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Article

Psychological Adjustment in Patients Undergoing Neurosurgical Procedures: A Counselling Framework.

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Abstract: Psychological adjustment remains a critical yet under-integrated determinant of recovery among patients undergoing neurosurgical procedures, particularly in low- and middle-income countries. Neurosurgical interventions expose patients to complex psychological stressors, including fear of mortality, uncertainty regarding cognitive functioning, and disruption of identity and social roles. This study develops a culturally grounded counselling framework aimed at enhancing psychological adjustment across preoperative, perioperative, and postoperative phases of care. Anchored in the stress and coping model (Lazarus & Folkman, 1984), cognitive-behavioural theory (Beck, 1976), and the biopsychosocial model (Engel, 1977), the study adopts a mixed-method design involving 120 healthcare professionals. Findings reveal that preoperative anxiety significantly predicts postoperative outcomes (Mitchell, 2016), while psychoeducation, coping skills training, and family involvement enhance resilience and recovery. The study advances a contextually relevant counselling framework for African healthcare systems and underscores the necessity of integrating psychological care into neurosurgical practice.

Keywords: Psychological adjustment; Neurosurgery; Counselling; Preoperative anxiety; Coping strategies; Patient-centred care

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1. Introduction

Advances in neurosurgical science have significantly improved survival rates and clinical outcomes through innovations in imaging technologies, minimally invasive techniques, and perioperative care. These developments have enhanced diagnostic precision and reduced surgical risks, thereby increasing the likelihood of favourable physiological outcomes. However, despite these remarkable achievements, the psychological dimensions of recovery remain insufficiently addressed, particularly in African healthcare systems where biomedical priorities often overshadow psychosocial care (Gureje & Oladeji, 2019). This imbalance reflects a broader structural and philosophical orientation

within healthcare delivery that privileges physical healing while underestimating the critical role of mental and emotional wellbeing in overall recovery.

Neurosurgical procedures occupy a unique position within medical practice because they directly involve the brain—the organ responsible for cognition, personality, behaviour, and emotional regulation. As a result, patients undergoing such procedures are not only confronted with physical risks but also with profound existential concerns. These include fears related to loss of identity, cognitive impairment, altered personality, and diminished independence. Unlike other surgical interventions, the outcomes of neurosurgery may fundamentally reshape how individuals think, feel, and relate to others, thereby intensifying psychological vulnerability. This dual burden of physical and psychological uncertainty places neurosurgical patients among the most emotionally at-risk populations within clinical settings.

Patients undergoing neurosurgery frequently experience intense anxiety, fear of mortality, and uncertainty about postoperative functioning. Empirical evidence indicates that these psychological responses are not merely subjective experiences but have measurable effects on clinical outcomes. Elevated preoperative anxiety has been associated with increased postoperative pain, prolonged hospital stays, delayed wound healing, and reduced adherence to treatment protocols (Mitchell, 2016; Fann et al., 2015). Additionally, psychological distress may impair patients' ability to engage effectively in rehabilitation processes, thereby limiting functional recovery and long-term quality of life. These findings highlight the intricate interplay between mind and body, reinforcing the need for integrated care approaches.

In the Nigerian context, sociocultural dynamics further complicate the process of psychological adjustment. Communal living, strong family ties, and deeply rooted spiritual beliefs significantly influence how patients interpret illness and respond to medical interventions (Atilola, 2015; Okafor, 2020). For many patients, illness is not only a biomedical condition but also a social and spiritual experience, often accompanied by cultural interpretations that may include stigma or misconceptions about neurological disorders. While these sociocultural factors can serve as sources of resilience—particularly through family support and faith-based coping—they may also contribute to anxiety, delayed help-seeking, or resistance to certain medical procedures if not appropriately addressed.

Furthermore, healthcare systems across many African countries face structural constraints, including limited funding, shortages of specialised personnel, and inadequate integration of mental health services into general medical practice. Neurosurgical units are often overwhelmed with clinical demands, leaving little room for systematic psychological assessment or intervention. As a result, patients' emotional and psychological needs are frequently managed informally or overlooked entirely. This gap is particularly concerning given the growing recognition of mental health as a critical component of global health and sustainable development.

