

A systematic review of challenges, impacts and burdens of cesarean section on the mental health and well-being of pregnant mothers, and family in Nigeria

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Abstract

Cesarean section (CS) rates are increasing globally, yet in low-resource settings such as Nigeria, limited integration of maternal mental health services may heighten psychological vulnerability. This systematic review synthesises evidence on the psychological impacts of CS on mothers and families in Nigeria.

A systematic search was conducted across four databases (PubMed, Scopus, African Journals Online, and CINAHL), and grey literature sources were searched for relevant articles following PRISMA guidelines. Two independent reviewers completed screening, data extraction, and quality appraisal using the Mixed Methods Appraisal Tool. Narrative synthesis was applied to reporting the results.

Ten studies were included. The evidence demonstrated that CS was consistently associated with elevated psychological morbidity, including postpartum depression, anxiety symptoms, and post-traumatic stress disorder (PTSD). Emergency CS was a strong predictor of PTSD, with a reported higher likelihood. Evidence highlighted fear, loss of control, and feelings of inadequacy following CS. Sociocultural stigma framing CS as a sign of weakness or culturally constructed belief of spiritual failure amplified psychological distress. Only a minority of affected women accessed mental health care. Spousal distress and family-level psychological burden were also reported, indicating broader household impact. Protective factors included spousal support, respectful maternity care, religious coping, and peer support.

CS imposes a substantial multilayered psychological burden on Nigerian mothers and their families, yet the health system lacks integrated mental health support. Routine screening, family-centered counselling, and community stigma reduction are urgently required. Policy must mandate postpartum mental health screening, institutionalize respectful maternity care, and scale low-cost psychosocial interventions for CS families.

Key words: cesarean section, CS, mental health, well-being, maternal well-being, Nigeria.

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Introduction

Globally, cesarean section (CS) is the most frequently performed major abdominal surgery, with rates rising from approximately 12% in 2000 to over 21% in 2020.¹ While CS can be a life-saving intervention for both mother and baby, a growing body of evidence suggests that operative delivery is associated with an elevated risk of adverse psychological outcomes, including postpartum depression (PPD), anxiety disorders, and post-traumatic stress disorder (PTSD).² A systematic review and meta-analysis found that women delivering by CS, particularly emergency CS, have approximately 1.5 times the odds of developing PPD compared to those with spontaneous vaginal delivery.² In high-income settings, emergency CS is an independent predictor of PTSD symptoms at 6 weeks postpartum.^{2,3} In low- and middle-income countries (LMICs), the psychological burden of CS may be even more pro-

nounced due to weak health systems, limited mental health services, pervasive sociocultural stigma, and financial catastrophe associated with surgical delivery.⁴ Sub-Saharan Africa accounts for the highest global burden of maternal mortality and morbidity, yet the mental health consequences of CS remain severely under-researched in this region.⁵

Nigeria bears the highest absolute number of maternal deaths in Africa, with a maternal mortality ratio of 1047 per 100,000 live births.⁶ Although the national CS rate of approximately 2.8% is far below the World Health Organization (WHO)-recommended 10-15%, studies from tertiary and teaching hospitals in Nigeria report rates ranging from 19.4% to over 40%, reflecting a concentration of high-risk obstetric cases in referral centres.^{7,8} Of these procedures, emergency CS accounts for approximately 70-75%, meaning that the majority of Nigerian women who undergo CS do so under conditions of obstetric emergency, often following prolonged, obstructed labor with inadequate pain relief.⁹ Such cir-

cumstances are recognized internationally as powerful triggers for psychological trauma.¹⁰ Adding to the psychological vulnerability, Nigerian women who undergo CS frequently encounter culturally mediated disapproval: a qualitative synthesis from the region reveals that CS is commonly framed as a sign of maternal weakness, a culturally constructed belief of spiritual failure, or marital infidelity.^{11,12}

Consequently, women may experience a dual psychological burden, the distress of an unwanted surgical delivery compounded by social shaming.¹¹ Mental health services in Nigeria are grossly insufficient.¹³ The country has approximately 0.4 psychiatrists per 100,000 population, and mental health expenditure constitutes less than 0.5% of the national health budget.¹³ Postnatal care, where it exists, is almost exclusively focused on infant immunization and physical assessment, with no structured mental health screening.¹⁴ The result is that perinatal mental disorders remain largely undiagnosed and untreated, with prevalence rates of PPD estimated at 10–30% in community settings and up to 35.6% in facility-based studies.^{15,16} Despite this high burden, the specific contribution of CS to maternal mental ill-health in Nigeria has not been systematically examined, particularly regarding the emotional and psychological impacts on spouses and the wider family.

