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Barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa: a protocol for the synthesis of qualitative evidences

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Barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa: a protocol for the synthesis of qualitative evidences

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ABSTRACT

Introduction: There are barriers that hinder and enablers that foster the quality care in neonatal intensive care unit. Those are the main challenge in the health care system that decrease patient and/or parent/caregivers' satisfaction, decrease job satisfaction and increase burnout. Therefore, this systematic review aims to identify those barriers and enablers in sub-Saharan Africa.

Methods and analysis: This systematic review will search and gather data from a variety of databases, including: JBI Database, Cochrane Database, MEDLINE/PubMed, CINAHL/EBSCO, EMBASE, PEDro, POPLINE, Proquest, OpenGrey (SIGLE), Google Scholar, Google, APA PsycINFO, Web of Science, Scopus and HINARI. The review will also include unpublished studies and grey literature from a variety of sources. This review will only include qualitative and mixed-methods studies that explore the barriers and enablers to quality care for high-acuity neonates using qualitative data collection and analysis methods. The JBI Critical Appraisal Checklist for qualitative research will be used by two independent reviewers to critically appraise the eligible studies. Any disagreements that arise will be resolved through discussion. Qualitative research findings will be pooled using the meta-aggregation approach in QARI software, where possible. Only unequivocal and credible findings will be included in the synthesis. If textual pooling is not possible, the findings will be present in narrative form.

Ethics and dissemination: This systematic review does not require ethical clearance, and the findings will be disseminated to relevant stakeholders to ensure the widest possible outreach and impact.

Systematic review registration number in PROSPERO: CRD42023473134.

Strengths and limitation of the study

- The review will provide a comprehensive synthesis of qualitative evidence on the barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa.
- The review will use a systematic and rigorous approach to identify, select, and analyze relevant studies.
- The review will include a wide range of qualitative studies from different countries and settings in sub-Saharan Africa.
- The review will be limited by the quality of the available qualitative studies.
- The review will not be able to provide causal inferences about the barriers and enablers of quality high-acuity neonatal care.

INTRODUCTION

Quality of care is defined as the extent to which healthcare services are delivered to improve desired health outcomes. To achieve this, the services must be safe, effective, timely, efficient, equitable, and person-centered.¹ Quality of neonatal care includes the availability of equipment, supplies, guidelines, protocols, and trained and motivated healthcare workers, as well as supportive supervision and client satisfaction.²⁻⁴ The importance of high-quality care for newborns is increasingly recognized as essential for improving their health and well-being worldwide.^{3, 5, 6} Despite the fact that the quality of care in neonatal intensive care units is compromised in many aspects, sub-Saharan Africa is facing a number of challenges in improving neonatal care.^{7, 8} This is an alarming public health issue because it puts millions of newborns at risk of death and disability, staff burnout, missed nursing care for high-acuity neonates.⁹⁻¹¹

There are a number of barriers that hinder the quality of care and enablers that foster in NICU. The provider, caregiver and health system related barriers included inadequate knowledge and training, rigid division of roles and responsibilities, poor leadership, lack of effective communication, human resource constraints, inadequate equipment and clinical guidelines, poor documentation, and infrastructure, and economic insecurity of parents.¹²⁻²² On the other hand, socio-cultural environment related barriers were patterns of interaction of the staff and parents and among staff, and power structure of the staff and leaders.²³⁻²⁵ Making the care participatory, respectful, providing emotional support for parents, positive communication and using digital technologies were some of the facilitating factors for the quality of care in NICU.^{22, 24, 26, 27}

Enhancing the quality of NICU services in sub-Saharan Africa requires a multi-pronged approach that strengthens collaboration among various stakeholders, aligns quality of care plans with national infrastructure development strategies, and ensures adequate procurement of essential medicines and commodities.²⁸ While notable progress has been made in scaling up NICU quality in countries like Malawi, Ethiopia, and Rwanda over the past few decades,²⁹ significant gaps remain in many sub-Saharan countries, necessitating continued efforts to improve service delivery, reduce neonatal mortality, and enhance parent and provider satisfaction. In this context, identifying the key barriers hindering service provision and the factors promoting positive outcomes is crucial.

This systematic review aims to bridge the existing knowledge gaps regarding quality care for high-acuity neonates in sub-Saharan Africa. A preliminary search of relevant databases, including PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and the JBI Evidence Synthesis, revealed no ongoing or recently completed systematic reviews addressing this topic.

Review objective

The primary objective of this systematic review is to comprehensively examine the barriers and enablers that influence the quality high-acuity neonatal care in sub-Saharan Africa.

METHODS AND ANALYSIS

Protocol design and registration

This systematic review protocol was developed following JBI methodology for systematic reviews of qualitative evidence.³⁰ integrated with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols (PRISMA-P) guidelines.^{31, 32} (Supplementary file 1). The findings of the systematic review will be reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).³³ The review title has been registered in the international

prospective register of systematic reviews (PROSPERO) with the registration number CRD42023473134.

Inclusion criteria

The studies included in this systematic review will be selected based on the PICO mnemonic for participants, phenomena of interest, and context, but strict adherence to this mnemonic is not mandatory. *Participants*: The participants for this systematic review will be any individual (caregiver, parents, health professionals, etc.). *Phenomena of interest*: This systematic review will consider studies that explore barriers and enablers to quality high-acuity neonatal care in NICU. *Context*: The systematic review will include studies conducted in sub-Saharan Africa. *Types of studies*: This review will only include qualitative and mixed-methods studies that explore the barriers and enablers to quality high-acuity neonatal care using qualitative data collection and analysis methods.

Search strategy

This systematic review will search for both published and unpublished studies on the barriers and enablers to quality care for high-acuity neonates in sub-Saharan Africa. The search will be conducted in three steps: (1) A limited search of MEDLINE (PubMed) and CINAHL (EBSCO) will be conducted to identify relevant articles. The search terms will be based on the titles, abstracts, and index terms of relevant articles, and will use the Boolean logic operators AND and OR with MeSH terms, keywords, and word variants for quality of care. (2) The search terms identified in the initial search will be adapted to create a full search strategy for each included database and/or information source (Table 1). (3) To identify additional relevant studies, the reference lists of all included studies will be screened. Only studies published in English from January 1, 2013 to December 30, 2023 will be included in this systematic review. This systematic review will search and gather data from a variety of databases, including: JBI Database, Cochrane Database, MEDLINE/PubMed, CINAHL/EBSCO, EMBASE, PEDro, POPLINE, Proquest, OpenGrey (SIGLE), Google Scholar, Google, APA PsycINFO, Web of Science, Scopus and HINARI. Unpublished studies and grey literature will also be retrieved from institutional libraries and repositories, preprint websites, and through direct contact with the authors.

Study selection

Following the search, all identified citations will be collated and uploaded into EndNote and duplicates removed. After pilot test, title and abstract screening process, followed by two independent reviewers screening all titles and abstracts against the inclusion criteria. The inclusion criteria for the review will be used to determine if the citations are relevant. The full texts of the potentially relevant sources will then be retrieved. Two independent reviewers will assess the full texts of the retrieved studies to determine if they meet the inclusion criteria for the review. If a study is excluded, the reasons for exclusion will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion. The results of the search and the study selection process will be reported in full in the final systematic review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram.³³ (Figure 1).

Table 1: Search strategy

PICO components	Inclusion criteria	Search terms (keywords/Mesh terms/index terms/Free text words)	Limits
Participants	Caregiver, nurses, parents, health professionals	nurse*[All Fields] OR caregiver*[All Fields] OR parent*[All Fields] OR health care provider*[MeSH Terms] OR health professional*[MeSH Terms] OR health care worker* [All Fields]	Language: English Publication date: January 1, 2013 to December 30, 2023
Phenomena of interest	Barriers and enablers to quality high-acuity neonatal care in NICU	barrier*[All Fields] OR enabler* [All Fields] OR facilitator*[All Fields] OR hindering factor*[All Fields] OR militating factor*[All Fields] OR challenge*[All Fields] OR neonatal intensive care unit [All Fields] OR NICU [All Fields] OR quality care [All Fields] OR high-acuity neonate*[All Fields]	
Context	Studies conducted in sub-Saharan Africa	sub-Saharan Africa	
<p>Combine a single search strategy: (((("nurse*" [All Fields] OR "caregiver*" [All Fields] OR "parent*" [All Fields] OR ("delivery of health care" [MeSH Terms] OR ("delivery" [All Fields] AND "health" [All Fields] AND "care" [All Fields]) OR "delivery of health care" [All Fields] OR ("health" [All Fields] AND "care" [All Fields]) OR "health care" [All Fields]) AND "provider*" [MeSH Terms]) OR (("health" [MeSH Terms] OR "health" [All Fields] OR "healths" [All Fields] OR "healthful" [All Fields] OR "healthfulness" [All Fields] OR "healths" [All Fields]) AND "professional*" [MeSH Terms]) OR "health care worker*" [All Fields]) AND "barrier*" [All Fields]) OR "enabler*" [All Fields] OR "facilitator*" [All Fields] OR "hindering factor*" [All Fields] OR "militating factor*" [All Fields] OR "challenge*" [All Fields] OR ("intensive care units, neonatal" [MeSH Terms] OR ("intensive" [All Fields] AND "care" [All Fields] AND "units" [All Fields] AND "neonatal" [All Fields]) OR "neonatal intensive care units" [All Fields] OR ("neonatal" [All Fields] AND "intensive" [All Fields] AND "care" [All Fields] AND "unit" [All Fields]) OR "neonatal intensive care unit" [All Fields]) OR ("intensive care units, neonatal" [MeSH Terms] OR ("intensive" [All Fields] AND "care" [All Fields] AND "units" [All Fields] AND "neonatal" [All Fields]) OR "neonatal intensive care units" [All Fields] OR "nicu" [All Fields]) OR ("quality of health care" [MeSH Terms] OR ("quality" [All Fields] AND "health" [All Fields] AND "care" [All Fields]) OR "quality of health care" [All Fields] OR ("quality" [All Fields] AND "care" [All Fields]) OR "quality care" [All Fields]) OR ("high-acuity" [All Fields] AND "neonate*" [All Fields])) AND ("africa south of the sahara" [MeSH Terms] OR ("africa" [All Fields] AND "south" [All Fields] AND "sahara" [All Fields]) OR "africa south of the sahara" [All Fields] OR ("sub" [All Fields] AND "saharan" [All Fields] AND "africa" [All Fields]) OR "sub saharan africa" [All Fields]) AND 2013/01/01:3000/12/31 [Date - Publication]</p>			
Number of records retrieved by the search: 83,877			
Database used: MEDLINE (Ovid)			
Search conducted on: Date: November 05, 2023; Time: 10:25:48			

Assessment of methodological quality

Eligible studies will be critically appraised by two independent reviewers for methodological quality using the standard JBI Critical Appraisal Checklist for Qualitative Research.³⁰ Authors of papers will be contacted to request missing or additional data for clarification, where required. Any disagreements that arise will be resolved through discussion. The results of critical appraisal will be reported in narrative form and in a table. Studies will be scored using a quality appraisal checklist, and only studies with a score of 50% or higher will be included in the systematic review and meta-synthesis. If the two assessors disagree on a score, they will review the study together to investigate the source of the disagreement. If they are still unable to agree, the average of their scores will be used. Studies that do not meet a quality threshold will be excluded from the systematic review and meta-synthesis, but they will be reported narratively and in table form.

Data extraction

Data extraction from the studies included in the review will be conducted by two independent reviewers using the standardized JBI data extraction tool.³⁰ The data extracted will encompass specific details pertaining to the populations, context, culture, geographical location, study methods, and the phenomena of interest relevant to the review objective (Supplementary file 2). Findings and their corresponding illustrations will be extracted verbatim and assigned a level of credibility. Discrepancies arising between the reviewers will be resolved through discussion. Authors of the papers will be contacted to solicit missing or additional data when necessary.

Data synthesis

Qualitative research findings will, where possible, be pooled using QARI with the meta-aggregation approach. This will involve the aggregation or synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings and categorizing these findings on the basis of similarity in meaning. These categories will then be subjected to a synthesis in order to produce a single comprehensive set of synthesized findings that can be used as a basis for evidence-based practice. Where textual pooling is not possible the findings will be presented in narrative form. Only unequivocal and credible findings will be included in the synthesis.

Assessing confidence in the findings

The synthesized findings will undergo evaluation using the ConQual approach, a method for establishing confidence in the output of qualitative research synthesis. The resulting assessment will be presented in a Summary of Findings table.³⁴

ETHICS AND DISSEMINATION

Ethical clearance is not required for this systematic review as it does not involve any primary research or the collection of data from human participants. The review will only synthesize existing research findings, which are publicly available and do not raise any ethical concerns. The findings of the systematic review will be disseminated to a wide range of stakeholders, including researchers, policymakers, healthcare professionals, and patient advocates. This will be done through a variety of channels, such as publication in peer-reviewed journals, presentation at conferences, and dissemination of reports and summaries.

DISCUSSION

Quality care is essential for high-acuity neonates in neonatal intensive care units (NICUs). Therefore, evidence that identifies the main hindering and facilitating factors to providing quality care in NICUs in sub-Saharan Africa is equally important for designing appropriate strategies.

AMENDMENTS

The authors may need to make some changes to the systematic review, but they will clearly explain what those changes are and why they are necessary in the final review.

List of abbreviations

ConQual: Confidence in the output of qualitative research synthesis, PRISMA-P: Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols, PROSPERO: International Prospective Register of Systematic Reviews, QARI: Qualitative Assessment and Review Instrument

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Authors' contributions

AM came up with the research question, wrote how the research would be done and the introduction, and created a plan for the research. AD and GN helped find information, and AM, AD, and GN all carefully reviewed and approved the final plan before it was sent for publication.

Competing interests

The authors declare that they have no competing interests

Patient consent for publication

Not required

Provenance and peer review

Not commissioned; externally peer reviewed

REFERENCES

1. Tuncalp Ö, Were WM, MacLennan C, Oladapo OT, Gulmezoglu AM, Bahl R, et al. Quality of care for pregnant women and newborns – the WHO vision. *Br J Obstet Gynaecol* 2015;122:1045–1049.

