



Preoperative Anxiety and Fear Regarding Type of Anesthesia (General vs. Spinal) and its Associated Factors in Women Undergoing Elective Cesarean Section

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ABSTRACT

Preoperative anxiety is a prevalent issue among women undergoing elective cesarean sections, particularly in developing countries. This anxiety is associated with unfavourable maternal and neonatal outcomes, including hemodynamic instability, increased analgesic needs, and lower APGAR scores. Anaesthesia, especially the choice between general and spinal, is a significant contributor to preoperative anxiety. Despite its high prevalence, preoperative anxiety is underrecognized and inadequately managed in many settings, including Libya. This study aims to assess preoperative anxiety levels and fears associated with general versus spinal anaesthesia in women undergoing elective cesarean sections. It also seeks to identify contributing factors, such as age, education, occupation, parity, and previous surgical experiences, to improve cesarean care quality. Methods: A prospective cross-sectional study was conducted on 40 low-risk pregnant women scheduled for elective cesarean sections at Alwahda Hospital, Derna, from August to December 2024. Data were collected using a structured questionnaire comprising socio-demographic information, clinical factors, and the State-Trait Anxiety Inventory Scale (STAI). Results: Fear of not recovering from anaesthesia was the most common cause of anxiety (38.5%), followed by postoperative pain (23.1%). Bad obstetric history was associated with the highest mean anxiety score (9.92 ± 0.27). General anaesthesia was preferred by 62.5% of participants, while spinal anaesthesia was chosen by 37.5%. Multiparous women (85%) and those with previous obstetric surgeries (75%) exhibited higher anxiety levels. Participants with higher education (77.5%) and employment (57.5%) showed distinct anxiety patterns. **Conclusion:** Preoperative anxiety in cesarean patients is significantly influenced by fears related to anaesthesia recovery, postoperative pain, and surgical complications. Tailored preoperative counselling and clear communication about anaesthesia options are essential for alleviating anxiety and improving maternal satisfaction. Future research should focus on intervention strategies to enhance perioperative care and patient outcomes.

1. INTRODUCTION

Anxiety is a behavioral expression of tension and unpleasant emotion that arises from multifactorial dimensions that can be divided into state and trait anxiety. State anxiety is acute situational anxiety or temporary situational anxiety triggered by a driving event that doesn't persist after the factor is no more continuous but,

trait anxiety is a personality manifestation that persists in lifelong patterns (Fentie et al., 2022). The incidence of preoperative anxiety during cesarean delivery is high compared to other surgical procedures, especially in developing countries. (Fentie et al., 2022). The reports of different studies showed that 73.3% to 86% of women undergoing cesarean delivery experience preoperative anxiety (Fentie et al., 2022) Preoperative anxiety can lead women to refuse cesarean delivery which causes fatal events in the fetus and the mother other than anxiety-related complications. It also influences neonatal outcomes causing a decreased Appearance, Pulse, Grimace, Activity, and Respiration (APGAR) score (Fentie et al., 2022). Preoperative anxiety is one of the causes of increased mortality of patients during anesthesia and surgery. (3) Preoperative anxiety is one of the causes of hemodynamics of patients that leads to an unnecessary increase in preoperative heart rate and blood pressure causing acute myocardial infarction, heart failure, and pulmonary edema which lead to and high rate of cardiac mortality. Preoperative anxiety can also increase the incidence of hypotension after spinal anesthesia. Preoperative anxiety causes a need to give extra fluid and vasopressors (Fentie et al., 2022). In non-life-threatening procedures, the main cause of preoperative anxiety is anesthesia (62%) rather than surgery itself (15%). In most cases, this anxiety results from lack of proper information about the anesthetic procedure. Despite the high burden of cesarean deliveries in Libya, the preoperative anxiety is almost unforeseen. This leads to avoidable but unalleviated suffering for the women. Anxiety may occur in any individual, may be transient or chronic, may cause adverse reactions, and may increase patients' stress. This may lead to difficulties in managing pain during the postoperative period, for example. Preoperative anxiety and fear can also result in difficult anesthesia and post-operative management (Baagil, H., & Gerbershagen, M. U. 2023). Preoperative anxiety is a major cause of readmission hospital stay, infection, increased analgesic requirement, and cost of hospitals that reduces overall maternal satisfaction with perioperative hospital services (Fentie et al., 2022). Fear and anxiety mainly originate in the unanswered questions and simple issues related to anesthesia, which may be addressed during the pre-anesthetic visit. This visit is usually the only chance for patients to receive accurate information on anesthesia. Therefore, pre-anesthetic visits have reassuring effects and must be oriented to address patients' concerns to help them cope with their fears and reduce their anxiety. In many countries, anesthesiologists spend too little time on the pre-anesthetic visit, and usually do not seek at determining whether patients' anxiety is due to anesthesia or surgery. It is critical for medical professionals and hospitals in underdeveloped countries to establish safe obstetric care services to prevent maternal fatalities caused by risks associated with pregnancy and childbirth Maternal death is most common in Africa, and the World Health Organization's current advice is to reduce death by providing safe obstetric surgery and anesthesia (Fentie et al., 2022)