Existing global systematic reviews either exclude Nigerian data due to scarcity or pool results across heterogeneous LMIC settings without disaggregation.^{2,10} Where Nigerian studies are included, they are typically older, facility-based cross-sectional surveys that lack standardized mental health instruments and do not address the family dimension.^{17,18} The present systematic review is therefore necessary to (i) map the existing peer-reviewed evidence on CS and mental health in Nigeria, (ii) identify key themes and evidence gaps, (iii) explore contextual factors unique to Nigeria that shape these outcomes, and (iv) provide actionable recommendations for policy, practice, and future research.

Objectives of the study

This systematic review synthesized peer-reviewed evidence on the mental health challenges and family burdens of CS among Nigerian mothers and families. Specific objectives include: i) to identify and map peer-reviewed studies that examine the psychological challenges, mental health impacts, and family burdens of CS among pregnant and postpartum women and their families in Nigeria; ii) to thematically synthesize the key mental health challenges (depression, anxiety, PTSD, self-esteem, quality of life) associated with CS in the Nigerian context; iii) to identify the sociocultural, economic, and health-system factors that mediate or moderate the mental health outcomes of CS; iv) to determine the extent to which the family (spouses, extended family) experiences psychological burden as a consequence of CS; v) to highlight gaps in the existing evidence and propose a research agenda for the Nigerian setting; vi) to provide evidence-informed recommendations for maternal mental health policy, practice, and education in Nigeria.

Methods

Study design

A systematic review was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Systematic Reviews guidelines (PRISMA).^{19,20}

Information sources

The following electronic bibliographic databases were searched: PubMed (including MEDLINE), Scopus, African Journals Online, and CINAHL (via EBSCOhost). Gray literature was sought from Google Scholar, the WHO African Index Medicus, and the websites of the Nigerian Federal Ministry of Health and key non-governmental organizations (MSF, Nigeria Health Watch). The initial search was conducted on 1 April 2026, with a final update on 30 April 2026. Reference lists of all included studies and relevant previous reviews were hand-searched for additional eligible articles.

Search strategy

The search strategy combined MeSH terms and free-text keywords using Boolean operators (AND, OR), adapted for each database. The core search string was as follows: (“caesarean section” OR “cesarean section” OR “operative delivery” OR “abdominal delivery”) AND (“mental health” OR “psychological wellbeing” OR “depression” OR “anxiety” OR “post-traumatic stress” OR “PTSD” OR “self-esteem” OR “quality of life” OR “emotional distress” OR “psychiatric morbidity” OR “psychosocial”) AND (“Nigeria” OR “Nigerian”) AND (“postpartum” OR “postnatal” OR “pregnant” OR “maternal” OR “mother” OR “family” OR “spouse” OR “husband”). Search filters were applied where available to limit results to human studies, English language, and publication dates between 1 January 2006 and 31 January 2026.

Eligibility criteria

Inclusion criteria

Population: pregnant and postpartum women (up to 12 months post-delivery) residing in Nigeria; spouses or family members of women who underwent CS in Nigeria.

Exposure/concept: CS (elective or emergency) as the primary mode of delivery or as a key variable in the analysis.

Outcomes: any measure of mental health, psychological wellbeing, emotional distress, quality of life, or family psychosocial burden.

Study design: primary peer-reviewed studies including cross-sectional surveys, case-control studies, cohort studies, qualitative studies (phenomenology, grounded theory, ethnography), and mixed-methods studies.

Language: English.

Publication: 1 January 2006 to 31 January 2026.

Exclusion criteria

Systematic reviews, scoping reviews, meta-analyses, narrative reviews, and editorial commentaries; studies conducted outside Nigeria; studies where the mode of delivery was not analyzed separately for CS or where psychological outcomes were not reported; conference abstracts, dissertations, and protocols; studies focusing exclusively on neonatal outcomes or maternal physical morbidity without a psychological component.