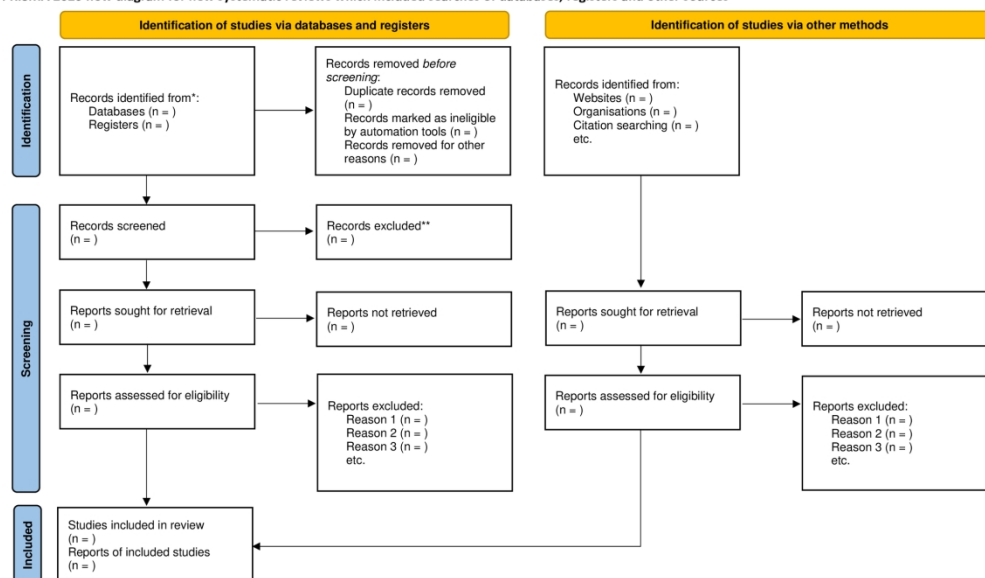
2. World Health Organization (WHO). Standards for improving the quality of care for small and sick newborns in health facilities, 2020.
3. World Health Organization (WHO). Standards for improving quality of maternal and newborn care in health facilities , 2016. WHO Document Production Services, Geneva, Switzerland.
4. Khorshed MS, Lindsay D, McAuliffe M, West C, Wild K. Factors Affecting Quality of Care in Maternal and Child Health in Timor-Leste: A Scoping Review. *Health Serv Insights*. 2022 Jul 4;15:11786329221110052. doi: 10.1177/11786329221110052. PMID: 35813565; PMCID: PMC9260585.
5. United Nations. Global strategy for women's and children's health. New York; 2010.
6. Ehret DY, Patterson JK, Bose CL. Improving Neonatal Care: A Global Perspective. *Clin Perinatol*. 2017 Sep;44(3):567-582. doi: 10.1016/j.clp.2017.05.002. Erratum in: *Clin Perinatol*. 2017 Dec;44(4):xiii. PMID: 28802340.
7. Vincent-Lambert C, Wade G. Challenges relating to the inter-facility transport of high acuity paediatric cases. *Afr J Emerg Med*. 2018 Mar;8(1):29-33. doi: 10.1016/j.afjem.2017.12.001. Epub 2018 Feb 3. PMID: 30815340; PMCID: PMC6376918.
8. Mekbib T and Leatherman S. Quality improvement in maternal, neonatal and child health services in sub-Saharan Africa: A look at five resource-poor countries. *Ethiop. J. Health Dev.*2020; 34(1).
9. Vuong L. Staffing ratios and burnout. *AJN The American Journal of Nursing*. 2020 May 1;120(5):13.
10. Gathara D, Serem G, Murphy GAV, Obengo A, Tallam E, Jackson D, Brownie S, English M. Missed nursing care in newborn units: a cross-sectional direct observational study. *BMJ Qual Saf*. 2020 Jan;29(1):19-30. doi: 10.1136/bmjqs-2019-009363. Epub 2019 Jun 6. PMID: 31171710; PMCID: PMC6923939.
11. Sherenian M, Profit J, Schmidt B, Suh S, Xiao R, Zupancic JA, DeMauro SB. Nurse-to-patient ratios and neonatal outcomes: a brief systematic review. *Neonatology*. 2013 Sep 1;104(3):179-83.
12. Nyondo-Mipando AL, Woo Kinshella ML, Bohne C, Suwedi-Kapesa LC, Salimu S, Banda M, Newberry L, Njiramadzi J, Hiwa T, Chiwaya B, Chikoti F, Vidler M, Dube Q, Molyneux E, Mfutso-Bengo J, Goldfarb DM, Kawaza K, Mijovic H. Barriers and enablers of implementing bubble Continuous Positive Airway Pressure (CPAP): Perspectives of health professionals in Malawi. *PLoS One*. 2020 Feb 13;15(2):e0228915. doi: 10.1371/journal.pone.0228915. PMID: 32053649; PMCID: PMC7018070.
13. Jebessa S, Litch JA, Senturia K, Hailu T, Kahsay A, Kuti KA, Wolka E, Teklu AM, Gezahegn W. Qualitative Assessment of the Quality of Care for Preterm, Low Birth Weight, and Sick Newborns in Ethiopia. *Health Serv Insights*. 2021 Jun 17;14:11786329211025150. doi: 10.1177/11786329211025150. PMID: 34211278; PMCID: PMC8216415.

14. Alemayehu M, Yakob B, Khuzwayo N. Barriers and enablers to emergency obstetric and newborn care services use in Wolaita Zone, Southern Ethiopia: a qualitative case study. *BMC Public Health*. 2022 Nov 16;22(1):2087. doi: 10.1186/s12889-022-14504-y. PMID: 36384508; PMCID: PMC9667656.
15. Hadush MY, Gebremariam DS, Beyene SA, Abay TH, Berhe AH, Zelelew YB, Asmelash T, Ashebir F, Amare SY, Hadush Z, Medhanyie AA. Barriers and Enablers of KMC Implementation in Health Facility and Community of Tigray Region, Northern Ethiopia: Formative Research. *Pediatric Health Med Ther*. 2022 Sep 8;13:297-307. doi: 10.2147/PHMT.S369858. PMID: 36106330; PMCID: PMC9467444.
16. Zemedu TG, Teshome A, Tadesse Y, Bekele A, Keyes E, Bailey P, Ruano AL. Healthcare workers' clinical knowledge on maternal and newborn care in Ethiopia: findings from 2016 national EmONC assessment. *BMC Health Services Research*. 2019 Dec;19(1):1-9.
17. World Health Organization (WHO). Human resource strategies to improve newborn care in health facilities in low-and middle-income countries, 2020.
18. Bolan N, Cowgill KD, Walker K, Kak L, Shaver T, Moxon S, Lincetto O. Human resources for health-related challenges to ensuring quality newborn care in low-and middle-income countries: a scoping review. *Global Health: Science and Practice*. 2021 Mar 31;9(1):160-76.
19. Teklu AM, Litch JA, Tesfahun A, Wolka E, Tuamay BD, Gidey H, Cheru WA, Senturia K, Gezahegn W, Every Preemie-SCALE Ethiopia Implementation Research Collaboration Group Tedros Hailu Solomie Jebessa Amaha Kaysay Kemal A. Kuti Gillian Levine Judith Robb-McCord Yared Tadesse Abraham Tariku Abubeker Kedir Usman Abate Yeshidinber Weldetsadik. Referral systems for preterm, low birth weight, and sick newborns in Ethiopia: a qualitative assessment. *BMC pediatrics*. 2020 Dec;20:1-2.
20. Ashok, K.D., et al., Improving the Quality of Health Care in Special Neonatal Care Units of India: A Before and After Intervention Study. *Global Health: Science and Practice*, 2022. 10(5): p. e2200085.
21. Venugopal S, Patil RB, Thukral A, Koganti RA, Kumar DL V, Sankar MJ, Agarwal R, Verma A, Deorari AK. Feasibility, Sustainability, and Effectiveness of the Implementation of "Facility-Team-Driven" Approach for Improving the Quality of Newborn Care in South India. *Indian Journal of Pediatrics*. 2023 Jun 3:1-8.
22. Kaur E, Heys M, Crehan C, Fitzgerald F, Chiume M, Chirwa E, Wilson E, Evans M. Persistent barriers to achieving quality neonatal care in low-resource settings: perspectives from a unique panel of frontline neonatal health experts. *Journal of Global Health Reports*. 2023;7:e2023004. doi:10.29392/001c.72089.
23. Sunkwa-Mills G, Senah K, Tersbøl BP. Infection prevention and control in neonatal units: An ethnographic study of social and clinical interactions among healthcare providers and mothers in Ghana. *PLoS One*. 2023 Jul 7;18(7):e0283647. doi: 10.1371/journal.pone.0283647. PMID: 37418459; PMCID: PMC10328309.

- 1
2
3 24. Turkmani S, Currie S, Mungia J, Assefi N, Rahmanzai AJ, Azfar P, Bartlett L. 'Midwives
4 are the backbone of our health system': lessons from Afghanistan to guide expansion of
5 midwifery in challenging settings. *Midwifery*. 2013 Oct 1;29(10):1166-72.
6
7 25. English M, Ogola M, Aluvaala J, Gicheha E, Irimu G, McKnight J, Vincent CA. First do
8 no harm: practitioners' ability to 'diagnose' system weaknesses and improve safety is a
9 critical initial step in improving care quality. *Arch Dis Child*. 2021 Apr;106(4):326-332.
10 doi: 10.1136/archdischild-2020-320630. Epub 2020 Dec 23. PMID: 33361068; PMCID:
11 PMC7982941.
12
13 26. Durairaj A, Litch JA, Robb-McCord J. Family participation in the care of the inpatient
14 newborn. In Litch JA, Robb-McCord J, Kak L. (eds). *Do No Harm Technical Brief Series*.
15 Washington DC: USAID; 2018. Available at: [https://www.everypreemie.org/wp-](https://www.everypreemie.org/wp-content/uploads/2018/11/DNH-Tech-Brief-FamilyParticipation_11.1.18.pdf)
16 [content/uploads/2018/11/DNH-Tech-Brief-FamilyParticipation_11.1.18.pdf](https://www.everypreemie.org/wp-content/uploads/2018/11/DNH-Tech-Brief-FamilyParticipation_11.1.18.pdf). Access date
17 (Nov 04, 2023].
18
19 27. Horwood C, Haskins L, Luthuli S, McKerrow N. Communication between mothers and
20 health workers is important for quality of newborn care: a qualitative study in neonatal
21 units in district hospitals in South Africa. *BMC pediatrics*. 2019 Dec;19:1-3.
22
23 28. Rasanathan K, Damji N, Atsbeha T, Drisse MN, Davis A, Dora C, Karam A, Kuruvilla S,
24 Mahon J, Neira M, Montesinos EV. Ensuring multisectoral action on the determinants of
25 reproductive, maternal, newborn, child, and adolescent health in the post-2015 era. *bmj*.
26 2015 Sep 14;351.
27
28 29. Coffey PS, Israel-Ballard K, Meyer L, Mansen K, Agonafir N, Bekere M, Dube Q,
29 Kaberuka G, Kasar J, Kharade A, Maknikar S. The Journey Toward Establishing Inpatient
30 Care for Small and Sick Newborns in Ethiopia, India, Malawi, and Rwanda. *Global Health:*
31 *Science and Practice*. 2023 Aug 28;11(4).
32
33 30. Lockwood C, Porrit K, Munn Z, Rittenmeyer L, Salmond S, Bjerrum M, Loveday H,
34 Carrier J, Stannard D. Chapter 2: Systematic reviews of qualitative evidence. In:
35 Aromataris E, Munn Z (Editors). *JBIM Manual for Evidence Synthesis*. JBI, 2020. Available
36 from <https://synthesismanual.jbi.global>. <https://doi.org/10.46658/JBIMES-20-03>.
37
38 31. Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart
39 LA. Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols
40 (PRISMA-P) 2015 statement. *Syst Rev*. 2015;4(1):1. doi: 10.1186/2046-4053-4-1.
41
42 32. Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart
43 LA, the PRISMA-P Group. Preferred Reporting Items for Systematic Review and Meta-
44 Analysis Protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ* 2015.349:g7647.
45 doi: 10.1136/bmj.g7647.
46
47 33. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The
48 PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*
49 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: [http://www.prisma-](http://www.prisma-statement.org/)
50 [statement.org/](http://www.prisma-statement.org/).
51
52
53
54
55
56
57
58
59
60

- 1
2
3 34. Munn Z, Porritt K, Lockwood C, Aromataris E, Pearson A. Establishing confidence in the
4 output of qualitative research synthesis: the ConQual approach. BMC Medical Research
5 Methodology, 2014, 14:108.
6
7
8
9
10
11
12
13
14
15
16
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PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers and other sources



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).
 **If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

Figure 1: Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram

190x124mm (300 x 300 DPI)

PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

Section and topic	Item No	Checklist item
ADMINISTRATIVE INFORMATION		
Title:		
Identification	1a	Barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa protocol for the synthesis of qualitative evidences
Update	1b	N/A
Registration	2	Systematic review registration number in PROSPERO: CRD42023473134.
Authors:		
Contact	3a	Abera Mersha ^{1, 2*} , Asresash Demissie ² , Gugsu Nemera ² 1School of Nursing, College of Medicine and Health Sciences, Arba Minch University, Arba Minch, Ethiopia 2School of Nursing, Faculty of Health Sciences, Institute of Health, Jimma University, Jimma, Ethiopia
Contributions	3b	AM came up with the research question, wrote how the research would be done and the introduction, and created a plan for the research. AD and GN helped find information, and AM, AD, and GN all carefully reviewed and approved the final plan before it was sent for publication.
Amendments	4	The authors may need to make some changes to the systematic review, but they will clearly explain what those changes are and why they are necessary in the final review.
Support:		
Sources	5a	The authors did not declare any grant for this research from any funding agency.
Sponsor	5b	N/A
Role of sponsor or funder	5c	N/A
INTRODUCTION		
Rationale	6	Quality of care is defined as the extent to which healthcare services are delivered to improve desired health outcomes. To achieve this, the services must be safe, effective, timely, efficient, equitable, and person-centered [1]. Quality of neonatal care includes the availability of equipment, supplies, guidelines, protocols, and trained and motivated healthcare workers, as well as supportive supervision and client satisfaction [2-4]. The importance of high-quality care for newborns is increasingly recognized as essential for improving their health and well-being worldwide [3, 5, 6]. Despite the fact that the quality of care in neonatal intensive care units (NICUs) is compromised in many aspects, sub-Saharan Africa is facing a number of challenges in improving neonatal care [7, 8]. This is an alarming public health issue because it puts millions of newborns at risk of death and disability, staff burnout, missed nursing care for high-acuity neonates [9-11]. There are a number of barriers that hinder the quality of care and enablers that foster in NICU. The provider, caregiver and health system related barriers included inadequate knowledge and training, rigid division of roles and responsibilities, poor

leadership, lack of effective communication, human resource constraints, inadequate equipment and clinical guidelines, poor documentation, and infrastructure, and economic insecurity of parents [22-22]. On the other hand, socio-cultural environment related barriers were patterns of interaction of the staff and parents and among staff, and power structure of the staff and leaders [23-25]. Making the care participatory, respectful, providing emotional support for parents, positive communication and using digital technologies were some of the facilitating factors for the quality of care in NICU [22, 24, 26, 27].

