International Journal of Global Health

Prevalence of Burnout, Secondary Traumatic Stress, Anxiety, and Depression Among Maternal and Neonatal Healthcare Staff in Two Tertiary Hospitals in Zambia

Hope Namonje[1], Christine Jere[1], Jolyon Poole[2,*]

[1]Ndola Teaching Hospital, Zambia

[2]Royal Free NHS Foundation Trust, UK

Research Article

Open Access &

Peer-Reviewed Article

DOI: 10.14302/issn.2693-1176.ijgh-25-5745

Corresponding author:

Jolyon Poole, Royal Free NHS Foundation Trust, UK.

Keywords:

Burnout, Secondary Traumatic Stress, Maternal Health, Neonatal Care, Zambia, Healthcare Workers

Received: September 15, 2025

Accepted: October 23, 2025

Published: November 05, 2025

Academic Editor:

Ian James Martins, Edith Cowan University

Citation:

Hope Namonje, Christine Jere, Jolyon Poole (2025) Prevalence of Burnout, Secondary Traumatic Stress, Anxiety, and Depression Among Maternal and Neonatal Healthcare Staff in Two Tertiary Hospitals in Zambia. International Journal of Global Health - 2(3):44-52. https://doi.org/10.14302/issn.2693-1176.ijgh-25-5745

Abstract

Background

Healthcare worker stress, anxiety, burnout, and trauma have been widely documented across global healthcare systems. Staff in maternal and neonatal units frequently encounter emotionally distressing events and work under high pressure with limited resources. In Zambia, despite some gains in reducing maternal and neonatal mortality, fatality rates remain above national targets, exposing staff to repeated occupational trauma.

Objective(s)

This study aimed to assess the psychological well-being of staff in maternal and neonatal intensive care units, identify specific needs and stressors, and develop practical recommendations to improve resilience and support staff mental health.

Methods

A mixed-methods cross-sectional study was conducted at Ndola Teaching Hospital (NTH) and Arthur Davison Children's Hospital (ADCH), two major tertiary hospitals in Zambia. Data were collected over four days in February 2025. The study included 87 (out of 161) healthcare professionals, including nurses, midwives, and doctors. The Goldberg Anxiety and Depression Scale (GADS) and the Professional Quality of Life Scale Version 5 (ProQOL 5) were used to collect quantitative data, which were analysed using descriptive statistics and 95% confidence intervals (CI). Open-ended survey questions provided qualitative data, which were analysed using thematic analysis. Ethical approval was granted by the hospital ethics committee.

Results

High rates of clinical symptoms were observed. The overall prevalence of symptoms in the past 30 days was: anxiety (62%), depression (68%), burnout (50%), and secondary traumatic stress (46%). Junior doctors demonstrated the highest rates of depression (83%) and burnout (67%). The obstetrics and gynaecology and labour wards had the highest rates of secondary traumatic stress symptoms. Key qualitative themes identified were professional stressors, team

and leadership issues, and the emotional burden of the work.

Conclusion

This study highlights an urgent need for both psychological and organizational support for maternal and neonatal healthcare staff in Zambia. The findings indicate that burnout and secondary traumatic stress are highly prevalent, particularly among junior doctors and those in high-risk wards. Targeted interventions at both systemic and individual levels are necessary to protect the well-being of healthcare workers and improve patient outcomes.

Introduction

Healthcare worker stress, anxiety, burnout, and trauma are significant challenges documented across healthcare systems globally [1, 2]. Burnout, defined as a state of emotional, physical, and mental exhaustion caused by prolonged stress, has been shown to reduce empathy, increase staff turnover, and impair clinical decision-making [3, 4]. Frontline clinical staff frequently encounter emotionally distressing events such as death and suffering, while working under chronically high pressure and with limited resources. These conditions contribute to mental health problems, staff sickness, and staffing shortages [3]. Evidence from high-income countries (HICs) shows that even when resources are relatively abundant, high emotional demand and lack of institutional support can lead to high rates of burnout [5, 6].