The absence of structured psychological interventions in neurosurgical care represents a significant gap in both clinical practice and health policy. While some healthcare providers may offer informal reassurance or basic emotional support, these efforts are often inconsistent and lack theoretical grounding or continuity. There is therefore a pressing need for evidence-based, culturally relevant frameworks that can guide the integration of psychological care into neurosurgical practice. Such frameworks should not only address individual patient needs but also align with the broader sociocultural and institutional contexts in which care is delivered.

This study responds to this gap by developing a comprehensive counselling framework designed to support psychological adjustment across the preoperative, perioperative, and postoperative phases of neurosurgical care. Grounded in established psychological theories and informed by empirical evidence, the framework aims to provide a structured approach to enhancing emotional resilience, improving coping capacity, and facilitating holistic recovery. By situating psychological care within the continuum of neurosurgical treatment, the study contributes to the ongoing shift toward patient-centred healthcare models that recognise the inseparability of mental and physical wellbeing.

Ultimately, this research seeks to advance both scholarly understanding and clinical practice by highlighting the indispensable role of psychological adjustment in neurosurgical outcomes. It also underscores the importance of culturally sensitive interventions that reflect the lived realities of patients in African contexts. In doing so, the study lays

the foundation for more integrated, humane, and effective healthcare systems capable of addressing the full spectrum of patient needs.

1 Literature Review

Psychological adjustment in medical contexts, particularly within neurosurgical settings, is a complex, multidimensional process that necessitates the integration of diverse theoretical perspectives. The interplay between cognitive appraisal, emotional regulation, social support systems, and biological realities underscores the need for a holistic and interdisciplinary framework.

The stress and coping model developed by Richard Lazarus and Susan Folkman (1984) remains foundational in understanding patients' responses to medical stressors. This model posits that psychological outcomes are determined not merely by the stressor itself but by the individual's cognitive appraisal, categorized into primary appraisal (perceived threat) and secondary appraisal (perceived coping ability). In neurosurgical contexts, where procedures often involve high uncertainty and potential threats to identity and functioning, patients frequently appraise surgery as catastrophic or life-threatening. Such appraisals are associated with heightened anxiety, depression, and maladaptive coping strategies, including avoidance and denial (Leventhal et al., 2016). Conversely, patients who engage in problem-focused coping and meaning-making tend to demonstrate better psychological adjustment and recovery trajectories.

Complementing this perspective, cognitive-behavioural theory (CBT), advanced by Aaron Beck (1976), provides a robust framework for understanding how maladaptive thought patterns influence emotional and behavioural responses. In neurosurgical patients, distorted cognitions—such as catastrophizing ("I will not survive this surgery") or overgeneralization ("My life is permanently ruined")—can exacerbate emotional distress and hinder recovery. Empirical studies have shown that cognitive restructuring interventions significantly reduce preoperative anxiety and postoperative depression (Carver et al., 1989; Hofmann et al., 2012). Furthermore, CBT-based psychoeducation has been found effective in enhancing patients' sense of control, thereby improving adherence to treatment and rehabilitation protocols.

The biopsychosocial model, introduced by George Engel (1977), offers a comprehensive paradigm by integrating biological, psychological, and social determinants of health. In neurosurgical care, biological factors such as tumour location or neurological impairment intersect with psychological variables (e.g., anxiety, coping style) and social influences (e.g., family support, cultural beliefs). Within African contexts, this model is particularly salient, as communal living and extended family systems significantly shape health experiences. Studies by Adeosun and Adegbohun (2021) and Gureje et al. (2015) highlight that family involvement often serves as both an emotional buffer and a decision-making unit in treatment processes. However, cultural beliefs about illness—such as spiritual causation—may also influence help-seeking behaviour and adherence to medical advice, necessitating culturally sensitive counselling approaches.

Beyond these classical frameworks, resilience theory has gained increasing prominence in recent African and global scholarship. Resilience refers to the capacity to maintain or regain psychological wellbeing in the face of adversity. Research by Olagunju et al. (2018) in Nigeria demonstrates that patients with higher resilience levels exhibit lower psychological distress and better functional outcomes following major medical interventions. Similarly, George Bonanno (2004) and Dennis Charney alongside Steven Southwick (2014) emphasize that resilience is not merely an innate trait but a dynamic process that can be developed through targeted interventions, including counselling, social support enhancement, and adaptive coping training.