Enhancing the quality of NICU services in sub-Saharan Africa requires a multi-pronged approach that strengthens collaboration among various stakeholders, aligns quality of care plans with national infrastructure development strategies, and ensures adequate procurement of essential medicines and commodities [28]. While notable progress has been made in scaling up NICU quality in countries like Malawi, Ethiopia, and Rwanda over the past few decades [29], significant gaps remain in many sub-Saharan countries, necessitating continued efforts to improve service delivery, reduce neonatal mortality, and enhance parent and provider satisfaction. In this context, identifying the key barriers hindering service provision and the factors promoting positive outcomes is crucial.

This systematic review aims to bridge the existing knowledge gaps regarding quality care for high-acuity neonates in sub-Saharan Africa. A preliminary search of relevant databases, including PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and the JBI Evidence Synthesis, revealed no ongoing or recently completed systematic reviews addressing this topic.

Objectives	7	The primary objective of this systematic review is to comprehensively examine the barriers and enablers that influence the quality high-acuity neonatal care in sub-Saharan Africa.
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METHODS

Eligibility criteria	8	The studies included in this systematic review will be selected based on the PICo mnemonic for participants, phenomena of interest, and context, but strict adherence to this mnemonic is not mandatory. Participants: The participants for this systematic review will be any individual (caregiver, parents, health professionals, etc.). Phenomena of interest: This systematic review will consider studies that explore barriers and enablers to quality high-acuity neonatal care in NICU. Context: The systematic review will include studies conducted in sub-Saharan Africa. Types of studies: This review will only include qualitative and mixed-methods studies that explore the barriers and enablers to quality high-acuity neonatal care using qualitative data collection and analysis methods.
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Information sources	9	This systematic review will search and gather data from a variety of databases, including: JBI Database, Cochrane Database, MEDLINE/PubMed, CINAHL/EBSCO, EMBASE, PEDro, POPLINE, Proquest, OpenGrey (SIGLE), Google Scholar, Google, APA PsycINFO, Web of Science, Scopus and HINARI. Unpublished studies and grey literature will also be retrieved from institutional libraries and repositories, preprint websites, and through direct contact with the authors.
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Search strategy	10	
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Table 1: Search strategy

PICo components	Inclusion criteria	Search terms (keywords/Mesh terms/index terms/Free text words)	Limits
Participants	Caregiver, nurses, parents, health	nurse*[All Fields] OR caregiver*[All Fields] OR parent*[All Fields] OR health care	Language:

	professionals	provider*[MeSH Terms] OR health professional*[MeSH Terms] OR health care worker* [All Fields]	English Publication date: January 1, 2013 to December 30, 2023
Phenomena of interest	Barriers and enablers to quality high-acuity neonatal care in NICU	barrier*[All Fields] OR enabler*[All Fields] OR facilitator*[All Fields] OR hindering factor*[All Fields] OR militating factor*[All Fields] OR challenge*[All Fields] OR neonatal intensive care unit [All Fields] OR NICU [All Fields] OR quality care [All Fields] OR high-acuity neonate*[All Fields]	
Context	Studies conducted in sub-Saharan Africa	sub-Saharan Africa	
<p>Combine a single search strategy: (((("nurse*[All Fields] OR "caregiver*[All Fields] OR "parent*[All Fields] OR ("delivery of health care"[MeSH Terms] OR ("delivery"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "delivery of health care"[All Fields] OR ("health"[All Fields] AND "care"[All Fields]) OR "health care"[All Fields]) AND "provider*[MeSH Terms] OR ("health"[MeSH Terms] OR "health"[All Fields] OR "health s"[All Fields] OR "healthful"[All Fields] OR "healthfulness"[All Fields] OR "healths"[All Fields]) AND "professional*[MeSH Terms] OR "health care worker*[All Fields]) AND "barrier*[All Fields] OR "enabler*[All Fields] OR "facilitator*[All Fields] OR "hindering factor*[All Fields] OR "militating factor*[All Fields] OR "challenge*[All Fields] OR ("intensive care units, neonatal"[MeSH Terms] OR ("intensive"[All Fields] AND "care"[All Fields] AND "units"[All Fields] AND "neonatal"[All Fields]) OR "neonatal intensive care units"[All Fields] OR ("neonatal"[All Fields] AND "intensive"[All Fields] AND "care"[All Fields] AND "unit"[All Fields]) OR "neonatal intensive care unit"[All Fields]) OR ("intensive care units, neonatal"[MeSH Terms] OR ("intensive"[All Fields] AND "care"[All Fields] AND "units"[All Fields] AND "neonatal"[All Fields]) OR "neonatal intensive care units"[All Fields] OR "nicu"[All Fields]) OR ("quality of health care"[MeSH Terms] OR ("quality"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "quality of health care"[All Fields] OR ("quality"[All Fields] AND "care"[All Fields]) OR "quality care"[All Fields]) OR ("high-acuity"[All Fields] AND "neonate*[All Fields])) AND ("africa south of the sahara"[MeSH Terms] OR ("africa"[All Fields] AND "south"[All Fields] AND "sahara"[All Fields]) OR "africa south of the sahara"[All Fields] OR ("sub"[All Fields] AND "saharan"[All Fields] AND "africa"[All Fields]) OR "sub saharan africa"[All Fields]) AND 2013/01/01:3000/12/31[Date - Publication]</p>			
<p>Number of records retrieved by the search: 83,877</p>			

Database used: MEDLINE (Ovid)		
Search conducted on: Date: November 05, 2023; Time: 10:25:48		
Study records:		
Data management	11a	EndNote X8 and QARI
Selection process	11b	Following the search, all identified citations will be collated and uploaded into EndNote and duplicates removed. After pilot test, title and abstract screening process, followed by two independent reviewers screening all titles and abstracts against the inclusion criteria. The inclusion criteria for the review will be used to determine if the citations are relevant. The full texts of the potentially relevant sources will then be retrieved. Two independent reviewers will assess the full texts of the retrieved studies to determine if they meet the inclusion criteria for the review. If a study is excluded, the reasons for exclusion will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion. The results of the search and the study selection process will be reported in full in the final systematic review and presented in Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram [33] (Figure 1).
Data collection process	11c	Data extraction from the studies included in the review will be conducted by two independent reviewers using the standardized JBI data extraction tool [30]. The data extracted will encompass specific details pertaining to the populations, context, culture, geographical location, study methods, and the phenomena of interest relevant to the review objective (Additional file 2). Findings and their corresponding illustrations will be extracted verbatim and assigned a level of credibility. Discrepancies arising between the reviewers will be resolved through discussion. Authors of the papers will be contacted to solicit missing or additional data when necessary.
Data items	12	The studies included in this systematic review will be selected based on the PICo mnemonic for participants, phenomena of interest, and context, but strict adherence to this mnemonic is not mandatory. Participants: The participants for this systematic review will be any individual (caregiver, parents, health professionals, etc.). Phenomena of interest: This systematic review will consider studies that explore barriers and enablers to quality high-acuity neonatal care in NICU. Context: The systematic review will include studies conducted in sub-Saharan Africa.
Outcomes and prioritization	13	Barriers and enablers of quality high-acuity neonatal care
Risk of bias in individual studies	14	Eligible studies will be critically appraised by two independent reviewers for methodological quality using the standard JBI Critical Appraisal Checklist for Qualitative Research [30]. Authors of papers will be contacted to request missing or additional data for clarification, where required. Any disagreements that arise will be resolved through discussion. The results of critical appraisal will be reported in narrative form and in a table. Studies will be scored using a quality appraisal checklist, and only studies with a score of 50% or higher will be included in the systematic review and meta-synthesis. If the two assessors disagree on a score, they will review the study together to investigate the source of the disagreement. If they are still unable to agree, the average of their scores will be used. Studies that do not meet a quality threshold will be excluded from the systematic review and meta-synthesis, but they will be reported narratively and in table form.
Data synthesis	15a	Studies will be scored using a quality appraisal checklist, and only studies with a score of 50% or higher will be included in the systematic review and meta-synthesis.
	15b	Qualitative research findings will, where possible, be pooled using QARI with the meta-aggregation approach. This will

		involve the aggregation or synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings and categorizing these findings on the basis of similarity in meaning. These categories will then be subjected to a synthesis in order to produce a single comprehensive set of synthesized findings that can be used as a basis for evidence-based practice.
	15c	N/A
	15d	Where textual pooling is not possible the findings will be presented in narrative form. Only unequivocal and credible findings will be included in the synthesis.
Meta-bias(es)	16	N/A
Confidence in the findings	17	The synthesized findings will undergo evaluation using the ConQual approach, a method for establishing confidence in the output of qualitative research synthesis. The resulting assessment will be presented in a Summary of Findings table [34].

*** It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

JBI QARI Data Extraction Tool for Qualitative Research

Reviewer _____ Date _____

Author _____ Year _____

Journal _____ Record Number _____

Study Description

Methodology|

Method

Phenomena of interest

Setting

Geographical

Cultural

Participants

Data analysis

Authors conclusions

Comments

Complete

Yes

No

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Findings	Illustration form Publication (page number)	Evidence		
		Unequivocal	Credible	Unsupported

Extraction of findings complete Yes No

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Barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa: Protocol for a synthesis of qualitative evidence

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Manuscript ID	bmjopen-2023-081904.R1
Article Type:	Protocol
Date Submitted by the Author:	15-Feb-2024
Complete List of Authors:	Mersha, Abera ; Arba Minch University, School of Nursing; Jimma University, School of Nursing Demissie, Asresash; Jimma University, School of Nursing Nemera, Gugsa; Jimma University, School of Nursing
Primary Subject Heading:	Health services research
Secondary Subject Heading:	Evidence based practice, Health services research, Intensive care, Nursing, Paediatrics
Keywords:	Neonatal intensive & critical care < INTENSIVE & CRITICAL CARE, Nursing Care, Nurses, Health Services Accessibility, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

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Barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa: Protocol for a synthesis of qualitative evidence

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Word count: 1,748

ABSTRACT

Introduction: Despite resource limitations and systemic challenges, the quality of care in sub-Saharan African neonatal intensive care units suffers, leading to increased infant mortality and decreased satisfaction for both patients and healthcare workers. This review aims to bridge the knowledge gap by identifying and analysing the key barriers and enablers affecting quality care, informing interventions to improve patient outcomes and overall NICU effectiveness in this critical region.

Methods and analysis: This systematic review will search and gather data from a variety of databases, including: JBI Database, Cochrane Database, MEDLINE/PubMed, CINAHL/EBSCO, EMBASE, PEDro, POPLINE, Proquest, OpenGrey (SIGLE), Google Scholar, Google, APA PsycINFO, Web of Science, Scopus and HINARI. The review will also include unpublished studies and grey literature from a variety of sources. This review will only include qualitative and mixed-methods studies that explore the barriers and enablers to quality care for high-acuity neonates using qualitative data collection and analysis methods. The JBI Critical Appraisal Checklist for qualitative research will be used by two independent reviewers to critically appraise the eligible studies. Any disagreements that arise will be resolved through discussion. Qualitative research findings will be pooled using the meta-aggregation approach in QARI software, where possible. Only unequivocal and credible findings will be included in the synthesis. If textual pooling is not possible, the findings will be present in narrative form.

Ethics and dissemination: This systematic review does not require ethical clearance, and the findings will be disseminated to relevant stakeholders to ensure the widest possible outreach and impact.

Systematic review registration number in PROSPERO: CRD42023473134.

Keywords: *Barriers, Enablers, High-acuity, Neonatal care, Sub-Saharan Africa*

Strengths and limitation of the study

- The review will provide a comprehensive synthesis of qualitative evidence on the barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa.
- The review will use a systematic and rigorous approach to identify, select, and analyze relevant studies.
- The review will include a wide range of qualitative studies from different countries and settings in sub-Saharan Africa.
- The review will be limited by the quality of the available qualitative studies.
- The review will not be able to provide causal inferences about the barriers and enablers of quality high-acuity neonatal care.

INTRODUCTION

Quality of care is defined as the extent to which healthcare services are delivered to improve desired health outcomes. To achieve this, the services must be safe, effective, timely, efficient, equitable, and person-centered [1]. Quality of neonatal care includes the availability of equipment, supplies, guidelines, protocols, and trained and motivated healthcare workers, as well as supportive supervision and client satisfaction[2-4]. The importance of high-quality care for newborns is increasingly recognized as essential for improving their health and well-being worldwide[3, 5, 6]. Despite the fact that the quality of care in neonatal intensive care units is compromised in many aspects, sub-Saharan Africa is facing a number of challenges in improving neonatal care[7, 8]. This is an alarming public health issue because it puts millions of newborns at risk of death and disability, staff burnout, missed nursing care for high-acuity neonates[9-11].

There are a number of potential barriers that hinder the quality of care and enablers that foster in NICU. The provider, caregiver and health system related barriers included inadequate knowledge and training, rigid division of roles and responsibilities, poor leadership, lack of effective communication, human resource constraints, inadequate equipment and clinical guidelines, poor documentation, and infrastructure, and economic insecurity of parents[12-22]. On the other hand, socio-cultural environment related barriers were patterns of interaction of the staff and parents and among staff, and power structure of the staff and leaders[23-25]. Making the care participatory, respectful, providing emotional support for parents, positive communication and using digital technologies were some of the facilitating factors for the quality of care in NICU [22, 24, 26, 27].

