

Opinions and attitudes of obstetricians and midwives in Turkey towards caesarean section and vaginal birth following a previous caesarean section

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Abstract

Aim: To determine the opinions and attitudes of Turkish obstetricians and midwives to caesarean section (C-section) and vaginal birth following a C-section.

Methods: The study involved obstetricians and midwives who were working in a state women's hospital and two private hospitals in Gaziantep, Turkey. Participants were asked to complete questionnaires on sociodemographic data and provide opinions about C-section.

Results: A total of 88 midwives and 22 obstetricians participated in the study. Approximately one-third of midwives believed caesarean rates were high at their institution and more than 50% thought that the rate should be reduced. In contrast, although approximately 80% of obstetricians thought that caesarean rates in their institutions ranged between 25–50%, only 18% believed the rate was high and 68% believed that the rate should be reduced. Midwives and obstetricians tended to agree on most suggested reasons for high C-section rates. When asked about interventions that may reduce the C-section rates, midwives and obstetricians had opposing views. However, most participants agreed that prenatal childbirth preparation courses would be beneficial.

Conclusions: This study showed that most midwives and obstetricians believe the rate of C-section at their institution is high and should be reduced.

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Introduction

Caesarean section (C-section) is recommended to maintain the health of the mother and fetus when vaginal birth causes complications.¹⁻⁴ Although the indications for caesarean delivery should be determined on the basis of the medical condition of the mother and baby, in some countries, such as Turkey, the option for caesarean delivery on request and patients' choice have led to a considerable increase in C-section rates.⁵ A study from Turkey in 2012 reported that 50% of caesarean deliveries were performed on the obstetrician's recommendation or patient's request.⁶ Other factors that may influence the high rates of C-section include, increasing trend in large for gestational age, older age of the mother at first pregnancy, socioeconomic status of the family, fear of childbirth and/or perception that a C-section is an easier way of giving birth.⁷ In addition, studies show that obstetricians have also performed unnecessary caesarean deliveries because of the fear of malpractice^{3,8} and the long waiting time for vaginal birth.⁹ For example, a study conducted by the Turkish Ministry of Health found that 45% of physicians stated a preference for C-section because of the fear of malpractice and 27% of physicians reported that it took less time, was easy to perform and was more risk-free than a vaginal birth.¹⁰ A cross-sectional study undertaken among pregnant women in India, reported that 64% of women believed that the doctors were deliberately opting for caesarean deliveries instead of vaginal deliveries and that the decision to perform a C-section was made by the doctor.⁷ In addition, data from a study from Egypt showed that 60% of

obstetricians accepted performing C-section upon maternal request.¹¹

According to the recommendations of the International Federation of Gynecology and Obstetrics, elective C-section other than for medical reasons is not ethical.¹² There is evidence to suggest that C-section is associated with an increased risk of severe maternal and fetal morbidity related to bleeding, uterine rupture, wound dehiscence, deep vein thrombosis, endotoxic shock, puerperal sepsis, urethral and bowel injuries, respiratory distress syndrome in the new-born and breastfeeding problems due to sedation in the newborns.^{2,13} Indeed, the World Health Organization (WHO) has recommended that the rate of C-sections should not exceed 15% of all deliveries.¹⁴ However, with the exception of Iceland and Finland, all Organisation for Economic Co-operation and Development (OECD) countries have reported an increased rate of caesarean deliveries over recent years.^{11,15-17} In the USA, the rate for C-sections in 2010 was 32% of all births,¹⁷ while in Turkey in 2008, the rate was 38%.¹⁸

Optional C-section without a medical reason is a public health concern because compared with uncomplicated vaginal delivery it is associated with an increase in maternal mortality,¹⁹ higher hospital costs (i.e. the price of a vaginal delivery is estimated to be 50% less than the price of a C-section),⁶ longer length of hospital stay,^{17,20} and substantial burden on the general economy.¹⁵

Over recent years, political, social and medical projects in Turkey have been initiated to try to minimize the physician and hospital driven C-section rate.²¹