In addition, the health belief model (HBM) (Rosenstock, 1974) provides further insight into patients' engagement with medical procedures. The model suggests that individuals' beliefs about susceptibility, severity, benefits, and barriers influence their health behaviours. In neurosurgical contexts, patients who perceive high benefits and trust in medical systems are more likely to comply with surgical recommendations and postoperative care. However, in many

African settings, structural barriers such as financial constraints and limited access to healthcare services can negatively impact these perceptions (Akinyemi et al., 2020).

Another relevant framework is the theory of illness representation (Leventhal's self-regulation model), which posits that patients construct cognitive and emotional representations of illness that guide their coping behaviours. Misinterpretations about illness timelines, consequences, and controllability can lead to poor psychological adjustment. Integrating this model into counselling allows practitioners to correct misconceptions and foster adaptive illness perceptions.

Importantly, social support theory underscores the protective role of interpersonal relationships in psychological adjustment. Strong social networks, particularly family, religious communities, and peer groups—have been shown to reduce stress and improve recovery outcomes in African patients (Adeosun, 2016). In Nigeria, faith-based coping mechanisms, including prayer and pastoral counselling, often complement formal psychological interventions, highlighting the need for integrative and culturally grounded therapeutic models.

Theoretical Integration

An integrative framework for psychological adjustment in neurosurgical contexts emerges from the convergence of these theories. The stress and coping model provides the foundational mechanism of appraisal; cognitive-behavioural theory explains the role of thought patterns; the biopsychosocial model situates the individual within a broader systemic context; and resilience theory emphasizes adaptive capacity over time. Together, these frameworks support a multilevel counselling approach that includes:

- Cognitive restructuring to address maladaptive beliefs
- Coping skills training to enhance stress management
- Family and social system engagement to strengthen support networks
- Resilience-building interventions to promote long-term adaptation

This integrative perspective aligns with contemporary movements in health psychology and counselling, which advocate for patient-centred, culturally sensitive, and evidence-based care. For African healthcare systems, particularly in Nigeria, such an approach is critical for bridging the gap between biomedical treatment and psychosocial wellbeing.

2 Research Methodology

This study adopted a mixed-method approach to provide both statistical and experiential insights into psychological adjustment. The sample consisted of 120 healthcare professionals, including neurosurgeons, psychologists, nurses, and counsellors.

Data collection employed a triangulated strategy involving online surveys, email distribution, and institutional networks, consistent with best practices in contemporary research methodology (Evans & Mathur, 2018).

This approach enhanced data diversity and reduced sampling bias.

Quantitative data were analysed using descriptive statistics, while qualitative data were analysed using thematic analysis, following the structured approach developed by Braun and Clarke (2006). This method allowed for systematic identification of recurring patterns in participants' responses.

3 4. Results

Results

Table 1: Perceived Influence of Psychological Factors on Neurosurgical Recovery Outcomes

Variable	Percentage Preoperative
Anxiety affects outcomes.	82%
Psychoeducation reduces fear.	76%
Coping skills improve emotional stability.	79%
Family involvement enhances recovery.	85%

The results demonstrate that psychological factors significantly influence neurosurgical outcomes. The high prevalence of preoperative anxiety aligns with previous findings indicating its predictive role in postoperative complications (Mitchell, 2016).

Table 2: Common Psychological and Cognitive Challenges Following Neurosurgical Procedures

Challenge	Description
Anxiety.	Fear of complications
Depression	Emotional distress
Cognitive deficits	Memory impairment
Identity disruption	Altered self-concept

These findings are consistent with studies showing that neurological interventions often lead to cognitive and emotional changes requiring long-term psychological support (Rabinowitz & Levin, 2014).

Table 3: Thematic Insights from Healthcare Professionals on Psychological Adjustment in Neurosurgical Patients.

Theme	Description
Fear and uncertainty	Anxiety about surgery
Need for information	Desire for clarity
Social support	Role of family
Counselling resilience	Improved coping

The themes reinforce the importance of information, emotional support, and structured counselling in facilitating adjustment.

