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Increased Cesarean-Section Birth Rates and Affecting Related Factors

Artmış Sezaryen-Doğum Oranları ve Etkileyen İlgili Faktörler

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ABSTRACT

Aim: The present study aims to evaluate the opinions of physicians on increased C-section delivery rates and their coping ways working at different institutions.

Method: This descriptive, cross-sectional study included a total of 200 obstetricians and gynecologists with an experience of at least 20 years chosen through simple random sampling among registered in the Republic of Turkey, Ministry of Health database. In the questionnaire, their opinions about test exams and their opinions about solutions to decrease C-section rates were investigated.

Results: The majority of the participants (89.0%) responded "Strongly Agree" to the following item: "Factors other than medical causes may affect the decision for C-section". Similarly, the majority of the physicians responded "Strongly Agree" to the item on the increase in C-section rates along with malpractices and social pressure put by the patient and her relatives (89.0% and 89.5%, respectively). For the majority of the participants (84.0% and 85.0%, respectively), the main suggestions to overcome the increased C-section delivery rates was to lower; social pressure put against the physicians by the patient and her relatives, and removal of malpractice penalties related for possible adverse outcomes during normal delivery. In this study, the majority of the physicians responded "Strongly Disagree" to the items related to the imposing penalties and granting bonuses (56.0% and 56.5%, respectively). Similarly, 81.0% of the physicians responded "Strongly Disagree" to the item stating that healthcare planners correctly interfere with the main cause of increased C-section rates. **Conclusions:** The most important reasons for the high cesarean rates are seen as the fear of malpractice and social pressure of physicians working in both public and private sectors.

Keywords: Cesarean-section rates, physician, reason, factors

ÖZ

Amaç: Bu çalışmada farklı kurumlarda çalışan hekimlerin sezaryen doğumlardaki artış nedenleri ve çözüm yolları ile ilişkili görüşlerinin değerlendirilmesi amaçlanmıştır.

Yöntem: Kesitsel tipte ve tanımlayıcı olarak yapılan bu çalışmada T.C. Sağlık Bakan-lığı sistemine kayıtlı ve en az 20 yıl mesleki tecrübesi olan 200 kadın hastaları ve doğum uzmanı hekime ulaşılarak anket uygulanmıştır. Ankette hekimlerin sezaryen oranları artışı nedenleri ile ilgili görüşleri ve sezaryen oranlarını azaltmak için çözüm yolları ile ilgili görüşleri araştırılmıştır.

Bulgular: Ankete katılan tüm hekim grubunun önemli bir kısmı (%89.0) 'Sezaryen kararı alırken tıbbi nedenler dışında faktörler sezaryen kararını etkiler' maddesine 'kesinlikle katılıyorum' yanıtını vermiştir. Benzer şekilde hekimlerin çoğunluğu 'mal-praktis uygulamaları' ve 'hasta ve yakınlarının yarattığı baskının' sezaryen doğum kararını artırdığı ilişkin görüşe kesinlikle katılmaktadır (sırasıyla %89.0 ve %89.5). Katılımcıların %85'i sezaryen oranlarındaki artışı önlemek için çözüm yolu olarak; va-jinal doğumda oluşabilecek olumsuz sonuçlara ilişkin malpraktis cezalarının kaldırıl-masını, %84'ü vajinal doğumdaki olası olumsuz sonuçlar için hasta ve yakınları tarafından hekime uygulanan sosyal baskıyı azaltmayı görmektedir. Bu çalışmada hekimlerin çoğunluğu çözüm yolu olarak görülen cezalandırma veya ücret yoluyla ödüllendirme ile ilgili önerilere (sırasıyla %56.0 ve %56.5) "kesinlikle katılmıyorum" cevabı vermişlerdir. Yine hekimlerin %81'i sağlık planlayıcılarının sezaryen oranlarındaki artışa doğru şekilde müdahale edebildiği fikrine kesinlikle katılmamaktadır.

Sonuç: Sezaryen oranlarının yüksek seviyelerde olması; hem kamu hem de özel sektörde çalışan hekimler açısından malpraktis korkusu ve sosyal baskı en önemli nedenler olarak görülmektedir.