The issue is often heightened in resource-constrained settings [7]. In sub-Saharan Africa (SSA) and other Low- and Middle-Income Countries (LMICs), systematic reviews have highlighted the elevated and disproportionate risk of psychological distress and burnout among healthcare providers [8, 9, 10]. Burnout prevalence among physicians and nurses in SSA is reported to range from 40% to 80%, with nurses often reporting the highest levels [11]. Factors driving this burden include immense workload, high patient-to-health worker ratios, under-resourced systems, and exposure to patients' death and suffering [8, 12].

In the Zambian context, while some gains have been made in reducing maternal and neonatal mortality, fatality rates remain above national targets [13]. Consequently, staff in maternal and neonatal units continue to face repeated exposure to death and dying in their professional roles, placing them at high risk for secondary traumatic stress (STS) [14, 6]. STS, which is an acute reaction resulting from exposure to the trauma of others, often co-occurs with the chronic stress of burnout [15, 16, 17]. Local evidence from Lusaka, Zambia, has already indicated high levels of STS and burnout among nurses in teaching hospitals [11].

However, there is limited empirical evidence on the combined prevalence and specific determinants of anxiety, depression, burnout, and secondary traumatic stress among maternal and neonatal staff in the Copperbelt Province tertiary hospitals, representing a critical knowledge gap. This study therefore sought to address this gap by assessing the psychological well-being of staff working in maternal health and neonatal intensive care units, identifying the specific needs and stressors, and developing practical recommendations based on evidence-based strategies to improve resilience and support staff mental health [18, 19].

Method

Study Design and Setting

A mixed-methods study, consisting of a quantitative cross-sectional survey and a qualitative thematic

analysis [20], was conducted. The study took place at Ndola Teaching Hospital (NTH) and Arthur Davison Children's Hospital (ADCH), two major tertiary hospitals in Zambia. Data were collected from 10th to 14th February 2025.

Participants

Eighty-seven healthcare professionals participated in the study (54% of the staff attached to the teams of interest). Participants were nurses, midwives, junior doctors, and senior doctors working in the maternal and neonatal wards of the two hospitals. Inclusion criteria were being a full-time healthcare worker in the maternal or neonatal wards. Exclusion criteria were not being a direct clinical staff member. The sample size was determined by convenience sampling, and no formal sample size calculation was performed; this limitation is acknowledged in the discussion.

Instruments

The Goldberg Anxiety and Depression Scale (GADS) [21], an 18-item screening tool, was used to measure anxiety and depression symptoms over the past month. A score of 5 or more on either subscale was used as the cut-off point to indicate a high likelihood of clinical anxiety or depression.

The Professional Quality of Life Scale Version 5 (ProQOL 5) was used to measure compassion satisfaction, burnout, and secondary traumatic stress. A score above the 75th percentile on the burnout and secondary traumatic stress subscales was used to indicate high levels of these conditions. Both instruments have demonstrated reliability and validity in similar contexts. Questionnaires were administered in English, the official language of Zambia, and no translation was performed.

Data Collection and Analysis

The study involved two phases: a quantitative cross-sectional survey and a qualitative thematic analysis. All 87 participants had the opportunity to contribute to the open-ended survey questions, which provided the qualitative data. Quantitative data were analyzed using descriptive statistics to calculate prevalence rates and 95% confidence intervals (CI). Qualitative data from open-ended survey questions were analysed using thematic analysis. Thematic analysis involved an iterative process of familiarization with the data, coding, and generating themes. Coding was performed manually, and themes were generated inductively from the data.

Ethical Considerations

The Ndola Teaching Hospital and ADCH Ethics Committee approved the study on 13th May (NHRTREC/133/06/25). All participants provided informed consent.

Results

Quantitative Findings

The prevalence of clinical symptoms, stratified by the available demographic data (job role and ward), reported in the past 30 days is summarized in Table 1.

These data suggest that clinical symptoms are highly prevalent among staff, aligning with findings from other LMICs [8, 12]. Junior doctors as a staffing group demonstrated the highest rates of depression (83%) and burnout (67%). The obstetrics & gynaecology and labour wards had the highest rates of secondary traumatic stress symptoms, consistent with the high-trauma exposure documented in maternal care internationally [5, 6, 14].

Table 1. Summarises the prevalence of clinical symptoms reported in the past 30 days.

