The Expression of Anxiety Among Women Before Cesarean Section and Other Operations: A Comparative Analysis

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Key Words: *preoperative anxiety; cesarean section; perioperative care; psychological preparation of patients; patient education.*

Summary. *Introduction. The stable emotional state of patients and sufficient patient awareness are related to a smooth perioperative period. The rising rates of cesarean section around the world as well as in Lithuania compel the search of effective forms and ways of care that address not only physiological, but also psychological needs of women.*

The aim of this study was to compare the expression of preoperative anxiety among women before cesarean section and other operations.

Methods. The data of 288 respondents after semi-structured interviews were analyzed. Of them, 77 had cesarean section and 151 had other various surgical operations.

Results. Women before cesarean section had more complaints of a psychological nature compared with women of the same age before other operations. Women were much more anxious before an urgent cesarean section that those who were expecting the elective cesarean section. Women residing in rural areas experienced more negative emotional reactions before cesarean section or other operations compared with their urban counterparts. In case of cesarean sections, the education of women was significantly associated with preoperative anxiety: more educated women were more likely to assess preoperative anxiety by giving it a lower score. In both case of cesarean sections and other surgical operations, relatives provide the most important psychological support to women before operations. The contribution of midwives and nursing professionals in providing psychological support to women before operations was found to be insufficient.

Conclusions. The expression of preoperative anxiety was found to be especially high among women before cesarean section. As this study has mainly focused on the subjective symptoms of anxiety, in the future, it would be important to employ objective methods for the assessment of anxiety allowing for a more accurate evaluation of this phenomenon.

Introduction

There is concern in many countries about a rising rate of cesarean section. In recent years, this rate has risen to a record level of 25% in many countries. In 2008, in the United States, the cesarean section rate was 30.3%; in Iran, 41.9%; and in Brazil, 45.9%. In Europe, there are significant differences across countries: in Italy, the cesarean section rate is 40%, while in the Nordic countries, Iceland, Belgium, and Poland, it is only 16% and less. Lithuania also ranks high regarding the number of the cesarean sections performed. The rate of this operation is 20.5%. Similar rates are found in other 2 neighboring Baltic countries (23.3% in Latvia and 20.0% in Estonia) as well as in Ireland (26.2%), Denmark (21.4%), and Turkey (21.2%). Tunisia, Mongolia, Central African Republic, Swaziland, and Vietnam are among countries reporting cesarean section rates of less than 10% (1, 2).

The growing rates of cesarean section around the world as well as in Lithuania compel the search of effective forms and ways of patient care that address not only physiological, but also psychological needs of women during the perioperative period.

A stable emotional state of patients and sufficient patient awareness are associated with a smooth perioperative period. However, up to now, the impact of psychological factors on physiological processes has not been elucidated yet, and these associations are being investigated in medical and nursing research.

Anxiety is defined as a transitory emotional condition of the feelings of tension, apprehension, nervousness, and fear and high autonomic nervous system activity (3).

Studies have shown that depending on the type of surgical disease and the nature of operation, this condition is experienced by up to 85% of patients before operation. Before operation, patients usually

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experience the fear of pain, death, possible complications, and change in body image and assume that one has an incurable disease and other phobias. Both anxiety and phobias cause psychological, physiological, and behavioral changes (3, 4).

Numerous studies have reported the positive effects of preoperative teaching on postoperative outcomes, such as a reduction in anxiety levels, recovery time, postoperative complications and an increase in patient satisfaction and compliance with treatment regimes (5). Anxiety is frequently related to pain: patients who experience stronger feelings of anxiety during preoperative and postoperative periods also experience more severe postoperative pain (6). The effectiveness of preoperative patients' education and psychological preparation is evaluated by objective and subjective measures that show a positive impact of these instruments on the women's mental and physical condition. The standardized questionnaires (Self-Rating Anxiety Scale [SAS], Self-Rating Depression Scale [SDS], Quality of Recovery Score [QoR-40], Hospital Anxiety and Depression Scale [HADS], etc.) that allow a subjective assessment of the patients' emotional condition before surgery are most frequently used worldwide. The objective methods of assessment include the measurements of salivary cortisol and epinephrine levels, and evaluation of electrodermal activity (7–9).