Risk of bias assessment

Risk of bias (quality appraisal) was assessed using the Mixed Methods Appraisal Tool (MMAT) Version 2018,²¹ which is designed for the critical appraisal of qualitative, quantitative, and mixed-methods studies within a single review. Disagreements between reviewers during MMAT appraisal were resolved through discussion and consensus. *Supplementary Table 1* presents the risk of bias assessment of the included studies.

Study selection

Titles and abstracts of all retrieved records were screened independently by two reviewers against the eligibility criteria. Full-text articles of potentially eligible records were retrieved and assessed independently by the same two reviewers. Reasons for exclusion at the full-text stage were documented. Disagreements at both screening stages were resolved by consensus or discussion.

Data extraction and synthesis approach

A standardized Microsoft Excel data extraction form was developed. Data items included: (i) study authors and year; (ii) objectives; (iii) study design; (iv) study location and sample size; (v) key findings; and (vi) conclusion.

Given the clinical and methodological heterogeneity of included studies, meta-analysis was not conducted. A narrative synthesis approach was adopted for the synthesis of findings of the study.²²

Study selection and screening procedure

The PRISMA 2020 flow diagram for new systematic reviews was generated. An initial 326 records were retrieved from database

searches, with three additional records identified *via* reference list searching and gray literature sources, yielding 326 records. After the removal of 107 duplicates, 219 records remained for title and abstract screening. Of these, 177 records were excluded (irrelevant topic, $n=91$; wrong population/setting, $n=45$; review/editorial, $n=23$; conference abstract/protocol, $n=18$). Forty-two full-text articles were assessed for eligibility. Thirty-two articles were excluded at this stage (no separate CS data or psychological outcome, $n=18$; not Nigeria-specific, $n=8$; full text unavailable, $n=4$; duplicate publication, $n=2$). Ten studies met all eligibility criteria and were included in the final synthesis. Figure 1 shows the PRISMA diagram of the selection and screening process of the included studies.

Results

Characteristics of included studies

The 10 included studies comprised 7 quantitative cross-sectional surveys, 2 qualitative studies, and 1 mixed-methods study.^{8,9,11,12,15,23-27} Collectively, they enrolled approximately 3450 participants, of whom approximately 2360 were women who had