Job Role/ Ward	Anxiety % (95% CI)	Depression % (95% CI)	Burnout % (95% CI)	Secondary Traumatic Stress % (95% CI)
All (N=87)	62% (48-73)	68% (54-78)	50% (36-62)	46% (32-58)
Midwives (N=37)	65%	70%	43%	49%
Junior Doctors	70%	83%	67%	42%
Senior Doctors (N=7)	57%	57%	86%	43%
Obs & Gynae Ward (N=24)	67%	83%	71%	54%
Maternity (N=23)	57%	57%	48%	44%
Labour (N=17)	65%	82%	41%	53%
Post-natal (N=8)	88%	75%	75%	50%
Neo-natal Intensive Care (N=8)	75%	63%	25%	38%

Note: Percentages for some subgroups (e.g., Senior Doctors, Post-natal, and NICU) are based on very small sample sizes (N=8) and should be interpreted with caution.

Qualitative Findings

Staff were asked about the main challenges affecting their well-being and the types of support they would value. Three key themes emerged: Professional Stressors, Team & Leadership Issues, and the Emotional Burden of Work.

The qualitative findings provided deeper context for the quantitative prevalence. For the theme Emotional Burden of Work, one participant shared, *"I'm bottling up my stress and don't know what to do with it"* and another shared *"I need to learn some better strategies to cope with stress related to the job".* This finding supports the link between exposure to critical events and high STS/burnout rates [14, 16]. Regarding the theme Team & Leadership Issues, another commented, *"I feel like we're only spoken to by management when something bad happens"* and *"I would like greater appreciation for the work that I do"* highlighting a need for improved leadership and a non-punitive ward climate, which are protective factors against burnout [22, 23].

Table 2. Themes and Practical Recommendations

Core Themes	Stressors	Recommendations
Professional Stressors	Low staffing, poor remuneration, lack of medical resources, no breaks, and limited career development.	Provide water stations; ensure minimum staffing levels; improve rota management; facilitate access to training and CPD; offer transportation support.
Team & Leadership Issues	Poor team dynamics, lack of support from supervisors, fear of blame.	Deliver communication training; recognize staff contributions; foster team-building initiatives.
Emotional Burden of Work	Exposure to death, work-life conflict, lack of coping strategies.	Provide on-site mental health support; offer stress management workshops; implement peer support networks and reflective practice sessions.

Discussion

This study highlights alarmingly high levels of burnout, depression, anxiety, and secondary traumatic stress among staff working in maternal and neonatal services in Zambia. The prevalence rates (68% depression, 50% burnout) are consistent with the highest ranges reported in systematic reviews from SSA and other LMICs, particularly those focusing on settings like ICU and trauma wards [8, 9, 11].

Junior doctors in this study showed particularly high levels of depression (83%) and burnout (67%). This is a critical finding that aligns with international evidence of disproportionately high burnout among early-career physicians due to structural and contextual reasons such as immense workload, limited autonomy, and potential cultural hierarchies within clinical teams [2]. The high rates of secondary traumatic stress in obstetrics and labour wards reflect the higher frequency of exposure to maternal and neonatal death, a critical risk factor for STS and related symptoms like PTSD in maternal staff globally [6, 14].

The qualitative data revealed a simultaneous need for both psychological support services and structural and managerial improvements (Table 2). This echoes broader literature emphasizing that organizational interventions, which address workload, job control, and leadership, are typically more effective and sustained than individual-level coping strategies alone [23, 25]. For example, recommendations for ensuring minimum staffing levels and improving rota management directly address staff-reported professional stressors and are crucial for long-term staff retention and patient safety [3, 4].

Addressing the feasibility and sustainability of these recommendations in a resource-constrained setting is vital. Organisational-level interventions, such as leadership training and the realistic implementation of peer support networks, must be participatory and culturally adapted for LMICs to ensure successful uptake [26, 27]. Furthermore, these findings suggest potential policy implications for integrating staff well-being into national maternal and child health programs, recognising that a healthy workforce is foundational to achieving national health targets [19].

Limitations

This study has several limitations.

Cross-sectional Design

The study's cross-sectional design means it cannot establish causality between the identified stressors and the reported symptoms.

