muscles and uses fetal heart monitoring are cited as causes of the increase in caesarean sections. However, these reasons are not justified for cesarean section.(9) Because of the risks of cesarean delivery are much higher than vaginal delivery. Studies in England have shown that the risk of dying from a caesarian section is three-time more than the vaginal birth.(11, 19) Other complications of Caesarean section for women are maternal bleeding during and after surgery, infection, infertility and deep leg vein thrombosis.(11, 20) In contrast, vaginal delivery has many advantages, including cost-effectiveness, shorter duration of hospitalization, no need for anesthesia, low risk of infection and bleeding.(9, 21) So it is much more beneficial than cesarean section. Of 1,7 million populations in the Golestan province (north of Iran and southeast of Caspian Sea), 25.6% and 69.3% are living in urban and rural area, respectively. Agriculture is the main job in rural area and different ethnic

groups such as Fars-native, Turkman and Sistani are living in this region.(22)

Due to lack of study on the cesarean section status up to now in the north of Iran, this study designed and performed in rural area in Golestan province (north of Iran) for assessing of cesarean section status and some socio-demographic related factors. The results of this study will help the policy makers for better management of health services in the north of Iran.

MATERIAL AND METHOD:

Study design

This was a retrospective, cross-sectional study with analytical approach, which carried out on 2257 from 20 villages in the north of Iran. Villages and mothers have been chosen by simple sampling. With estimation of 30% cesarean rate (1), a confidence level of 95% and a maximum marginal error 0.02, sample size was calculated at less 2016 individuals. For all of cases, a questionnaire with contain questions on the social-demographic condition of families was completed by a learned team. The data were recorded by 20 taught interviewers using a questionnaire.

With regards to Iranian life style and the real income status of families, the economic ranking of them were assessed on the base of 12 items and principles. In that way, the economic status was divided as 1) good [8-12 items], 2) intermediate [4-7 items] and 3) poor [≤ 3 items]. Educational level was classified into three groups: 1) Uneducated (unable to read or write a phrase); 2) 1-12 years schooling and 3) College educated. The ethnic groups in this study were divided into three groups: 1) Fars -native: The natural inhabitant of this province, which they are recognized with same name in the society 2) Turkman: The inter marriage of this ethnic group with other ethnic group were rare therefore this ethnic group can be recognized as pure race. 3) Sistani ethnic group: This ethnic group were immigrated from Sistan and Bluchestan province from the east of Iran far earlier.

Statistical Analyses:

SPSS software (version 18, Chicago II, USA) was used for statistical data analysis. Chi-2 test was used for comparing qualities groups and logistic regression was used for estimation of odds ratio. P-value under 0.05 included significations. The mothers who did not like to participate in our study, has been excluded.

This study approved by Ethical Research Committee of Golestan University of Medical Sciences (G-P-35-1112). Verbal informed consent was received from all cases.

RESULTS:

Generally, the prevalence of Caesarean section in rural areas in the north of Iran was 39.4% (888 persons and it was significantly more in Fars-native than in Turkmen ($P=0.001$) and in Sistani groups ($P = 0.001$). Statistical difference was not significant between Turkmen and Sistani groups. The prevalence of cesarean section in women with college educated mother was significantly 32% and 21.1% higher than in uneducated ($P=0.001$) and in 1-12 years schooling of them ($P=0.001$). These variation cover the education level of the wife so that the prevalence rate of cesarean delivery has been correlated with father's education level ($P = 0.001$). Increasing of family income has been associated with more cesarean section. ($P < 0.001$). (Table 1).

The odd ratio estimated by regression logistic for cesarean section based on socio-economic factors present in table 2. The odds ratio of cesarean section in Fars-native was 3.162 ($P=0.001$) times more than in Sistani groups. Also compared with uneducated mothers, this ratio was 4.312 ($P=0.001$) in college educated and was 1.657 in 1-12 schooling mothers ($P=0.002$). The risk of cesarean section in good economic was 1.752 times more than in poor group ($P=0.001$). In addition, the odds ratio was 2.472 ($P=0.001$) in college educated husband compare with uneducated mothers and 1.828 ($P=0.002$) in employee fathers compared with free job fathers. (Table 2)

DISCUSSION:

The prevalence of cesarean section and some socio-economic related factors has been discussed. Cesarean section was common at less in one-third (39.4%) of deliveries and high income and high education are two risk factors for it. Since the 1970s, the caesarean section had a significant growth in developed countries, while in developing countries it had a slow growth. The average rate of cesarean from less than 7% in 1970 reach to over 25% in 2003(23-26). In a public hospital in Tehran, the cesarean rate accede from 14.3% in 1979 to 85.3% in 2009.(23) The cesarean section rate in other regions of Iran was 43-60 %.(1, 2, 7, 9, 16, 24-26).In present study, more than one- third of births done by caesarean section and this situation is not suitable compared with in other areas in Iran and in worldwide. Besides medical requirement, cultural and social factors influence on the cesarean section. In Scotland, during 2006 to 2009, the cesarean section rate in Scottish women is 5% more than in immigrant Polish women (24.5% versus 19.6%). These results could be due to differences in gestational age, weight and other factors which are dissimilar in immigrant group in this area (27). In the USA, during 2011 to 2008, Hispanic population does less cesarean section compared with Black and White residences (28). In the present study, significant differences were observed among ethnic groups so that cesarean rate in Fars-native was higher than in Turkmen and in Sistani ethnic groups. The reasons of these differences have not investigated in our study and so more broadly studies need to be done. The some differences in health and nutrition behaviours among ethnic groups have been reported in other studies in this area (29-31). We found the improving of economic status and increasing of education levels as risk factors for cesarean section in the north of Iran. In China, cesarean section has performed in college educated and urban women more than in others rural women (32) . In Latin America the prevalence of cesarean section has a

positive relationship with gross national product (GPP) rate.(33) In eastern China, the cesarean is more common in educated women, high income families and who receive better health services.(34) In Taiwan the interest to caesarean section has been increased in low educated women (35). A significant differences was seen among ethnic groups and in educational levels in the United States.(36). In this study, we do not evaluate all of risk factors for caesarean, such as medical reasons and demographic factors, which are the limitations of our study. A comprehensive and longitudinal study with considering of the confounders to find the causes of the high prevalence of cesarean in this area is recommended.

CONCLUSION:

Caesarean section was common in one-third of deliveries in rural areas in the north of Iran and not only medical therapeutic but also socio-economic aspects such as high income and high education are its risk factors. Fars-native women more than others has been suffered from this problem.

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Conflict of interest statement

There is no conflict of interest.

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Table 1: Distribution of subjects based on Cesarean section and socio-demographic characteristics.

Variable		Total N (%)	Normal N (%)	Cesarean N (%)	P - value
Ethnicity	Tisstani	576 (25.5)	239 (41.5)	337 (58.5)	0.001#
	Turkmen	970 (43.0)	645 (66.5)	325 (33.5)	
	Fars-native	711 (31.5)	485 (68.2)	226 (31.8)	
Educational level (mother)	Uneducated	164 (7.3)	117 (71.3)	47 (28.7)	0.001##
	1-12 years schooling	2037 (90.2)	1230 (60.4)	807 (39.6)	
	college	56 (2.5)	22 (39.3)	34 (60.7)	
Educational level (father)	Uneducated	114 (5.1)	79 (69.3)	35 (30.7)	0.001##
	1-12 years schooling	2062 (91.4)	1253 (60.8)	809 (39.2)	
	College	80 (3.5)	36 (45.0)	44 (55.0)	
Economic status	Poor	499 (22.1)	335 (67.1)	164 (32.9)	0.001##
	moderate	1180 (52.3)	721 (61.1)	459 (38.9)	
	good	578 (25.6)	313 (54.2)	265 (45.8)	
Job (father)	Unemployment	71 (3.2)	45 (63.4)	26 (36.6)	0.001##
	Farmer	1416 (62.7)	895 (63.2)	521 (36.8)	
	Employment	122 (5.4)	52 (42.6)	70 (57.4)	
	Free Job	648 (28.7)	377 (58.2)	271 (41.8)	

Chi-squared test, ## Chi-squared test for trend

Table2: The estimated odds ratio of Cesarean with different levels of socio-demographic factors using logistic regression (CI 95%)

Variable		P. value	Odds (Lower-Upper)
Ethnicity	Sistani	-	1(-)
	Turkman	0.208	1.129 (0.934 - 1.365)
	Fars-native	0.0001	3.163 (2.567 - 3.899)
Educational level(mother)	Uneducated	-	1(-)
	1-12 years schooling	0.002	1.657 (1.200 - 2.288)
	College	0.0001	4.312 (2.336 - 7.957)
Educational level(father)	Uneducated	-	1(-)
	1-12 years schooling	0.046	1.503 (1.008 - 2.242)
	College	0.001	2.742 (1.543 - 4.871)
Economic status	Poor	-	1(-)
	Moderate	0.013	1.288 (1.055 - 1.572)
	Good	0.0001	1.752 (1.394 - 2.202)
Job (father)	Free job	-	1(-)
	Unemployment	0.426	0.816 (0.495 - 1.345)
	Farmer	0.013	0.788 (0.654 - 0.950)
	Employment	0.002	1.828 (1.243 - 2.690)