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Research Article

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Psychological preparation and postoperative outcomes among women undergoing scheduled cesarean sections in public referral hospitals of Donga, 2024

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ABSTRACT

Introduction: Preoperative psychological preparation (PP) may be associated with postoperative outcomes such as pain, depression, anxiety, and functional recovery, thereby contributing to optimal care for women undergoing cesarean section.

Methods: An analytical cross-sectional study was conducted in the maternity wards of public hospitals in the Donga department in 2024. All patients who received or did not receive psychological preparation prior to surgery and were hospitalized postoperatively were included. The quality of psychological preparation was assessed using a score based on nine criteria. Postoperative outcomes analyzed included postoperative pain (Visual Analog Scale, VAS), depression (Beck Depression Inventory-13), anxiety (Spielberger State Anxiety Inventory, Y-A), and functional recovery. Chi-square tests, Student's t test, and prevalence ratios (PR) with 95% confidence intervals (95% CI) were used for statistical analyses.

Results: Among the 103 patients included (mean age 31.38 ± 12.61 years), 58.25% received psychological preparation of moderate quality. Poor psychological preparation was associated with higher VAS pain scores. A significant association was observed between the quality of psychological preparation and postoperative depression (p = 0.0001), as well as functional recovery. However, no association was found with anxiety or postoperative complications.

Conclusion: The quality of psychological preparation is significantly associated with postoperative pain, depression, and functional recovery, highlighting the importance of integrating psychological preparation into surgical care.

Keywords: Psychological Preparation, Postoperative Pain, Depression, Functional Recovery

Introduction

Surgery is a critical and stressful period involving physical, emotional, and psychological challenges. Evidence shows that preoperative psychological interventions, including stress-reduction and cognitive-behavioral strategies, can positively influence postoperative recovery [1,2]. Globally, surgical complications affect up to 20% of patients undergoing major procedures [3], with higher rates reported in low-resource settings due to limited materials, insufficient patient information, and lack of structured psychological support [4]. Postoperative pain and emotional distress, particularly anxiety and depression, are frequent yet underestimated, contributing to prolonged hospital stays and delayed functional recovery, especially among women undergoing scheduled cesarean sections [5]. Poor preoperative mental health has been identified as a predictor of adverse outcomes, including increased pain, delayed recovery, and postoperative complications [6,7]. Gao et al. (2024) reported

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higher pain scores among psychologically unprepared patients, while Tripuraneni et al. (2024) showed improved emotional well-being through anxiety reduction [9]. In Benin, limited resources and understaffing often prioritize physical over psychological preparation. This study examines the association between psychological preparation and postoperative outcomes in public referral hospitals of the Donga department in 2024.

Methods

This was an analytical cross-sectional study conducted in 2024 among women who underwent scheduled cesarean sections in public referral hospitals of the Donga department, namely the Departmental Hospital Center of Donga (DHC Donga) and the Djougou District Hospital. The target population included all women who underwent cesarean delivery, whether or not they received preoperative psychological preparation, and who were hospitalized postoperatively in these hospitals. Patients with severe cognitive disorders preventing meaningful interaction, as well as those who refused to provide informed consent, were excluded.

Sampling was exhaustive, including all women who met the inclusion criteria and were admitted to the selected hospitals during the study period. The quality of psychological preparation was assessed using nine criteria: clarity of the information received; understanding of the risks and benefits of cesarean section; understanding of the surgical steps; emotional support; confidence in the competence of the medical staff; perception of available resources; information on postoperative care; recovery instructions; and overall satisfaction. Each criterion was scored from 1 to 4, yielding a maximum total score of 36 points. The quality of psychological preparation was categorized as poor (<50% of the total score, ≤18 points), moderate (50–80%, 19–28 points), or good (≥80%, ≥29 points). This nine-item score was internally validated through a pilot assessment and showed acceptable internal consistency (Cronbach's $\alpha \geq 0.70$).