In order to overcome preoperative anxiety among women, various psychological techniques such as psychological communication, provision of information about operation, specific teaching how to avoid postoperative complications, music therapy, relaxation and others are used, which help feel more calmly before operation, make the postoperative period less emotionally burdensome, and reduce the risk of postoperative complications such as nausea, vomiting, etc. (3, 10). Women who received a psychological intervention started to breastfeed earlier and had a lower rate of adverse events and shorter urinary indwelling catheterization (7). Support felt from the immediate environment (family) is also a very important factor for maintaining a positive emotional condition before operation. Psychosocial support to women received from their husbands (partners) is a critical precondition to reduce pain, anxiety, or depression after breast removal operations (11, 12).

The aim of this study was to compare the expression of preoperative anxiety among women before cesarean section and other operations.

Material and Methods

Study Participants. A study on the expression of preoperative anxiety and patient education during the perioperative period was carried out in different districts of Lithuania (study participants represented 19 districts of Lithuania; however, the majority of respondents were questioned while receiving treatment in health care institutions of Kaunas). The study group comprised 288 women, 77 of whom had cesarean section, and 151 had surgical operations of various types (gynecological, oncological, abdominal, trauma and orthopedic, peripheral vascular and thyroid gland surgeries). The main criteria for selection to the comparison group were gender and age. The group of women who underwent surgical operations of different types included respondents aged up to 45 years.

Women aged from 18 to 45 years took part in this study. In case of cesarean section, the majority of women were aged 26 to 35 years (64.9%). In the other group, where women had other operations, the majority of women were aged 36 to 45 years old (45.8%). Sociodemographic characteristics of respondents are presented in Table 1.

Study Instrument. The questionnaire was prepared by the authors of this article. Scales of the research instrument were formed by the researchers. The individual statements of different scales and their psychometric quality index – the internal consistency coefficient (Cronbach α) – are presented in Table 2.

Table 1. Sociodemographic Characteristics of Respondents (N=228)

Sociodemographic Data	Cesarean Section	Other Operations
Age, years		
18–25	29.9	24.8
26–35	64.9	29.4
36–45	5.2	45.8
Education		
Incomplete secondary education	13.0	5.1
Secondary education	24.7	22.1
Vocational education	5.2	13.0
Higher education (college, university)	57.1	59.7
Place of residence		
City	67.1	68.6
Countryside, village	32.9	31.4

Values are percentage.

Table 2. Psychometric Evaluation of Scales

Scale and Statement	Cronbach α
Subjective and objective expression of anxiety Confused, anxious Tachycardia Sweaty palms Increased arterial blood pressure Shaking hands	0.689
Fears related to anesthesia and operation To die during operation Anesthesia will not work To wake up during operation Change of appearance	0.579
Pain-related fears Fear of pain during operation Fear of pain after operation Fear of procedures	0.756
Total	0.674

The psychometric quality was acceptable since 3 of the 4 scales were characterized by rather high internal consistency, and the Cronbach *a* coefficient was almost 0.7. The overall mean internal consistency coefficient for the whole instrument was 0.674.

Statistical data analysis performed by means of SPSS 17.

Results

The study results showed that the expression of anxiety among women was quite high in both study groups. Most complaints of a psychological nature were expressed by women before cesarean section. Even 75% of them felt confused or anxious, 64.9% experienced increased heartbeat, and 62.3% had shaking hands (Fig. 1).

The women before cesarean section felt confused (t=1.933, P<0.05) and had shaking hands (t=2.467, P=0.015) more frequently compared with the women of similar age before other surgical operations. The assessment of fear related to anesthesia and operation revealed that women in both groups feel them evenly (Fig. 2). Before other surgical operations, every fourth woman experienced various fears such as the fear of death during operation, the fear that anesthesia will not work, and the fear of waking up during operation. However, the fear of change in appearance (the fear of scars) was expressed comparably by women in both the groups: every third woman (29.9%) expecting cesarean section felt this fear. By comparison, the fear of death during operation was more characteristic of women before other surgical operations than cesarean section (t=1.910, P<0.05).