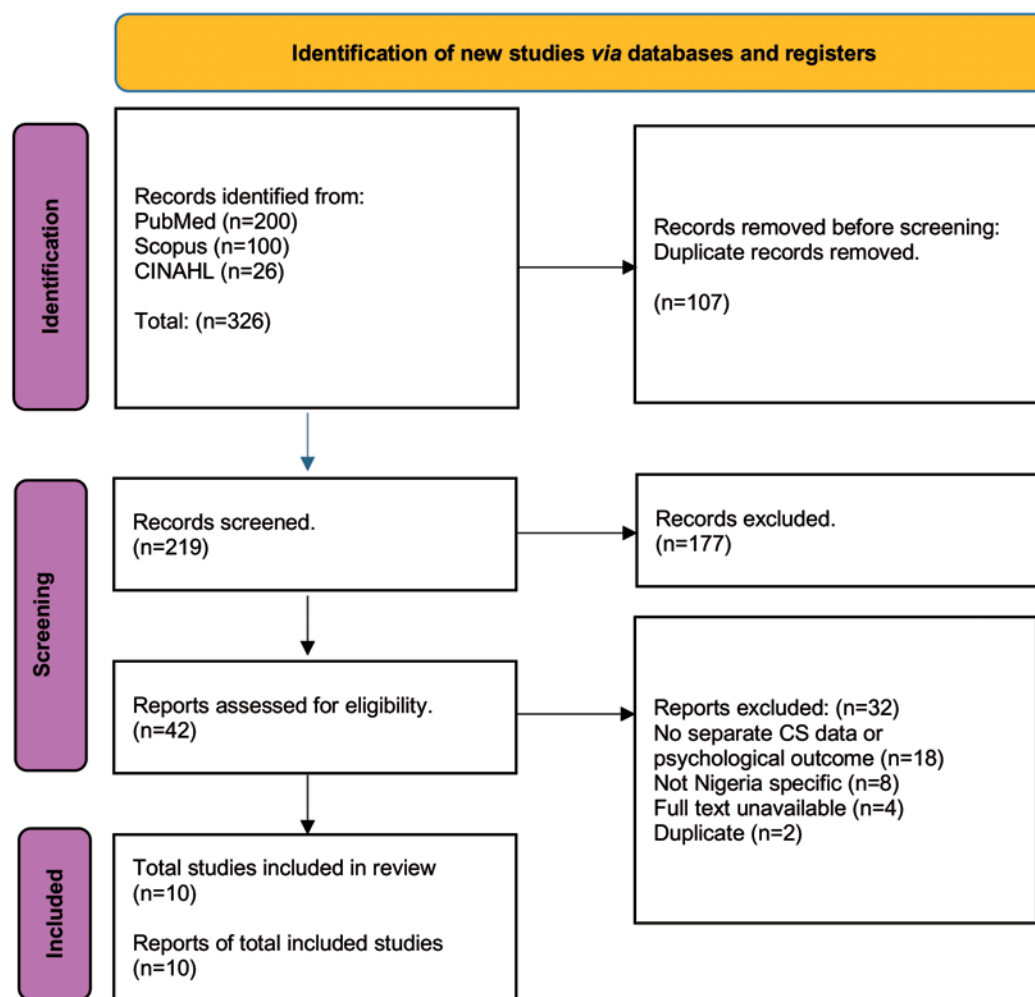


Figure 1. Diagram of the PRISMA 2020 Process for Systematic Reviews and Meta-Analyses.

undergone CS. Sample sizes ranged from 24 to 41,821. Geographical coverage included the south-west, south-south, south-east, north-central, and north-west. Study settings spanned tertiary teaching hospitals, secondary-level facilities, private hospitals, and community-based primary health centers. All studies were published between 2006 and 2025. Emergency CS comprised approximately 70-80% of all CS procedures across studies that reported this variable. *Supplementary Table 2* presents the summary of the included studies. Findings will be disseminated through peer-reviewed publications, academic conferences, and engagement with Nigerian maternal and mental health stakeholders to support policy translation.

Quality appraisal of included studies

Using MMAT criteria, 5 studies were rated as high quality. These studies employed robust designs, validated instruments [e.g., Edinburgh Postnatal Depression Scale (EPDS), General Health Questionnaire (12-item), Mini International Neuropsychiatric Interview (MINI), State-Trait Anxiety Inventory], and sufficiently powered samples. Two studies were rated as moderate, primarily due to non-representative sampling (single-center, convenience samples) and failure to control for confounding. Two qualitative studies were rated as low quality: one did not adequately justify the sample size, the other lacked reflexivity and rigor in data analysis. The lowest-quality study had unclear measurement validity and no blinding but was retained because it provided the only quantitative data on decisional conflict, a critical dimension of CS psychological experience. These quality variations constitute a limitation of the review, and findings from lower-quality studies are interpreted with appropriate caution. Lower-quality studies were not excluded; however, their findings were weighted cautiously during synthesis, with greater interpretive emphasis placed on higher-quality evidence. Sensitivity of interpretation was maintained by considering methodological quality during synthesis, with greater emphasis placed on higher-quality studies in forming overall conclusions. *Supplementary Table 1* presents the quality assessment score of the included studies.

Thematic review/key themes

A total of 10 studies were included in this systematic review.^{8,9,11,12,15,23-27} Collectively, these sources addressed PPD, PTSD, mental healthcare-seeking behavior, lived experiences of CS, decisional conflict and consent processes, spousal distress, maternal quality-of-life outcomes, and system-level determinants of psychological outcomes. Narrative synthesis of the evidence generated six overarching themes.