Postoperative pain was measured using the Visual Analog Scale (VAS), depression was assessed with the short form of the Beck Depression Inventory (BDI-13), and anxiety was evaluated using the Spielberger State Anxiety Inventory (Form Y-A). Functional recovery was considered complete if the patient was able to eat, ambulate, bathe, dress, and perform personal hygiene independently one week after surgery. The absence of any of these abilities was considered incomplete functional recovery.

Data were collected through structured interviews and clinical observations using standardized data collection forms. Statistical analyses were performed with a significance level set at 5%. Categorical variables were compared using the Chi-square test or the Chi-square test for trend, Normality of quantitative variables was assessed before using Student's t-test. Associations between the quality of psychological preparation and postoperative outcomes were expressed as prevalence ratios (PRs) with 95% confidence intervals (95% CIs).

Results

At the end of the study, a total of 103 women were included. The mean age was 31.38 ± 12.61 years, ranging from 18 to 75 years (Table 1).

Table 1: Distribution of Patients Operated on At DHC Donga and Djougou District Hospital According to Age, 2024

	Number (n=103)	Frequency (%)
Age (years)		
<30	51	49.51
[30-50]	42	40.78
[50; 70]	07	06.80
≥70	03	02.91

Assessment of the Quality of Psychological Preparation

The majority of patients (58.25%) received psychological preparation of moderate quality. The following figure illustrates the distribution of the quality levels of psychological preparation (Figure 1).

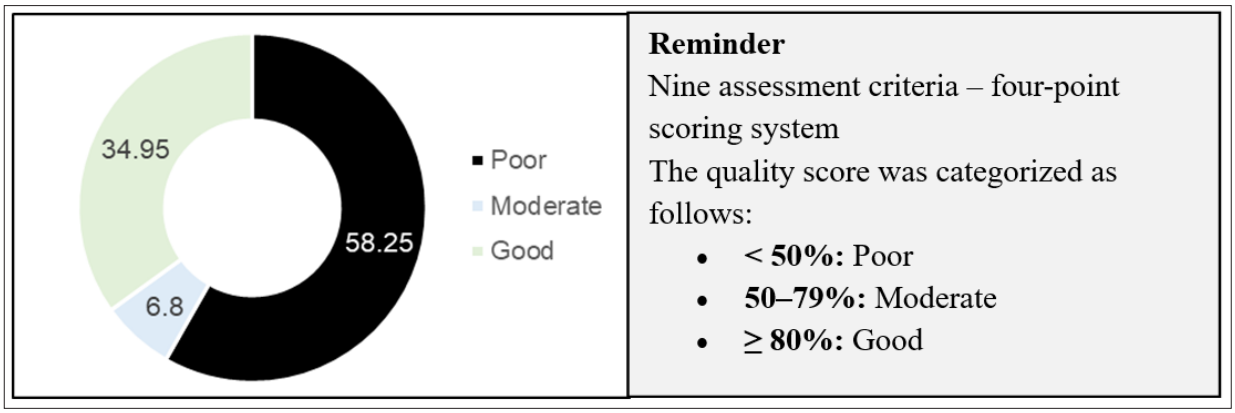

Figure 1: Overall Assessment of the Quality of Psychological Preparation Among Women Undergoing Scheduled Cesarean Sections at DHC Donga and Djougou District Hospital, 2024

Association Between the Quality of Psychological Preparation and Postoperative Outcomes

The analysis of the influence of the quality of psychological preparation (PP) on postoperative outcomes showed that the quality of PP had no statistically significant effect on the occurrence of postoperative complications (p = 0.2820). Prevalence ratio could not be reliably estimated due to the absence of complications in the adequately prepared group (Table 2).

Association Between the Quality of Psychological Preparation and Postoperative Outcomes

The analysis of the influence of the quality of psychological preparation (PP) on postoperative outcomes showed that the quality of PP had no statistically significant effect on the occurrence of postoperative complications (p = 0.2820) ; Table 2.