4 Discussion

The findings of this study provide compelling evidence that psychological adjustment is not a peripheral concern but a central determinant of neurosurgical outcomes. By demonstrating the significant influence of emotional, cognitive, and social factors on recovery trajectories, the study reinforces the need to reconceptualise neurosurgical care as a holistic process rather than a purely biomedical intervention. The prominence of preoperative anxiety, as identified in this study, strongly supports the stress and coping model, which posits that individuals' cognitive appraisal of a stressor determines their emotional and behavioural responses (Lazarus & Folkman, 1984). Patients who perceive surgery as overwhelmingly threatening are more likely to exhibit maladaptive coping strategies, heightened anxiety, and poorer postoperative outcomes. This underscores the clinical importance of early psychological assessment and targeted anxiety-reduction interventions prior to surgery.

Furthermore, the observed effectiveness of psychoeducation aligns with cognitive-behavioural theory, which emphasises the role of cognition in shaping emotional experience (Beck, 1976). By providing patients with clear, accurate, and structured information about surgical procedures, risks, and recovery processes, healthcare professionals can reduce uncertainty and challenge catastrophic thinking patterns. This cognitive restructuring not only alleviates

anxiety but also enhances patients' sense of control and preparedness, which are critical for adaptive coping. In this regard, psychoeducation should not be treated as a routine informational exercise but as a strategic therapeutic intervention embedded within clinical practice.

The findings also highlight the pivotal role of coping skills training in fostering emotional stability. Patients who are equipped with adaptive coping mechanisms—such as problem-focused coping, emotional regulation strategies, and acceptance—are better able to manage stress and navigate the uncertainties associated with neurosurgical procedures. This aligns with broader psychological research indicating that coping flexibility and resilience are key predictors of positive health outcomes (Carver et al., 1989; Southwick et al., 2014). In the context of neurosurgery, where patients may face unpredictable outcomes and potential cognitive changes, strengthening coping capacity becomes particularly crucial.

A notable contribution of this study is its emphasis on family involvement as a critical determinant of psychological adjustment. This finding reflects the biopsychosocial model, which recognises the interconnectedness of biological, psychological, and social factors in health and illness (Engel, 1977). In African healthcare contexts, including Nigeria, family systems are deeply embedded in patient care and often serve as primary sources of emotional, financial, and practical support. The strong endorsement of family involvement by participants in this study underscores the need to actively incorporate family members into counselling interventions and care planning processes. Such involvement not only enhances patient morale but also facilitates adherence to treatment and rehabilitation protocols (Adeosun & Adegbohun, 2021).

Importantly, the study's findings resonate with global neurosurgical research that advocates for integrated care models. Scholars have increasingly highlighted the limitations of conventional surgical approaches that neglect psychological dimensions of recovery (Dewan et al., 2018; Karekezi et al., 2020). In many parts of the world, particularly in low- and middle-income countries, neurosurgical care is constrained by resource limitations, workforce shortages, and inadequate mental health infrastructure. Within this context, integrating psychological support into neurosurgical practice offers a cost-effective and high-impact strategy for improving patient outcomes.

Another critical dimension emerging from this study is the issue of identity disruption following neurosurgical procedures. Unlike many other surgical interventions, neurosurgery has the potential to alter cognitive functioning, personality traits, and self-perception. Patients may struggle with changes in memory, attention, or emotional regulation, leading to a sense of loss or altered identity. This highlights the importance of postoperative counselling interventions that focus on identity reconstruction, meaning-making, and psychological adaptation. Such interventions are essential for promoting long-term adjustment and reintegration into social and family life (Rabinowitz & Levin, 2014; Stanton et al., 2015).

The qualitative findings further enrich the discussion by revealing patients' and professionals' shared emphasis on the need for information, reassurance, and emotional support. The recurring theme of "fear and uncertainty" underscores the psychological burden associated with neurosurgical procedures, while the "need for information" highlights gaps in communication within clinical settings. These insights suggest that improving doctor–patient communication and ensuring transparency throughout the surgical process can significantly enhance psychological outcomes.