For example, to eliminate any commercial interest of hospitals, the fee for a vaginal birth has been increased to the equivalent for a C-section delivery. In other countries, this practice has been associated with a decrease in the number of caesarean deliveries.^{22,23} Other practices followed in Turkey include penalties (i.e. lower premiums) for physicians and hospitals that are associated with high numbers of C-sections and rewards (i.e. higher premiums) for physicians who encourage vaginal births. However, although studies report that vaginal birth after C-section is generally successful⁷ as in several countries, Turkey has adopted a general policy of '*once a caesarean, always a caesarean*'.^{6,21, 24-26} Therefore, this study aimed to examine the opinions and attitudes of a sample of Turkish obstetricians and midwives towards C-section and vaginal birth following a caesarean delivery.

Methods

Study population

The midwives and obstetricians involved in this study worked in a state women's hospital and two private hospitals in Gaziantep, Turkey (city population 1.8 million people). The study took place between 01 January 2012 and 30 June 2012. A questionnaire was used to determine the sociodemographic characteristics of the study participants.

Questionnaire to determine participants' views

To determine the views of the midwives and obstetricians on vaginal or caesarean birth following a C-section, a 5-point Likert-type questionnaire was constructed based on a related literature search. The questionnaire consisted of 13 statements and participants were asked to rate each statement as one of the following: certainly do not agree, do not agree, not sure, agree, certainly agree. Responses were also scored 1-5, where

1 = certainly do not agree and 5 = certainly agree. Of the 13 statements, eight were related to possible causes for high C-section rates and five were related to interventions that may have affected the rates. A pilot study was performed using 10 midwives and two obstetricians (who also participated in the actual study) to test the participants' understanding of the questionnaires. As a result of the pilot study, statements 4 and 5 were amended.

The final 13 statements were as follows:

- (1) The increase in the rate of caesarean births is related to birth difficulties.
- (2) The increase in the rate of C-section is because of new developments in technology.
- (3) The increase in the rate of caesarean births is due to hospital management.
- (4) The increase in the rate of caesareans is due to the preferences of pregnant women and their family/relatives.
- (5) The increase in the rate of caesareans is due to the fear of malpractice.
- (6) The increase in the rate of caesareans is due to the high number of births in the organization.
- (7) The increase in the rate of C-section is due to the high number of previous caesarean births.
- (8) The increase in the rate of C-section is due to the high number of women who become pregnant at an advanced age.
- (9) The use of a partogram reduces the rate of caesarean delivery.
- (10) Getting a second expert opinion on the type of delivery reduces the rate of C-section.
- (11) Application of the external cephalic version reduces the rate of C-section.²³
- (12) Vaginal birth after caesarean birth reduces the rate of C-section.
- (13) Prenatal childbirth preparation courses would decrease the caesarean delivery rate.

The questionnaire was distributed to the participants by the two researchers (Menekse Aslan and Sezer Kisa) in a sealed envelope and completed questionnaires were returned in a sealed envelope.

The study was approved by Zirve University Ethics Committee (15-February-2011; Approval Number: 2011-21). Verbal or written informed consent was obtained from all participants before the start of the study. Participation was understood to be completely voluntary and anonymous.

Statistical analyses

All statistical analyses were performed using the SPSS[®] statistical package, version 20.0 (SPSS Inc., Chicago, IL, USA) for Windows[®]. A *P*-value < 0.05 was considered to indicate statistical significance. Paired Student's *t*-tests were used to compare differences between the midwives and obstetricians in questionnaire scale scores and χ^2 -test was used to evaluate differences between midwives and obstetricians in categorical data (the three categories were: agree/certainly agree; not sure; not agree/certainly do not agree).

Results

From the identified local population of 120 midwives and 49 obstetricians, 88 midwives and 22 obstetricians participated in the study. The majority of participants were less than 40 years of age (mean \pm SD age, 32.12 \pm 6.49 years; range, 21–50 years) and approximately 70–80% had 1 to 9 years of experience in the job (Table 1). All midwives were women but the majority of the obstetricians were men (17 of 22; 77%). Most participants had 1–2 children, but while 58% (35 of 60) midwives had a vaginal birth for their last child, 60% (12 of 20) obstetricians had undergone a caesarean delivery for their last child.

