

Prevalence and Factors Associated with Preoperative Anxiety in Patients Awaiting Caesarean Section in Three Hospitals in the City of Yaounde

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Abstract

Background: Caesarean section is a major surgical procedure often associated with preoperative anxiety that can negatively affect maternal and neonatal outcomes. While studies report prevalence rates ranging from 11% to 92.6%, data from resource-limited settings like Cameroon remain scarce. This study aimed to determine the prevalence of preoperative anxiety and identify associated factors among women undergoing caesarean section in Yaounde, Cameroon. **Methods:** A cross-sectional analytical study was conducted from November 2024 to July 2025 at three hospitals in Yaounde: Central Hospital, Gynecology-Obstetrics and Pediatrics Hospital, and Monseigneur Jean Zoa Medical Center. We included consenting pregnant women scheduled for caesarean sections, excluding those with diagnosed anxiety disorders or under sedation/anxiolytics. Data were collected using a self-administered questionnaire covering sociodemographic, medical and obstetric characteristics. Anxiety was assessed using the State form State-Trait Anxiety Inventory (STAI-S), with a score of ≥ 44 indicating significant anxiety. Multivariate logistic regression analysis was performed (95% CI; $p < 0.05$). **Results:** Among 159 participants analyzed, the prevalence of preoperative anxiety was 86.8% ($n = 138$). Factors significantly associated with anxiety included age ≤ 30 years (OR = 1.50; $p = 0.042$), student status (OR = 2.28; $p < 0.001$), previous negative experience with caesarean section (OR = 0.38; $p < 0.001$), current obstetric complications (OR = 2.20; $p = 0.0018$), financial difficulties (OR = 4.42; $p < 0.001$), fear of complications (OR = 2.31; $p = 0.036$), and fear of death (OR = 9.61; $p < 0.001$). Information received about the procedure

(OR = 0.14; $p < 0.001$) and spousal involvement (OR = 0.17; $p = 0.042$) demonstrated protective effects. **Conclusion:** The prevalence of preoperative anxiety among women undergoing caesarean section in Yaounde is high. Interventions focusing on improving patient-provider communication and enhancing spousal support could help reduce anxiety levels. Further research is needed to develop context-specific interventions for resource-limited settings.

Keywords

Preoperative Anxiety, Caesarean Section, Prevalence, Associated Factors, Cameroon

1. Introduction

Caesarean section is a crucial surgical intervention in obstetric care [1]-[3]. While it can prevent complications associated with vaginal delivery, it remains a major procedure carrying risks for both mother and newborn [3]-[7]. Among factors influencing surgical outcomes, anxiety—whether as a personality trait or an acute preoperative reaction—plays a significant role [1]-[3] [5]-[8]. Preoperative anxiety is a transient emotional state characterized by tension and apprehension, particularly common in obstetric procedures compared to general surgery [9]-[13]. This public health concern shows considerable global variation, with reported prevalence rates ranging from 11% to 92.6% across different regions and contexts [8] [10] [11] [14]-[17].

Studies have documented rates of 23.2% in Thailand, 55% - 63.54% in India, 67% in England, 62% - 72.7% in Pakistan, 51.81%-70.6% in Nepal, and 40.6% in Sri Lanka [10]. In Africa, preoperative anxiety prevalence remains high, reaching 57.1% among women undergoing elective obstetric and gynecological surgeries in Ethiopia, 41.0% for elective caesarean sections in Sudan, and 51% - 90% in Nigeria [10] [18] [19].

Research has identified several factors associated with preoperative anxiety in caesarean sections, including fear of postoperative pain, concerns about mortality, family-related worries, and insufficient information about anesthesia and surgical procedures [1] [8]-[10] [20]-[22]. Other contributing factors include surgery type (emergency vs. elective), previous anesthesia and surgical experiences, social support quality, and socioeconomic status [5] [10] [11] [14] [19] [21].

The clinical significance of preoperative anxiety lies in its adverse effects on both maternal and neonatal outcomes [1] [7] [10] [17] [22]-[24]. Maternal complications may include hypertension, impaired wound healing, and inadequate pain management often leading to analgesic overuse [8] [21] [23]. For newborns, maternal preoperative anxiety associates with low birth weight, respiratory distress, and increased risk of future mental health disorders [1] [7] [17] [20] [25].

Despite extensive global research on preoperative anxiety in caesarean sections,

knowledge gaps persist regarding its prevalence and associated factors in resource-limited countries like Cameroon. This study therefore aimed to assess the prevalence and identify factors associated with preoperative anxiety among women undergoing caesarean section in three hospitals in Yaounde, Cameroon.