There were no significant differences in experiencing pain-related fear comparing both groups (P>0.05). Every second woman before cesarean section and other operations felt the fear of pain during operation and was afraid of pain after operation and various procedures (Fig. 3).

When women in both groups were asked to assess preoperative anxiety on a 5-point scale, the findings showed that the women before cesarean section experienced much more negative feelings than before other operations. As shown in Fig. 4, the women before cesarean section rated anxiety by a mean score of 3.9, while those before other surgical and gynecological operations gave a mean score of 3.3 (t=3.143, P=0.002).

Less than half (44%) of women before cesarean section and 49% of women before other surgical and gynecological operations similarly attempted to overcome anxiety (P>0.05).

Women were much more anxious before an urgent cesarean section than those who were expecting the elective cesarean section. The score of preoperative anxiety on a 5-point scale before the urgent cesarean sections was as high as 4.2, while

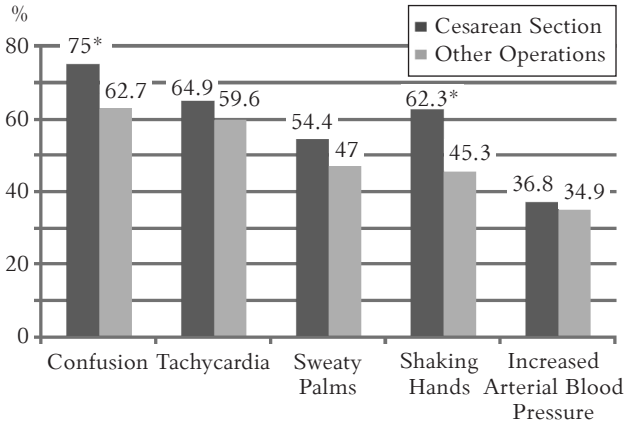

Fig. 1. Subjective and objective expression of anxiety
*P<0.05, comparing the groups.

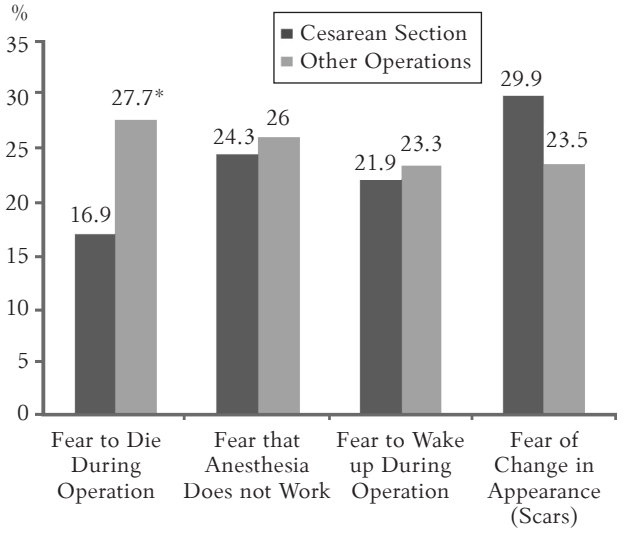

Fig. 2. Fears related to anesthesia and operation
*P<0.05, comparing the groups.