Table 1. Sociodemographic characteristics of the study participants.

Characteristic	Occupation	
	Midwives (n = 88)	Obstetricians (n = 22)
Age		
20–29 years	41 (46.6)	1 (4.5)
30–39 years	37 (42.0)	17 (77.3)
40–49 years	7 (8.0)	4 (18.2)
50 years and over	3 (3.4)	0 (0.0)
Sex		
Women	88 (100.0)	5 (22.7)
Men	0 (0.0)	17 (77.3)
Years in the job		
1–9 years	64 (72.7)	18 (81.8)
10–19 years	15 (17.0)	3 (13.6)
20–29 years	7 (8.0)	1 (4.5)
30 years and over	2 (2.3)	0 (0.0)
Number of children		
1–2 children	45 (81.8)	18 (90.0)
3–4 children	10 (18.2)	2 (10.0)
The latest mode of delivery		
Spontaneous vaginal delivery	35 (58.3)	7 (35.0)
Birth with intervention	5 (8.3)	1 (5.0)
Caesarean	20 (33.3)	12 (60.0)
Currently practicing deliveries		
Yes	32 (36.4)	17 (77.3)
No	56 (63.6)	5 (22.7)

Data presented as *n* of participants (%).

When midwives were asked about caesarean delivery rates in their institutions, approximately one-third (31%) of them believed the rate was high and more than half (52%) of them held the view that the rate should be reduced (Table 2). In contrast, although approximately 80% of obstetricians thought that caesarean rates in their institutions ranged between 25–50%, only 18% believed the rate was high and approximately two-thirds of them (68%) believed that the rate should be reduced.

Table 2. Opinions of the participants about the caesarean birth rate in the organization they work.

	Occupation	
	Midwives (n = 88)	Obstetricians (n = 22)
Caesarean birth rate in your organization		
High	27 (30.7)	4 (18.2)
Equivalent to vaginal births	17 (19.3)	4 (18.2)
Low	12 (13.6)	3 (13.6)
Don't know	32 (36.4)	11 (50.0)
Caesarean birth rate in your organization		
Should be reduced	46 (52.3)	15 (68.2)
Should be the same	18 (20.5)	4 (18.2)
Should be increased	1 (1.1)	3 (13.6)
Not sure	23 (26.1)	0 (0.0)
Your estimation of caesarean births in your organization		
< 25%	43 (48.9)	3 (13.6)
25–50%	35 (39.8)	18 (81.8)
51–75%	9 (10.2)	0 (0.0)
≥ 76%	1 (1.1)	1 (4.5)

Data presented as *n* of participants (%).

Considering statements 1–8, midwives and obstetricians tended to agree on five of the eight suggested reasons for high rates of C-section (Table 3). However, they disagreed on statements 1, 3 and 6. For statement 1 (i.e. the reason for the increase in the rate of caesarean births is related to birth difficulties) and statement 6 (i.e. the increase is due to the high number of births in the organization), obstetricians had significantly higher mean scores (i.e. agreed with the statement) compared with midwives ($P < 0.05$) (Table 3). In contrast, for statement 3 (i.e. the reason for the increase in the rate is due to hospital management), midwives had a significantly higher mean score (i.e. agreed with the statement) compared with obstetricians ($P < 0.05$).

Similarly, when the responses were grouped into three categories (i.e. 'agree/certainly agree', 'not sure' and 'not agree/certainly do not agree') significant differences between midwives and obstetricians

were found for statements 1, 3, and 6 ($P < 0.05$). In addition, a significant difference between the two groups was also found for statement 4 (i.e. the increase in the rate of caesareans is due to the preferences of pregnant women and their family/relatives) with more midwives than obstetricians agreeing with the statement ($P < 0.05$).