2. METHOD

Study Design, Area, and Period

This prospective, cross-sectional study was conducted on 40 low-risk pregnant women scheduled for elective cesarean sections at the Obstetric Department, Alwahda Hospital, Derna. Participants were recruited between August 2024 and December 2024.

Data Collection Instrument and Technique

Data collection was carried out using a structured questionnaire on the day of cesarean delivery for all consecutive elective cesarean deliveries. The study team directly administered the questionnaire.

The data collection tool consisted of three main parts:

1. Socio-demographic and Clinical Factors:

This section included questions assessing the participants' demographic information, clinical factors, and social support.

2. State-Trait Anxiety Inventory (STAI):

The level of anxiety and the need for information about anesthesia and/or surgery were assessed using the State-Trait Anxiety Inventory Scale (STAI). The short version of the STAI was employed, which is a validated tool with high reliability (Cronbach's alpha = 0.896–0.950).

State Anxiety Scale: Evaluates how participants feel "right now, at this moment" using 6 items adapted from the original 20-item scale. Responses are rated on a 4-point Likert scale:

1. Not at all
2. Somewhat
3. Moderately
4. Very much

Trait Anxiety Scale: Assesses general feelings with a 4-point scale:

1. Almost never
2. Sometimes
3. Often
4. Almost always

Scores range from 20 to 80, with higher scores indicating higher anxiety levels.

3. Causes of Preoperative Anxiety:

This section explored potential factors contributing to anxiety, including perceptions about anesthesia type (general vs. spinal), previous surgical experiences, and patient education regarding the procedure.

The short version of the STAI, comprising six items (Table 1), was used for its efficiency in data collection while maintaining validity and reliability.

3. ETHIC APPROVAL

For research to be considered ethical, following approval from the ethics committee/institutional review board.

4. RESULT

This table 1 shows the Age. A wide age range was observed, with the most frequent age being 35 years (12.5%), Education Level The majority (77.5%) were graduates, while 22.5% had intermediate education. Occupation More than half of the participants were employed (57.5%), while the rest were housewives.

Table (1) percentage, frequency, mean and Std. Deviation of Passible Cause of preoperative anxiety

Passible Cause of preoperative anxiety	N(%)	Mean	Std. Deviation
Fear of Death	2(5.1)	9.54	2.011
Fear of unexplained origin	2(5.1)	9.59	1.788
Family issues	2(5.1)	9.64	1.564
Postoperative pain	9(23.1)	8.62	2.561
Complication	7(17.9)	9.10	1.944
Medical Mistakes	1(2.6)	9.90	0.641
Unable to Recover from Anesthesia	15(38.5)	8.85	1.479
Bad Obstetric History	3(7.7)	9.92	0.270
Others	4(10.3)	9.72	0.615
Total	39(100)		

Figure 1 illustrated Fear of Death (26.1%): This is the highest concern, suggesting that it is a significant anxiety for the population represented. It highlights the importance of addressing mortality-related fears, potentially in a healthcare or therapeutic context. Fear of Unexplained Origin (25.1%): This concern is nearly as high as the fear of death, indicating that individuals are troubled by issues that lack clear explanations, which could lead to feelings of uncertainty and anxiety. Postoperative Pain (25.1%): This concern is also substantial, pointing to the anxiety patients may feel regarding recovery and the physical discomfort associated with surgical procedures. Complication (17.9%): While not as prominent as the previous categories, fear of complications remains a notable concern, likely tied to the fear of adverse outcomes during medical procedures or treatments. Medical Mistakes (12.6%): This represents a lesser but still significant worry. It reflects a lack of trust in medical systems or practitioners, indicating the need for improved patient-provider communication and safety measures. Unable to Recover From... (10.3%): This concern suggests anxiety about the recovery process, possibly indicating fears about chronic conditions or the effectiveness of treatment.

Bad Obstetric History (7.7%): This is the least reported concern, but it still highlights that some individuals carry worries about past obstetric experiences affecting current pregnancies or health.