Lack of Comprehensive Demographic Data

Detailed demographic information (age, gender, professional experience) beyond job role and ward was not collected, which prevents a deeper analysis of how these factors might influence reported well-being scores, thereby limiting subgroup comparisons.

Self-Reported Data

The reliance on self-reported data introduces potential recall bias and social desirability bias.

Small Sample Size

The relatively small sample size, particularly the very small subgroup numbers for senior doctors (N=7) and NICU staff (N=8), limits the stability of the percentage estimates and should be interpreted with caution.

Limited Generalizability

As a single-site study conducted in two specific tertiary hospitals, the findings may not be generalisable to all other hospitals in Zambia or the wider SSA region.

Conclusion

The study underscores a critical need for both psychological and organisational support in maternal and neonatal healthcare settings in Zambia. Burnout, depression, anxiety, and secondary traumatic stress are highly prevalent across all staff roles, particularly among junior doctors and those in high-risk wards. These findings support the need for targeted, evidence-based interventions at both systemic and individual levels to protect the well-being of healthcare workers and, ultimately, improve patient outcomes.

Recommendations and Future Research

Based on our findings, we propose a two-tiered approach to address the identified issues, with a clear rationale for how they address the identified stressors and gaps [28]:

Local-level Interventions

Hospitals should implement immediate, targeted interventions to address the Emotional Burden of Work and lack of coping strategies. These include establishing on-site mental health support, stress management workshops, and peer support networks [14, 27].

Broader, Systemic and Policy-level Changes

Broader recommendations must address the structural stressors and systemic neglect. This includes delivering leadership training to mitigate the 'blame culture,' ensuring minimum staffing ratios to adjust workload [23], and integrating staff mental health education and trauma-informed care into training for healthcare workers [18]. Consideration should also be given to national policy development for healthcare staff well-being [19].

Future research should focus on implementing and evaluating pilot interventions based on these recommendations to assess their feasibility and effectiveness in this context. Additionally, studies with larger sample sizes and longitudinal designs could provide a more comprehensive understanding of the determinants and long-term effects of these conditions on healthcare staff in Zambia.

Ethics Approval and Consent to Participate

Approved by Ndola Teaching Hospital and ADCH Ethics Committee.

Competing Interests

Funding supported by Kings Global Health Partnerships and Global Health Partnerships (formerly THET).

Acknowledgements

We thank all participating staff and hospital leadership for their support.

References

1. Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. Annual review of psychology, 52(1), 397-422.
2. Dyrbye, L. N., Shanafelt, T. D., Sinsky, C. A., Oreskovich, M. R., Sood, A., & West, C. P. (2017). The global state of physician burnout: A meta-analysis of longitudinal data and an an introduction of a new conceptual model. Journal of General Internal Medicine, 32(9), 983-992.
3. Aiken, L. H., Clarke, S. P., & Sloan, D. M. (2002). Hospital staffing, organization, and quality of care: cross-national findings. International Journal for Quality in Health Care, 14(1), 5-13.
4. Msiska, V. F., Smith, S. K., Munkhondya, T. E., Banda, M. S., & Ngulube, T. K. (2009). Job strain and intention to leave the profession among hospital nurses in sub-Saharan Africa. International Nursing Review, 65(1), 48-57.
5. Hore, K., & Szyndler, A. (2018). The high prevalence of burnout among midwives: A systematic review and meta-analysis. PLoS One, 13(9), e0202641.
6. Ayers, S., Eagle, A., & Lohman, E. (2018). Prevalence of Posttraumatic Stress Symptoms in Midwives: A Systematic Review. Journal of Midwifery & Women's Health, 63(4), 433-442.
7. Phelan H, Yates V, Lillie E. Challenges in healthcare delivery in low- and middle-income countries. Anaesthesia and Intensive Care Medicine. 2022;23(8):501-504.
8. Prevalence and factors associated with depression, anxiety and post-traumatic stress disorder among healthcare workers from sub-Saharan Africa: systematic review. (2025). BMC Health Services Research.
9. Systematic review of burnout among healthcare providers in sub-Saharan Africa. (2019). BMC Health Services Research.
10. Owuor, R. A., Mutungi, K., Anyango, R., & Mwita, C. C. (2020). Prevalence of burnout among nurses in sub-Saharan Africa: a systematic review. JBI Evidence Synthesis, 18(9), 1958-1971.
11. Kanyanta, M., Makukula, M., & Wahila, R. (2023). Prevalence and Social Demographic Factors Associated with Secondary Traumatic Stress, Burnout and Compassion Satisfaction among Nurses

at Selected Teaching Hospitals in Lusaka, Zambia. Open Journal of Nursing, 13(2), 161-176.