From a contextual perspective, the study contributes to the growing body of African scholarship advocating for culturally responsive healthcare models. Psychological interventions that fail to account for cultural beliefs, spiritual practices, and communal values may be less effective or even rejected by patients. Therefore, integrating culturally sensitive counselling approaches—such as incorporating spiritual coping strategies or engaging community support systems—can enhance the relevance and effectiveness of interventions.

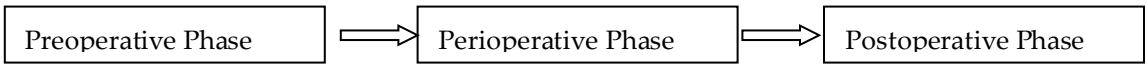
Finally, the findings underscore the importance of shifting toward interdisciplinary collaboration in healthcare delivery. Neurosurgical care should involve not only surgeons and nurses but also psychologists, counsellors, and social

workers working collaboratively to address the multifaceted needs of patients. Such collaboration ensures that psychological adjustment is systematically addressed rather than treated as an afterthought.

In summary, this study advances the understanding of psychological adjustment in neurosurgical contexts by demonstrating its profound impact on patient outcomes. It highlights the need for early intervention, structured counselling frameworks, family involvement, and culturally sensitive practices. By aligning with both established psychological theories and emerging global health perspectives, the study provides a strong foundation for transforming neurosurgical care into a more holistic, patient-centred practice.

Proposed Counselling Framework

Figure 1: Integrative Three-Phase Counselling Framework for Psychological Adjustment in Neurosurgical Patients.



The framework adopts a continuous care approach.

In the preoperative phase, psychological assessment, anxiety reduction, and psychoeducation prepare patients emotionally and cognitively. This stage is critical in shaping expectations and reducing uncertainty (Mitchell, 2016).

The perioperative phase focuses on emotional stabilisation through reassurance, communication, and stress management. Supportive interactions during this phase enhance patient confidence and reduce distress (Fann et al., 2015).

The postoperative phase addresses long-term adjustment through cognitive rehabilitation and identity reconstruction. These interventions are essential in restoring functional independence and psychological wellbeing (Rabinowitz & Levin, 2014).

Implications for Practice

The findings of this study underscore the urgent need to move beyond a purely biomedical orientation in neurosurgical care toward a more integrated, multidisciplinary model that embeds psychological support as a core component of clinical practice. Integrating counselling services into neurosurgical settings is not simply an added advantage but a clinical necessity, given the profound emotional and cognitive challenges associated with neurological conditions and surgical interventions. Hospitals and specialist centres should therefore establish structured counselling units within neurosurgical departments, ensuring that patients receive continuous psychological care from preoperative assessment through postoperative rehabilitation.

A critical implication for practice lies in workforce development. Healthcare professionals—including neurosurgeons, nurses, and allied health practitioners—must be equipped with foundational competencies in psychological support. This includes skills in empathetic communication, basic counselling techniques, recognition of psychological distress, and appropriate referral pathways. Incorporating mental health training into medical and nursing curricula, as well as continuous professional development programmes, will enhance clinicians' capacity to deliver holistic care. Such training is particularly important in high-stress surgical environments, where brief but meaningful interactions with patients can significantly influence emotional stability and treatment outcomes.

Equally important is the development and implementation of culturally sensitive intervention models. In contexts such as Nigeria and broader African settings, health behaviours and psychological responses are deeply shaped by cultural beliefs, spirituality, and communal values. Counselling approaches must therefore be adapted to reflect these realities, integrating culturally relevant communication styles, family involvement, and where appropriate, faith-informed coping strategies. This cultural alignment enhances patient trust, reduces resistance to intervention, and improves overall engagement with treatment processes.

From an institutional perspective, healthcare systems must prioritise policies that support interdisciplinary collaboration. Effective neurosurgical care should involve coordinated efforts among neurosurgeons, psychologists, counsellors, social workers, and rehabilitation specialists. Establishing multidisciplinary case management teams can facilitate comprehensive care planning that addresses both medical and psychosocial needs. Additionally, routine psychological screening should be incorporated into clinical protocols to enable early identification of patients at risk of anxiety, depression, or maladaptive coping.

