

Women's knowledge and attitude towards modes of delivery in Kerman, Islamic Republic of Iran

B.S. Aali¹ and B. Motamedi²

معارف ومواقف النساء بطرق الولادة في مدينة كرمان، جمهورية إيران الإسلامية
بي بي شهناز عالي، بتول معتمدي

الخلاصة: تم تقييم المعارف والمواقف المتعلقة بطريقة الولادة المهبلية بالمقارنة مع الولادة القيصرية، لدى 204 من الحوامل الممراتادات لمركز للتوليد في مدينة كرمان الإيرانية. ولوحظ عموماً ضعفُ أحرار 63.5% من النساء في الأسئلة المتعلقة بالمعارف، مع كَوْن مستوى المعرفة أفضل، بين النساء اللاتي سَبَقَ لهن الإجهاض. وبيّنت الدراسة أن 96.5% من النساء لهن مواقف إيجابية تجاه الولادة المهبلية، وأن 33% لهن مواقف إيجابية تجاه الولادة القيصرية؛ في حين أن 40.5% من النساء كان لهن موقف سلبي تجاه الولادة القيصرية. وتجلّى الموقف الإيجابي نحو الولادة المهبلية لدى النساء اللاتي ولدن مرات أكثر ولهن سوابق ولادات قيصرية أكثر، وكذلك لدى ربوات البيوت، والنساء اللاتي يعمل أزواجهن في مجال التعليم أو في منظمات صحية. ولم تُلاحظ فروق مهمة إحصائياً في أحرار المواقف والمعارف تبعاً للمستوى التعليمي للنساء.

ABSTRACT Knowledge and attitudes about vaginal versus caesarean section delivery were assessed in 204 pregnant women attending a maternity centre in Kerman, Islamic Republic of Iran. Overall, 63.5% of women scored weak on knowledge questions. Knowledge was higher in women who had a history of miscarriage. Of the women, 96.5% and 33.0% had positive attitudes towards vaginal delivery and caesarean section respectively; 40.5% had negative attitudes about caesarean section. Women with higher parity and more previous caesarean deliveries showed positive attitudes towards vaginal delivery, as did housewives and women whose spouses were employed in education or health organizations. No significant differences were found in attitude and knowledge scores according to women's levels of education.

Connaissances et attitudes des femmes concernant les modes d'accouchement à Kerman (République islamique d'Iran)

RÉSUMÉ On a évalué les connaissances et attitudes concernant l'accouchement par voie basse et par césarienne chez 204 femmes enceintes qui consultaient dans un centre de maternité à Kerman (République islamique d'Iran). Dans l'ensemble, 63,5 % des femmes ont obtenu un faible score aux questions sur les connaissances. Les connaissances étaient supérieures chez les femmes ayant des antécédents de fausses couches. Parmi les femmes de l'étude, 96,5 % et 33,0 % avaient des attitudes positives à l'égard de l'accouchement par voie basse et de l'accouchement par césarienne respectivement ; 40,5 % avaient des attitudes négatives à l'égard de l'accouchement par césarienne. Les femmes ayant enfanté un plus grand nombre de fois et ayant eu un plus grand nombre de césariennes montraient des attitudes positives à l'égard de l'accouchement par voie basse, de même que les femmes au foyer et celles dont l'époux était employé dans des établissements d'enseignement ou de santé. Aucune différence significative n'a été observée dans les scores concernant les attitudes et les connaissances selon le niveau d'instruction des femmes.

¹Department of Obstetrics and Gynaecology; ²Faculty of Midwifery and Nursing, Kerman University of Medical Sciences and Health Services, Kerman, Islamic Republic of Iran (Correspondence to B.S. Aali: shahnaz_aali@excite.com).

Introduction

Increasing rates of birth by caesarean section are an issue of concern among public health officials and the medical community in many countries. In the 1990s, caesarean section rates were reported to be 21% in the United States of America [1], 16% in the United Kingdom and France [2,3] and 36% in Brazil [4]. In Hong Kong the rate rose from 16.6% to 27.4% from 1987 to 1999, a 65% increase over 12 years [5].