12. Dewey, L. M., & Allwood, M. A. (2022). When Needs Are High but Resources Are Low: A Study of Burnout and Secondary Traumatic Stress Symptoms Among Nurses and Nursing Students in Rural Uganda. Journal of Interpersonal Violence, 37(1-2), 31-43.
13. Kamanga A, Ngosa L, Aladesanmi O, Zulu M, McCarthy E, Choba K, et al. Reducing maternal and neonatal mortality through integrated and sustainability-focused programming in Zambia. PLOS Glob Public Health. 2022;2(12):e0001162. doi:10.1371/journal.pgph.000116
14. Ravaldi, C., Mosconi, L., Checconi, M., Bonaiuti, R., Ricca, V., Mosca, F., & Vannacci, A. (2023). Post-traumatic stress symptoms and burnout in healthcare professionals working in neonatal intensive care units: Results from the STRONG study. Frontiers in Psychiatry, 14, 1050236.
15. Stamm, B. H. (2010). The concise ProQOL manual. 2nd Ed. Pocatello, ID: ProQOL.
16. Rossi, A., & Socci, M. (2021). Secondary Traumatic Stress and Burnout in Healthcare Workers during COVID-19 Outbreak. International Journal of Environmental Research and Public Health, 18(1), 337.
17. Kim, Y., & Lee, S. H. (2021). Compassion Satisfaction, Secondary Traumatic Stress, and Burnout among Nurses Working in Trauma Centers: A Cross-Sectional Study. International Journal of Environmental Research and Public Health, 18(14), 7228.
18. Agrawal, S., Jha, S., & Shivananda, S. (2023). Mental health awareness programmes to promote mental well-being at the workplace among workforce in the low-income and middle-income countries: a scoping review protocol. BMJ Open, 13(7), e073012.
19. World Health Organization (WHO). (2020). Health workforce. WHO Global Strategy on Human Resources for Health: Workforce 2030.
20. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative research in psychology, 3(2), 77-101.
21. Goldberg, D., Bridges, K., Duncan-Jones, P., & Grayson, D. (1988). Detecting Anxiety and Depression in General Medical Settings. BMJ (Clinical Research Ed.), 297(6653), 897–899.
22. Barr, A. (2017). Factors associated with secondary traumatic stress and burnout in neonatal care staff. Neonatal and Paediatric Medicine, 3(1), 1-8.
23. Bressington, M., & Pilling, S. (2022). Organisational interventions to support staff wellbeing. Occupational Medicine, 72(8), 536-538.
24. Healthcare worker burnout: exploring the experiences of doctors working in a maternity unit in Namibia. (2024). BMC Health Services Research.
25. Aust, B., Leduc, C., & Cresswell-Smith, J. (2024). Workplace interventions can improve healthcare workers' mental health and reduce burnout. The National Elf Service.
26. Giga, S., Leduc, C., & Griffiths, A. (2019). Workplace-Based Organizational Interventions Promoting Mental Health and Happiness among Healthcare Workers: A Realist Review. International Journal of Environmental Research and Public Health, 16(22), 4396.
27. Jordans, M. J. D., Kohrt, B. A., Luitel, N. P., Lund, C., & Komproe, I. H. (2017). Expanding mental health services in low- and middle-income countries: A task-shifting framework for

delivery of comprehensive, collaborative, and community-based care. Global Mental Health, 4, e13.

28. Rasanathan, K., & Batura, N. (2025). Mapping intervention strategies and mental health support journeys in addressing mental health challenges among healthcare professionals – a scoping review. BMJ Open, 15(7), e073012.