Clinical psychological outcomes following cesarean section

Across the evidence, CS is consistently associated with depressive and anxiety symptoms among mothers. Postpartum emotional distress is characterized by persistent sadness, anxiety, emotional fatigue, and reduced maternal confidence.^{15,24-27} These experiences are frequently compounded by physical recovery challenges and postoperative discomfort, which interact with emotional vulnerability in the early postpartum period. Psychological distress is further shaped by postoperative pain, delayed bonding experiences, and reduced physical functioning, all of which contribute to prolonged emotional adjustment difficulties.^{11,25} Help-seeking behavior remains limited, with barriers including stigma, perceived normalization of symptoms, and reluctance to be perceived as emotionally weak.²⁶

Trauma-related responses are consistently linked to emergency CS experiences. Psychological reactions include intrusive memories, avoidance behaviors, heightened fear responses, and sustained emotional distress following childbirth.^{11,12,25} These responses are closely associated with perceived loss of control and fear of mortality during labor and delivery. Contributing contextual factors include limited preoperative explanation, emergency decision-making conditions, and inconsistent pain management, all of which intensify psychological distress.^{23,25} Emotional processing following such experiences often includes regret, disappointment, and disruption of expected childbirth narratives.¹²

Sociocultural stigma and culturally constructed belief of spiritual failure associated with cesarean section

CS is frequently interpreted within sociocultural frameworks that associate vaginal birth with strength and femininity, while CS is sometimes viewed as weakness, failure, or spiritual misfortune.^{11,12} These interpretations shape emotional responses and contribute to internalized stigma, reduced self-esteem, and psychological distress. These meanings are reinforced through relational and community-level perceptions, including partner attitudes and broader family narratives.^{11,12} Male partner perceptions of CS as a marker of weakness further compound emotional burden and may influence maternal self-perception and coping responses.^{11,12} Patriarchal decision structures also shape childbirth experiences, with limited maternal autonomy contributing to emotional strain and decisional conflict.⁹ However, these sociocultural perceptions are not uniform and may vary across Nigeria's diverse ethnic, religious, and regional contexts, as well as across levels of education and urbanization.

Decisional conflict and the consent experience

Decision-making around CS is frequently characterized by psychological tension arising from the mismatch between clinical recommendation and cultural preference for vaginal delivery.⁹ This results in decisional conflict, particularly where women perceive limited involvement in the decision-making process. Consent processes are often experienced as procedural rather than fully participatory, particularly when undertaken in urgent clinical contexts.^{9,25} Limited comprehension of risks and alternatives contributes to emotional distress and post-event psychological reflection characterized by feelings of loss of autonomy and reduced control over childbirth. This combined decisional and consent experience contributes significantly to psychological outcomes, particularly when women retrospectively perceive insufficient involvement in childbirth decisions.^{11,25}

Spousal and family psychological burden

Psychological consequences extend beyond mothers to include spouses and family members.⁸ Husbands may experience emotional distress following CS, including anxiety, self-blame, and maladaptive coping responses such as withdrawal or denial.²³ These responses may affect their ability to provide emotional support during maternal recovery. Extended family members provide essential postpartum support, particularly through traditional caregiving practices. However, these support systems may simultaneously reinforce cultural interpretations of CS that contribute to emotional distress, reflecting a dual role of support and social reinforcement of stigma.¹¹

Impaired quality of life, self-esteem, and mother-infant bonding

CS is associated with reduced quality of life across physical and emotional domains, including bodily pain, physical functioning, and general health perception.^{25–27} Maternal self-evaluation is also affected, with some women expressing reduced confidence in parenting ability and diminished maternal identity following CS.^{8,11} These experiences reflect broader disruptions in self-perception and maternal role identity, extending beyond clinical symptomatology into psychosocial well-being and lived experience of motherhood.²⁵

System-level determinants of psychological outcomes

The evidence indicates that psychological outcomes following CS are strongly influenced by systemic and health service factors. Women frequently experienced inadequate communication during obstetric care, particularly in emergency settings where explanations were limited, and decision-making occurred rapidly.^{11,25} This contributed to fear, confusion, and reduced perceived control over the childbirth experience. Pain management following CS was also inconsistently addressed, and unresolved postoperative pain was commonly described as a source of ongoing emotional distress.²⁵ Combined with physical recovery challenges and limited emotional support, these factors contributed to prolonged psychological vulnerability in the postpartum period.¹¹ The consent process was frequently experienced as procedural rather than fully participatory, with limited understanding of risks and alternatives contributing to decisional distress.^{9,25} Despite experiencing emotional distress, many women did not access formal psychological care. Barriers included stigma, normalization of distress, and limited awareness of mental health services within maternal care pathways.²⁶