Enhancing the quality of NICU services in sub-Saharan Africa requires a multi-pronged approach that strengthens collaboration among various stakeholders, aligns quality of care plans with national infrastructure development strategies, and ensures adequate procurement of essential medicines and commodities[28]. While notable progress has been made in scaling up NICU quality in countries like Malawi, Ethiopia, and Rwanda over the past few decades[29], significant gaps remain in many sub-Saharan countries, necessitating continued efforts to improve service delivery, reduce neonatal mortality, and enhance parent and provider satisfaction. In this context, identifying the key barriers hindering service provision and the factors promoting positive outcomes is crucial.

This systematic review aims to bridge the existing knowledge gaps regarding quality care for high-acuity neonates in sub-Saharan Africa. A preliminary search of relevant databases, including PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and the JBI Evidence Synthesis, revealed no ongoing or recently completed systematic reviews addressing this topic.

Review objective

The primary objective of this systematic review is to comprehensively examine the evidence about barriers and enablers that influence the quality high-acuity neonatal care in sub-Saharan Africa.

METHODS AND ANALYSIS

Protocol design and registration

This systematic review protocol was developed following JBI methodology for systematic reviews of qualitative evidence[30] integrated with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols (PRISMA-P) guidelines[31, 32] (Supplementary file 1). The findings of the systematic review will be reported following the Enhancing transparency in reporting the synthesis of qualitative research (ENTREQ) guideline[33]. The review title has been registered in the international prospective register of systematic reviews (PROSPERO) with the registration number CRD42023473134.

Inclusion criteria

The studies included in this systematic review will be selected based on the PICO mnemonic for participants, phenomena of interest, and context. *Participants*: The participants for this systematic review will be any individual (caregiver, parents, health professionals, etc.). *Phenomena of interest*: This systematic review will consider studies that explore barriers and enablers to quality high-acuity neonatal care in NICU. *Context*: The systematic review will include studies conducted in sub-Saharan Africa. *Types of studies*: This review will only include qualitative and mixed-methods studies that explore the barriers and enablers to quality high-acuity neonatal care using qualitative data collection and analysis methods.

Search strategy

This systematic review will search for both published and unpublished studies on the barriers and enablers to quality care for high-acuity neonates in sub-Saharan Africa. The search will be conducted in three steps: (1) A limited search of MEDLINE (PubMed) and CINAHL (EBSCO) will be conducted to identify relevant articles. The search terms will be based on the titles, abstracts, and index terms of relevant articles, and will use the Boolean logic operators AND and OR with MeSH terms, keywords, and word variants for quality of care. (2) The search terms identified in the initial search will be adapted to create a full search strategy for each included database and/or information source (Table 1). (3) To identify additional relevant studies, the reference lists of all included studies will be screened. Only studies published in English from January 1, 2013 to December 30, 2023 will be included in this systematic review. This systematic review will search and gather data from a variety of databases, including: JBI Database, Cochrane Database, MEDLINE/PubMed, CINAHL/EBSCO, EMBASE, PEDro, POPLINE, Proquest, OpenGrey (SIGLE), Google Scholar, Google, APA PsycINFO, Web of Science, Scopus and HINARI. Unpublished studies and grey literature will also be retrieved from institutional libraries and repositories, preprint websites, and through direct contact with the authors.

Study selection

Following the search, all identified citations will be collated and uploaded into EndNote and duplicates removed. After pilot test, title and abstract screening process, followed by two independent reviewers screening all titles and abstracts against the inclusion criteria. The inclusion criteria for the review will be used to determine if the citations are relevant. The full texts of the potentially relevant sources will then be retrieved. Two independent reviewers will assess the full texts of the retrieved studies to determine if they meet the inclusion criteria for the review. If a

study is excluded, the reasons for exclusion will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion. The final systematic review will fully report search and study selection results, adhering to the ENTREQ format for transparency[33].

Table 1: Search strategy

PICO components	Inclusion criteria	Search terms (keywords/Mesh terms/index terms/Free text words)	Limits
Participants	Caregiver, nurses, parents, health professionals	nurse*[All Fields] OR caregiver*[All Fields] OR parent*[All Fields] OR health care provider*[MeSH Terms] OR health professional*[MeSH Terms] OR health care worker* [All Fields]	Language: English Publication date: January 1, 2013 to December 30, 2023
Phenomena of interest	Barriers and enablers to quality high-acuity neonatal care in NICU	barrier*[All Fields] OR enabler* [All Fields] OR facilitator*[All Fields] OR hindering factor*[All Fields] OR militating factor*[All Fields] OR challenge*[All Fields] OR neonatal intensive care unit [All Fields] OR NICU [All Fields] OR quality care [All Fields] OR high-acuity neonate*[All Fields]	
Context	Studies conducted in sub-Saharan Africa	sub-Saharan Africa	
<p>Combine a single search strategy: (((("nurse*[All Fields] OR "caregiver*[All Fields] OR "parent*[All Fields] OR ("delivery of health care"[MeSH Terms] OR ("delivery"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "delivery of health care"[All Fields] OR ("health"[All Fields] AND "care"[All Fields]) OR "health care"[All Fields]) AND "provider*[MeSH Terms]) OR (("health"[MeSH Terms] OR "health"[All Fields] OR "health s"[All Fields] OR "healthful"[All Fields] OR "healthfulness"[All Fields] OR "healths"[All Fields]) AND "professional*[MeSH Terms]) OR "health care worker*[All Fields]) AND "barrier*[All Fields]) OR "enabler*[All Fields] OR "facilitator*[All Fields] OR "hindering factor*[All Fields] OR "militating factor*[All Fields] OR "challenge*[All Fields] OR ("intensive care units, neonatal"[MeSH Terms] OR ("intensive"[All Fields] AND "care"[All Fields] AND "units"[All Fields] AND "neonatal"[All Fields]) OR "neonatal intensive care units"[All Fields] OR ("neonatal"[All Fields] AND "intensive"[All Fields] AND "care"[All Fields] AND "unit"[All Fields]) OR "neonatal intensive care unit"[All Fields]) OR ("intensive care units, neonatal"[MeSH Terms] OR ("intensive"[All Fields] AND "care"[All Fields] AND "units"[All Fields] AND "neonatal"[All Fields]) OR "neonatal intensive care units"[All Fields] OR "nicu"[All Fields]) OR ("quality of health care"[MeSH Terms] OR ("quality"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "quality of health care"[All Fields] OR ("quality"[All Fields] AND "care"[All Fields]) OR "quality care"[All Fields]) OR ("high-acuity"[All Fields] AND "neonate*[All Fields])) AND ("africa south of the sahara"[MeSH Terms] OR ("africa"[All Fields] AND "south"[All Fields] AND "sahara"[All Fields]) OR "africa south of the sahara"[All Fields] OR ("sub"[All Fields] AND "saharan"[All Fields]</p>			

AND "africa"[All Fields]) OR "sub saharan africa"[All Fields]) AND
2013/01/01:3000/12/31[Date - Publication]

Number of records retrieved by the search: 83,877

Database used: MEDLINE (Ovid)

Search conducted on: Date: November 05, 2023; Time: 10:25:48

Assessment of methodological quality

Eligible studies will be critically appraised by two independent reviewers for methodological quality using the standard JBI Critical Appraisal Checklist for Qualitative Research[30]. Authors of papers will be contacted to request missing or additional data for clarification, where required. Any disagreements that arise will be resolved through discussion. The results of critical appraisal will be reported in narrative form and in a table. Studies will be scored using a quality appraisal checklist, and only studies with a score of 50% or higher will be included in the systematic review and meta-synthesis. If the two assessors disagree on a score, they will review the study together to investigate the source of the disagreement. If they are still unable to agree, the average of their scores will be used. Studies that do not meet a quality threshold will be excluded from the systematic review and meta-synthesis, but they will be reported narratively and in table form.

Data extraction

Data extraction from the studies included in the review will be conducted by two independent reviewers using the standardized JBI data extraction tool[30]. The data extracted will encompass specific details pertaining to the populations, context, culture, geographical location, study methods, and the phenomena of interest relevant to the review objective (Supplementary file 2). Findings and their corresponding illustrations will be extracted verbatim and assigned a level of credibility. Discrepancies arising between the reviewers will be resolved through discussion. Authors of the papers will be contacted to solicit missing or additional data when necessary.

Data synthesis

Qualitative research findings will, where possible, be pooled using QARI with the meta-aggregation approach. This will involve the aggregation or synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings and categorizing these findings on the basis of similarity in meaning. These categories will then be subjected to a synthesis in order to produce a single comprehensive set of synthesized findings that can be used as a basis for evidence-based practice. Where textual pooling is not possible the findings will be presented in narrative form. Only unequivocal and credible findings will be included in the synthesis.

Assessing confidence in the findings

The synthesized findings will undergo evaluation using the ConQual approach, a method for establishing confidence in the output of qualitative research synthesis. The resulting assessment will be presented in a Summary of Findings table[34].

Patient and public involvement

No patient involved

ETHICS AND DISSEMINATION

Ethical clearance is not required for this systematic review as it does not involve any primary research or the collection of data from human participants. The review will only synthesize existing research findings, which are publicly available and do not raise any ethical concerns. The findings of the systematic review will be disseminated to a wide range of stakeholders, including researchers, policymakers, healthcare professionals, and patient advocates. This will be done through a variety of channels, such as publication in peer-reviewed journals, presentation at conferences, and dissemination of reports and summaries.

AMENDMENTS

The authors may need to make some changes to the systematic review, but they will clearly explain what those changes are and why they are necessary in the final review.

List of abbreviations

ConQual: Confidence in the output of qualitative research synthesis, ENTREQ: Enhancing transparency in reporting the synthesis of qualitative research, PRISMA-P: Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols, PROSPERO: International Prospective Register of Systematic Reviews, QARI: Qualitative Assessment and Review Instrument

Acknowledgements

The authors would like to express their thanks to Arba Minch University and Jimma University for their support.

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Gugsa Nemera (BScN, MScN, Ph.D.), School of Nursing, Faculty of Health Sciences, Institute of Health, Jimma University, Jimma, Ethiopia.

Funding

The authors did not receive any financial support from any funding agency for this research.

Authors' contributions

AM came up with the research question, wrote how the research would be done and the introduction, and created a plan for the research. AD and GN helped find information, and AM, AD, and GN all carefully reviewed and approved the final plan before it was sent for publication.

Competing interests

The authors declare that they have no competing interests

Patient consent for publication

Not required

Provenance and peer review

Not commissioned; externally peer reviewed

REFERENCES

1. Tuncalp Ö, Were WM, MacLennan C, Oladapo OT, Gulmezoglu AM, Bahl R, et al. Quality of care for pregnant women and newborns – the WHO vision. *Br J Obstet Gynaecol* 2015;122:1045–1049.
2. World Health Organization (WHO). Standards for improving the quality of care for small and sick newborns in health facilities, 2020.
3. World Health Organization (WHO). Standards for improving quality of maternal and newborn care in health facilities, 2016. WHO Document Production Services, Geneva, Switzerland.
4. Khorshed MS, Lindsay D, McAuliffe M, West C, Wild K. Factors Affecting Quality of Care in Maternal and Child Health in Timor-Leste: A Scoping Review. *Health Serv Insights*. 2022 Jul 4;15:11786329221110052. doi: 10.1177/11786329221110052. PMID: 35813565; PMCID: PMC9260585.
5. United Nations. Global strategy for women’s and children’s health. New York; 2010.
6. Ehret DY, Patterson JK, Bose CL. Improving Neonatal Care: A Global Perspective. *Clin Perinatol*. 2017 Sep;44(3):567-582. doi: 10.1016/j.clp.2017.05.002. Erratum in: *Clin Perinatol*. 2017 Dec;44(4):xiii. PMID: 28802340.
7. Vincent-Lambert C, Wade G. Challenges relating to the inter-facility transport of high acuity paediatric cases. *Afr J Emerg Med*. 2018 Mar;8(1):29-33. doi: 10.1016/j.afjem.2017.12.001. Epub 2018 Feb 3. PMID: 30815340; PMCID: PMC6376918.
8. Mekbib T and Leatherman S. Quality improvement in maternal, neonatal and child health services in sub-Saharan Africa: A look at five resource-poor countries. *Ethiop. J. Health Dev.*2020; 34(1).
9. Vuong L. Staffing ratios and burnout. *AJN The American Journal of Nursing*. 2020 May 1;120(5):13.
10. Gathara D, Serem G, Murphy GAV, Obengo A, Tallam E, Jackson D, Brownie S, English M. Missed nursing care in newborn units: a cross-sectional direct observational study. *BMJ Qual Saf*. 2020 Jan;29(1):19-30. doi: 10.1136/bmjqs-2019-009363. Epub 2019 Jun 6. PMID: 31171710; PMCID: PMC6923939.
11. Sherenian M, Profit J, Schmidt B, Suh S, Xiao R, Zupancic JA, DeMauro SB. Nurse-to-patient ratios and neonatal outcomes: a brief systematic review. *Neonatology*. 2013 Sep 1;104(3):179-83.
12. Nyondo-Mipando AL, Woo Kinshella ML, Bohne C, Suwedi-Kapesa LC, Salimu S, Banda M, Newberry L, Njirammadzi J, Hiwa T, Chiwaya B, Chikoti F, Vidler M, Dube Q, Molyneux E, Mfutso-Bengo J, Goldfarb DM, Kawaza K, Mijovic H. Barriers and enablers of implementing bubble Continuous Positive Airway Pressure (CPAP): Perspectives of health professionals in Malawi. *PLoS One*. 2020 Feb 13;15(2):e0228915. doi: 10.1371/journal.pone.0228915. PMID: 32053649; PMCID: PMC7018070.
13. Jebessa S, Litch JA, Senturia K, Hailu T, Kahsay A, Kuti KA, Wolka E, Teklu AM, Gezahegn W. Qualitative Assessment of the Quality of Care for Preterm, Low Birth