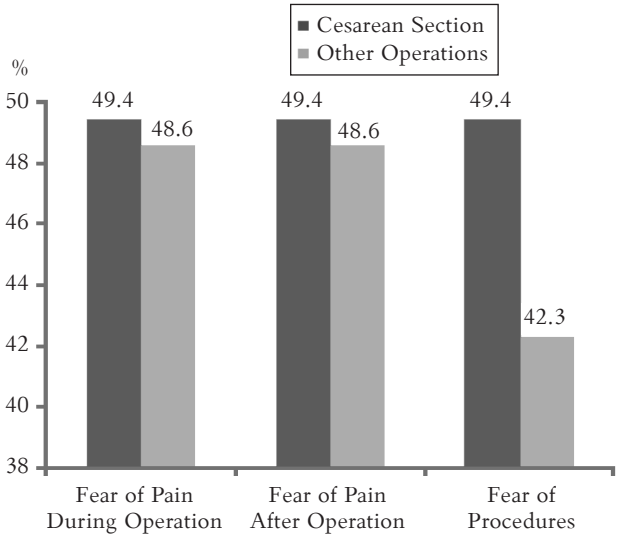

Fig. 3. Pain-related fears

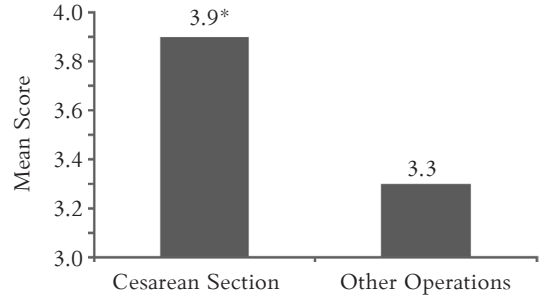

Fig. 4. Anxiety according to type of operations
*$P<0.05$, comparing the groups.

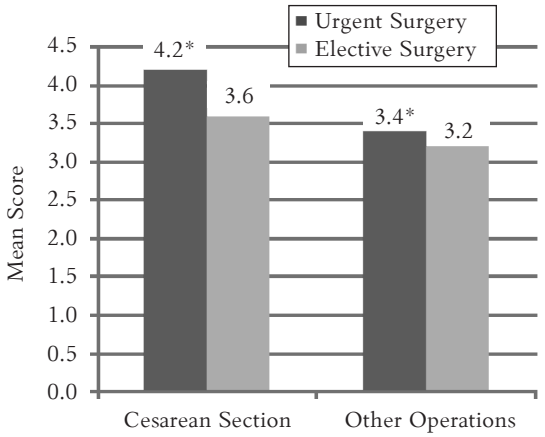

Fig. 5. Preoperative anxiety according to the timing of operations
*$P<0.05$, comparing the groups.

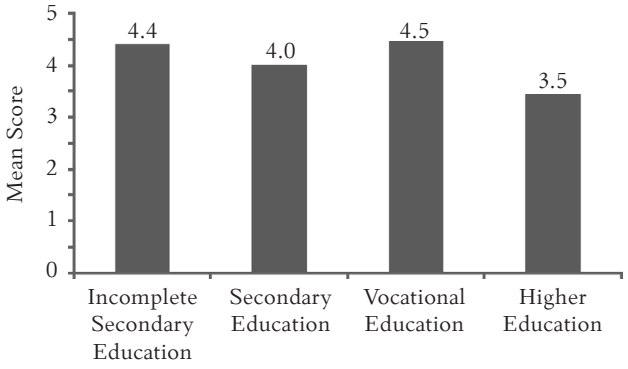

Fig. 6. Preoperative anxiety of women before cesarean sections according to the level of education

in case of the elective cesarean section it was 3.6 ($t=2.096$; $P=0.039$) (Fig. 5).

The fear of pain during operation was most typical among the women who were expecting surgical and gynecological operation for the first and second times. The women who were about to have an operation for the third time and more were much less afraid of pain during operation ($F=3.361$; $P=0.037$) and postoperative period ($F=3.361$; $P=0.037$). A difference between the level of anxiety before cesarean section and previous operation experience was not significant ($P>0.05$).

Differences According to Sociodemographic Characteristics of Respondents

While looking for sociodemographic differences within the groups, it was shown that the women residing in cities experienced less negative reactions before cesarean section and other operations compared with the residents of rural areas. The women residing in rural areas were more afraid of procedures ($t=1.890$, $P=0.043$) and had an increased heartbeat before operation ($t=2.151$, $P=0.036$). However, the women residing in cities had greater fear of pain after operation ($t=1.920$, $P<0.05$) compared with the women living in rural areas. There were some differences between urban and rural residents among women who had other operations: the fear of procedures was greater ($t=2.190$, $P=0.030$) among the women residing in rural areas and they were more afraid to wake up during operation ($t=2.291$; $P=0.025$).