When participants were asked their opinions about interventions that may reduce the high C-section rates (statements 9–13), midwives and obstetricians had opposing views. Midwives tended to agree more with the propositions (i.e. use of partogram, getting a second expert opinion, application of the external cephalic version, advocating vaginal birth, prenatal childbirth preparation courses) compared with obstetricians and this was reflected by their significantly higher mean scores for statements 9–12 ($P < 0.05$) (Table 4). However, most participants agreed that prenatal childbirth preparation courses would be beneficial.

Table 3. The opinions of midwives ($n = 88$) and obstetricians ($n = 22$) on the causes of a high caesarean section rate.

	Certainly do not agree	Do not agree	Not sure	Agree	Certainly agree	Scale scores	Statistical significance
Q1. The increase is related to birth difficulties							
Midwives	12 (13.6)	40 (45.5)	9 (10.2)	24 (27.3)	3 (3.4)	2.61 ± 1.12	* $\chi^2 P < 0.05$
Obstetricians	3 (13.6)	5 (22.7)	1 (4.5)	11 (50.0)	2 (9.1)	3.18 ± 1.29	
Q2. The increase is due to new developments in technology							
Midwives	18 (20.5)	41 (46.6)	6 (6.8)	20 (22.7)	3 (3.4)	2.42 ± 1.15	NS
Obstetricians	3 (13.6)	14 (63.6)	0 (0.0)	2 (9.1)	3 (13.6)	2.45 ± 1.26	
Q3. The increase is due to hospital management							
Midwives	11 (12.5)	37 (42.0)	8 (9.1)	26 (29.5)	6 (6.8)	2.76 ± 1.20	* $\chi^2 P < 0.05$
Obstetricians	7 (31.8)	7 (31.8)	6 (27.3)	1 (4.5)	1 (4.5)	2.18 ± 1.09	
Q4. The increase is due to preferences of pregnant women and their family/relatives							
Midwives	5 (5.7)	32 (36.4)	10 (11.4)	32 (36.4)	9 (10.2)	3.09 ± 1.17	$\chi^2 P < 0.05$
Obstetricians	3 (13.6)	6 (27.3)	8 (36.4)	5 (22.7)	0 (0.0)	2.68 ± 0.99	
Q5. The increase is due to fear of malpractice							
Midwives	9 (10.2)	33 (37.5)	28 (31.8)	14 (15.9)	4 (4.5)	2.67 ± 1.01	NS
Obstetricians	4 (18.2)	8 (36.4)	3 (13.6)	2 (9.1)	5 (22.7)	2.81 ± 1.46	
Q6. The increase is due to the high number of births in the organization							
Midwives	16 (18.2)	55 (62.5)	5 (5.7)	11 (12.5)	1 (1.1)	2.15 ± 0.90	* $\chi^2 P < 0.05$
Obstetricians	5 (22.7)	7 (31.8)	3 (13.6)	5 (22.7)	2 (9.1)	2.63 ± 1.32	
Q7. The increase is due to high number previous caesarean births							
Midwives	12 (13.6)	25 (28.4)	7 (8.0)	37 (42.0)	7 (8.0)	3.02 ± 1.25	NS
Obstetricians	3 (13.6)	7 (31.8)	3 (13.6)	7 (31.8)	2 (9.1)	2.90 ± 1.26	
Q8. The increase is due to the high number of women who become pregnant at an advanced age							
Midwives	12 (13.6)	44 (50.0)	7 (8.0)	24 (27.3)	1 (1.1)	2.52 ± 1.07	NS
Obstetricians	6 (27.3)	5 (22.7)	1 (4.5)	8 (36.4)	2 (9.1)	2.77 ± 1.44	

Data presented as n of participants (%) or mean \pm SD.

*Paired Student's t -test for scale scores.

χ^2 -test for categorical data (i.e. agree/certainly agree; not sure; not agree/certainly do not agree).

NS, no significant between-group difference ($P \geq 0.05$).