Others (10.3%): This category captures a variety of additional concerns that may not fit neatly into the listed categories, indicating a diverse range of anxieties among individuals.

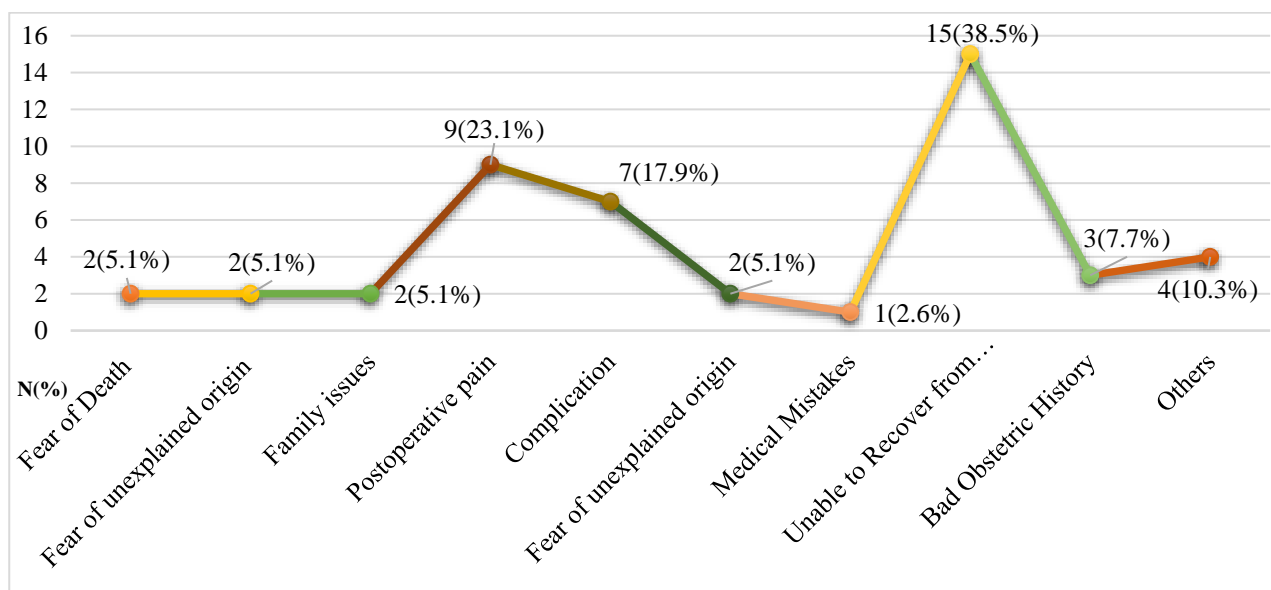


Figure (1) percentage, frequency, of Possible Cause of preoperative anxiety

Table 2 shows that that the Parity Most participants (85%) were multiparous (Multi), while 15% were primiparous. Previous Surgery: The majority (75%) had undergone obstetric surgeries, while a smaller proportion (10%) had both obstetric and non-obstetric procedures. Type of Anesthesia in Previous Surgery: General anesthesia was the most common choice (57.5%). Choice of Anesthesia: General anesthesia was preferred by 62.5% of participants compared to spinal anesthesia (37.5%).

Table (2) percentage, frequency, mean and Std. Deviation of State Scale

State Scale	Not at all N(%)	Very Much N(%)	Some what N(%)	Mean	Std. Deviation
State Scale	26(65.0)	14(35.0)	0(0.0)	2.0500	1.44914
Inattention	30(75.0)	9(22.5)	1(2.5)	1.7000	1.26491
I Feel Upset	33(82.5)	7(17.5)	0(0.0)	1.5250	1.15442
I am Relaxed	39(97.5)	1(2.5)	0(0.0)	1.0750	0.47434
I am feeling content	0(0.0)	0(0.0)	40(100)	1.0000	0.00000
I'M worried	32(80.0)	8(20.0)	0(0.0)	1.6000	1.21529
Total	39(100)				

In figure 2 illustrated that the Stat Scale (65.0% - Not at all): A significant majority (65%) reported feeling "not at all" affected by this scale, indicating a strong absence of concern or impact regarding this particular state.