The age was significantly associated with the expression of preoperative anxiety only in case of various surgical and gynecological operations. The expression of preoperative anxiety was highest in women aged 25 to 35 years. The women of this age before operation had shaking hands ($F=3.183$, $P=0.044$) and complained about sleeping problems before elective operations ($F=3.452$; $P=0.034$) more frequently. The women with higher education had complains of anxiety before operation more rarely that those with incomplete secondary, secondary, or vocational education ($F=2.551$; $P=0.022$). More educated women were more likely to assess preoperative anxiety by giving it a lower score ($F=3.665$; $P=0.005$) (Fig. 6).

In case of cesarean sections and other surgical operations, relatives provided the most important psychological support to women before operations (Fig. 7). This was noted by 82.9% of women who had cesarean sections and 81.6% of those who had other operations. Surgeons and anesthesiologists were also indicated among the most frequent providers of psychological support. Only every third woman who had cesarean section indicated that a midwife helped with psychological preparation for operation. Every second woman who participated in the study before surgical or gynecological operation felt psychological support of a nurse. An analysis of women's statements about specific contributions of relatives or health care professionals to psychological preparation for operation revealed that the mere presence of relatives, moral support, calming or wishing to get well have a positive psychological impact. The most frequently noted ways of psychological support provided by professionals were as follows: "said soothing

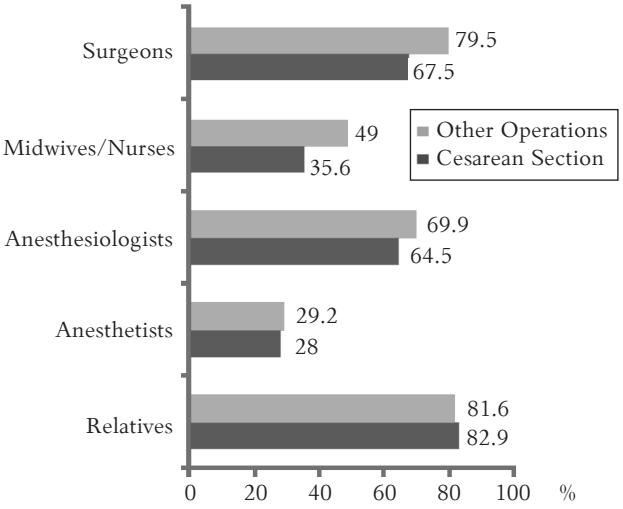

Fig. 7. Provision of psychological support by professionals and relatives when preparing for operation

words," "willingly inquired about health", "provided detailed information," "showed specific exercises," and "friendly communicated."

Discussion

The mean rate of cesarean sections in different countries of the world is 25%. However, the variation in the cesarean section rate from 1% to 45.9% across different countries of the world shows significant differences.

Even within the European Union, the annual rate of cesarean sections ranges from 16% (Poland, Belgium, Finland, and other) to 30% and more (Bulgaria, Malta, Ireland, and other). It may be assumed that such differences are determined by cultural dissimilarities of these countries such as the active role of health care professionals and media in forming the attitudes of women deciding in favor of natural childbirth and the position of society itself with respect to this phenomenon. This study has not aimed to find out the preconditions for cesarean section – medical indications or the motivation of women themselves to choose this particular operation. The results presented in this article show the expression of preoperative anxiety among Lithuanian women.

Psychological preparation (also referred to as psychoprevention) and the decreased level of anxiety are closely related to a stable physical condition of patients, reduction in the number of complications including pain during a postoperative period, shorter hospitalization, and lower levels of stress for a mother and a fetus.