Similarly, when the responses were grouped into three categories (i.e. 'agree/certainly agree', 'not sure' and 'not agree/certainly do not agree') significant differences in favour of the midwives were found for statements 10 (i.e. getting a second expert opinion on the type of delivery reduces the rate of C-section), 11 (i.e. application of the external cephalic version reduces the rate of C-section) and 13

(i.e. prenatal childbirth preparation courses would decrease the caesarean delivery rate) ($P < 0.05$) (Table 4).

Discussion

In examining the opinions and attitudes of obstetricians and midwives from participating institutions in Gaziantep, Turkey on C-section deliveries, this present study found

Table 4. The opinions of midwives ($n = 88$) and obstetricians' ($n = 22$) on interventions that may reduce the caesarean section rate.

	Certainly do not agree	Do not agree	Not sure	Agree	Certainly agree	Scale scores	Statistical significance
Q9. The use of a partogram reduces the rate of caesarean delivery							
Midwives	6 (6.8)	37 (42.0)	20 (22.7)	19 (21.6)	6 (6.8)	2.79 ± 1.07	* $P < 0.05$
Obstetricians	3 (13.6)	12 (54.5)	6 (27.3)	1 (4.5)	0 (0.0)	2.22 ± 0.75	
Q10. Getting a second expert opinion on the type of delivery reduces the rate of C-section							
Midwives	5 (5.7)	19 (21.6)	6 (6.8)	47 (53.4)	11 (12.5)	3.45 ± 1.13	* $\ddagger P < 0.05$
Obstetricians	5 (22.7)	10 (45.5)	1 (4.5)	5 (22.7)	1 (4.5)	2.40 ± 1.22	
Q11. Application of the external cephalic version reduces the rate of C-section							
Midwives	4 (4.5)	21 (23.9)	28 (31.8)	30 (34.1)	5 (5.7)	3.12 ± 0.99	* $\ddagger P < 0.05$
Obstetricians	7 (31.8)	8 (36.4)	2 (9.1)	5 (22.7)	0 (0.0)	2.22 ± 1.15	
Q12. Vaginal birth after caesarean birth reduces the rate of C-section							
Midwives	8 (9.1)	27 (30.7)	7 (8.0)	36 (40.9)	10 (11.4)	3.14 ± 1.23	* $P < 0.05$
Obstetricians	6 (27.3)	8 (36.4)	2 (9.1)	6 (27.3)	0 (0.0)	2.36 ± 1.17	
Q13. Prenatal childbirth preparation courses would decrease the caesarean delivery rate							
Midwives	5 (5.7)	7 (8.0)	0 (0.0)	55 (62.5)	21 (23.9)	3.90 ± 1.03	$\ddagger P < 0.05$
Obstetricians	1 (4.5)	4 (18.2)	2 (9.1)	11 (50.0)	4 (18.2)	3.59 ± 1.14	

Data presented as n of participants (%) or mean \pm SD.

*Paired Student's t -test for scale scores.

$\ddagger \chi^2$ -test for categorical data (i.e. agree/certainly agree; not sure; not agree/certainly do not agree).

that almost one out of three midwives and one out of five obstetricians thought that rates in their institutions were high and more than 50% of midwives and obstetricians were of the opinion that the rate should be reduced. Indeed, a report based on data from OECD countries concluded that C-section rates are highest in Turkey (43%) and Mexico (42%) and lowest in the Netherlands (14%) where home births are a common option for women with low risk pregnancies.^{4,17} According to Turkey's Ministry of Health, caesarean delivery should only be performed when there is a significant risk of maternal or fetal morbidity or mortality.²¹ However, although the Ministry of Health does not look favourably upon elective caesareans, studies conducted in Turkey have found that one of the main drivers for C-section is maternal request.^{27,28}