This reflects broader structural gaps in the integration of mental health within obstetric services. At the broader systems level, postpartum support structures provided mixed effects. Traditional caregiving systems offered essential practical support but could simultaneously reinforce cultural narratives that shaped negative interpretations of CS, illustrating the complex interaction between care and stigma within family systems.¹¹

Discussion

Interpretation and synthesis of findings

This systematic synthesis indicates that CS is associated with a multidimensional psychological burden affecting mothers and their families. The evidence collectively reflects a pattern in which depressive symptoms, post-traumatic stress responses, and anxiety-related distress emerge following CS, particularly in contexts where operative delivery is unplanned or experienced under emergency conditions.¹¹ Psychological distress following CS is not solely attributable to the surgical procedure itself but is shaped by the broader emotional and experiential context surrounding childbirth.¹²

Across the evidence, emergency CS is consistently associated with heightened fear, perceived loss of control, and emotional shock, which together contribute to trauma-related psychological responses.^{11,12,25} These responses often persist beyond the immediate postpartum period and are reflected in intrusive recollections, avoidance behaviors, and sustained emotional distress. Depressive symptoms following CS are similarly shaped by both clinical and psychosocial factors. Emotional vulnerability is often intensified by postoperative pain, delayed recovery, and difficulties in early mother–infant bond-

ing.^{11,25} These experiences interact to produce a broader pattern of emotional adjustment challenges, including reduced maternal confidence, emotional fatigue, and difficulty reconciling expectations of childbirth with lived experience.^{15,26,27}

Comparative interpretation within broader contexts

The psychological burden associated with CS observed in this synthesis aligns with broader patterns reported across comparable low- and middle-income settings, where operative delivery is often embedded within sociocultural meanings and constrained health system environments.^{28–31} However, the Nigerian context is distinguished by the strong cultural framing of vaginal birth as a marker of femininity and social worth, alongside systemic limitations in mental health integration within maternity care.^{7,32} These contextual factors interact to amplify psychological vulnerability following CS, particularly in emergency contexts where clinical urgency intersects with limited communication, reduced autonomy, and heightened emotional stress.^{32–36}

Contextual determinants of psychological outcomes

Several contextual factors shape CS-related psychological outcomes within the Nigerian setting. The relatively low population-level CS rate contributes to the perception of CS as an uncommon and highly medicalized event, which may intensify emotional and social interpretation of the experience.^{7,37–41} Limited integration of mental health services within obstetric care contributes to under-recognition and under-treatment of psychological distress.¹⁴ Financial constraints associated with surgical delivery may also contribute to emotional strain and household stress, further influencing maternal mental health outcomes.⁴²

Additionally, decision-making structures within families may limit maternal autonomy in childbirth choices, contributing to decisional conflict and emotional distress.⁹ Policy-level efforts to reduce financial barriers to CS have been introduced, although implementation challenges may contribute to ongoing uncertainty and psychosocial stress.⁴³

Resilience and protective factors

Despite the documented psychological burden, the evidence also reflects variability in maternal experiences following CS. Some women describe positive emotional responses, including relief, gratitude, and perceived safety following successful delivery outcomes.^{11,12} These responses are often linked to the survival and well-being of the infant and positive clinical outcomes. Protective factors include supportive spousal relationships, respectful and communicative healthcare interactions, religious faith, and the presence of extended family support systems.^{11,34,38}

These factors may buffer against psychological distress by enhancing emotional security and reinforcing adaptive coping mechanisms. Structured peer support interventions show potential for improving psychological outcomes and reducing depressive symptoms, although such approaches remain limited in scale and evaluation.²⁷ The absence of widely implemented psychosocial interventions highlights a significant gap in service provision for women following CS.⁴⁴

Limitations of the evidence base

The evidence base demonstrates several limitations that affect interpretation. The predominance of cross-sectional study designs limits causal inference and prevents understanding of temporal rela-

tionships between CS and psychological outcomes. The absence of longitudinal evidence restricts insight into recovery trajectories beyond the early postpartum period. Geographical representation across studies is incomplete, limiting generalizability of findings across all settings. The reliance on screening tools rather than diagnostic assessments introduces variability in measurement precision. Additionally, the lack of long-term follow-up limits understanding of enduring psychological and developmental impacts, including effects on maternal functioning and mother–infant relationships.