- Weight, and Sick Newborns in Ethiopia. *Health Serv Insights*. 2021 Jun 17;14:11786329211025150. doi: 10.1177/11786329211025150. PMID: 34211278; PMCID: PMC8216415.
14. Alemayehu M, Yakob B, Khuzwayo N. Barriers and enablers to emergency obstetric and newborn care services use in Wolaita Zone, Southern Ethiopia: a qualitative case study. *BMC Public Health*. 2022 Nov 16;22(1):2087. doi: 10.1186/s12889-022-14504-y. PMID: 36384508; PMCID: PMC9667656.
 15. Hadush MY, Gebremariam DS, Beyene SA, Abay TH, Berhe AH, Zelelew YB, Asmelash T, Ashebir F, Amare SY, Hadush Z, Medhanyie AA. Barriers and Enablers of KMC Implementation in Health Facility and Community of Tigray Region, Northern Ethiopia: Formative Research. *Pediatric Health Med Ther*. 2022 Sep 8;13:297-307. doi: 10.2147/PHMT.S369858. PMID: 36106330; PMCID: PMC9467444.
 16. Zemedu TG, Teshome A, Tadesse Y, Bekele A, Keyes E, Bailey P, Ruano AL. Healthcare workers' clinical knowledge on maternal and newborn care in Ethiopia: findings from 2016 national EmONC assessment. *BMC Health Services Research*. 2019 Dec;19(1):1-9.
 17. World Health Organization (WHO). Human resource strategies to improve newborn care in health facilities in low-and middle-income countries, 2020.
 18. Bolan N, Cowgill KD, Walker K, Kak L, Shaver T, Moxon S, Lincetto O. Human resources for health-related challenges to ensuring quality newborn care in low-and middle-income countries: a scoping review. *Global Health: Science and Practice*. 2021 Mar 31;9(1):160-76.
 19. Teklu AM, Litch JA, Tesfahun A, Wolka E, Tuamay BD, Gidey H, Cheru WA, Senturia K, Gezahegn W, Every Preemie-SCALE Ethiopia Implementation Research Collaboration Group Tedros Hailu Solomie Jebessa Amaha Kahsay Kemal A. Kuti Gillian Levine Judith Robb-McCord Yared Tadesse Abraham Tariku Abubeker Kedir Usman Abate Yeshidinber Weldetsadik. Referral systems for preterm, low birth weight, and sick newborns in Ethiopia: a qualitative assessment. *BMC pediatrics*. 2020 Dec;20:1-2.
 20. Ashok KD, et al. Improving the Quality of Health Care in Special Neonatal Care Units of India: A Before and After Intervention Study. *Global Health: Science and Practice*, 2022. 10(5): p. e2200085.
 21. Venugopal S, Patil RB, Thukral A, Koganti RA, Kumar DL V, Sankar MJ, Agarwal R, Verma A, Deorari AK. Feasibility, Sustainability, and Effectiveness of the Implementation of "Facility-Team-Driven" Approach for Improving the Quality of Newborn Care in South India. *Indian Journal of Pediatrics*. 2023 Jun 3:1-8.
 22. Kaur E, Heys M, Crehan C, Fitzgerald F, Chiume M, Chirwa E, Wilson E, Evans M. Persistent barriers to achieving quality neonatal care in low-resource settings: perspectives from a unique panel of frontline neonatal health experts. *Journal of Global Health Reports*. 2023;7:e2023004. doi:10.29392/001c.72089.

- 1
2
3 23. Sunkwa-Mills G, Senah K, Tersbøl BP. Infection prevention and control in neonatal
4 units: An ethnographic study of social and clinical interactions among healthcare
5 providers and mothers in Ghana. *PLoS One*. 2023 Jul 7;18(7):e0283647. doi:
6 10.1371/journal.pone.0283647. PMID: 37418459; PMCID: PMC10328309.
- 7
8 24. Turkmani S, Currie S, Mungia J, Assefi N, Rahmanzai AJ, Azfar P, Bartlett L.
9 'Midwives are the backbone of our health system': lessons from Afghanistan to guide
10 expansion of midwifery in challenging settings. *Midwifery*. 2013 Oct 1;29(10):1166-72.
- 11
12 25. English M, Ogola M, Aluvaala J, Gicheha E, Irimu G, McKnight J, Vincent CA. First do
13 no harm: practitioners' ability to 'diagnose' system weaknesses and improve safety is a
14 critical initial step in improving care quality. *Arch Dis Child*. 2021 Apr;106(4):326-332.
15 doi: 10.1136/archdischild-2020-320630. Epub 2020 Dec 23. PMID: 33361068; PMCID:
16 PMC7982941.
- 17
18 26. Durairaj A, Litch JA, Robb-McCord J. Family participation in the care of the inpatient
19 newborn. In Litch JA, Robb-McCord J, Kak L. (eds). *Do No Harm Technical Brief*
20 *Series*. Washington DC: USAID; 2018. Available at: [https://www.everypreemie.org/wp-](https://www.everypreemie.org/wp-content/uploads/2018/11/DNH-Tech-Brief-FamilyParticipation_11.1.18.pdf)
21 [content/uploads/2018/11/DNH-Tech-Brief-FamilyParticipation_11.1.18.pdf](https://www.everypreemie.org/wp-content/uploads/2018/11/DNH-Tech-Brief-FamilyParticipation_11.1.18.pdf). Access date
22 (Nov 04, 2023].
- 23
24 27. Horwood C, Haskins L, Luthuli S, McKerrow N. Communication between mothers and
25 health workers is important for quality of newborn care: a qualitative study in neonatal
26 units in district hospitals in South Africa. *BMC pediatrics*. 2019 Dec;19:1-3.
- 27
28 28. Rasanathan K, Damji N, Atsbeha T, Drisse MN, Davis A, Dora C, Karam A, Kuruvilla S,
29 Mahon J, Neira M, Montesinos EV. Ensuring multisectoral action on the determinants of
30 reproductive, maternal, newborn, child, and adolescent health in the post-2015 era. *bmj*.
31 2015 Sep 14;351.
- 32
33 29. Coffey PS, Israel-Ballard K, Meyer L, Mansen K, Agonafir N, Bekere M, Dube Q,
34 Kaberuka G, Kasar J, Kharade A, Maknikar S. The Journey Toward Establishing
35 Inpatient Care for Small and Sick Newborns in Ethiopia, India, Malawi, and Rwanda.
36 *Global Health: Science and Practice*. 2023 Aug 28;11(4).
- 37
38 30. Lockwood C, Porrit K, Munn Z, Rittenmeyer L, Salmond S, Bjerrum M, Loveday H,
39 Carrier J, Stannard D. Chapter 2: Systematic reviews of qualitative evidence. In:
40 Aromataris E, Munn Z (Editors). *JBIM Manual for Evidence Synthesis*. JBI, 2020.
41 Available from <https://synthesismanual.jbi.global>. [https://doi.org/10.46658/JBIMES-20-](https://doi.org/10.46658/JBIMES-20-03)
42 03.
- 43
44 31. Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart
45 LA. Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols
46 (PRISMA-P) 2015 statement. *Syst Rev*. 2015;4(1):1. doi: 10.1186/2046-4053-4-1.
- 47
48 32. Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart
49 LA, the PRISMA-P Group. Preferred Reporting Items for Systematic Review and Meta-
50 Analysis Protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ*
51 2015.349:g7647. doi: 10.1136/bmj.g7647.
- 52
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54
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57
58
59
60

- 1
2
3 33. Tong A, Flemming K, McInnes E, Oliver S, Craig J. Enhancing transparency in reporting
4 the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol*. 2012 Nov
5 27;12:181. doi: 10.1186/1471-2288-12-181. PMID: 23185978; PMCID: PMC3552766.
6
7 34. Munn Z, Porritt K, Lockwood C, Aromataris E, Pearson A. Establishing confidence in
8 the output of qualitative research synthesis: the ConQual approach. *BMC Medical*
9 *Research Methodology*, 2014, 14:108.
10
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PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

Section and topic	Item No	Checklist item
ADMINISTRATIVE INFORMATION		
Title:		
Identification	1a	Barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa: protocol for a synthesis of qualitative evidence
Update	1b	N/A
Registration	2	Systematic review registration number in PROSPERO: CRD42023473134.
Authors:		
Contact	3a	Abera Mershal, 2*, Asresash Demissie ² , Gugsu Nemera ² 1School of Nursing, College of Medicine and Health Sciences, Arba Minch University, Arba Minch, Ethiopia 2School of Nursing, Faculty of Health Sciences, Institute of Health, Jimma University, Jimma, Ethiopia
Contributions	3b	AM came up with the research question, wrote how the research would be done and the introduction, and created a plan for the research. AD and GN helped find information, and AM, AD, and GN all carefully reviewed and approved the final plan before it was sent for publication.
Amendments	4	The authors may need to make some changes to the systematic review, but they will clearly explain what those changes are and why they are necessary in the final review.
Support:		
Sources	5a	The authors did not declare any grant for this research from any funding agency.
Sponsor	5b	N/A
Role of sponsor or funder	5c	N/A
INTRODUCTION		
Rationale	6	<p>Quality of care is defined as the extent to which healthcare services are delivered to improve desired health outcomes. To achieve this, the services must be safe, effective, timely, efficient, equitable, and person-centered [1]. Quality of neonatal care includes the availability of equipment, supplies, guidelines, protocols, and trained and motivated healthcare workers, as well as supportive supervision and client satisfaction [2-4]. The importance of high-quality care for newborns is increasingly recognized as essential for improving their health and well-being worldwide [3, 5, 6]. Despite the fact that the quality of care in neonatal intensive care units is compromised in many aspects, sub-Saharan Africa is facing a number of challenges in improving neonatal care [7, 8]. This is an alarming public health issue because it puts millions of newborns at risk of death and disability, staff burnout, missed nursing care for high-acuity neonates [9-11].</p> <p>There are a number of potential barriers that hinder the quality of care and enablers that foster in NICU. The provider,</p>

caregiver and health system related barriers included inadequate knowledge and training, rigid division of roles and responsibilities, poor leadership, lack of effective communication, human resource constraints, inadequate equipment and clinical guidelines, poor documentation, and infrastructure, and economic insecurity of parents[12-22]. On the other hand, socio-cultural environment related barriers were patterns of interaction of the staff and parents and among staff, and power structure of the staff and leaders [23-25]. Making the care participatory, respectful, providing emotional support for parents, positive communication and using digital technologies were some of the facilitating factors for the quality of care in NICU [22, 24, 26, 27].

Enhancing the quality of NICU services in sub-Saharan Africa requires a multi-pronged approach that strengthens collaboration among various stakeholders, aligns quality of care plans with national infrastructure development strategies, and ensures adequate procurement of essential medicines and commodities [28]. While notable progress has been made in scaling up NICU quality in countries like Malawi, Ethiopia, and Rwanda over the past few decades[29], significant gaps remain in many sub-Saharan countries, necessitating continued efforts to improve service delivery, reduce neonatal mortality, and enhance parent and provider satisfaction. In this context, identifying the key barriers hindering service provision and the factors promoting positive outcomes is crucial.

This systematic review aims to bridge the existing knowledge gaps regarding quality care for high-acuity neonates in sub-Saharan Africa. A preliminary search of relevant databases, including PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and the JBI Evidence Synthesis, revealed no ongoing or recently completed systematic reviews addressing this topic.

Objectives	7	The primary objective of this systematic review is to comprehensively examine the evidence about barriers and enablers that influence the quality high-acuity neonatal care in sub-Saharan Africa.
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METHODS

Eligibility criteria	8	The studies included in this systematic review will be selected based on the PICo mnemonic for participants, phenomena of interest, and context. Participants: The participants for this systematic review will be any individual (caregiver, parents, health professionals, etc.). Phenomena of interest: This systematic review will consider studies that explore barriers and enablers to quality high-acuity neonatal care in NICU. Context: The systematic review will include studies conducted in sub-Saharan Africa. Types of studies: This review will only include qualitative and mixed-methods studies that explore the barriers and enablers to quality high-acuity neonatal care using qualitative data collection and analysis methods.
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Information sources	9	This systematic review will search and gather data from a variety of databases, including: JBI Database, Cochrane Database, MEDLINE/PubMed, CINAHL/EBSCO, EMBASE, PEDro, POPLINE, Proquest, OpenGrey (SIGLE), Google Scholar, Google, APA PsycINFO, Web of Science, Scopus and HINARI. Unpublished studies and grey literature will also be retrieved from institutional libraries and repositories, preprint websites, and through direct contact with the authors.
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Search strategy	10	<p>Table 1: Search strategy</p> <table border="1"> <thead> <tr> <th>PICo components</th> <th>Inclusion criteria</th> <th>Search terms (keywords/Mesh terms/index terms/Free text words)</th> <th>Limits</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	PICo components	Inclusion criteria	Search terms (keywords/Mesh terms/index terms/Free text words)	Limits				
PICo components	Inclusion criteria	Search terms (keywords/Mesh terms/index terms/Free text words)	Limits							