2. Materials and Methods

2.1. Study Design and Setting

This cross-sectional analytical study was conducted over nine months (November 2024 to July 2025) in three referral hospitals in Yaounde: Yaounde Central Hospital (HCY), Yaounde Gynecology, Obstetrics, and Pediatrics Hospital (HGOPY), and Monseigneur Jean Zoa Medical Center (CASS). These facilities provide comprehensive maternal and child health services, including both elective and emergency caesarean sections.

2.2. Participants and Sampling

The study enrolled consenting pregnant women scheduled for elective or emergency caesarean sections at the three selected hospitals. Exclusion criteria included diagnosed anxiety disorders, current sedation or anxiolytic use, and incomplete questionnaires (<80% completion). Consecutive sampling was employed.

Sample size calculation: using the Cochran formula for prevalence studies with 50% expected frequency of anxiety ($p = 0.5$), 95% confidence level ($Z = 1.96$), and 5% margin of error, the minimum required sample size was 138 participants.

2.3. Data Collection and Analysis

Following administrative approvals, researchers approached eligible patients 15 minutes to 24 hours before their procedure. After obtaining informed consent, participants completed a self-administered questionnaire covering four domains: sociodemographic characteristics, medical and obstetric history, potential anxiety-associated factors, and anxiety assessment using the State-Trait Anxiety Inventory (STAI-S). A STAI score ≥ 44 indicated significant anxiety.

Data were entered using EpiData v3.1 and analyzed with R software version 4.4.1. Categorical variables were summarized using frequencies and proportions. Multivariate binary logistic regression identified factors associated with preoperative anxiety, with statistical significance set at $p < 0.05$.

2.4. Ethical Considerations

The study received approval from the Institutional Ethics Committee for Human Health Research at the University of Douala (CEI-UDo, Ref No. 5116CEI-UDo/07/2025/T). Participants received detailed information sheets and provided written informed consent. All data were anonymized and used solely for research purposes.

3. Results

Of 205 initially enrolled participants, 46 were excluded due to incomplete questionnaires, yielding a final sample of 159 participants for analysis.

Sociodemographic characteristics (**Table 1**) showed that most participants were aged ≤ 30 years (66.0%), single (43.4%), and had secondary (50.3%) or university education (43.4%). Employment distribution included private sector (30.8%), public sector (23.9%), students (24.5%), and unemployed (20.7%). Most were tenants (82.3%).

Table 1. Sociodemographic profile of participants.

Variables (N = 159)	n (%)
Age group	
≤ 30	125 (66)
> 30 years	54 (34)
Marital status	
Single	69 (43.4)
Married	56 (35.2)
Cohabiting	34 (21.4)
Level of education	
Primary	5 (3.1)
Secondary	80 (50.3)
University	69 (43.4)
Not in education	5 (3.1)
Employment status	
Unemployed	33 (20.7)
Private sector	49 (30.8)
Public sector	38 (23.9)
Pupil/student	39 (24.5)
Other factors	
Family support	139 (87.4)
Partner involvement	127 (79.9)
Financial concerns	107 (67.3)
Satisfactory communication with doctor	55 (34.6)
Fear of death	36 (22.6)
Sufficient information about the procedure	33 (20.8)
Fear of complications	148 (93.1)

Clinical profile (**Table 2**) revealed a preoperative anxiety prevalence of 86.8% (n = 138). Emergency caesarean sections accounted for 69.2% of procedures, and 31.5% of participants had a history of obstetric complications.

Table 2. Clinical profile.

Variables (N = 159)	n (%)
Psychiatric history (none)	100 (100)
History of obstetric complications	50 (31.5)
History of caesarean section	54 (34)
Previous positive experience with caesarean section (N = 54)	16 (30)

Continued

Type of obstetric complication at the time of the study	
Infant complications (acute foetal distress)	37 (33.6)
Other complications (dystocia)	56 (50.9)
Maternal complications (pre-eclampsia)	15 (15.4)
Type of caesarean section at the time of the study (emergency)	110 (69.2)
Preoperative anxiety (STAI ≥ 44)	138 (86.8)

Factors associated with preoperative anxiety (**Table 3**) identified several significant predictors through multivariate analysis. Age ≤ 30 years, student status, current obstetric complications, financial concerns, fear of complications, and fear of death increased anxiety risk. History of caesarean section and cohabiting marital status showed protective effects. Adequate procedural information and spousal involvement were significant protective factors.