Table 2: Analysis of the Influence of the Quality of Psychological Preparation on Postoperative Complications (DHC Donga and Djougou District Hospital, 2024)

Quality of PP	N	Postoperative complications		PR	95% CI	P-value
		Yes n(%)	No n(%)			
Poor	67	4(5.97)	63(94.03)	4.89	0.27 – 88.48	0.2820
Good	36	-	36(100.00)	1		

Association Between the Quality of Psychological Preparation and Postoperative Pain

Poor quality psychological preparation was associated with higher postoperative pain scores measured using the Visual Analog Scale (VAS); Table 3.

Table 3: Association Between the Quality of Psychological Preparation and Postoperative Pain Intensity Measured Using the VAS... (DHC Donga and Djougou District Hospital, 2024)

Quality of PP	N	Score VAS		t Test	P-value
		Mean	Standard		
Poor	67	6.16	1.49	-3.90	0.0002
Good	36	5.02	1.25		

Association Between the Quality of Psychological Preparation and Postoperative Depressive Status

The analysis showed a significant association between the quality of psychological preparation and postoperative depressive status (p = 0.0001) ; Table 4.

Table 4: Influence of the Quality of Psychological Preparation on Postoperative Depressive Status (DHC Donga and Djougou District Hospital, 2024)

Quality of PP	N	Depressive status				P-value
		None	Mild	Moderate	Severe	
Poor	67(65.05)	34(50.75)	6(8.96)	24(35.82)	3(4.48)	0.0001
Good	36(34.95)	33(91.67)	-	3(8.33)	-	
Total	103 (100.00)	67(65.05)	6(5.83)	27(26.21)	3(2.91)	

Chi-square test for trend = 15.232

Association Between the Quality of Psychological Preparation on Postoperative Anxiety Status

The analysis of the influence of the quality of psychological preparation on postoperative anxiety status showed no statistically significant difference between the groups (Table 5).

Table 5. Influence of the Quality of Psychological Preparation on Postoperative Anxiety Status (DHC Donga And Djougou District Hospital, 2024)

Quality of PP	N	Anxiety level			P-value
		Very low	Low	Moderate	
Poor	67 (65.05)	3(4.48)	29 (43.28)	35(52.24)	0.7721
Good	36 (34.95)	-	20 (55.56)	16(44.44)	
Total	103 (100.000)	3(2.91)	49 (47.57)	51(49.51)	

Chi-square test for trend = 0.0839

Association Between the Quality of Psychological Preparation and Functional Recovery

According to this study, patients with poor-quality psychological preparation had nearly twice the risk of poor functional recovery following cesarean section (Table 6).

Table 6: Influence of the Quality of Psychological Preparation on Postoperative Functional Recovery (DHC Donga and Djougou District Hospital, 2024)

Quality of PP	N	Functional recovery		PR	95% CI	P-value
		Poor n(%)	Good n(%)			
Poor	67	45(67.16)	22(32.84)	1.72	1.10 – 2.68	0.0155
Good	36	14(38.89)	22(61.11)	1		

Influence of the Quality of Psychological Preparation on the Occurrence of Unexpected Intraoperative Emergencies

Adequate psychological preparation did not prevent the occurrence of unexpected intraoperative emergencies (Table 7).

Table 7: Influence of the Quality of Psychological Preparation on the Occurrence of Unexpected Intraoperative Emergencies (DHC Donga And Djougou District Hospital, 2024)

Quality of PP	N	Unexpected intraoperative emergency		PR	95% CI	P-value
		Yes n(%)	No n(%)			
Poor	67	2(2.99)	65(97.01)	1.07	0.10 – 11.45	0.9525
Good	36	1(2.78)	35(97.22)	1		

Discussion

Quality of Psychological Preparation

The majority of women (58.25%) received psychological preparation of moderate quality, while 34.95% benefited from good-quality preparation. These findings highlight gaps in the provision of appropriate psychological care for women scheduled to undergo cesarean section. However, in 2024, Colgan et al. emphasized a crucial aspect of this issue: beyond objectively measured quality, patients' perceived quality of care plays an even more important role, being directly linked to communication and the attention given to patients' specific needs [10].