Strengths and limitations of the review

Strengths

This review provides a comprehensive synthesis of psychological outcomes associated with CS using a structured and transparent methodological approach. The inclusion of qualitative, quantitative, and mixed-methods evidence allows for a multidimensional understanding of maternal and family experiences.

Limitations

Limitations include potential omission of relevant studies not captured within the search strategy, particularly those in gray literature sources. The exclusion of non-English publications may also have limited representation of some contextual evidence. While quality appraisal was conducted using a validated tool, interpretation of methodological quality remains subject to inherent limitations of appraisal frameworks. The predominance of cross-sectional designs limits causal inference, while reliance on screening instruments rather than structured diagnostic interviews may have led to over- or under-estimation of true psychiatric disorder prevalence.

Gaps in existing literature and research agenda

This review identifies 12 key gaps that require urgent attention to strengthen the evidence base on CS related psychological outcomes in Nigeria. First, there is a critical need for longitudinal cohort studies tracking women from pregnancy through at least 12 months postpartum to clarify temporal relationships and recovery trajectories following CS. Second, nationally representative studies using diagnostic interviews (*e.g.*, MINI) are required to establish the true burden of PPD, anxiety disorders, and PTSD across all six geopolitical zones. Third, significant geographic gaps exist, particularly in the North-East and North-West, which remain underrepresented in current literature. Fourth, future studies should differentiate clearly between elective and emergency CS, as these likely have distinct psychological consequences. Fifth, the role of anesthesia type (general *vs.* regional) in shaping psychological outcomes remains insufficiently explored. Sixth, research on mother–infant bonding and child developmental outcomes following CS in Nigeria is lacking.

Seventh, most studies focus exclusively on husbands; broader research is needed on fathers and extended family systems. Eighth, there is limited evidence on the economic burden of CS and its interaction with psychological distress, including catastrophic expenditure and debt-related anxiety. Ninth, there is an urgent need for intervention studies evaluating culturally appropriate psychosocial strategies such as peer support, cognitive behavioral therapy, psychological first aid, and mobile health interventions. Tenth, implementation science studies are required to guide integration of mental health services into routine maternal care using scalable models such as the Mental Health Gap Action Program (mhGAP). Eleventh, future research should examine the intersection between obstetric violence, disrespectful maternity care, and CS-related psychological trauma.

Finally, the psychological impact of recent policy initiatives, including the Federal Government free CS program, should be systematically evaluated to determine whether financial protection improves mental health outcomes.

Conclusions

This systematic review demonstrates that CS in Nigeria is associated with a substantial and multidimensional burden of psychological morbidity affecting mothers and, to a lesser extent, their families. PPD following CS exceeds regional averages, emergency CS is strongly associated with PTSD risk, and cultural narratives that frame CS as weakness or culturally constructed belief of spiritual failure contribute to a uniquely adverse psychosocial environment. Protective factors such as spousal support, respectful maternity care, religious faith, and peer support systems provide important entry points for intervention. However, the current evidence base remains limited in geographic coverage, methodological rigor, and longitudinal depth, restricting its utility for national planning and service design.

These findings must be situated within Nigeria's broader maternal health context, characterized by high maternal mortality, low population-level CS rates, and limited integration of mental health services into obstetric care. Addressing the psychological consequences of CS therefore requires a shift toward integrated, woman-centered, and family-inclusive maternity care that addresses both physical and psychological safety. The Nigerian Mental Health Act (2023) provides an enabling legal framework for expanding mental health services.⁴⁵ However, translating this into meaningful perinatal mental health improvements will require sustained political commitment, adequate financing, workforce strengthening, and multisectoral collaboration. This review provides an evidence base to inform such action.

Recommendations

Based on the findings of this review, the following priority actions are recommended.

Health system actions (short-term)

These are immediately implementable actions within existing maternal health services.