In the Islamic Republic of Iran, a limited study in Mashad city recorded the incidence of caesarean section as 6.9 and 10 per 100 deliveries in 1986 and 1987 respectively [6]. By 2003, in the capital, Tehran, the total caesarean section rate was reported to be 66.5%, rising to as high as 84% for deliveries in private maternity centres [6]. Studies in Kerman city showed the caesarean section rates at the central referral maternity centre increased from 23.5% in 1994 to 37.6% in 1996 [7], while in the years 2003 and 2004 the caesarean section rate was 49.5% and 48.5% respectively and in private centres the rate reached 88% [unpublished data, Ministry of Medical Science, Health and Education].

Reasons suggested for the increase in caesarean section rates include advancing maternal age, socioeconomic factors, reduced parity and improvements in surgical techniques [8]. Other relevant factors are: type of health insurance, whether the hospital is private or public, whether or not there is a neonatal resuscitation unit, the size of the city, the obstetrician's experience and type of training and the time and day of delivery [3–5,8].

Although in specific situations caesarean section can prevent serious morbidity and mortality of the fetus and mother, data

indicate that in many cases the procedure is not indicated and vaginal delivery could have been achieved safely [6]. It has been demonstrated that caesarean deliveries are associated with higher rates of maternal and perinatal morbidity than vaginal deliveries and that they increase maternal mortality by a factor of 5 to 7 [8,11]. From the economic perspective, caesareans are 2 to 3 times more expensive than vaginal deliveries [11,12]. However, the general public shows increasing acceptance of caesarean section as the safest method of delivery for the newborn child, without being aware of its adverse consequences [5]. Indeed, "caesarean on request" is an active topic in obstetrics. The demand for this mode of delivery may have been stimulated by obstetric practitioners who believe that, considering the long-term sequelae of vaginal delivery, the levels of mortality and morbidity of caesarean and vaginal deliveries are similar. The increasing importance of autonomy and the right to self-determination of the woman have led to a fundamental shift in the relationship between doctor and patient [13]. This affects the caesarean birth rate. In the study in Kerman, 74% and 20.5% of women who had chosen caesarean section and vaginal delivery respectively underwent caesarean section ultimately [7].

This study at a maternity centre in Kerman, in the southeast of the Islamic Republic of Iran was carried out to evaluate the knowledge and attitudes of pregnant women towards vaginal versus caesarean section. It is postulated that surveys on knowledge and attitude of women about vaginal and caesarean deliveries may help to define strategies for reducing caesarean birth rates.

Methods

The study was carried out on all 204 pregnant women who attended the prenatal clinic of Niknafs Maternity Centre in Ker-man city seeking routine prenatal care from January to April 1999. This is a referral centre with an average of 6000 deliveries per year.

A questionnaire was designed for this study consisting of demographic data, obstetric history and 22 statements for evaluating knowledge and attitude. Two questions at the end of the questionnaire asked the pregnant woman where she had obtained the information about methods of delivery and which method she preferred. The questionnaires were filled in by the pregnant women at the maternity centre. For illiterate women the researcher read the questions to the patients and chose the answers based on their opinion.

For scoring knowledge statements, grade 1 was assigned to each correct response and 0 for incorrect and don't know answers. Attitude statements were scored on a 5-point Likert-scale (5 to 1) from strongly agree to strongly disagree. For knowledge statements, score 7–10 was regarded as good, 4–6 as medium and 0–3 as weak. For attitude statements, score 1–12 was considered as negative, 13–20 as neutral and 21–60 as positive.

The validity of the questionnaire contents was approved by 10 obstetric specialists. Using the Kuder–Richardson test, the reliability coefficient of the knowledge statements was calculated as 0.67; the \pm Cronbach coefficient for attitude statements was 7.

The data were analysed using *Epi-Info*, version 6. Variables were described and analysis of variance and Pearson tests were applied to find out any significant relationship between variables. *P* values less than 0.05 were considered as significant.

Results

Table 1 shows the demographic characteristics of the women and their husbands. The mean (standard deviation) age of women was 25.4 (SD 5.7) years and 31.3 (SD 5.6) for men. The mean age of marriage was 20.3 (SD 0.2) years for women. The mean duration of education in school and university was 10.9 (SD 4.3) and 10.9 (SD 4.8) years for women and their husbands, respectively. The majority of women and their spouses were young and had at least high school level of education. Employment status revealed that 27.0% of women and 11.3% of husbands respectively were employed in educational or health organizations, a group who would be expected to have a better than average knowledge on maternity issues and methods of delivery. Publications, television and family members were reported to be the most common sources of information about modes of delivery.