The expression of preoperative anxiety is influenced by various factors. One of such factors is operation start time. The expression of anxiety is lower among patients who are among the first to have the elective operation when compared with those who have an operation 4 to 5 hours later. Positive experience with the previous operation is also a crucial factor necessary to avoid the high level of preoperative anxiety. The patient's age is also an important factor for preoperative anxiety. The expression of anxiety among young patients was greater than in the group of older patients. There are also data showing that the level of patients' education contributes to the expression of anxiety. Less educated individuals feel greater anxiety before operation compared with individuals who have higher education (3, 6, 13).

Some external and internal factors, such as psychological stress, number of abortions, prenatal health conditions, times of attending classes for pregnant women, psychological preparation for childbirth, and relationships with mother, mother-in-law, and husband, influence the expression of anxiety during pregnancy and contribute to the anxiety level of a pregnant woman (7, 14). Prenatal anxiety may lead to the increased rates of nonindicative cesarean section and intrapartum hemorrhage during operation (14). Prenatal stress negatively affects not only the mother's psychological and physical condition, it also has a negative impact on the fetal health (7, 15).

The findings of various studies indicate that anxiety before operation is a more or less unavoidable phenomenon; however, people differently respond to it. Unlike men and younger individuals, the women's reaction to operation is emotionally "more sensitive" (4, 16).

A number of studies have reported preoperative anxiety in surgical patients of both genders (3, 8, 9, 16). This study has confirmed a quite high expression of preoperative anxiety among women in both groups. Most complaints of a psychological nature were expressed by women before cesarean section. Irrespective of the type of operation, every fifth woman subjectively felt fear related to anesthesia or operation. Pain-related fear is characteristic of almost every second woman before cesarean section or other surgical operations. When women in both groups were requested to assess preoperative anxiety on a 5-point scale, the findings showed that women were anxious more frequently before cesarean sections than other operations. Women before cesarean section were additionally worried about health of their baby and were afraid of complications. This study confirmed that the level of patients' education was significant to the expression of preoperative anxiety (3, 13). More educated women were more likely to assess preoperative anxiety by giving it a lower score.

The results of many studies indicate that prenatal stress negatively affects not only the mother's psychological and physical condition, it also has a negative impact on the fetal health (7, 15). The evident expression of anxiety among women before cesar-

ean section compels a more detailed analysis of this problem from a scientific and practical point of view.

Less than every second woman attempts to overcome preoperative anxiety before cesarean sections. Still, it is worthy to note that the assessment of preoperative anxiety was better among women who attempted to overcome anxiety. It may be presumed that women who are more anxious before operation are also more active in using the methods and the measures against anxiety, but their effectiveness is uncertain. Therefore, future research should focus on a detailed analysis of specific anxiety reduction techniques and their potential.

It has been shown that the most important psychological support to women before cesarean sections and other surgical operations is provided by relatives. Midwives and especially nurses in anesthesia and intensive care wards insufficiently contribute to the psychological preparation of women for operation.

For patients who were informed about operation, anesthesia, drugs, and postoperative care in detail, the beneficial changes in anxiety levels, recovery time, and postoperative complications were observed (5). Alternative techniques leading to the reduction of preoperative anxiety and postoperative pain are more widely used worldwide. The effects of music therapy on the women's physiologic state and the levels of anxiety and satisfaction during cesarean delivery have been investigated, and evidence that music therapy can reduce anxiety and create more satisfying experience for women undergoing cesarean delivery has been provided (10).

In general, it may be argued that the expression of preoperative anxiety is especially high among Lithuanian women before cesarean section. This study mainly focused on the subjective symptoms of anxiety; therefore, in the future, it is important to employ objective methods for the assessment of anxiety that would allow for a more accurate evaluation of this phenomenon. It may be assumed that when some time passes after the event, negative experience and information are partly forgotten. Still the subjective methodology has helped reveal the psychosocial needs of women during a perioperative period that were somewhat ignored. These topics of care are infrequently discussed by the Lithuanian nursing and medical scientists in scientific studies and everyday practice. It is especially important to discuss the possibilities of nurses' and midwives' activities, assess their competencies, and create conditions for their improvement on the issues of psychological care and teaching of patients.