Resource allocation also emerges as a key practical consideration. While many healthcare settings in developing countries face financial and infrastructural constraints, psychological interventions are relatively low-cost and high-impact. Investing in counselling services, training programmes, and simple assessment tools can yield significant improvements in patient outcomes, reduce hospital stay durations, and enhance overall system efficiency. Furthermore, leveraging digital health technologies—such as tele-counselling, mobile mental health applications, and remote monitoring tools—can expand access to psychological support, particularly in underserved and rural communities.

Finally, the study highlights the importance of monitoring and evaluation mechanisms within clinical practice. Healthcare institutions should establish frameworks for assessing the effectiveness of psychological interventions, including patient-reported outcomes, recovery indicators, and satisfaction measures. Such data-driven approaches will not only inform continuous improvement but also provide empirical justification for policy support and funding allocation.

In sum, the integration of counselling services into neurosurgical care requires coordinated efforts at individual, institutional, and policy levels. By prioritising psychological wellbeing alongside surgical success, healthcare systems can achieve more holistic, patient-centred outcomes and significantly improve the quality of neurosurgical care.

The study highlights the need for integrating counselling services into neurosurgical care. Training healthcare professionals in psychological support and developing culturally sensitive intervention models are essential for improving patient outcomes.

5 Summary

Psychological adjustment is a fundamental component of neurosurgical care, extending far beyond the immediate physiological outcomes of surgical intervention. This study has demonstrated that emotional, cognitive, and social factors are not peripheral variables but central determinants of recovery trajectories, influencing treatment adherence, rehabilitation success, and long-term quality of life. Patients who receive structured psychological support are more likely to exhibit adaptive coping, reduced anxiety, and improved functional outcomes, thereby reinforcing the necessity of integrating counselling into neurosurgical practice.

The proposed counselling framework offers a systematic and culturally responsive model for addressing these psychological needs across the continuum of care. By incorporating preoperative preparation, perioperative emotional stabilisation, and postoperative rehabilitation, the framework ensures continuity of psychological support and aligns clinical interventions with patients' lived experiences. Importantly, its emphasis on family involvement reflects the sociocultural realities of African healthcare systems, where communal support structures play a critical role in healing and recovery (Adeosun & Adegbohun, 2021).

The integration of psychological care into neurosurgical practice represents a significant paradigm shift from a predominantly biomedical model to a holistic, patient-centred approach. In resource-constrained settings such as Nigeria, where healthcare infrastructure is often limited, this integration is not only desirable but essential. Psychological interventions are relatively cost-effective and can substantially enhance resilience, reduce complications associated with stress and anxiety, and improve overall patient satisfaction (Gureje & Oladeji, 2019). Moreover, embedding

counselling services within neurosurgical units can help bridge existing gaps in mental health service delivery and contribute to more equitable healthcare outcomes.

Beyond clinical implications, this study contributes to policy discourse by highlighting the need for institutional and governmental support for integrated care models. Policymakers should prioritise the inclusion of mental health professionals within surgical teams, develop national guidelines for psychosocial care in medical settings, and invest in training programmes that equip healthcare providers with basic counselling competencies. Such initiatives would facilitate the mainstreaming of psychological care within surgical practice across Nigeria and other African countries.

Future research should extend beyond cross-sectional analysis to longitudinal studies that evaluate the long-term effectiveness of counselling interventions on patient outcomes. There is also a growing need to explore innovative and scalable solutions, including digital mental health platforms, tele-counselling, and mobile health applications tailored to African contexts. These technologies hold significant promise for expanding access to psychological support, particularly in underserved and rural areas.

Furthermore, interdisciplinary research that integrates neurosurgery, psychology, and public health perspectives will be crucial in refining intervention models and ensuring their sustainability. Comparative studies across different cultural and healthcare settings may also provide valuable insights into context-specific adaptations of counselling frameworks.

In conclusion, embedding psychological care into neurosurgical practice is not merely an enhancement of existing treatment protocols but a transformative approach that redefines the standard of care. By recognising the interconnectedness of mind and body, healthcare systems can move toward more humane, effective, and sustainable models of treatment that prioritise the total wellbeing of patients.

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