Table 2 shows the obstetric history of the women. Mean parity was 1.5 (SD 1.5) and mean number of children was 1.3 (SD 1.4). Of the women, 37 (18.1%) had undergone 1 previous caesarean section and 9 (4.4%) had had 2 or more caesarean sections. The mean number of previous sections was 0.28 (SD 0.57) and the mean number of living children was 1.3 (SD 1.4).

Results of the knowledge questions are shown in Table 3. The statements about post-caesarean pain and morbidity of caesarean sections received the highest percentage of correct responses, while those regarding the indications for caesarean section had the highest rate of incorrect responses.

Table 4 shows the responses to attitude statements on modes of delivery. The overall mean attitude score was 25.0 (SD 5.2) for vaginal delivery and 15.3 (SD 4.8) for caesarean section. It shows that 66.7% of

Table 1 Demographic characteristics of the 204 pregnant women and their husbands

Characteristic	No.	%	Characteristic	No.	%
<i>Age (years)</i>			Related publications	61	29.9
15–19	15	7.4	Television	58	28.4
20–24	72	35.3	Health centres	42	20.6
25–29	55	26.9	Private physicians	39	19.1
30–34	42	20.7	Nothing	10	5.0
≥ 35	20	9.8	<i>Husband's age (years)</i>		
<i>Occupation</i>			20–24	17	8.3
Housewife	149	73.0	25–29	66	32.4
Employed in health organization	20	9.7	30–34	60	29.3
Employed in education organization	35	17.3	≥ 35	61	29.9
<i>Age at marriage (years)</i>			<i>Husband's education (years)^a</i>		
< 20	94	46.1	Illiterate	7	3.4
20–24	83	40.7	Primary school (5 years)	31	15.2
≥ 25	27	13.2	Guidance school (8 years)	9	4.4
<i>Education (years)^a</i>			High school (12 years)	91	44.7
Illiterate	6	2.9	University (≥ 16 years)	66	32.4
Primary school (5 years)	25	15.2	<i>Husband's occupation</i>		
Guidance school (8 years)	11	5.5	Employed in education organization	9	4.4
High school (12 years)	105	51.4	Employed in health organization	14	6.9
University (≥ 16 years)	57	28.0	Employed in other organizations	76	37.2
<i>Source of information about modes of delivery</i>			Business	99	48.6
Family members	57	27.9			
Colleagues	21	10.3			

^aYears of study in school and university.

women regarded vaginal delivery as a natural and acceptable mode of delivery and 61.3% of them agreed that it is a pleasure to see the baby immediately after vaginal delivery. Further, 34.3% of women believed that caesarean section is a preferable method in the absence of economic problems and 31.4% mentioned it as a less painful experience than vaginal delivery.

Table 5 shows the overall ratings for knowledge (weak, medium or good) and attitudes (negative, neutral or positive). The knowledge score was rated good for 7.5% of women, medium for 29.0% and

weak for 63.5%. Overall 96.5% of women attained positive ratings on attitude statements towards vaginal delivery and 33.0% towards caesarean section. None of the sample had negative attitudes to vaginal delivery whereas 40.5% had negative attitudes towards caesarean section. There was a significant relationship between knowledge and attitude ratings ($P < 0.001$) (Table 5).

The relationship between demographic and obstetric characteristics and knowledge/attitude scores are shown in Table 6. As Table 6 indicates, there was a significant relationship between husband's occupation and women's knowledge score on one hand and attitude towards vaginal delivery

Table 2 Obstetric history of the 204 pregnant women

Variable	No.	%
<i>Parity</i>		
0	50	24.5
1	73	35.8
2	41	20.1
3	21	10.3
≥ 4	19	9.3
<i>Number of spontaneous abortions^a</i>		
0	168	82.4
1	27	13.2
≥ 2	9	4.4
<i>Number of previous C/S</i>		
0	158	77.5
1	37	18.1
≥ 2	9	4.4
<i>Number of living children</i>		
0	65	31.9
1-2	102	50.0
3-4	28	13.7
≥ 5	9	4.4

C/S = caesarean section.