Inattention (75.0% - Very Much): This is the highest percentage for the "Very Much" category, suggesting that a notable segment of respondents feels significantly affected by inattention. This might indicate issues related to focus or cognitive load. (22.5% - Somewhat): A smaller portion of respondents indicated feeling somewhat upset, reflecting a moderate level of distress among this group. Relaxed (97.5% - Very Much):

An overwhelming majority (97.5%) reported feeling relaxed, suggesting that most individuals in this sample experience a high level of comfort or peace in their current state. Content (100% - Very Much): Remarkably, all respondents indicated feeling content, highlighting a universal sense of satisfaction or happiness among participants.

I'm Worried (20.0% - Somewhat): A small percentage reported feeling somewhat worried, suggesting that while anxiety exists, it is not pervasive within this group.

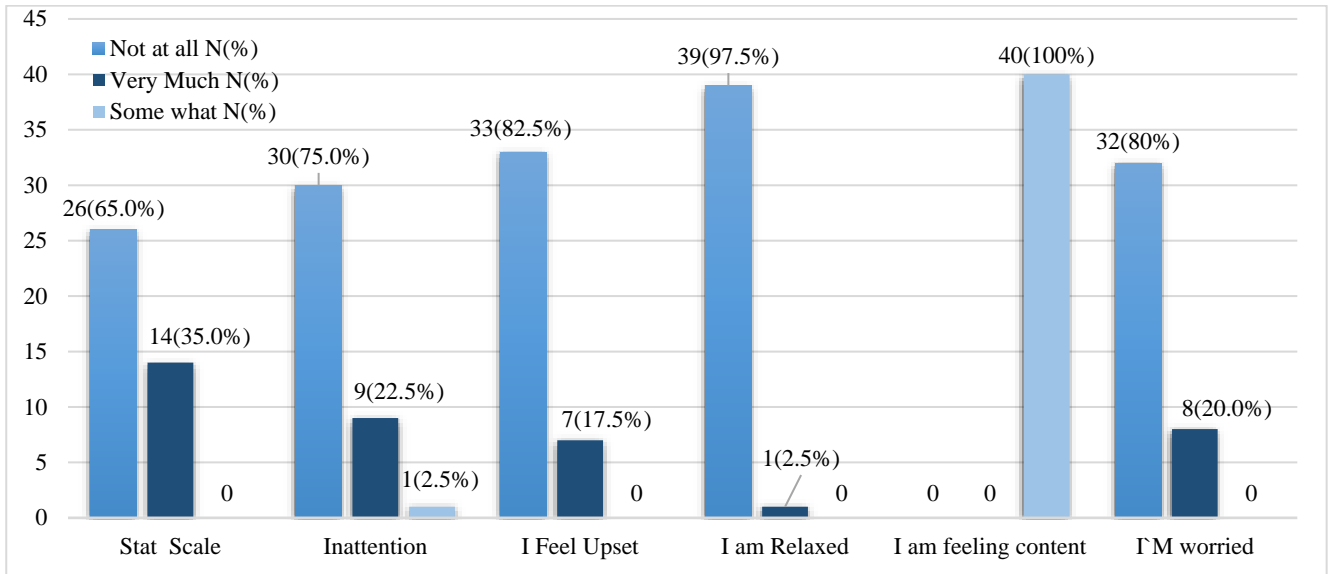


Figure (2) percentage, frequency, of State Scale

Table 3 show that the highest mean anxiety level was associated with bad obstetric history (**9.92**) with a low standard deviation (**0.270**), indicating consistent responses among participants. The lowest mean was for postoperative pain (**8.62**), reflecting more variability in participants' perceptions. The most frequent cause of anxiety was fear of not waking up from anesthesia at **38.5%**, followed by postoperative pain at **23.1%**. The least frequent causes were medical mistakes at **2.6%** and fear of death at **5.1%**

Table (3) percentage, frequency, of Demographic Characters

Demographic Characters	N(%)
Age	
19 Years	1(2.5)
34 Years	2(5.0)
35 Years	5(12.5)
36 Years	2(5.0)
37 Years	3(7.5)
38 Years	1(2.5)
39 Years	4(10.0)
40 Years	1(2.5)
42 Years	1(2.5)
43 Years	3(7.5)
24 Years	2(5.0)
33 Years	1(2.5)
25 Years	1(2.5)
26 Years	1(2.5)
27 Years	4(10.0)
28 Years	2(5.0)
29 Years	2(5.0)
30 Years	2(5.0)
32 Years	2(5.0)
Education Level	
Graduate	31(77.5)
Intermediate	9(22.5)
Occupation	
Working	23(57.5)
House wife	17(42.5)
Total	40(100.0)

Table 4 The lowest mean was for feeling relaxed (**1.075**), indicating a high level of relaxation in the majority. The highest mean was in the general anxiety state (**2.05**), indicating some participants experienced significant anxiety. 65% of participants reported "Not at all" for the general anxiety scale, while 35% reported "Very Much." All participants (**100%**) indicated they felt content, highlighting a positive emotional aspect. The highest negative response was for "I'm worried" at **80%**.