Anahtar Kelimeler: Sezaryen oranı, hekim, sebep, faktörler

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INTRODUCTION

Cesarean section (C-section) delivery is a common surgical procedure in the presence of maternal or fetal conditions preventing normal delivery [1]. The World Health Organization (WHO) Department of Reproductive Health and Research states that the effects of C-section rates on other health outcomes such as maternal and perinatal morbidity, newborn outcomes, and psychological and social well-being are still unclear and, thus, C-section procedure is ideal only when there is a medical indication [2]. The department also proposes that C-section rates higher than 10% at the population level are not associated with reductions in maternal and newborn mortality rates. That ideal C-section rates should be 10 to 15% [2]. In a large-scale study including data from 150 countries, C-section was performed with a rate of 6 to 27.2% worldwide, and there was an increase at a rate of 12.4% between 1990 and 2014 [3]. In previous studies conducted in Turkey, the overall C-section rate was found to be 14.3% in 1998 and increased up to 51.9% in 2013 [4]. In 2015, Turkey ranked first in C-section delivery in the world among the Organisation for Economic Co-operation and Development countries [5].

The possible causes of steady increases in C-section rates have been still investigated, and no single specific cause has been identified, yet. Studies conducted in Turkey have mostly addressed medical causes [6-11]. These include patient characteristics such as advanced maternal age, obesity, fear of being in labor for hours, opinion that it is safer for baby, decreased tolerance to any kind of complications, and medical causes such as the opinion of healthcare providers that C-section is safer for delivery. However, none of these provides a sufficient explanation for increased rates of C-section delivery.

In recent years, physicians-related factors have also been suggested to play a role in the increased rates of C-section. Obstetricians and gynecologists are more likely to be sued and convicted to higher indemnity costs [12]. In Turkey, malpractice cases encourage physicians to perform defensive medical practices. Cakmak et al. [13] reported that malpractice occurred in C-section deliveries, mostly by physicians (92.3%)

in private hospitals (46.2%). However, to the best of our knowledge, there are no data available about in our country regarding physician opinions leading them to perform C-section, except for malpractices (long working hours, understaffed facility, working environment-related problems, or payment issues). In the present study, we aimed to evaluate the opinions of physicians on increased C-section delivery rates and their coping ways working at different institutions.

MATERIAL AND METHODS

Study Population

This descriptive, cross-sectional study included a total of 300 obstetricians and gynecologists with an experience of at least 20 years, 100 of whom were chosen through simple random sampling among 1,518 hospitals registered in the Republic of Turkey, 2019 Ministry of Health database between February 2019 and December 2019. As all the universe was aimed to be reached, the sample was not taken. Accordingly, a total of 200 physicians (66.7%) were able to be reached. All participants were informed about the nature of the study, and a written informed consent was obtained. The study protocol was approved by Alaaddin Keykubat University, Clinical Research Ethics Committee (Date: 03.09.2019, No. 10-11). The study was conducted in accordance with the principles of the Declaration of Helsinki.

Development of a Likert-type Scale

Independent variables of the study were considered as sociodemographic features of the physicians. In contrast, dependent variables were considered as their opinions regarding the increase in C-section delivery and their suggestions for a solution. The item pool was formed consisting of the opinions on the causes of the increase in C-section rates, other than medical indications, and reducing these rates. For the development of attitude items in the pool, relevant studies were screened, and 30 opinions, including positive or negative meaning, were noted. These opinions were scaled, ranging from "Strongly Disagree" (starting from 1) to "Strongly Agree" (5) on a five-point Likert-type scale. A literature lecturer provided counselling for grammar and language development. Content and psychological structure analysis was performed

by academicians of obstetrics and gynecology and psychiatry.

Based on relevant amendments according to suggestions, a scale consisting of 30 items regarding the opinions on the increased C-section rates and its possible solutions was administered to a pilot group of 30 participants. Items-total correlations of the data collected in the pilot-scale were calculated using the SPSS version 21.0 software (IBM Corp., Armonk, NY, USA). Items with an item-total correlation value lower than 0.40 were excluded from the scale by the researchers, considering that these items were inadequate for item measuring. Finally, 17 items of a 30-item scale were used.