A large proportion of the obstetricians participating in the present study suggested that birth difficulties were responsible for the high rates of caesarean deliveries. This finding is in agreement with other studies that found the principal indications (85%) for caesarean delivery were labour difficulties, fetal distress, breech presentation and previous caesarean delivery.^{7,18,29} In contrast, midwives in this present study were of the opinion that hospital management policy was responsible for the high rates of caesarean births. Studies from other countries have reported similar findings and found that a large percentage of women believed that hospitals were promoting caesarean deliveries rather than vaginal births.^{7,22,30} Importantly, a report from the WHO found that healthcare system factors have been overlooked as potentially important determinants of C-section utilization in

favour of the impact of women's choices and doctors' preferences.⁹

Among the suggested reasons for high caesarean rates, 'a high number of previous caesarean births' attained a high score among midwives and obstetricians. In Turkey, as in several countries, a policy of 'once a caesarean, always a caesarean' has been adopted.^{18,24-26} The WHO has suggested that obstetricians have a substantial influence on the type of delivery and contribute importantly to the increase in C-section rates.⁹ The report also concluded that there was a direct association between the number of midwives per head and a decrease in caesarean delivery rate.⁹

Most midwives who participated in this present study agreed that a strategy for reducing high C-section rates was to obtain a second expert opinion. Having the option to request a second opinion has been suggested as being a strong facilitator for encouraging women to choose the safest mode of delivery.²³ However, a study from Canada found that some obstetricians believed that a second opinion should only be obtained after a request from a family practitioner because of difficulties in the medico-legal responsibilities between two obstetricians.²³ Moreover, we believe that it would be difficult to insist on a second opinion for women who have already decided to have a planned C-section. In Turkey, there is no legal obligation to request a second opinion but some countries do require a second opinion for non-urgent caesarean deliveries particularly in cases where caesarean delivery on maternal request is planned.^{31,32}

In this present study, a large proportion of midwives and obstetricians (52 of 110; 47%) believed that encouraging vaginal delivery following a caesarean birth for women who fulfilled the appropriate criteria would reduce the rate of C-section. However, the obstetricians in the present study did not agree with this proposal. A

study from Egypt concluded that obstetricians' perspectives towards caesarean delivery were influenced by feelings of insecurity about performing problematic vaginal deliveries, fear of legal liability, non-organizational practice and higher revenue from C-section births compared with uncomplicated vaginal births.¹¹

Although midwives and obstetricians in Turkey have the final decision on the mode of delivery, some patients insist on C-section delivery.²⁷ However, a study of 247 pregnant women in India suggests that women do not rigidly adhere to a preferred method of birth.⁷ In the Indian study, the majority of women reported that they would prefer a vaginal delivery and so patient preference is unlikely to be a principal driver for increasing C-section rates.⁷ However, most women were in favour of C-section if it was necessary to protect their health or that of their baby.^{7,33} Data from a Turkish study of the views of 49 family physicians on caesarean delivery on maternal request, found that 61% felt that there should be a medical indication for caesarean delivery.²¹ In contrast, another study from Turkey found that 24% of medical students were of the opinion that optional C-section can be performed without any medical indication.³⁴

The majority of the participating obstetricians and midwives in this present study agreed with the hypothesis that prenatal childbirth preparation courses would decrease the rate of caesarean delivery. However, there are conflicting results in the literature. One study showed that there is a need for nurse-led relaxation classes and birth preparation classes that may reduce C-section rates in low risk pregnancies.³⁵ However, a study conducted in Canada involving 1,318 pregnant women found that many women were not prepared to make their own decisions on mode of delivery.³⁶ In addition, another study concluded that obstetricians believed that informing women about the risks and benefits of vaginal

delivery versus elective C-section was time-consuming and may have no impact on their final decision, particularly when women request a repeat C-section.^{1,17,23}

A possible limitation of the study was the small sample size and the unequal number of participants in each group (i.e. 88 midwives and 22 obstetricians). In addition, the questionnaire had not been extensively tested and so had not been effectively validated. Therefore, further studies are required to substantiate these preliminary findings.