Conclusions

Preoperative stress frequently accompanied women before cesarean section and other surgical operations. Women before cesarean section had the complaints of a psychological nature more frequently compared with women of the same age before other operations. The score of anxiety of women before cesarean section was higher than in case of other surgical and gynecological operations.

The urgency of operation influenced the expression of anxiety among women before cesarean section: women were much more anxious before an urgent cesarean section that those who were expecting the scheduled cesarean section. Women residing in rural areas experienced more negative emotional reactions before cesarean section or other operations compared with their urban counterparts. In case of cesarean sections, the education of women was significantly associated with preoperative anxiety: the highest preoperative anxiety was characteristic of women with incomplete secondary and vocational education.

In case of cesarean sections and other surgical operations, relatives provide the most important psychological support to women before operations. Surgeons and anesthesiologists were also among the most frequent providers of psychological support. However, the contribution of midwives and nurses in helping women to cope with their anxiety and receive psychological support before operation was found to be insufficient.

Statement of Conflicts of Interest

The authors state no conflicts of interest.

Moterų nerimo raiška prieš cezario ir kitas operacijas. Palyginamoji analizė

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Raktažodžiai: priešoperacinis nerimas, cezario operacija, perioperacinis laikotarpis, psichologinis pacientų parengimas operacijoms, mokymas.

Santrauka. Stabili pacientų emocinė būklė, pakankamas jų informuotumas susiję su sklandžiu perioperaciniu laikotarpiu. Augantis cezario operacijų skaičius visame pasaulyje, taip pat ir Lietuvoje, verčia ieškoti efektyvių pacienčių priežiūros formų ir būdų, atitinkančių ne tik fiziologinius, bet ir psichologinius moterų poreikius.

Tyrimo tikslas – palyginti moterų nerimo raišką prieš cezario ir kitas operacijas.

Medžiaga ir metodai. Mokslinės literatūros analizė; apklausa žodžiu (pusiau struktūruota); statistinė duomenų analizė naudojant SPSS 17. Vieną tiriamųjų grupę sudarė moterys, kurioms buvo atliktos cezario operacijos, kitą – iki 45 metų moterys, kurioms buvo atliktos įvairios chirurginės operacijos (ginekologinės, onkologinės, pilvo organų, traumatologinės-ortopedinės, periferinių kraujagyslių, skydliaukės operacijos). Šiame straipsnyje tyrimo rezultatai pateikiami pagal 228 respondenčių duomenis, iš kurių 77 buvo atliktos cezario operacijos, 151 – įvairios chirurginės operacijos.

Rezultatai. Daugiau psichologinio pobūdžio skundų turėjo nėščiosios prieš cezario operaciją nei tokio pat amžiaus moterys prieš kitas chirurgines operacijas. Prieš skubia tvarka atliekamą cezario operaciją nėščiosios žymiai labiau jaudinasi nei prieš planinę. Moterys, gyvenančios kaimiškosiose vietovėse, daugiau išgyvena neigiamų emocijų prieš cezario arba kitas chirurgines operacijas nei gyvenančios mieste. Cezario operacijų atvejais moterų išsilavinimas turi reikšmės priešoperaciniam nerimui. Kuo aukštesnį išsilavinimą turi moterys, tuo mažesniu balu linkusios vertinti priešoperacinį nerimą. Cezario bei įvairių chirurginių operacijų atvejais artimieji suteikia didžiausią psichologinę pagalbą moterims prieš operaciją. Nustatytas nepakankamas akušerių ir slaugos specialistų indėlis teikiant psichologinę paramą moterims prieš operacijas.

Išvados. Ypač stiprus priešoperacinis nerimas nėščiųjų, kurioms numatoma atlikti cezario operaciją. Atliekant šį tyrimą daugiau buvo remtasi subjektyviais nerimo požymiais, todėl būtų tikslinga naudoti ir objektyvius nerimo vertinimo metodus, kuriais būtų galima įvertinti šią būseną.

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