Reliability of Scale

Reliability of the scale was analyzed with the test-retest reliability using the SPSS version 21.0 software (IBM Corp., Armonk, NY, USA). A Cronbach alpha (α) value of 0.751 was established for internal consistency. The calculated α reliability coefficient indicates a medium level of internal consistency among the items.

Statistical Analysis

Statistical analysis was performed using the SPSS version 21.0 software (IBM Corp., Armonk, NY, USA). Descriptive data were expressed in mean \pm standard deviation (SD), median (min-max), or number and percentage. The Kolmogorov-Smirnov test was used to evaluate whether the data showed a normal distribution or not. The Student's t-test and chi-square test were used to compare the variables. The Mann-Whitney U test was carried out to compare Likert-type question responses. A p value of <0.05 was considered statistically significant.

RESULTS

In this study, the scale was responded by a total of 200 obstetricians. Among the physicians included in the study, 25.5% worked in private hospitals, while 74.5% worked in state hospitals. There was no significant difference in age ($p:0.815$), sex ($p:0.242$), and professional experience ($p:0.297$) between the physicians working in the state and private hospitals. Sociodemographic characteristics of the participants are shown in

Table 1.

Table 1. Sociodemographic characteristics of participants

Variable	Public Service (n=149)	Private practice (n=51)	Test statistics	p value
Age	50.4 \pm 2.1	50.7 \pm 2.3	T:1.092	0.275
Sex (Female)	23.5%	15.7%	2:1.371	0.242
Professional experience (year)	20.1 \pm 3.6	20.4 \pm 2.1	T:1.322	0.297

Note: Data are given in mean \pm standard deviation. Chi-square and Student's t-test for group comparisons.

According to the responses of the participants regarding the causes of increased C-section rates other than good medical practices, there was no significant difference between the responses of the physicians working in the state and private hospitals (81.2% and 82.3%, respectively, $\chi^2:0.101$, $p:0.750$).

The median value was found to be 5 (Strongly Agree) for the following items: "C-section rates have always increased throughout my career"; "Factors other than medical causes may affect the decision for C-section"; and "Increased malpractice penalties associated with normal delivery may increase the C-section preference". A comparison of the opinions of the participants regarding the causes of the increase in C-section rates other than good medical practices is presented in Table 2.

The coping ways and suggestions of the participants to reduce the C-section rates other than good medical practices were evaluated, and there was no significant difference between the physicians working in the state and private hospitals in all answers (Table 3). The median value was 5 (Strongly Agree) for the following items: "Excluding complications from the judicial punishment scope except for professional committees" and "Lowering negative social pressure put against the physicians by the patient and her relatives for possible negative outcomes during normal delivery". In addition, the median value was 1 (Strongly Disagree) for the following items: "Imposing penalties when C-section rates are not reduced to the desired level" and "Granting bonuses for normal delivery."

The majority of the physicians responded "Strongly

Table 2. A comparison of the opinions of the participants regarding the causes of the increase in C-section rates other than good medical practices

Item	Public service (n=149)			Private practice (n=51)			Test statistics	p value
	Mean	SD	Median	Mean	SD	Median		
C-section rates have always increased throughout my career.	4.89	0.47	5	4.90	0.36	5	0.235	0.815
Factors other than medical causes may affect the decision for C-section.	4.82	0.57	5	4.86	0.45	5	0.333	0.739
Increased malpractice penalties associated with normal delivery may increase the C-section preference.	4.80	0.64	5	4.88	0.39	5	0.287	0.774
Social pressure put by the patient and her relatives has an effect on increased C-section rates.	4.81	0.61	5	4.88	0.38	5	0.261	0.794
Hospital and delivery room conditions have an effect on increased C-section rates.	2.66	0.90	2	2.94	0.78	5	0.090	0.929
Lacking midwife follow-up and assistance has an effect on increased C-section rates.	2.97	0.87	3	2.65	0.91	3	0.098	0.922
Social life planning due to long working hours has an effect on increased C-section rates.	1.10	0.30	1	1.09	0.27	1	0.466	0.641
Low financial gain of normal delivery for physicians has an effect on increased C-section rates.	2.58	0.96	2	2.57	1.02	2	0.140	0.889
Healthcare planners correctly interfere with the main cause of increased C-section rates.	1.19	0.39	1	1.20	0.40	1	0.128	0.898

Note:SD: Standard deviation. Mann-Whitney U test for group comparisons.