Other approaches, such as the use of immersive virtual reality to reduce preoperative stress as explored by El-Gabalawy et al. in 2024 offer promising perspectives for improving perceived quality of psychological preparation [4].

Postoperative Complications

The analysis revealed no statistically significant effect of the quality of psychological preparation on the occurrence of postoperative complications ($p = 0.2820$). This finding is consistent with the conclusions of Gränicher et al. (2025), who reported that although psychological interventions may influence outcomes such as pain or anxiety, their direct impact on biological postoperative complications remains limited [2]. Nevertheless, Tidmarsh et al. argue that indirect effects particularly through improved adherence to postoperative instructions may be underestimated [7]. This suggests that further studies, including longitudinal analyses, are needed to better elucidate this relationship.

Postoperative Pain

Patients who received poor-quality psychological preparation reported significantly higher VAS pain scores, confirming the key role of psychological interventions in pain management. These findings are consistent with those of Gao et al. who demonstrated that techniques such as auricular acupressure effectively reduce postoperative pain. In addition, Reynolds et al [8]. (2024) emphasized the importance of stress-reduction strategies, such as mindfulness-based interventions, in decreasing pain perception [5]. Taken together, these findings reinforce the idea that psychological preparation should be integrated into a multidimensional approach to maximize its effectiveness.

Postoperative Depressive Status

A significant association was observed between the quality of psychological preparation and postoperative depressive status ($p = 0.0001$). These results are consistent with those reported by Tripuraneni et al. (2024), who documented a marked improvement in depression levels following psychologically well-supported surgical interventions [9]. However, Meyer et al. (2024) suggest that cognitive restructuring may play a critical role in preventing depressive symptoms, underscoring the importance of incorporating targeted psychological approaches into preparation programs.

Postoperative Anxiety Status

No statistically significant difference in postoperative anxiety levels was observed according to the quality of psychological preparation. This finding contrasts with the observations of Hu et al. (2024), who reported that specific strategies, such as behavioral interventions, can effectively reduce postoperative anxiety [11]. This discrepancy may be explained by methodological differences or heterogeneity in the patient populations studied, highlighting the need for further investigation to clarify this relationship.

Functional Recovery

Patients who were poorly prepared psychologically had nearly twice the risk of poor functional recovery. This finding is supported by the work of Vaishya et al. (2024), who demonstrated that well-designed prehabilitation programs significantly improve functional outcomes following joint surgery [12]. Moreover, Briggs et al. emphasized that digital and educational interventions can address gaps in preoperative care, thereby enhancing functional recovery and patient autonomy [13].

Occurrence of Unexpected Intraoperative Emergencies

Psychological preparation did not reduce the likelihood of unexpected intraoperative emergencies. This finding is consistent with the conclusions of Hadid et al. (2024), who showed that unforeseen surgical and biological factors may outweigh the impact of psychological interventions [14]. This underscores the need for multidisciplinary monitoring to manage such events and reduce their occurrence within an optimized surgical care framework.

Conclusion

This study highlights a significant association between the quality of preoperative psychological preparation and several postoperative outcomes among women undergoing scheduled cesarean sections in public referral hospitals of the Donga department. Poor-quality psychological preparation was associated with higher postoperative pain intensity, an increased risk of postoperative depression, and delayed functional recovery. In contrast, no significant association was found with postoperative anxiety, surgical complications, or the occurrence of unexpected intraoperative emergencies. These findings emphasize the need to systematically integrate psychological preparation into preoperative care for women undergoing cesarean delivery, particularly in low-resource settings. Strengthening patient–provider communication, improving preoperative information, and implementing tailored psychological interventions may enhance the surgical experience and functional outcomes. However, longitudinal and interventional studies are warranted to better assess the causal and long-term effects of such approaches.

Limitations

This study has several limitations. First, its cross-sectional design does not allow for causal inferences between psychological preparation and postoperative outcomes. Second, some data were based on self-reports, which may be subject to recall bias and social desirability bias. Third, the absence of longitudinal follow-up prevents assessment of long-term outcomes, and some rare postoperative events reduce the statistical power for detecting associations.