Table 3. Factors associated with preoperative anxiety in participants awaiting a caesarean section.

Variables	OR (95% CI)	p
Age ≤ 30 years (Ref ^t : > 30 years)	1.50 (1.05 - 2.15)	0.042
Cohabiting (Ref: Single)	0.30 (0.12 - 0.75)	0.03
No schooling (Ref: primary level)	1.05 (0.17 - 6.45)	0.25
Pupil/student (Ref: public sector employee)	2.28 (1.45 - 3.58)	< 0.001
History of caesarean section (Ref ^t : no)	0.20 (0.07 - 0.55)	0.0014
Positive experience of caesarean section (Ref: negative)	0.38 (0.22 - 0.65)	< 0.001
Current obstetric complications (Ref: no)	2.20 (1.35 - 3.58)	0.0018
Past obstetric complications (Ref: no)	0.28 (0.11 - 0.72)	0.008
Family support (Ref: no)	1.52 (0.65 - 3.55)	0.99
Spouse's involvement in pregnancy (Ref: no)	0.17 (0.06 - 0.48)	0.042
Financial concerns (Ref: no)	4.42 (2.35 - 8.32)	< 0.001
Fear of complications (Ref: no)	2.31 (1.45 - 3.68)	0.036
Fear of death (Ref: no)	9.61 (4.25 - 21.72)	< 0.001
Information received from doctor (Ref: no)	0.34 (0.18 - 0.65)	< 0.001
Information received about surgery (Ref: no)	0.14 (0.05 - 0.38)	< 0.001
High need for information	4.68 (1.23- 6.67)	0.005

*Ref = reference category.

4. Discussion

This study reveals a high prevalence of preoperative anxiety (86.8%) among women undergoing caesarean section in Yaounde, Cameroon, consistent with rates reported in Nigeria (90%) but higher than findings from Thailand (23.2%) and England (67%) [18] [19]. This elevated prevalence likely reflects the convergence of multiple risk factors in our study context.

Younger age (≤ 30 years) associated with higher anxiety, aligning with findings from Indonesia [18] and possibly reflecting greater emotional maturity and coping capacity with increasing age [5] [6] [8] [9] [13] [18]. Socioeconomic factors significantly contributed to anxiety, with only 54.7% of participants having stable

employment and 67.3% reporting financial concerns—particularly relevant in Cameroon’s evolving universal health coverage context [1] [11]. The predominance of emergency caesarean sections (69.2%) due to obstetric complications represents another significant factor, consistent with studies showing higher anxiety risk in emergency versus elective procedures [1] [11]. Moreover, inadequate patient-provider communication emerged as a critical concern, with only 20.8% of participants receiving sufficient procedural information and 34.6% reporting satisfactory communication with physicians. These findings mirror Ethiopian data, where 64.3% of patients received inadequate perioperative information [10]. This study also showed that patients’ high need for information about anesthesia and surgery was strongly associated with preoperative anxiety (OR = 4.68).

Other identified protective factors included complicated obstetric history, negative previous caesarean experiences, and fears of complications or death—align with existing literature [11] [21] [22]. This could be explained by the fact that familiarity with the procedure could enhance preparedness. Interestingly, while spousal involvement showed protective effects, general family support did not reach statistical significance, contrasting with studies from Spain and Indonesia [3] [5] [26].

5. Study Limitations

This study has some limitations. Its cross-sectional design precludes causal inference. Potential selection bias may exist, and the timing of anxiety assessment immediately before surgery might inflate state anxiety measures.

6. Conclusion

This study demonstrates a high prevalence of preoperative anxiety among women undergoing caesarean section in Yaounde. Key modifiable factors include socio-economic stability, spousal involvement, and quality patient-provider communication. These findings highlight the need for targeted interventions, particularly in emergency surgical contexts. Future research should focus on developing and evaluating context-appropriate strategies to reduce preoperative anxiety in resource-limited settings such as developing structured preoperative counseling programs or patient information leaflets that directly address patients specific fears with regards to surgery.

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Authors’ Contributions

All authors contributed to the study conceptualization. M.M.Y, S.V.N and M.S.D.N. collected data, drafted the manuscript, and edited the article. F.N.E. supervised the study and revised the manuscript. All authors reviewed and approved the final

version.

Competing Interest

The authors declare no competing financial or personal interests that could have influenced this work.

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Data Availability

Data supporting these findings are available from the corresponding author (M.S.D.N.) upon reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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