Table 3. Coping ways of the participants other than good medical practices

Item	Public service (n=149)			Private practice (n=51)			Test statistics	p value
	Mean	SD	Median	Mean	SD	Median		
Imposing penalties when C-section rates are higher than expected	1.39	0.58	1	1.45	0.67	1	0.353	0.724
Removal of malpractice penalties related to the negative consequences that may occur in vaginal delivery	4.74	0.65	5	4.84	0.41	5	0.704	0.482
Granting bonuses when C-section rates are reduced to desired level	1.50	0.61	1	1.49	0.64	1	0.259	0.796
Imposing penalties when C-section rates are not reduced to desired level	1.50	0.61	1	1.49	0.64	1	0.259	0.796
Enhancing the level of knowledge and communication capability of midwives and other allied healthcare providers who assist delivery	2.97	0.87	3	2.94	0.78	3	0.098	0.922
Improving the physical setting of delivery	2.66	0.91	2	2.65	0.91	2	0.090	0.929
Granting bonuses for normal delivery	2.58	0.96	2	2.57	1.02	2	0.140	0.889
Lowering social pressure put against the physicians by the patient and her relatives for possible negative outcomes during normal delivery	4.73	0.70	5	4.57	0.56	5	0.620	0.535

Note:SD: Standard deviation. Mann-Whitney U test for group comparisons.

Agree" to the item on the increase in C-section rates along with malpractices and social pressure put by the patient and her relatives (89.0% and 89.5%, respectively). For the majority of the participants (84.0% and 85.0%, respectively), the main suggestions to overcome the increased C-section delivery rates was to lower social pressure put against the physicians by the patient and her relatives, and to remove malpractice penalties related for possible adverse outcomes during normal delivery. In this study, the majority of the physicians responded "Strongly Disagree" to the items related to the imposing penalties and granting bonuses (56.0% and 56.5%, respectively). Similarly, 81.0% of the physicians responded "Strongly Disagree" to the item stating

that healthcare planners correctly interfere with the main cause of the increased C-section rates.

DISCUSSION

In the current study, the opinions of physicians on increased C-section delivery rates and their coping ways working in state or private setting were evaluated. The study results showed that there was no significant difference in the opinions regarding the causes of increased C-section rates other than good medical practices between the physicians working in the state and private hospitals.

With the adoption of Medical Malpractice Law in 2005, the rate of C-section delivery has dramatically

increased in Turkey[4,5]. In the present study, our cohort is a representative sample as having minimum 20-year professional experience and working as a specialist both before and after the execution of Medical Malpractice Law, which allows them to evaluate the effect of the law on their own C-section rates. To illustrate, the rate of C-section delivery was lower before the execution of the law, while the rate significantly increased after the law was enacted [4,5]. This supports the opinion that the C-section delivery rate has been on a dramatic rise since the adoption of the Medical Malpractice Law for the majority of our study participants. In addition, the majority of the participants (89.0%) responded "Strongly Agree" to the following item: "Factors other than medical causes may affect the decision for C-section". Similarly, the physicians (89.5%) responded "Strongly Agree" to the item on the increase in C-section rates along with malpractices. Italy has the highest rate of births through C-section in Europe, with 34% [3]. In recent studies, C-section delivery rates have increased in parallel with the increased malpractices and that penalties to be paid per case have also logarithmically increased, and that physicians are concern about malpractice laws [14]. Accordingly, it is stated that the increase in C-section rates is associated with malpractice laws in the United States of America, and this association is more evident in those who are undereducated and with a low socioeconomic status [15]. It is also considered that the implementation of malpractice law may decrease normal delivery rates following C-section [16]. In a study including 2,300 physicians, the cumulative C-section rates increased among physicians sued for malpractice over the years [17]. The Penalty Code negatively affects many physiological and emotional decision-making mechanisms [16-17]. Based on the current evidence, malpractices significantly and permanently affect medical decision-making mechanisms of physicians.