Table (4) percentage, frequency, of Patient Situation

Patient Situation	N(%)
Parity	
Multi	34(85.0)
Prime	6(15.0)
Previous Surgery	
Obstetric	30(75.0)
Obstetric & non	6(15.0)
Non	4(10.0)
Type of Anesthesia in Late Surgery	
General	23(57.5)
Regional	6(15.0)
General & Regional	7(17.5)
Non	4(10.0)
Choice of Anesthesia	
General	25(62.5)
Spinal	15(37.5)
Total	40(100.0)

In figure 2 shows that the Multi (85%): A significant majority of respondents (85%) fall into the "Multi" category, indicating that most individuals have experienced multiple births or pregnancies. This suggests a trend toward larger family sizes within this group.

Primi (15%): A smaller portion of respondents (15%) is classified as "Primi," meaning they are experiencing their first pregnancy or birth. This indicates that first-time parents are less represented in this sample.

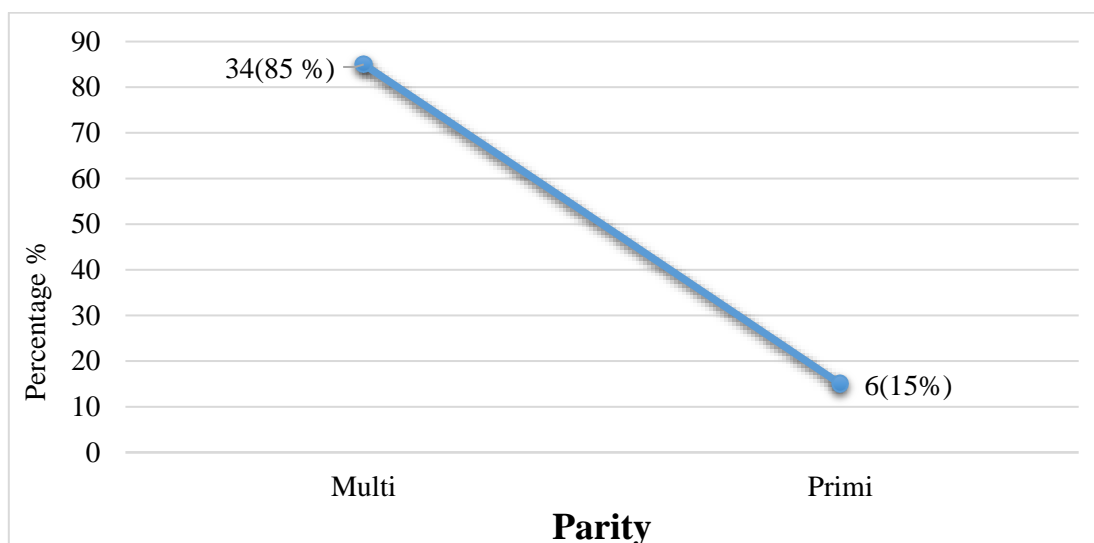


Figure (3) percentage, frequency, of Patient Situation (Parity)

In figure 4 illustrated that the Obstetric (75%): This is the largest segment, indicating that a significant majority of the cases or data points fall into this category. This suggests a strong focus or prevalence of obstetric-related issues or services. Obstetric & Non (15%): This segment represents a smaller portion of the data. It might indicate cases where both obstetric and non-obstetric factors are involved, showing a mixed category but still relatively minor compared to the pure obstetric cases. Non (10%): This is the smallest segment, indicating that non-obstetric cases are the least prevalent. This could suggest that the focus or concern is primarily on obstetric matters in this context.