In conclusion, the results of this study suggest that the following strategies could be implemented and may result in a reduction of the C-section rate in Turkey: (i) prenatal childbirth education classes should be promoted to increase pregnant women's knowledge about the risks and benefits of C-section compared with vaginal delivery; (ii) the knowledge and skills of midwives and physicians/obstetricians with regard to vaginal birth following a C-section should be improved; (iii) unnecessary elective primary C-section rates should be reduced without compromising maternal and fetal safety; (iv) health policies that advocate a second expert opinion for elective C-section should be initiated and could be used as a strategy to reduce the primary C-section rate; and (v) further research is needed to determine the reasons for maternal elective C-sections.

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The authors declare that there are no conflicts of interest.

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References

1. Helal AS, Abdel-Hady ES, Refaie E, et al. Rising rates of caesarean delivery at Mansoura University hospital: a reason for concern. *Gynecol Obstet* 2013; 3: 146–148. [Article in Turkish].
2. Villar J, Carroli G, Zavaleta N, et al. Maternal and neonatal individual risks and benefits associated with caesarean delivery: multicentre prospective study. *BMJ* 2007; 335: 1025.
3. Habiba M, Kaminski M, Da Frè M, et al. Caesarean section on request: a comparison of obstetricians' attitudes in eight European countries. *BJOG* 2006; 113: 647–656.
4. EURO-PERISTAT – Project, with SCPE, EUROCAT, EURONEOSTAT. *European Perinatal Health Report*; 2008. Available from: www.europeristat.com.
5. Kıyak Çağlayan E, Kara M and Cihan Gürel Y. Evaluation of risk factors and potential complications after cesarean operations in our clinic. *Medical Journal of Bakırköy* 2011; 7: 64–67. [Article in Turkish].
6. Karabulutlu Ö. Identifying the women's choice of delivery methods of and the factors that affect them. *İ.Ü.F.N. Hem. Derg* 2012; 20: 210–218. [Article in Turkish].
7. Ajeet S, Jaydeep N, Nandkishore K, et al. Women's knowledge, perceptions, and potential demand towards Caesarean section. *Natl J Community Med* 2011; 2: 244–248.
8. Guise JM, Lowe NK, Deering S, et al. Mobile in situ obstetric emergency simulation and teamwork training to improve maternal-fetal safety in hospitals. *Jt Comm J Qual Patient Saf* 2010; 36: 443–453.
9. Lauer JA, Bertan AP, Merialdi M, et al. *Determinants of caesarean section rates in developed countries: supply, demand and opportunities for control*. WHO, World Health Report, Background Paper [No. 29]; 2010.
10. Turkey. Maternal and Child Health and Family Planning General Directorate.