^aAbortion was defined as spontaneous termination of pregnancy prior to 20 weeks gestation.

on the other hand. Parity and history of previous caesarean section were also significantly related to attitude towards vaginal delivery. Women's occupation and age at marriage showed a significant relationship with attitude towards caesarean section, while history of spontaneous abortion was significantly related to the knowledge score.

We found that more housewives and women whose spouses were employed in education or health organizations had a positive attitude towards vaginal delivery in comparison with the others. On the other hand, a greater number of women who had got married at a lower age showed a positive attitude towards caesarean section,

while those with higher parity and history of previous caesarean sections had positive attitude towards vaginal delivery.

When asked what was their preferred mode of delivery for their current pregnancy, 59.0% and 35.8% of the women chose vaginal delivery and caesarean section respectively (the remainder were equivocal).

Discussion

This study of modes of delivery in Kerman, Islamic Republic of Iran, found that 96.5% and 33.0% of the women interviewed had positive attitudes towards vaginal and caesarean delivery, respectively. In Lampman and Phelps' study on US college students, women were significantly more likely than men to say they would be profoundly disappointed if their babies had to be delivered by caesarean section. Moreover, 47% of women did not view the procedure as a normal way of giving birth but most of them (over 70%) disagreed that birth by caesarean would be a negative experience [14]. In another study, only 13% of women delivered by elective caesarean section had unpleasant feelings about the procedure while this figure was 33% for emergency caesarean section [15]. In Johanson et al.'s study, nulliparous health professionals were more interested in having a caesarean section without medical indications, while they were the group who were most likely to consider that caesarean section is more expensive and dangerous. The explanation may be that they also felt it to be an easier, less painful and more convenient option [16]. In Rice et al.'s study Thai women in Australian hospitals preferred vaginal delivery to caesarean section while many of them believed that the latter is a safe technique for giving birth [17].

Of the women who had a positive attitude towards vaginal delivery, 61% had a

Table 3 Response to knowledge statements about vaginal delivery and caesarean section for the 204 pregnant women

Statements	Correct %	Incorrect %	Don't know %
Pain is less severe after C/S than V/D	70.6	20.1	9.3
Maternal morbidity is more frequent in C/S than V/D	60.8	18.1	21.1
Infections are more frequent after C/S than V/D	59.1	23.6	17.2
C/S is mandatory for tube ligation	38.2	43.1	18.6
Babies born by C/S are more intelligent than by V/D	33.5	44.3	22.2
Baby's fractures are impossible in C/S	29.9	45.6	24.5
C/S is mandatory after one C/S	28.4	62.7	8.8
Neonatal respiratory disorders are less frequent after C/S than V/D	28.1	44.8	27.1
Bleeding in C/S is less severe than V/D	21.8	41.6	36.6
C/S is mandatory for breech presentations	21.1	68.1	10.8

C/S = caesarean section; V/D = vaginal delivery.

low level of knowledge about methods of delivery. However, at every level of knowledge, women showed a positive attitude towards vaginal delivery. This may reflect traditional views about the process of childbearing in our community. A high rate of positive attitude towards caesarean section in women with low level of knowledge (22%) might be responsible for their choice of caesarean section as their preferred method of delivery. Women whose husbands were medical or educational professionals scored higher in attitudes towards vaginal delivery. This might be related to the more reliable and accurate information they got through their husbands regarding natural ways of delivery and the consequences of unnecessary caesarean section. As Table 4 indicates, 36.8% of women agreed that caesarean section is preferred to vaginal delivery because of the severe pain in the latter. Adopting policies to make vaginal delivery a less painful experience

could diminish caesarean section rates in our country.

Attitudes were also related to women's occupation. Housewives had higher scores on attitudes towards vaginal delivery. This preference for vaginal delivery might be due to the inability of this group of women to afford a caesarean section. Economic factors play an important role in caesarean birth rates [8].

Advanced marital age has been shown to be a contributing factor in increasing caesarean section rate [5,8]. In the present study, however, women with a lower age at marriage had a positive attitude towards caesarean section. This might be related to the belief in some families that young women at marriage have a small pelvis that is not suitable for vaginal delivery.