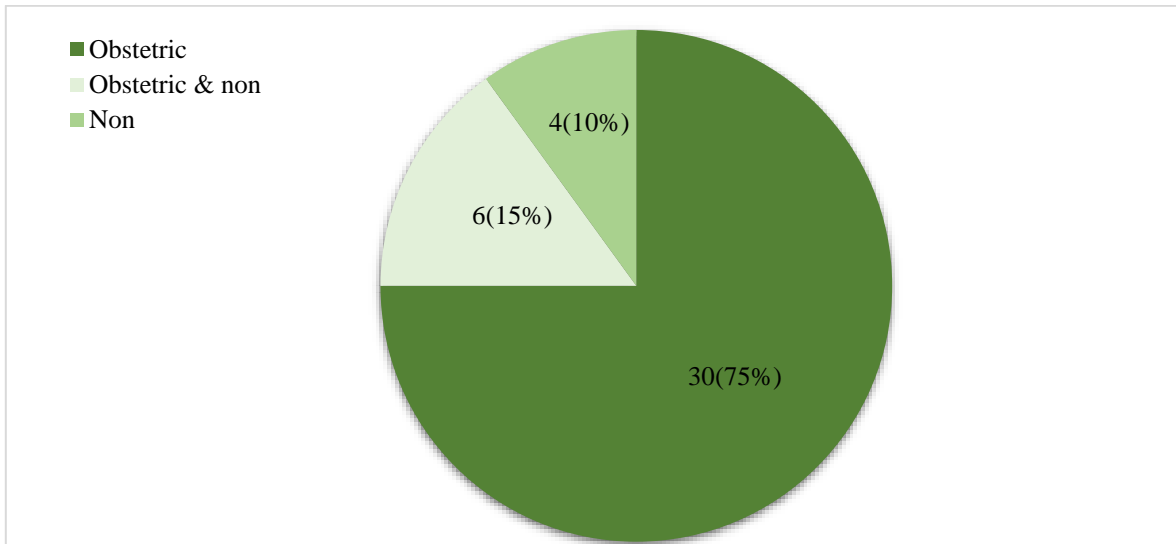


Figure (4) percentage, frequency, of Patient Situation (Previous Surgery)

General (57%): The majority of respondents (57%) fall into the "General" category, indicating a strong preference or association with general services or characteristics. This suggests that most individuals may prioritize broad or comprehensive options.

Regional (15%): A smaller proportion (15%) is categorized under "Regional," indicating that fewer respondents identify with or utilize services specific to regional needs. This could imply a lesser focus on localized services in this context.

General & Regional (17.5%): This category accounts for 17.5% of respondents, suggesting a moderate interest in combining both general and regional aspects. It indicates that some individuals see value in a hybrid approach.

Non (10%): The "Non" category represents 10% of respondents, indicating that a small segment does not align with any of the specified categories. This group may have unique needs or preferences not addressed by the other classifications.

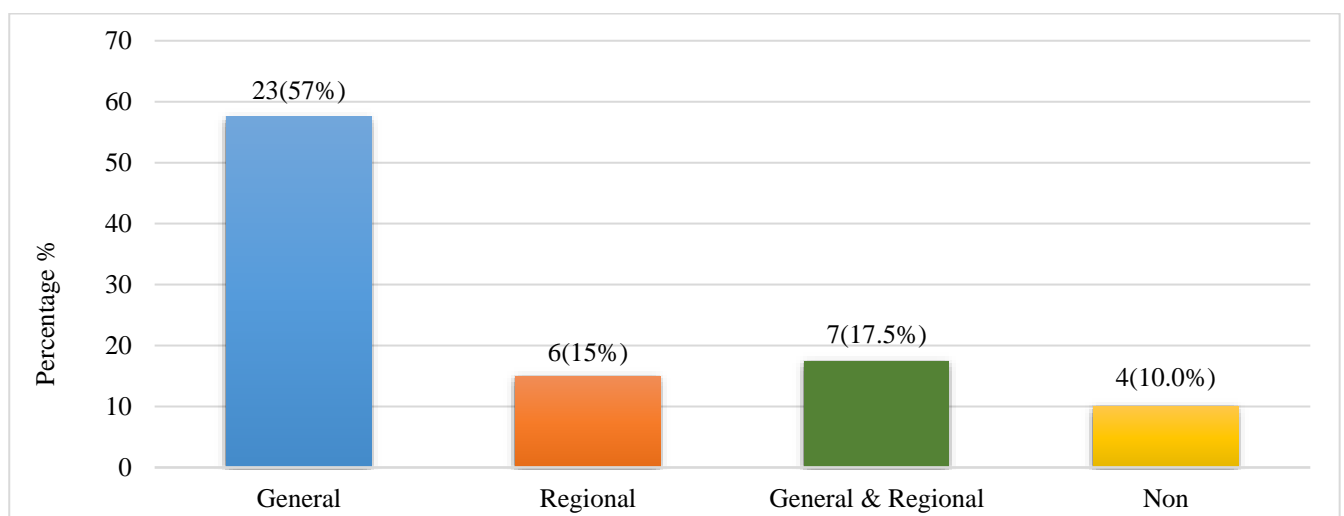


Figure (5) percentage, frequency, of Patient Situation (Type of Anesthesia in Late Surgery)

Figure 6 General Anesthesia (62.5%): A significant majority of respondents (62.5%) opted for "General" anesthesia. This preference suggests that many individuals may feel more comfortable or secure with this method, possibly due to its widespread use and familiarity.