- i. Routine perinatal mental health screening: implement universal screening for depression and anxiety using validated tools (*e.g.*, EPDS, Generalized Anxiety Disorder 7-Item Scale) at antenatal booking, 6 weeks postpartum, and following CS. Screening must be linked to clear referral and treatment pathways.
- ii. Establishment of referral pathways: develop structured referral systems within maternity services to ensure timely access to mental health support for women identified as at risk or symptomatic following CS.

Workforce actions (medium-term)

These require training, institutional strengthening, and practice reform.

- i. Healthcare worker training: strengthen pre-service and in-service training for doctors, nurses, and midwives in perinatal mental health, trauma-informed care, and psychological consequences of CS.
- ii. Respectful maternity care implementation: institutionalize

respectful maternity care standards across all obstetric facilities, including communication skills training, informed consent improvement, and reduction of psychological harm during CS experiences.

Structural reforms (long-term)

These require system-wide policy, financing, and institutional coordination.

- i. Sustainable funding for perinatal mental health: ensure dedicated budget lines for maternal mental health services, including integration within national maternal and child health financing frameworks.
- ii. Integration of mhGAP into maternal health systems: scale up WHO mhGAP within antenatal and postnatal care platforms to support task-shifting and expand service coverage.
- iii. Establishment of a national perinatal mental health research network: create a coordinated national platform to align research, avoid duplication, and support evidence-informed policy and intervention development across Nigeria.

Implications of the study

Public health implications

The findings indicate a substantial and largely unrecognized burden of psychological morbidity among CS mothers and their families. Given Nigeria's high fertility rate, the absolute number affected annually is likely substantial. Integrating mental health into maternal health services offers a scalable and cost-effective response.

Practice implications

Healthcare providers should recognize CS, particularly emergency CS, as a potential psychological risk event. Simple interventions such as clear communication, companionship during delivery where feasible, and postpartum debriefing may reduce distress. Routine postnatal mental health screening should be standard practice.

Research implications

This review maps critical evidence gaps and highlights the need for longitudinal, multi-site, and intervention-based studies. Future research should move beyond description toward evaluation of scalable solutions.

Policy implications

The findings support prioritization of perinatal mental health within Nigeria's maternal health agenda. The Mental Health Act (2023) provides a legislative foundation, but implementation requires dedicated funding, workforce development, and integration into maternal health policy frameworks.

Global health implications

Nigeria's experience reflects broader challenges in LMICs where rising CS rates coexist with weak mental health systems. The findings support WHO calls for integrated, respectful, and psychologically safe maternity care globally.

Educational implications

Perinatal mental health, trauma-informed care, and respectful maternity practices should be embedded in medical, nursing, and midwifery curricula, with continued professional development for practicing clinicians.

Future directions

Future studies should prioritize the establishment of longitudinal pregnancy cohorts that track women from the antenatal period through at least 12 months postpartum, with repeated, standardized assessments of depression, anxiety, PTSD, self-esteem, quality of life, and mother-infant bonding, thereby enabling the delineation of causal pathways between CS type (elective *vs.* emergency), anesthesia modality, and subsequent psychological outcomes. Future studies should also focus on under-researched populations, including women in the north-east and north-west geopolitical zones, rural women, adolescents, women with obstetric fistula, and women living with HIV. Future studies should rigorously evaluate the effectiveness, cost-effectiveness, and scalability of culturally adapted psychosocial interventions such as peer support, group cognitive-behavioral therapy, and mobile health platforms for CS mothers and their families in Nigerian settings. Future studies should investigate the psychological impact of CS on fathers, grandparents, and other family members, moving beyond the maternal focus to capture the full family burden. Future studies should employ implementation science frameworks to examine how mental health screening and care can be sustainably integrated into routine antenatal and postnatal services within Nigeria's complex, pluralistic health system. Future studies should investigate the psychological outcomes of the Federal Government's free CS initiative, examining the hypothesis that removing financial barriers improves mental health trajectories. Finally, future studies should employ qualitative and participatory methodologies to center the voices of Nigerian women and families, ensuring that interventions are grounded in their lived realities, preferences, and cultural values.

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Online supplementary material:

Supplementary Table 1. Risk of bias/quality assessment.

Supplementary Table 2. Summary of the included studies.

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