Participants	Caregiver, nurses, parents, health professionals	nurse*[All Fields] OR caregiver*[All Fields] OR parent*[All Fields] OR health care provider*[MeSH Terms] OR health professional*[MeSH Terms] OR health care worker* [All Fields]	Language: English Publication date: January 1, 2013 to December 30, 2023
Phenomena of interest	Barriers and enablers to quality high-acuity neonatal care in NICU	barrier*[All Fields] OR enabler* [All Fields] OR facilitator*[All Fields] OR hindering factor*[All Fields] OR militating factor*[All Fields] OR challenge*[All Fields] OR neonatal intensive care unit [All Fields] OR NICU [All Fields] OR quality care [All Fields] OR high-acuity neonate*[All Fields]	
Context	Studies conducted in sub-Saharan Africa	sub-Saharan Africa	
<p>Combine a single search strategy: (((("nurse*[All Fields] OR "caregiver*[All Fields] OR "parent*[All Fields] OR ("delivery of health care"[MeSH Terms] OR ("delivery"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "delivery of health care"[All Fields] OR ("health"[All Fields] AND "care"[All Fields]) OR "health care"[All Fields]) AND "provider*[MeSH Terms] OR ("health"[MeSH Terms] OR "health"[All Fields] OR "health s"[All Fields] OR "healthful"[All Fields] OR "healthfulness"[All Fields] OR "healths"[All Fields]) AND "professional*[MeSH Terms] OR "health care worker*[All Fields]) AND "barrier*[All Fields] OR "enabler*[All Fields] OR "facilitator*[All Fields] OR "hindering factor*[All Fields] OR "militating factor*[All Fields] OR "challenge*[All Fields] OR ("intensive care units, neonatal"[MeSH Terms] OR ("intensive"[All Fields] AND "care"[All Fields] AND "units"[All Fields] AND "neonatal"[All Fields]) OR "neonatal intensive care units"[All Fields] OR ("neonatal"[All Fields] AND "intensive"[All Fields] AND "care"[All Fields] AND "unit"[All Fields]) OR "neonatal intensive care unit"[All Fields]) OR ("intensive care units, neonatal"[MeSH Terms] OR ("intensive"[All Fields] AND "care"[All Fields] AND "units"[All Fields] AND "neonatal"[All Fields]) OR "neonatal intensive care units"[All Fields] OR "nicu"[All Fields]) OR ("quality of health care"[MeSH Terms] OR ("quality"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "quality of health care"[All Fields] OR ("quality"[All Fields] AND "care"[All Fields]) OR "quality care"[All Fields]) OR ("high-acuity"[All Fields] AND "neonate*[All Fields])) AND ("africa south of the sahara"[MeSH Terms] OR ("africa"[All Fields] AND "south"[All Fields] AND "sahara"[All Fields]) OR "africa south of the sahara"[All Fields] OR ("sub"[All Fields] AND "saharan"[All Fields] AND "africa"[All Fields]) OR "sub saharan africa"[All Fields]) AND 2013/01/01:3000/12/31[Date - Publication]</p>			
Number of records retrieved by the search: 83,877			

Database used: MEDLINE (Ovid)		
Search conducted on: Date: November 05, 2023; Time: 10:25:48		
Study records:		
Data management	11a	EndNote X8 and QARI
Selection process	11b	Following the search, all identified citations will be collated and uploaded into EndNote and duplicates removed. After pilot test, title and abstract screening process, followed by two independent reviewers screening all titles and abstracts against the inclusion criteria. The inclusion criteria for the review will be used to determine if the citations are relevant. The full texts of the potentially relevant sources will then be retrieved. Two independent reviewers will assess the full texts of the retrieved studies to determine if they meet the inclusion criteria for the review. If a study is excluded, the reasons for exclusion will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion. The final systematic review will fully report search and study selection results, adhering to the ENTREQ format for transparency [30].
Data collection process	11c	Data extraction from the studies included in the review will be conducted by two independent reviewers using the standardized JBI data extraction tool [30]. The data extracted will encompass specific details pertaining to the populations, context, culture, geographical location, study methods, and the phenomena of interest relevant to the review objective (Supplementary file 2). Findings and their corresponding illustrations will be extracted verbatim and assigned a level of credibility. Discrepancies arising between the reviewers will be resolved through discussion. Authors of the papers will be contacted to solicit missing or additional data when necessary.
Data items	12	The studies included in this systematic review will be selected based on the PICo mnemonic for participants, phenomena of interest, and context. Participants: The participants for this systematic review will be any individual (caregiver, parents, health professionals, etc.). Phenomena of interest: This systematic review will consider studies that explore barriers and enablers to quality high-acuity neonatal care in NICU. Context: The systematic review will include studies conducted in sub-Saharan Africa.
Outcomes and prioritization	13	Barriers and enablers of quality high-acuity neonatal care
Risk of bias in individual studies	14	Eligible studies will be critically appraised by two independent reviewers for methodological quality using the standard JBI Critical Appraisal Checklist for Qualitative Research [30]. Authors of papers will be contacted to request missing or additional data for clarification, where required. Any disagreements that arise will be resolved through discussion. The results of critical appraisal will be reported in narrative form and in a table. Studies will be scored using a quality appraisal checklist, and only studies with a score of 50% or higher will be included in the systematic review and meta-synthesis. If the two assessors disagree on a score, they will review the study together to investigate the source of the disagreement. If they are still unable to agree, the average of their scores will be used. Studies that do not meet a quality threshold will be excluded from the systematic review and meta-synthesis, but they will be reported narratively and in table form.
Data synthesis	15a	Studies will be scored using a quality appraisal checklist, and only studies with a score of 50% or higher will be included in the systematic review and meta-synthesis.
	15b	Qualitative research findings will, where possible, be pooled using QARI with the meta-aggregation approach. This will involve the aggregation or synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings and categorizing these findings on the basis of similarity in meaning. These categories will then be

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subjected to a synthesis in order to produce a single comprehensive set of synthesized findings that can be used as a basis for evidence-based practice.

15c N/A

15d Where textual pooling is not possible the findings will be presented in narrative form. Only unequivocal and credible findings will be included in the synthesis.

Meta-bias(es) 16 N/A

Confidence in the findings 17 The synthesized findings will undergo evaluation using the ConQual approach, a method for establishing confidence in the output of qualitative research synthesis. The resulting assessment will be presented in a Summary of Findings table [34].

*** It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

JBIR QARI Data Extraction Tool for Qualitative Research

Reviewer _____ Date _____

Author _____ Year _____

Journal _____ Record Number _____

Study Description

Methodology|

Method

Phenomena of interest

Setting

Geographical

Cultural

Participants

Data analysis

Authors conclusions

Comments

Complete

Yes

No

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Findings	Illustration form Publication (page number)	Evidence		
		Unequivocal	Credible	Unsupported

Extraction of findings complete Yes No

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BMJ Open

Barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa: Protocol for a synthesis of qualitative evidence

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2023-081904.R2
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Primary Subject Heading:	Health services research
Secondary Subject Heading:	Evidence based practice, Health services research, Intensive care, Nursing, Paediatrics
Keywords:	Neonatal intensive & critical care < INTENSIVE & CRITICAL CARE, Nursing Care, Nurses, Health Services Accessibility, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

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Manuscripts

Barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa: Protocol for a synthesis of qualitative evidence

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Word count: 1,809

ABSTRACT

Introduction: Despite resource limitations and systemic challenges, the quality of care in sub-Saharan African neonatal intensive care units suffers, leading to increased infant mortality and decreased satisfaction for both patients and healthcare workers. This review aims to bridge the knowledge gap by identifying and analysing the key barriers and enablers affecting quality care, informing interventions to improve patient outcomes and overall NICU effectiveness in this critical region.

Methods and analysis: This systematic review will search and gather data from a variety of databases, including: JBI Database, Cochrane Database, MEDLINE/PubMed, CINAHL/EBSCO, EMBASE, PEDro, POPLINE, Proquest, OpenGrey (SIGLE), Google Scholar, Google, APA PsycINFO, Web of Science, Scopus and HINARI. The review will also include unpublished studies and grey literature from a variety of sources. This review will only include qualitative and mixed-methods studies that explore the barriers and enablers to quality care for high-acuity neonates using qualitative data collection and analysis methods. The JBI Critical Appraisal Checklist for qualitative research will be used by two independent reviewers to critically appraise the eligible studies. Any disagreements that arise will be resolved through discussion. Qualitative research findings will be pooled using the meta-aggregation approach in QARI software, where possible. Only unequivocal and credible findings will be included in the synthesis. If textual pooling is not possible, the findings will be present in narrative form.

Ethics and dissemination: This systematic review does not require ethical clearance, and the findings will be disseminated to relevant stakeholders to ensure the widest possible outreach and impact.

Systematic review registration number in PROSPERO: CRD42023473134.

Keywords: *Barriers, Enablers, High-acuity, Neonatal care, Sub-Saharan Africa*

Strengths and limitation of the study

- The review will provide a comprehensive synthesis of qualitative evidence on the barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa.
- The review will use a systematic and rigorous approach to identify, select, and analyze relevant studies.
- The review will include a wide range of qualitative studies from different countries and settings in sub-Saharan Africa.
- The review will be limited by the quality of the available qualitative studies.
- The review will not be able to provide causal inferences about the barriers and enablers of quality high-acuity neonatal care.

INTRODUCTION

Quality of care is defined as the extent to which healthcare services are delivered to improve desired health outcomes. To achieve this, the services must be safe, effective, timely, efficient, equitable, and person-centered [1]. Quality of neonatal care includes the availability of equipment, supplies, guidelines, protocols, and trained and motivated healthcare workers, as well as supportive supervision and client satisfaction[2-4]. The importance of high-quality care for newborns is increasingly recognized as essential for improving their health and well-being worldwide[3, 5, 6]. Despite the fact that the quality of care in neonatal intensive care units is compromised in many aspects, sub-Saharan Africa is facing a number of challenges in improving neonatal care[7, 8]. This is an alarming public health issue because it puts millions of newborns at risk of death and disability, staff burnout, missed nursing care for high-acuity neonates[9-11].

There are a number of potential barriers that hinder the quality of care and enablers that foster in NICU. The provider, caregiver and health system related barriers included inadequate knowledge and training, rigid division of roles and responsibilities, poor leadership, lack of effective communication, human resource constraints, inadequate equipment and clinical guidelines, poor documentation, and infrastructure, and economic insecurity of parents[12-22]. On the other hand, socio-cultural environment related barriers were patterns of interaction of the staff and parents and among staff, and power structure of the staff and leaders[23-25]. Making the care participatory, respectful, providing emotional support for parents, positive communication and using digital technologies were some of the facilitating factors for the quality of care in NICU [22, 24, 26, 27].

Enhancing the quality of NICU services in sub-Saharan Africa requires a multi-pronged approach that strengthens collaboration among various stakeholders, aligns quality of care plans with national infrastructure development strategies, and ensures adequate procurement of essential medicines and commodities[28]. While notable progress has been made in scaling up NICU quality in countries like Malawi, Ethiopia, and Rwanda over the past few decades[29], significant gaps remain in many sub-Saharan countries, necessitating continued efforts to improve service delivery, reduce neonatal mortality, and enhance parent and provider satisfaction. In this context, identifying the key barriers hindering service provision and the factors promoting positive outcomes is crucial.

This systematic review aims to bridge the existing knowledge gaps regarding quality care for high-acuity neonates in sub-Saharan Africa. A preliminary search of relevant databases, including

PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and the JBI Evidence Synthesis, revealed no ongoing or recently completed systematic reviews addressing this topic.

Review objective

The primary objective of this systematic review is to comprehensively examine the evidence about barriers and enablers that influence the quality high-acuity neonatal care in sub-Saharan Africa.

METHODS AND ANALYSIS

Protocol design and registration

This systematic review protocol was developed following JBI methodology for systematic reviews of qualitative evidence[30] integrated with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols (PRISMA-P) guidelines[31, 32] (Supplementary file 1). The findings of the systematic review will be reported following the Enhancing transparency in reporting the synthesis of qualitative research (ENTREQ) guideline[33]. The review title has been registered in the international prospective register of systematic reviews (PROSPERO) with the registration number CRD42023473134.

Inclusion criteria

The studies included in this systematic review will be selected based on the PICO mnemonic for participants, phenomena of interest, and context. *Participants:* The participants for this systematic review will be any individual (caregiver, parents, health professionals, etc.). *Phenomena of interest:* This systematic review will consider studies that explore barriers and enablers to quality high-acuity neonatal care in NICU. *Context:* The systematic review will include studies conducted in sub-Saharan Africa. *Types of studies:* This review will only include qualitative and mixed-methods studies that explore the barriers and enablers to quality high-acuity neonatal care using qualitative data collection and analysis methods.

Search strategy

This systematic review will search for both published and unpublished studies on the barriers and enablers to quality care for high-acuity neonates in sub-Saharan Africa. The search will be conducted in three steps: (1) A limited search of MEDLINE (PubMed) and CINAHL (EBSCO) will be conducted to identify relevant articles. The search terms will be based on the titles, abstracts, and index terms of relevant articles, and will use the Boolean logic operators AND and OR with MeSH terms, keywords, and word variants for quality of care. (2) The search terms identified in the initial search will be adapted to create a full search strategy for each included database and/or information source (Table 1). (3) To identify additional relevant studies, the reference lists of all included studies will be screened. This systematic review will focus exclusively on studies published in English between January 1, 2013, and December 30, 2023. This timeframe ensures the inclusion of the most recent evidence relevant to such a large geographical area. Additionally, it addresses practical considerations for conducting this review. This systematic review will search and gather data from a variety of databases, including: JBI Database, Cochrane Database, MEDLINE/PubMed, CINAHL/EBSCO, EMBASE, PEDro, POPLINE, Proquest, OpenGrey (SIGLE), Google Scholar, Google, APA PsycINFO, Web of Science, Scopus and HINARI. In addition to published literature, unpublished studies and grey literature will be sought from institutional libraries and repositories, preprint websites, and by contacting the authors directly. A librarian will be consulted to assist with optimizing the search strategy.

Study selection

Following the search, all identified citations will be collated and uploaded into EndNote and duplicates removed. After pilot test, title and abstract screening process, followed by two independent reviewers screening all titles and abstracts against the inclusion criteria. The inclusion criteria for the review will be used to determine if the citations are relevant. The full texts of the potentially relevant sources will then be retrieved. Two independent reviewers will assess the full texts of the retrieved studies to determine if they meet the inclusion criteria for the review. If a study is excluded, the reasons for exclusion will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion. The final systematic review will fully report search and study selection results, adhering to the ENTREQ format for transparency[33].