Despite these limitations, the study provides useful insights into the association between psychological preparation and postoperative outcomes in the context of public referral hospitals in Donga.

Conflict of Interest

The authors declare that they have no conflicts of interest.

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References

1. Skořepa P, Ford KL, Alsuwaylihi A, O'Connor D, Prado CM, et al. The impact of prehabilitation on outcomes in frail and high-risk patients undergoing major abdominal surgery: A systematic review and meta-analysis. Clin Nutr Edinb Scotl. mars. 2024. 43: 629-48.
2. Gränicher P, Reicherzer L, Wanivenhaus F, Farshad M, Spörri J, et al. Supervised prehabilitation in patients scheduled for spinal surgery - a scoping review. Eur Spine J Off Publ Eur Spine Soc Eur Spinal Deform Soc Eur Sect Cerv Spine Res Soc. 2025.
3. Ushimaru Y, Nagano S, Kawabata R, Nishikawa K, Takeoka T, et al. Enhancing surgical outcomes in elderly gastric cancer patients: the role of comprehensive preoperative assessment and support. World J Surg Oncol. 2024. 22: 136.
4. El-Gabalawy R, Sommer JL, Hebbard P, Reynolds K, Logan GS, et al. An Immersive Virtual Reality Intervention for Preoperative Anxiety and Distress Among Adults Undergoing Oncological Surgery: Protocol for a 3-Phase Development and Feasibility Trial. JMIR Res Protoc. 2024. 13: 55692.
5. Reynolds KA, Sommer JL, Roy R, Kornelsen J, Mackenzie CS, et al. Qualitative Analysis of the Impact of Preoperative Mindfulness-Based Stress Reduction on Total Knee Arthroplasty Surgical Experiences. Pain Manag Nurs Off J Am Soc Pain Manag Nurses. 2024. 25: 409-16.
6. Lu L, Zhang B, Li W, Li J, Li L. Prevalence and Risk Factors of Psychological Distress in Patients with Early-Stage Lung Cancer During Preoperative Period: A Cross-Sectional Study. J Clin Nurs. 2024.
7. Tidmarsh LV, Harrison R, Finlay KA. Prehabilitation: The underutilised weapon for chronic pain management. Br J Pain. 2024. 18: 354-64.
8. Gao J, Chen B, Ji W, Tao S, Ye Z, et al. Auricular point acupressure for managing postoperative pain and reducing anxiety in patients with perianal abscesses. Explore N Y N. 2024. 20: 103020.
9. Tripuraneni KR, Anderson MB, Cholewa JM, Smith K, VanAndel DC, et al. Is There a Change in Anxiety and Depression Following Total Knee Arthroplasty? J Arthroplasty. 2024. 39: 185-90.
10. Colgan DD, Eddy A, Aulet-Leon M, Green K, Peters B, et al. Compassion. communication. and the perception of control: a mixed methods study to investigate patients' perspectives on clinical practices for alleviating distress and promoting empowerment during awake craniotomies. Br J Neurosurg. 2024. 38: 911-22.
11. Hu W, Jia J, Zhao L. Intervention Strategy for Anxiety Behaviors in Children in Perioperative Period of Outpatient Surgery: Process Formulation and Implementation Effects. Altern Ther Health Med. 2024. 30: 279-83.
12. Vaishya R, Mahajan RP, Sibal A. Prehabilitation: A proactive approach to enhancing outcomes in joint replacement surgery. J Clin Orthop Trauma. 2024. 51: 102398.
13. Briggs J, Chilcot J, Greenwood SA. The use of digital health interventions to deliver prehabilitation in solid organ transplant recipients: are we there yet? Curr Opin Organ Transplant. 2024. 29: 357-62.
14. Hadid S, Tomsis Y, Perez E, Sharabi L, Shaked M, et al. The role of expectations. subjective experience. and pain in the recovery from an elective and emergency caesarean section: A structural equation model. J Reprod Infant Psychol. 2024. 42: 915-33.