Spinal Anesthesia (37.5%): A smaller proportion (37.5%) chose "Spinal" anesthesia. While this is a notable percentage, it indicates that fewer respondents prefer this method compared to general anesthesia.

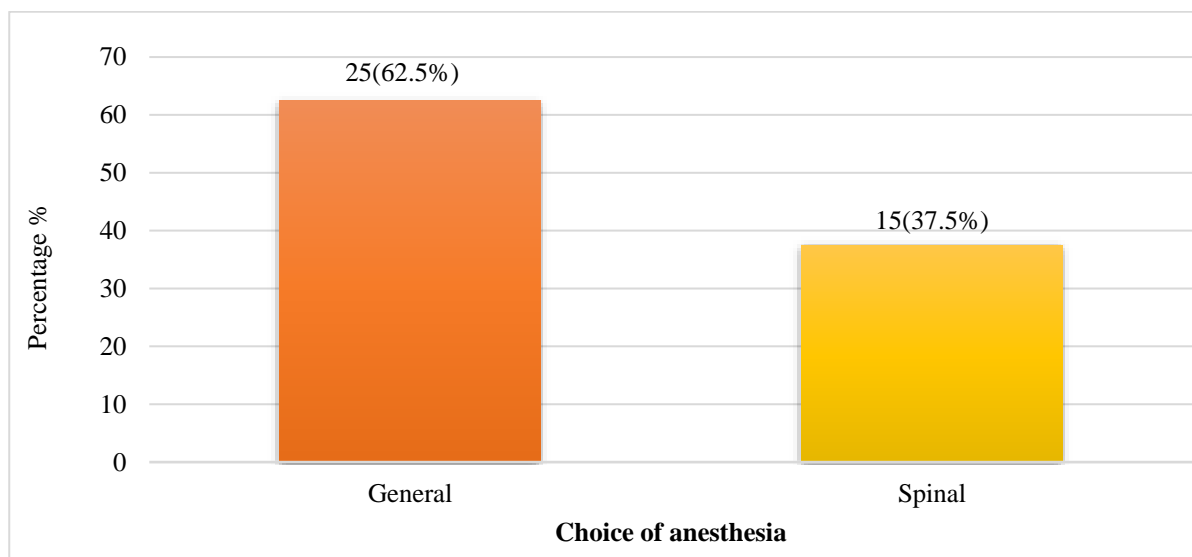


Figure (6) percentage, frequency, of Patient Situation (Choice of Anesthesia)

5. DISCUSSION

Figure 4 The high percentage of obstetric cases (75%) may reflect the specific population or context being analyzed, such as a hospital or clinic specializing in maternal health.

The presence of a combined category (Obstetric & Non) shows that there are complexities in cases that involve both obstetric and other health issues, which might warrant further investigation.

The low proportion of non-obstetric cases could imply that there is less concern or fewer occurrences of non-obstetric issues in this context.

Figure 1 The high percentages for fear of death and unexplained origins suggest a critical area for healthcare providers to focus on, possibly through enhanced patient education and support services.

The overlap of fears related to surgical outcomes (postoperative pain and complications) implies that addressing these fears could improve patient satisfaction and outcomes.

The relatively lower percentages for medical mistakes and obstetric history suggest these are less pervasive concerns, but they still warrant attention to build trust and confidence in care.

Overall, the chart highlights the multifaceted nature of patient anxieties, emphasizing the importance of a holistic approach in addressing both medical and emotional needs in healthcare settings.

Figure 2 The results indicate a generally positive emotional state among respondents, with high levels of relaxation and contentment. The significant concern over inattention may suggest an area for further exploration, particularly in contexts like education or workplace productivity.

The high percentages of individuals feeling relaxed and content suggest effective coping strategies or a supportive environment contributing to overall well-being.

The low levels of worry and upset could indicate resilience or effective management of stress within this population.

Overall, the chart reflects a predominantly positive emotional landscape, with a few areas, like inattention, that may benefit from additional support or resources.

Figure 3 The pronounced dominance of the "Multi" category suggests that the majority of participants have prior experience with childbirth, which may influence their perspectives and attitudes toward pregnancy and parenting.