- Vaginal and cesarean delivery management guide*. Ankara: Damla Matbaacılık ve Yayıncılık. Turkish Ministry of Health (MOH), 2010.
11. Shaaban MM, Sayed Ahmed WA, Khadr Z, et al. Obstetricians' perspective towards cesarean section delivery based on professional level: experience from Egypt. *Arch Gynecol Obstet* 2012; 286: 317–323.
 12. FIGO'S Committee for the Ethical Aspects of Reproduction and Women's Health. *Ethical issues in obstetrics and gynecology*; 2015 [Accessed 24 August 2016]. Available from: <http://www.figo.org/sites/default/files/uploads/wg-publications/ethics/FIGO%20Ethical%20Issues%202015.pdf>4893.pdf.
 13. Alfirevic Z, Milan SJ and Livio S. Cesarean section versus vaginal delivery for preterm birth in singletons. *Cochrane Database of Sys Rev* 2012; 6: CD000078.
 14. Dosa L. Cesarean section delivery, an increasingly popular option. *Bull World Health Organ* 2001; 79: 1173.
 15. Naymi RS and Rehan N. Prevalence and determinants of caesarean section in a teaching hospital of Pakistan. *J Obstet Gynecol* 2000; 20: 479–483.
 16. Wiklund I. New guidelines for cesarean section on maternal request. *Sex Reprod Healthc* 2012; 3: 97.
 17. OECD. *Health at a Glance 2011: OECD Indicators*. OECD Publishing; 2011. Available from: <http://www.oecd.org/els/health-systems/49105858.pdf>.
 18. Yılmaz M, İsaoglu Ü and Kadanalı S. Investigation of the Cesarean Section cases in our clinic between 2002 and 2007. *Marmara Medical Journal* 2009; 22: 104–110. [Article in Turkish].
 19. Liu S, Liston RM, Joseph KS, et al. Maternal mortality and severe morbidity associated with low-risk planned cesarean delivery versus planned vaginal delivery at term. *CMAJ* 2007; 176: 455–460.
 20. Koechlin F, Lorenzoni L and Schreyer P. *Comparing Price Levels of Hospital Services across Countries: Results of a Pilot Study*. OECD Health Working Paper [No.53]. Paris: OECD Publishing; 2010.
 21. Arpaci H, Kurtoglu E and Temur M. Family physicians' views on Caesarean delivery on maternal request. *J Clin Anal Med* 2013; 4: 44–47. [Article in Turkish].
 22. Phadungkiatwattana P and Tongsakul N. Analyzing the impact of private service on the cesarean section rate in public hospital Thailand. *Arch Gynecol Obstet* 2011; 284: 1375–1379.
 23. Chaillet N, Dube E, Dube J, et al. Identifying barriers and facilitators towards implementing guidelines to reduce caesarean section rates in Quebec. *Bull World Health Organ* 2007; 85: 733–820.
 24. Kottmel A, Hoesli I, Traub R, et al. Maternal request: a reason for rising rates of cesarean section? *Arch Gynecol Obstet* 2012; 286: 93–98.
 25. Lo JC. Financial incentives do not always work an example of cesarean sections in Taiwan. *Health Policy* 2008; 88: 121–129.
 26. Ugwumadu A. Does the maxim “once a caesarean, always a caesarean” still hold true? *PLoS Med* 2005; 2: e305.
 27. Cebeci R and Tekirdağ Aİ. Eğitim Hastanesinde Sezaryen Oranları. *Jinekoloji Obstetrik Pediatri ve Pediatrik Cerrahi Dergisi* 2010; 2: 21–26. [Article in Turkish].
 28. Akyol A, Gönen Yağcı Ş and Tekirdağ AA. The comparison of type and properties of delivery between health workers and non health workers. *JOPP Derg* 2011; 3: 55–63. [Article in Turkish].
 29. Üzel H, Kelekçi S, Devocioğlu C, et al. Neonatal asphyxia: A study of 210 cases. *J Clin Exp Invest* 2012; 3: 194–198.
 30. Kanchanachitra C, Lindelow M, Johnston T, et al. Human resources for health in southeast Asia: shortages, distributional challenges, and international trade in health services. *Lancet* 2011; 377: 769–781.
 31. Liang WH, Yuan CC, Hung JH, et al. Effect of peer review and trial of labor on lowering cesarean section rates. *J Chin Med Assoc* 2004; 67: 281–286.
 32. Khunpradit S, Tavender E, Lumbiganon P, et al. Non-clinical interventions for reducing unnecessary caesarean section. *Cochrane Database of Sys Rev* 2011; 6: CD005528.

33. Aziken M, Omo-Aghoja L and Okonofua F. Perceptions and attitudes of pregnant women towards caesarean section in urban Nigeria. *Acta Obstet Gynecol Scand* 2007; 86: 42–47.
34. Doğaner A, Doğaner G, Duran Ö, et al. The determination of opinions on preferences of health sciences student on the mode of delivery. *J Turk Soc Obstet Gynecol* 2013; 10: 31–36. [Article in Turkish].
35. Mehdizadeh A, Roosta F, Chaichian S, et al. Evaluation of the impact of birth preparation courses on the health of the mother and the newborn. *Am J Perinatol* 2005; 22: 7–9.
36. Klein MC, Kaczorowski J, Hearps SJ, et al. Birth technology and maternal roles in birth: knowledge and attitudes of Canadian women approaching childbirth for the first time. *J Obstet Gynecol Can* 2011; 33: 598–608.