In the present study, the majority of the physicians working in the state and private hospitals responded "Strongly Agree" with a rate of 89.5% to the item suggesting that social pressure put by the patient and her relatives affects increased C-section rates. For 84.0% of the respondents, the main suggestion to overcome this concern is to lower social pressure put against the physicians by

the patient and her relatives for possible negative outcomes during normal delivery. In particular, negative perception and physical violence against physicians appear to be an important problem in Turkey. In the literature, it has been reported that healthcare providers are the group with the highest risk of being subjected to violence, and there has been an increase in acts of violence in years [18]. It is also known that many healthcare providers are subjected to or witness verbal abuse, whether reported or not, and violence is not only committed by patients themselves, but also their relatives and the mass media [19]. The relationship between the physician and the patient is considered to be one of the main factors affecting the medical decision-making process [20]. It is thought that social pressure increases the stress level of healthcare providers, affects their general state of health, causes problems related to early retirement, and leads to low-quality service offered by professionals to the patients [21]. In recent years, the introduction of advanced technology and communication tools has increased the expectation of patients about visiting "error-free, beyond compare" physicians. They are expected to be target-oriented and reach the solution as soon as possible. The increasing acts of violence and all these expectations adversely affect the general states of health of physicians and the decision-making process of the delivery type.

The C-section delivery rate, which was approximately 7% in 1993, almost doubled after five years. According to the 1998 Turkey Demographic and Health Survey database, the overall birth rate with C-section delivery is 13.9%. In subsequent studies, this rate ranges between 21.2 and 36.7% in 2008, and is about 48.0% in 2013, although population-based studies would provide more insight into this issue [22,23]. According to the WHO report published in 2014 [2], C-section rates higher than 10% at the population level are not associated with reductions in maternal and newborn mortality rates, and C-section should be only medically applied, when necessary.

In recent years, the Republic of Turkey, Ministry of Health has employed financial penalties for exceeding individual specific C-section rate; however, these precautions have fallen behind the expected level [22]. This supports the opinion

of the majority of our participants that healthcare planners are unable to correctly interfere with the leading cause of the increased C-section rates and granting bonuses. Imposing penalties are insufficient measures, when C-section rates are not reduced to the desired level. In this study, the majority of the physicians responded "Strongly Disagree" to the items related to the imposing penalties and granting bonuses (56.0% and 56.5%, respectively). Similarly, 81.0% of the physicians responded "Strongly Disagree" to the item stating that healthcare planners correctly interfere with the leading cause of increased C-section rates. Bonus and penalty scheme is one of the oldest systems which is designated to motivate an individual to change his/her behavior [23], and penalty system is at the lowest level of Kohlberg's hierarchy of moral stages and commonly used [24]. Penalty system negatively affects the performance and productivity of the personnel and associated with increased illegal and unethical behaviors of the personnel [25]. Similarly, one of the most important criticisms on performance system related to bonus system is that it adopts a customer-oriented understanding rather than a patient-oriented mindset and puts financial gains to the forefront which creates a conflict between healthcare providers and patients [26]. Developing these organizational systems, restoring trust between patients and physicians, providing justice for physicians, and giving mutual responsibilities may be helpful to achieve the most optimal results.

Limitations: The study evaluated the opinion of senior obstetricians, although this result may not represent all population working as an obstetrician in Turkey, and that may be caused lack of population validity. Also, a Likert type-scale was used in this study to understand reasons for the underlying increase in C-section rates that can limit the scope of the study and, thus, the overall outcome. Further well-designed, qualitative studies are needed to gain a better understanding of clinical and patient's decision for C-section.

Conclusion: In conclusion, the increased C-section rates in Turkey are one of the significant health issues. Interventions to eliminate possible causes seem to be insufficient, and malpractices and social pressure are among the most prominent

factors which increase the C-section delivery for both physicians working in the state and private settings. Necessary precautions should be taken to reduce C-section rates in the practice of obstetrics and gynecology. However, further studies are needed to draw a definite conclusion on this topic.

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Alparslan Deniz 0000-0003-1421-9962	The author fully involved to all stage of this study and final approved this article.