Table 1: Search strategy

PICO components	Inclusion criteria	Search terms (keywords/Mesh terms/index terms/Free text words)	Limits
Participants	Caregiver, nurses, parents, health professionals	nurse*[All Fields] OR caregiver*[All Fields] OR parent*[All Fields] OR health care provider*[MeSH Terms] OR health professional*[MeSH Terms] OR health care worker* [All Fields]	Language: English Publication date: January 1, 2013 to December 30, 2023
Phenomena of interest	Barriers and enablers to quality high-acuity neonatal care in NICU	barrier*[All Fields] OR enabler* [All Fields] OR facilitator*[All Fields] OR hindering factor*[All Fields] OR militating factor*[All Fields] OR challenge*[All Fields] OR neonatal intensive care unit [All Fields] OR NICU [All Fields] OR quality care [All Fields] OR high-acuity neonate*[All Fields]	
Context	Studies conducted in sub-Saharan Africa	sub-Saharan Africa	
Combine a single search strategy: (((("nurse*" [All Fields] OR "caregiver*" [All Fields] OR "parent*" [All Fields] OR ("delivery of health care" [MeSH Terms] OR ("delivery" [All Fields] AND "health" [All Fields] AND "care" [All Fields]) OR "delivery of health care" [All Fields] OR ("health" [All Fields] AND "care" [All Fields]) OR "health care" [All Fields]) AND "provider*" [MeSH Terms]) OR ("health" [MeSH Terms] OR "health" [All Fields] OR "health s" [All Fields] OR "healthful" [All Fields] OR "healthfulness" [All Fields] OR "healths" [All Fields]) AND "professional*" [MeSH Terms]) OR "health care worker*" [All Fields]) AND "barrier*" [All Fields]) OR "enabler*" [All Fields] OR "facilitator*" [All Fields] OR "hindering factor*" [All Fields] OR "militating factor*" [All Fields] OR "challenge*" [All Fields] OR ("intensive care units, neonatal" [MeSH Terms] OR ("intensive" [All Fields] AND "care" [All Fields] AND "units" [All Fields] AND "neonatal" [All Fields]) OR "neonatal intensive care units" [All Fields] OR ("neonatal" [All Fields] AND "intensive" [All Fields] AND "care" [All Fields] AND "unit" [All Fields]) OR "neonatal intensive care unit" [All Fields]) OR ("intensive care units, neonatal" [MeSH Terms] OR ("intensive" [All Fields] AND "care" [All Fields] AND "units" [All Fields] AND "neonatal" [All Fields]) OR "neonatal intensive care units" [All Fields]			

OR "nicu"[All Fields]) OR ("quality of health care"[MeSH Terms] OR ("quality"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "quality of health care"[All Fields] OR ("quality"[All Fields] AND "care"[All Fields]) OR "quality care"[All Fields]) OR ("high-acuity"[All Fields] AND "neonate*"[All Fields])) AND ("africa south of the sahara"[MeSH Terms] OR ("africa"[All Fields] AND "south"[All Fields] AND "sahara"[All Fields]) OR "africa south of the sahara"[All Fields] OR ("sub"[All Fields] AND "saharan"[All Fields] AND "africa"[All Fields]) OR "sub saharan africa"[All Fields]) AND 2013/01/01:3000/12/31[Date - Publication]
Number of records retrieved by the search: 83,877
Database used: MEDLINE (Ovid)
Search conducted on: Date: November 05, 2023; Time: 10:25:48

Assessment of methodological quality

Eligible studies will be critically appraised by two independent reviewers for methodological quality using the standard JBI Critical Appraisal Checklist for Qualitative Research[30]. Authors of papers will be contacted to request missing or additional data for clarification, where required. Any disagreements that arise will be resolved through discussion. The results of critical appraisal will be reported in narrative form and in a table. Studies will be scored using a quality appraisal checklist, and only studies with a score of 50% or higher will be included in the systematic review and meta-synthesis. If the two assessors disagree on a score, they will review the study together to investigate the source of the disagreement. If they are still unable to agree, the average of their scores will be used. Studies that do not meet the quality threshold to merit inclusion will be excluded from the systematic review and meta-synthesis, but they will be reported narratively and in table form.

Data extraction

Data extraction from the studies included in the review will be conducted by two independent reviewers using the standardized JBI data extraction tool[30]. The data extracted will encompass specific details pertaining to the populations, context, culture, geographical location, study methods, and the phenomena of interest relevant to the review objective (Supplementary file 2). Findings and their corresponding illustrations will be extracted verbatim and assigned a level of credibility. Discrepancies arising between the reviewers will be resolved through discussion. Authors of the papers will be contacted to solicit missing or additional data when necessary.

Data synthesis

Qualitative research findings will, where possible, be pooled using QARI with the meta-aggregation approach. This will involve the aggregation or synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings and categorizing these findings on the basis of similarity in meaning. These categories will then be subjected to a synthesis in order to produce a single comprehensive set of synthesized findings that can be used as a basis for evidence-based practice. Where textual pooling is not possible the findings will be presented in narrative form. The synthesis will focus solely on unequivocal and credible findings. Unequivocal findings are considered beyond reasonable doubt, while credible findings are plausible and well-supported, even if not definitive.

Assessing confidence in the findings

The synthesized findings will undergo evaluation using the ConQual approach, a method for establishing confidence in the output of qualitative research synthesis. The resulting assessment will be presented in a Summary of Findings table[34].

Patient and public involvement

No patient involved

ETHICS AND DISSEMINATION

Ethical clearance is not required for this systematic review as it does not involve any primary research or the collection of data from human participants. The review will only synthesize existing research findings, which are publicly available and do not raise any ethical concerns. The findings of the systematic review will be disseminated to a wide range of stakeholders, including researchers, policymakers, healthcare professionals, and patient advocates. This will be done through a variety of channels, such as publication in peer-reviewed journals, presentation at conferences, and dissemination of reports and summaries.

AMENDMENTS

The authors may need to make some changes to the systematic review, but they will clearly explain what those changes are and why they are necessary in the final review.

List of abbreviations

ConQual: Confidence in the output of qualitative research synthesis, ENTREQ: Enhancing transparency in reporting the synthesis of qualitative research, PRISMA-P: Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols, PROSPERO: International Prospective Register of Systematic Reviews, QARI: Qualitative Assessment and Review Instrument

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Authors' contributions

AM came up with the research question, wrote how the research would be done and the introduction, and created a plan for the research. AD and GN helped find information, and AM, AD, and GN all carefully reviewed and approved the final plan before it was sent for publication.

Competing interests

The authors declare that they have no competing interests

Patient consent for publication

Not required

Provenance and peer review

Not commissioned; externally peer reviewed

REFERENCES

1. Tuncalp Ö, Were WM, MacLennan C, Oladapo OT, Gulmezoglu AM, Bahl R, et al. Quality of care for pregnant women and newborns – the WHO vision. *Br J Obstet Gynaecol* 2015;122:1045–1049.
2. World Health Organization (WHO). Standards for improving the quality of care for small and sick newborns in health facilities, 2020.
3. World Health Organization (WHO). Standards for improving quality of maternal and newborn care in health facilities, 2016. WHO Document Production Services, Geneva, Switzerland.
4. Khorshed MS, Lindsay D, McAuliffe M, West C, Wild K. Factors Affecting Quality of Care in Maternal and Child Health in Timor-Leste: A Scoping Review. *Health Serv Insights*. 2022 Jul 4;15:11786329221110052. doi: 10.1177/11786329221110052. PMID: 35813565; PMCID: PMC9260585.
5. United Nations. Global strategy for women’s and children’s health. New York; 2010.
6. Ehret DY, Patterson JK, Bose CL. Improving Neonatal Care: A Global Perspective. *Clin Perinatol*. 2017 Sep;44(3):567-582. doi: 10.1016/j.clp.2017.05.002. Erratum in: *Clin Perinatol*. 2017 Dec;44(4):xiii. PMID: 28802340.
7. Vincent-Lambert C, Wade G. Challenges relating to the inter-facility transport of high acuity paediatric cases. *Afr J Emerg Med*. 2018 Mar;8(1):29-33. doi: 10.1016/j.afjem.2017.12.001. Epub 2018 Feb 3. PMID: 30815340; PMCID: PMC6376918.
8. Mekbib T and Leatherman S. Quality improvement in maternal, neonatal and child health services in sub-Saharan Africa: A look at five resource-poor countries. *Ethiop. J. Health Dev*.2020; 34(1).
9. Vuong L. Staffing ratios and burnout. *AJN The American Journal of Nursing*. 2020 May 1;120(5):13.
10. Gathara D, Serem G, Murphy GAV, Obengo A, Tallam E, Jackson D, Brownie S, English M. Missed nursing care in newborn units: a cross-sectional direct observational study. *BMJ Qual Saf*. 2020 Jan;29(1):19-30. doi: 10.1136/bmjqs-2019-009363. Epub 2019 Jun 6. PMID: 31171710; PMCID: PMC6923939.
11. Sherenian M, Profit J, Schmidt B, Suh S, Xiao R, Zupancic JA, DeMauro SB. Nurse-to-patient ratios and neonatal outcomes: a brief systematic review. *Neonatology*. 2013 Sep 1;104(3):179-83.
12. Nyondo-Mipando AL, Woo Kinshella ML, Bohne C, Suwedi-Kapesa LC, Salimu S, Banda M, Newberry L, Njirammadzi J, Hiwa T, Chiwaya B, Chikoti F, Vidler M, Dube Q, Molyneux E, Mfutso-Bengo J, Goldfarb DM, Kawaza K, Mijovic H. Barriers and enablers of implementing bubble Continuous Positive Airway Pressure (CPAP):

- Perspectives of health professionals in Malawi. *PLoS One*. 2020 Feb 13;15(2):e0228915. doi: 10.1371/journal.pone.0228915. PMID: 32053649; PMCID: PMC7018070.
13. Jebessa S, Litch JA, Senturia K, Hailu T, Kahsay A, Kuti KA, Wolka E, Teklu AM, Gezahegn W. Qualitative Assessment of the Quality of Care for Preterm, Low Birth Weight, and Sick Newborns in Ethiopia. *Health Serv Insights*. 2021 Jun 17;14:11786329211025150. doi: 10.1177/11786329211025150. PMID: 34211278; PMCID: PMC8216415.
 14. Alemayehu M, Yakob B, Khuzwayo N. Barriers and enablers to emergency obstetric and newborn care services use in Wolaita Zone, Southern Ethiopia: a qualitative case study. *BMC Public Health*. 2022 Nov 16;22(1):2087. doi: 10.1186/s12889-022-14504-y. PMID: 36384508; PMCID: PMC9667656.
 15. Hadush MY, Gebremariam DS, Beyene SA, Abay TH, Berhe AH, Zelelew YB, Asmelash T, Ashebir F, Amare SY, Hadush Z, Medhanyie AA. Barriers and Enablers of KMC Implementation in Health Facility and Community of Tigray Region, Northern Ethiopia: Formative Research. *Pediatric Health Med Ther*. 2022 Sep 8;13:297-307. doi: 10.2147/PHMT.S369858. PMID: 36106330; PMCID: PMC9467444.
 16. Zemedu TG, Teshome A, Tadesse Y, Bekele A, Keyes E, Bailey P, Ruano AL. Healthcare workers' clinical knowledge on maternal and newborn care in Ethiopia: findings from 2016 national EmONC assessment. *BMC Health Services Research*. 2019 Dec;19(1):1-9.
 17. World Health Organization (WHO). Human resource strategies to improve newborn care in health facilities in low-and middle-income countries, 2020.
 18. Bolan N, Cowgill KD, Walker K, Kak L, Shaver T, Moxon S, Lincetto O. Human resources for health-related challenges to ensuring quality newborn care in low-and middle-income countries: a scoping review. *Global Health: Science and Practice*. 2021 Mar 31;9(1):160-76.
 19. Teklu AM, Litch JA, Tesfahun A, Wolka E, Tuamay BD, Gidey H, Cheru WA, Senturia K, Gezahegn W, Every Preemie-SCALE Ethiopia Implementation Research Collaboration Group Tedros Hailu Solomie Jebessa Amaha Kahsay Kemal A. Kuti Gillian Levine Judith Robb-McCord Yared Tadesse Abraham Tariku Abubeker Kedir Usman Abate Yeshidinber Weldetsadik. Referral systems for preterm, low birth weight, and sick newborns in Ethiopia: a qualitative assessment. *BMC pediatrics*. 2020 Dec;20:1-2.
 20. Ashok KD, et al. Improving the Quality of Health Care in Special Neonatal Care Units of India: A Before and After Intervention Study. *Global Health: Science and Practice*, 2022. 10(5): p. e2200085.
 21. Venugopal S, Patil RB, Thukral A, Koganti RA, Kumar DL V, Sankar MJ, Agarwal R, Verma A, Deorari AK. Feasibility, Sustainability, and Effectiveness of the Implementation of "Facility-Team-Driven" Approach for Improving the Quality of Newborn Care in South India. *Indian Journal of Pediatrics*. 2023 Jun 3:1-8.