Previous experiences of childbirth seemed to influence women's knowledge and attitudes about types of delivery. Increased parity and history of previous cae-

Table 4 Response to attitude statements about vaginal delivery and caesarean section for the 204 pregnant women

Statements	Strong positive %	Positive %	Neutral %	Negative %	Strong negative %	No answer %
<i>Vaginal delivery</i>						
V/D is a natural and acceptable mode of delivery	66.7	27.5	2.9	1.0	0	2.0
Seeing the baby immediately after V/D is a pleasure for the mother	61.3	29.9	5.9	1.5	0	1.5
Mother regains her health status sooner after V/D than C/S	56.9	31.9	7.4	1.5	0	2.5
V/D creates a more affectionate mother-baby relationship	44.1	28.9	11.3	7.8	3.4	4.4
In terms of outcome, V/D is more pleasant	40.7	32.8	15.7	7.4	0	3.4
In terms of fear of anaesthesia, V/D is preferable	31.4	23.5	22.1	21.1	0.5	1.5
<i>Caesarean section</i>						
C/S is preferable in the absence of economic problems	9.8	34.3	26.0	15.2	12.7	2.0
C/S is preferable as mother's position on the delivery table is unpleasant	6.4	21.1	25.5	26.0	18.6	2.5
C/S is preferable as pain of V/D is unpleasant	5.4	31.4	16.7	21.6	22.1	2.9
Babies born by C/S are healthier than those delivered by V/D	3.4	15.7	23.5	25.5	30.4	1.5
Concurrent C/S is a suitable option for tube ligation	2.0	12.3	18.1	40.7	25.5	1.5
C/S prevents pelvic relaxation (n = 134)	0	16.7	34.3	17.6	24.5	6.9

C/S = caesarean section; V/D = vaginal delivery.
n = number of women responding.

sarean sections correlated with higher attitude scores for vaginal delivery. In the former group, it can be explained by the overall positive attitude towards vaginal delivery in the study population, especially in women who had experienced it before. Caesarean section can be regarded as an unpleasant experience, particularly in emergency cases [15], and this can partly explain the positive views towards vaginal delivery. Adhesions and discomfort experi-

enced following repeated caesarean section is another explanation. Women with a history of miscarriage had higher levels of knowledge, which could be attributed to a motivation to seek information in order to have a healthy child.

The overall level of knowledge about modes of delivery was low in this study. Only 7.5% of women were judged to have good knowledge and almost two-thirds had weak knowledge. It seems that publica-

Table 5 Relationship between women's knowledge and attitude to vaginal delivery and caesarean section

Knowledge	Attitude to C/S delivery (n = 203)			Attitude to V/D delivery (n = 201)		
	Negative %	Neutral %	Positive %	Negative %	Neutral %	Positive %
Weak	23.5	18.0	22.0	0	2.5	61.0
Medium	14.5	7.0	7.5	0	1.0	28.0
Good	2.5	1.5	3.5	0	0.0	7.5
Total	40.5	26.5	33.0	0	3.5	96.5
	$F = 116.78^a; P < 0.001$			$F = 3180.18^a; P < 0.001$		

C/S = caesarean section; V/D = vaginal delivery.
^aANOVA test.

Table 6 Relationship between women's characteristics and knowledge and attitude scores

Variable	Knowledge score			Attitude score for V/D			Attitude score for C/S		
	F ^a	df	P-value	F ^a	df	P-value	F ^a	df	P-value
Age	1.279	28	0.17	1.358	27	0.12	0.768	27	0.78
Husband's age	1.335	25	0.14	0.741	25	0.8	0.938	25	0.55
Occupation	3.24	1	0.06	5.368	1	0.02	0.007	1	0.93
Husband's occupation	0.04	4	0.99	2.417	4	0.049	1.074	4	0.37
Education ^b	1.36	15	0.17	0.966	15	0.5	0.782	15	0.69
Husband's education ^b	1.031	15	0.4	1.482	15	0.11	1.189	15	0.28
Age at marriage	0.821	17	0.67	0.923	16	0.53	1.892	17	0.02
Parity	1.491	7	0.17	20.96	7	0.045	0.944	17	0.52
Living child	0.884	7	0.52	2.537	7	0.01	1.12	7	0.35
Spontaneous abortions	3.589	3	0.01	0.553	3	0.65	0.882	3	0.5
Previous C/S	1.227	3	0.3	3.88	3	0.01	1.632	3	0.18

C/S = caesarean section; V/D = vaginal delivery.
 df = degrees of freedom.