The low percentage of "Primi" respondents could indicate a specific demographic or cultural trend, potentially tied to family planning decisions, healthcare access, or societal norms regarding childbirth.

Understanding the dynamics between multi- and primi-parents can be valuable for tailoring support services, educational programs, and healthcare practices to meet the needs of both experienced and first-time parents.

The data may also reflect broader trends in reproductive health and family planning, indicating that individuals in this population may prefer larger families or have different life circumstances leading to multiple pregnancies.

Overall, the graph provides insight into the parity distribution, highlighting a need for further exploration into the implications of these trends on maternal and child health services.

Figure 4 The high percentage of obstetric cases (75%) may reflect the specific population or context being analyzed, such as a hospital or clinic specializing in maternal health.

The presence of a combined category (Obstetric & Non) shows that there are complexities in cases that involve both obstetric and other health issues, which might warrant further investigation.

The low proportion of non-obstetric cases could imply that there is less concern or fewer occurrences of non-obstetric issues in this context. Figure 5 The overwhelming presence of the "General" category suggests that most respondents favor comprehensive or universal options over specialized ones, which might reflect a desire for simplicity or inclusivity in services.

The low percentage of individuals identifying with "Regional" services could point to a potential gap in addressing local needs or a lack of awareness regarding available regional options.

The "General & Regional" category indicates that there is a segment of the population interested in a balanced approach, which could be an area for further development in service offerings.

The "Non" category highlights the existence of individuals whose needs may not be met by the current classifications. This could warrant further investigation to understand their preferences and how services can be improved.

Overall, the graph reflects a clear preference for general services among respondents, while also indicating areas for growth in regional service offerings and the importance of considering diverse needs within the population.

In figure 6 The dominance of "General" anesthesia suggests a strong inclination towards this method, which may be attributed to its effectiveness in providing complete unconsciousness and pain relief during surgical procedures.

The choice of "Spinal" anesthesia, while lower, still represents a significant option for respondents. This could indicate awareness of its benefits, such as reduced recovery time and less systemic impact, which might appeal to specific populations or procedures.

The disparity between the two choices could reflect varying levels of education regarding anesthesia options, as well as individual patient needs or concerns about the risks and benefits associated with each method.

The graph highlights the necessity for healthcare providers to offer thorough explanations of the different anesthesia types to ensure patients make informed decisions that align with their preferences and medical needs.

Overall, the results indicate a clear preference for general anesthesia, but they also underscore the importance of considering the diverse reasons behind patients' choices and the potential for increased education around spinal anesthesia.

The study analyzed the possible causes of preoperative anxiety among women undergoing elective cesarean sections, focusing on demographic, psychological, and procedural factors.

1. Possible Causes of Anxiety: The most frequently reported cause was fear of being unable to recover from anesthesia (38.5%), followed by postoperative pain (23.1%) and surgical complications (17.9%). Less common causes included bad obstetric history (7.7%), fear of death (5.1%), and family issues (5.1%). The highest anxiety mean score was associated with bad obstetric history (mean: 9.92, SD: 0.27), while the lowest mean score was related to postoperative pain (mean: 8.62, SD: 2.561).

2. State Scale Analysis: The majority of participants reported feeling inattentive (75%) and worried (80%), with high mean scores for these items (mean: 1.70 and 1.60, respectively). Conversely, 97.5% of participants stated they felt relaxed, although this response showed a low variability (mean: 1.075, SD: 0.474).

3. Demographic Factors: Most participants were in the age group of 25–35 years, with a predominance of graduates (77.5%) and working women (57.5%). Parity played a significant role, as 85% were multiparous, with 75% having prior obstetric surgeries.

4. Anesthetic Preferences: General anesthesia was the preferred choice for 62.5% of participants, while spinal anesthesia was chosen by 37.5%.

These results indicate a multifaceted nature of preoperative anxiety, influenced by medical, psychological, and demographic factors

6. CONCLUSION

The findings reveal that preoperative anxiety among women undergoing elective cesarean sections is predominantly influenced by fears related to anesthesia recovery, postoperative pain, and surgical complications. Psychological factors, such as bad obstetric history, further exacerbate anxiety levels.

Demographic and procedural variables, such as parity, previous surgeries, and anesthesia preferences, also play a role in shaping anxiety responses.

To mitigate preoperative anxiety, healthcare providers should prioritize preoperative counseling tailored to address individual fears and concerns. Providing clear communication about the surgical process and anesthesia options can improve patient comfort and outcomes. Future research should explore intervention strategies that effectively reduce anxiety and enhance the cesarean section experience.

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