- 1
2
3 22. Kaur E, Heys M, Crehan C, Fitzgerald F, Chiume M, Chirwa E, Wilson E, Evans M.
4 Persistent barriers to achieving quality neonatal care in low-resource settings:
5 perspectives from a unique panel of frontline neonatal health experts. *Journal of Global*
6 *Health Reports*. 2023;7:e2023004. doi:10.29392/001c.72089.
- 7
8 23. Sunkwa-Mills G, Senah K, Tersbøl BP. Infection prevention and control in neonatal
9 units: An ethnographic study of social and clinical interactions among healthcare
10 providers and mothers in Ghana. *PLoS One*. 2023 Jul 7;18(7):e0283647. doi:
11 10.1371/journal.pone.0283647. PMID: 37418459; PMCID: PMC10328309.
- 12
13 24. Turkmani S, Currie S, Mungia J, Assefi N, Rahmanzai AJ, Azfar P, Bartlett L.
14 'Midwives are the backbone of our health system': lessons from Afghanistan to guide
15 expansion of midwifery in challenging settings. *Midwifery*. 2013 Oct 1;29(10):1166-72.
- 16
17 25. English M, Ogola M, Aluvaala J, Gicheha E, Irimu G, McKnight J, Vincent CA. First do
18 no harm: practitioners' ability to 'diagnose' system weaknesses and improve safety is a
19 critical initial step in improving care quality. *Arch Dis Child*. 2021 Apr;106(4):326-332.
20 doi: 10.1136/archdischild-2020-320630. Epub 2020 Dec 23. PMID: 33361068; PMCID:
21 PMC7982941.
- 22
23 26. Durairaj A, Litch JA, Robb-McCord J. Family participation in the care of the inpatient
24 newborn. In Litch JA, Robb-McCord J, Kak L. (eds). *Do No Harm Technical Brief*
25 *Series*. Washington DC: USAID; 2018. Available at: [https://www.everypreemie.org/wp-](https://www.everypreemie.org/wp-content/uploads/2018/11/DNH-Tech-Brief-FamilyParticipation_11.1.18.pdf)
26 [content/uploads/2018/11/DNH-Tech-Brief-FamilyParticipation_11.1.18.pdf](https://www.everypreemie.org/wp-content/uploads/2018/11/DNH-Tech-Brief-FamilyParticipation_11.1.18.pdf). Access date
27 (Nov 04, 2023].
- 28
29 27. Horwood C, Haskins L, Luthuli S, McKerrow N. Communication between mothers and
30 health workers is important for quality of newborn care: a qualitative study in neonatal
31 units in district hospitals in South Africa. *BMC pediatrics*. 2019 Dec;19:1-3.
- 32
33 28. Rasanathan K, Damji N, Atsbeha T, Drisse MN, Davis A, Dora C, Karam A, Kuruvilla S,
34 Mahon J, Neira M, Montesinos EV. Ensuring multisectoral action on the determinants of
35 reproductive, maternal, newborn, child, and adolescent health in the post-2015 era. *bmj*.
36 2015 Sep 14;351.
- 37
38 29. Coffey PS, Israel-Ballard K, Meyer L, Mansen K, Agonafir N, Bekere M, Dube Q,
39 Kaberuka G, Kasar J, Kharade A, Maknikar S. The Journey Toward Establishing
40 Inpatient Care for Small and Sick Newborns in Ethiopia, India, Malawi, and Rwanda.
41 *Global Health: Science and Practice*. 2023 Aug 28;11(4).
- 42
43 30. Lockwood C, Porrit K, Munn Z, Rittenmeyer L, Salmond S, Bjerrum M, Loveday H,
44 Carrier J, Stannard D. Chapter 2: Systematic reviews of qualitative evidence. In:
45 Aromataris E, Munn Z (Editors). *JBIMES-20-03*. Available from <https://synthesismanual.jbi.global>. [https://doi.org/10.46658/JBIMES-20-](https://doi.org/10.46658/JBIMES-20-03)
46 03.
- 47
48 31. Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart
49 LA. Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols
50 (PRISMA-P) 2015 statement. *Syst Rev*. 2015;4(1):1. doi: 10.1186/2046-4053-4-1.
- 51
52
53
54
55
56
57
58
59
60

- 1
2
3 32. Shamseer L, Moher D, Clarke M, Gherzi D, Liberati A, Petticrew M, Shekelle P, Stewart
4 LA, the PRISMA-P Group. Preferred Reporting Items for Systematic Review and Meta-
5 Analysis Protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ*
6 2015.349:g7647. doi: 10.1136/bmj.g7647.
7
8 33. Tong A, Flemming K, McInnes E, Oliver S, Craig J. Enhancing transparency in reporting
9 the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol*. 2012 Nov
10 27;12:181. doi: 10.1186/1471-2288-12-181. PMID: 23185978; PMCID: PMC3552766.
11
12 34. Munn Z, Porritt K, Lockwood C, Aromataris E, Pearson A. Establishing confidence in
13 the output of qualitative research synthesis: the ConQual approach. *BMC Medical*
14 *Research Methodology*, 2014, 14:108.
15
16
17
18
19
20
21
22
23
24
25
26
27
28
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PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

Section and topic	Item No	Checklist item
ADMINISTRATIVE INFORMATION		
Title:		
Identification	1a	Barriers and enablers of quality high-acuity neonatal care in sub-Saharan Africa: protocol for a synthesis of qualitative evidence
Update	1b	N/A
Registration	2	Systematic review registration number in PROSPERO: CRD42023473134.
Authors:		
Contact	3a	Abera Mershal, 2*, Asresash Demissie ² , Gugsu Nemera ² 1School of Nursing, College of Medicine and Health Sciences, Arba Minch University, Arba Minch, Ethiopia 2School of Nursing, Faculty of Health Sciences, Institute of Health, Jimma University, Jimma, Ethiopia
Contributions	3b	AM came up with the research question, wrote how the research would be done and the introduction, and created a plan for the research. AD and GN helped find information, and AM, AD, and GN all carefully reviewed and approved the final plan before it was sent for publication.
Amendments	4	The authors may need to make some changes to the systematic review, but they will clearly explain what those changes are and why they are necessary in the final review.
Support:		
Sources	5a	The authors did not declare any grant for this research from any funding agency.
Sponsor	5b	N/A
Role of sponsor or funder	5c	N/A
INTRODUCTION		
Rationale	6	<p>Quality of care is defined as the extent to which healthcare services are delivered to improve desired health outcomes. To achieve this, the services must be safe, effective, timely, efficient, equitable, and person-centered [1]. Quality of neonatal care includes the availability of equipment, supplies, guidelines, protocols, and trained and motivated healthcare workers, as well as supportive supervision and client satisfaction [2-4]. The importance of high-quality care for newborns is increasingly recognized as essential for improving their health and well-being worldwide [3, 5, 6]. Despite the fact that the quality of care in neonatal intensive care units is compromised in many aspects, sub-Saharan Africa is facing a number of challenges in improving neonatal care [7, 8]. This is an alarming public health issue because it puts millions of newborns at risk of death and disability, staff burnout, missed nursing care for high-acuity neonates [9-11].</p> <p>There are a number of potential barriers that hinder the quality of care and enablers that foster in NICU. The provider,</p>

caregiver and health system related barriers included inadequate knowledge and training, rigid division of roles and responsibilities, poor leadership, lack of effective communication, human resource constraints, inadequate equipment and clinical guidelines, poor documentation, and infrastructure, and economic insecurity of parents[12-22]. On the other hand, socio-cultural environment related barriers were patterns of interaction of the staff and parents and among staff, and power structure of the staff and leaders [23-25]. Making the care participatory, respectful, providing emotional support for parents, positive communication and using digital technologies were some of the facilitating factors for the quality of care in NICU [22, 24, 26, 27].

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This systematic review aims to bridge the existing knowledge gaps regarding quality care for high-acuity neonates in sub-Saharan Africa. A preliminary search of relevant databases, including PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and the JBI Evidence Synthesis, revealed no ongoing or recently completed systematic reviews addressing this topic.

Objectives	7	The primary objective of this systematic review is to comprehensively examine the evidence about barriers and enablers that influence the quality high-acuity neonatal care in sub-Saharan Africa.
METHODS		
Eligibility criteria	8	The studies included in this systematic review will be selected based on the PICo mnemonic for participants, phenomena of interest, and context. Participants: The participants for this systematic review will be any individual (caregiver, parents, health professionals, etc.). Phenomena of interest: This systematic review will consider studies that explore barriers and enablers to quality high-acuity neonatal care in NICU. Context: The systematic review will include studies conducted in sub-Saharan Africa. Types of studies: This review will only include qualitative and mixed-methods studies that explore the barriers and enablers to quality high-acuity neonatal care using qualitative data collection and analysis methods.
Information sources	9	This systematic review will search and gather data from a variety of databases, including: JBI Database, Cochrane Database, MEDLINE/PubMed, CINAHL/EBSCO, EMBASE, PEDro, POPLINE, Proquest, OpenGrey (SIGLE), Google Scholar, Google, APA PsycINFO, Web of Science, Scopus and HINARI. In addition to published literature, unpublished studies and grey literature will be sought from institutional libraries and repositories, preprint websites, and by contacting the authors directly. A librarian will be consulted to assist with optimizing the search strategy.
Search strategy	10	

Table 1: Search strategy

PICo components	Inclusion criteria	Search terms (keywords/Mesh terms/index terms/Free text words)	Limits
Participants	Caregiver, nurses, parents, health professionals	nurse*[All Fields] OR caregiver*[All Fields] OR parent*[All Fields] OR health care provider*[MeSH Terms] OR health professional*[MeSH Terms] OR health care worker* [All Fields]	Language: English Publication date: January 1, 2013 to December 30, 2023
Phenomena of interest	Barriers and enablers to quality high-acuity neonatal care in NICU	barrier*[All Fields] OR enabler* [All Fields] OR facilitator*[All Fields] OR hindering factor*[All Fields] OR militating factor*[All Fields] OR challenge*[All Fields] OR neonatal intensive care unit [All Fields] OR NICU [All Fields] OR quality care [All Fields] OR high-acuity neonate*[All Fields]	
Context	Studies conducted in sub-Saharan Africa	sub-Saharan Africa	
Combine a single search strategy: (((("nurse*[All Fields] OR "caregiver*[All Fields] OR "parent*[All Fields] OR ("delivery of health care"[MeSH Terms] OR ("delivery"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "delivery of health care"[All Fields] OR ("health"[All Fields] AND "care"[All Fields]) OR "health care"[All Fields]) AND "provider*[MeSH Terms] OR ("health"[MeSH Terms] OR "health"[All Fields] OR "health s"[All Fields] OR "healthful"[All Fields] OR "healthfulness"[All Fields] OR "healths"[All Fields]) AND "professional*[MeSH Terms] OR "health care worker*[All Fields]) AND "barrier*[All Fields]) OR "enabler*[All Fields] OR "facilitator*[All Fields] OR "hindering factor*[All Fields] OR "militating factor*[All Fields] OR "challenge*[All Fields] OR ("intensive care units, neonatal"[MeSH Terms] OR ("intensive"[All Fields] AND "care"[All Fields] AND "units"[All Fields] AND "neonatal"[All Fields]) OR "neonatal intensive care units"[All Fields] OR ("neonatal"[All Fields] AND "intensive"[All Fields] AND "care"[All Fields] AND "unit"[All Fields]) OR "neonatal intensive care unit"[All Fields]) OR ("intensive care units, neonatal"[MeSH Terms] OR ("intensive"[All Fields] AND "care"[All Fields] AND "units"[All Fields] AND "neonatal"[All Fields]) OR "neonatal intensive care units"[All Fields] OR "nicu"[All Fields]) OR ("quality of health care"[MeSH Terms] OR ("quality"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "quality of health care"[All Fields] OR ("quality"[All Fields] AND "care"[All Fields]) OR "quality care"[All Fields]) OR ("high-acuity"[All Fields] AND "neonate*[All Fields])) AND ("africa south of the sahara"[MeSH Terms] OR ("africa"[All Fields]			

AND "south"[All Fields] AND "sahara"[All Fields]) OR "africa south of the sahara"[All Fields] OR ("sub"[All Fields] AND "saharan"[All Fields] AND "africa"[All Fields]) OR "sub saharan africa"[All Fields]) AND 2013/01/01:3000/12/31[Date - Publication]		
Number of records retrieved by the search: 83,877		
Database used: MEDLINE (Ovid)		
Search conducted on: Date: November 05, 2023; Time: 10:25:48		
Study records:		
Data management	11a	EndNote X8 and QARI
Selection process	11b	Following the search, all identified citations will be collated and uploaded into EndNote and duplicates removed. After pilot test, title and abstract screening process, followed by two independent reviewers screening all titles and abstracts against the inclusion criteria. The inclusion criteria for the review will be used to determine if the citations are relevant. The full texts of the potentially relevant sources will then be retrieved. Two independent reviewers will assess the full texts of the retrieved studies to determine if they meet the inclusion criteria for the review. If a study is excluded, the reasons for exclusion will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion. The final systematic review will fully report search and study selection results, adhering to the ENTREQ format for transparency [32].
Data collection process	11c	Data extraction from the studies included in the review will be conducted by two independent reviewers using the standardized JBI data extraction tool [30]. The data extracted will encompass specific details pertaining to the populations, context, culture, geographical location, study methods, and the phenomena of interest relevant to the review objective (Supplementary file 2). Findings and their corresponding illustrations will be extracted verbatim and assigned a level of credibility. Discrepancies arising between the reviewers will be resolved through discussion. Authors of the papers will be contacted to solicit missing or additional data when necessary.
Data items	12	The studies included in this systematic review will be selected based on the PICo mnemonic for participants, phenomena of interest, and context. Participants: The participants for this systematic review will be any individual (caregiver, parents, health professionals, etc.). Phenomena of interest: This systematic review will consider studies that explore barriers and enablers to quality high-acuity neonatal care in NICU. Context: The systematic review will include studies conducted in sub-Saharan Africa.
Outcomes and prioritization	13	Barriers and enablers of quality high-acuity neonatal care
Risk of bias in individual studies	14	Eligible studies will be critically appraised by two independent reviewers for methodological quality using the standard JBI Critical Appraisal Checklist for Qualitative Research [30]. Authors of papers will be contacted to request missing or additional data for clarification, where required. Any disagreements that arise will be resolved through discussion. The results of critical appraisal will be reported in narrative form and in a table. Studies will be scored using a quality appraisal checklist, and only studies with a score of 50% or higher will be included in the systematic review and meta-synthesis. If the two assessors disagree on a score, they will review the study together to investigate the source of the disagreement. If they are still unable to agree, the average of their scores will be used. Studies that do not meet the quality threshold to merit inclusion will be excluded from the systematic review and meta-synthesis, but they will be reported narratively and in table

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		form.
Data synthesis	15a	Studies will be scored using a quality appraisal checklist, and only studies with a score of 50% or higher will be included in the systematic review and meta-synthesis.
	15b	Qualitative research findings will, where possible, be pooled using QARI with the meta-aggregation approach. This will involve the aggregation or synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings and categorizing these findings on the basis of similarity in meaning. These categories will then be subjected to a synthesis in order to produce a single comprehensive set of synthesized findings that can be used as a basis for evidence-based practice.
	15c	N/A
	15d	Where textual pooling is not possible the findings will be presented in narrative form. The synthesis will focus solely on unequivocal and credible findings. Unequivocal findings are considered beyond reasonable doubt, while credible findings are plausible and well-supported, even if not definitive.
Meta-bias(es)	16	N/A
Confidence in the findings	17	The synthesized findings will undergo evaluation using the ConQual approach, a method for establishing confidence in the output of qualitative research synthesis. The resulting assessment will be presented in a Summary of Findings table [34].

*** It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

JBI QARI Data Extraction Tool for Qualitative Research

Reviewer _____ Date _____

Author _____ Year _____

Journal _____ Record Number _____

Study Description

Methodology|

Method

Phenomena of interest

Setting

Geographical

Cultural

Participants

Data analysis

Authors conclusions

Comments

Complete

Yes

No

Findings	Illustration form Publication (page number)	Evidence		
		Unequivocal	Credible	Unsupported

Extraction of findings complete Yes No

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