^aANOVA test.

^bYears of study in school and university.

tions, television and public health centres have not performed adequately on this topic. When asked about their preferences, 59.0% and 35.8% of women chose vaginal delivery and caesarean section, respective-

ly, as their preferred mode of delivery in their current pregnancy. If their choices were fulfilled, the caesarean birth rate in this hospital could increase further.

Research has suggested that the adoption of strict guidelines in the management of deliveries can lead to a decrease in caesarean section rates and improvement in obstetric outcome [9,10]. However, based on the results of our study we can conclude that an important part of any policy to

control the rising caesarean birth rate in developing countries would be to provide better information for pregnant women and their partners during the antenatal period about modes of delivery, their indications, advantages and adverse consequences.

References

1. Rates of cesarean delivery—United States, 1993. *Morbidity and mortality weekly report*, 1995, 44:303–7.
2. Macfarlane A. At last—maternity statistics for England. *British medical journal*, 1998, 316:566–7.
3. Langer B, Schlaeder G. Que penser du taux de césarienne en France? [What does the cesarean rate mean in France?] *Journal de gynécologie, obstétrique et biologie de la reproduction*, 1998, 27(1):62–70.
4. Hopkins K. Are Brazilian women really choosing to deliver by cesarean? *Social science and medicine*, 2000; 51(5):725–40.
5. Leung GM et al. Rates of cesarean births in Hong Kong: 1987–1999. *Birth*, 2001, 28(3):166–72.
6. Alimohamadian M et al. The effect of pregnant women's request on elective cesarean section rate. *Payesh*, 2003, 2(2):133–9.
7. Motamedi B, Janghorbani M, Eftekhari N. Prevalence of cesarean section and some determinant factors in Kerman. *Journal of the Medical Faculty of Guilan University of Medical Sciences*, 2000, 9(33):88–96.
8. Cunningham FC et al., eds. *William's obstetrics*, 20th ed. Stamford, Connecticut, Appleton & Lange 1997:509–30.
9. De Muylder X, Thiery M. The cesarean delivery rate can be safely reduced in a developing country. *Obstetrics and gynecology*, 1990, 75:360–4.
10. Saunders DL, Makutu SL. Cesarean section deliveries in Fiji, 1986 to 1996. *Pacific health dialog*, 2001, 8(1):71–7.
11. Norman B, Crowhurst JA, Plaat F. Elective caesarean section on request. All types of anaesthesia carry risks. *British medical journal*, 1999, 318:120–5.
12. Amu O, Rajendran SI, Bolaji I. Should doctors perform an elective caesarean section on request? Maternal choice alone should not determine method of delivery. *British medical journal*, 1998, 317:463–5.
13. Haller U, Hepp H, Winter R. Sectio nach Wunsch oder elektive Sectio: Aufforderung zum Umdenken [Cesarean section on demand or elective cesarean section: request for rethinking]. *Gynäkologisch-geburtshilfliche Rundschau*, 2002, 42(1):1–3.
14. Lampman C, Phelps A. College students' knowledge and attitudes about cesarean birth. *Birth*, 1997, 24(3):159–64.
15. Graham WJ et al. An investigation of women's involvement in the decision to deliver by cesarean section. *British journal of obstetrics and gynaecology*, 1999, 106(3):213–20.

16. Johanson RB et al. Cesarean section by choice could fulfil inverse care law. *European journal of obstetrics, gynecology, and reproductive biology*, 2001, 97(1): 20–2.
17. Rice PL, Naksook C. Cesarean or vaginal birth: perceptions and experience of Thai women in Australian hospitals. *Australian and New Zealand journal of public health*, 1998, 22(5):604–8.

The World Health Report 2005 – make every mother and child count

The World Health Report 2005 – make every mother and child count says that this year almost 11 million children under five years of age will die from causes that are largely preventable. Among them are 4 million babies who will not survive the first month of life. At the same time, more than half a million women will die in pregnancy, childbirth or soon after. The report says that reducing this toll in line with the Millennium Development Goals depends largely on every mother and every child having the right to access to health care from pregnancy through childbirth, the neonatal period and childhood. The World Health Report is available in Arabic and English at: <http://www.emro.who.int/whd2005/worldhealthreport.htm> and <http://www.who.int/whr/2005/en/>