



## STUDY PROTOCOL

# REVISÉ Missed nursing care in acute care hospital settings in low-middle income countries: a systematic review protocol [version 2; peer review: 2 approved]

Abdulazeez Imam <sup>1</sup>, Sopuruchukwu Obiesie <sup>2</sup>, Jalemba Aluvaala <sup>3,4</sup>, Michuki Maina <sup>3</sup>, David Gathara<sup>3,5</sup>, Mike English <sup>1,3</sup>

<sup>1</sup>Oxford Centre for Global Health Research, Nuffield Department of Medicine, University of Oxford, Oxford, OX1 3SY, UK

<sup>2</sup>Independent Researcher, Asaba, Delta, Nigeria

<sup>3</sup>KEMRI-Wellcome Trust Research Programme, Nairobi, Kenya

<sup>4</sup>Department of Paediatrics, University of Nairobi, Nairobi, Kenya

<sup>5</sup>MARCH Centre, London School of Hygiene and Tropical Medicine, London, UK

**v2** First published: 21 Dec 2021, 6:359  
<https://doi.org/10.12688/wellcomeopenres.17431.1>  
 Latest published: 05 Apr 2022, 6:359  
<https://doi.org/10.12688/wellcomeopenres.17431.2>

## Abstract

**Background:** Missed nursing care (care left undone or task incompleteness) is viewed as an important early predictor of adverse patient care outcomes and is a useful indicator to determine the quality of patient care. Available systematic reviews on missed nursing care are based mainly on primary studies from developed countries, and there is limited evidence on missed nursing care from low-middle income countries (LMICs). We propose conducting a systematic review to identify the magnitude of missed nursing care and document factors and reasons associated with this phenomenon in LMIC settings.

**Methods and analysis:** This protocol was developed using the Preferred Reporting Items for Systematic Reviews and Meta-analysis Protocols (PRISMA-P). We will conduct literature searching across the Ovid Medline, Embase and EBSCO Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases, from inception to 2021. Two independent reviewers will conduct searches and data abstraction, and discordance will be handled by discussion between both parties. The risk of bias of the individual studies will be determined using the Newcastle-Ottawa Scale (NOS).

**Ethics and dissemination:** Ethical permission is not required for this review as we will make use of already published data. We aim to publish the findings of our review in peer-reviewed journals

**PROSPERO registration number:** CRD42021286897 (27<sup>th</sup> October 2021)

## Open Peer Review

Approval Status

|                  | 1                    | 2                    |
|------------------|----------------------|----------------------|
| <b>version 2</b> |                      |                      |
| (revision)       |                      |                      |
| 05 Apr 2022      | <a href="#">view</a> | <a href="#">view</a> |
| <b>version 1</b> |                      |                      |
| 21 Dec 2021      | <a href="#">view</a> | <a href="#">view</a> |

1. **Joseph Okebe** , Liverpool School of Tropical Medicine, Liverpool, UK

2. **Marica Cassarino** , University College Cork, Cork, Ireland

Any reports and responses or comments on the article can be found at the end of the article.

## Keywords

Implicit rationing, Task incompleteness, Unmet nursing needs, developing countries, quality of patient care, Omission of nursing care



This article is included in the [KEMRI | Wellcome Trust](#) gateway.

**Corresponding author:** Abdulazeez Imam ([abdulimam2001@yahoo.com](mailto:abdulimam2001@yahoo.com))

**Author roles:** **Imam A:** Conceptualization, Methodology, Writing – Original Draft Preparation; **Obiesie S:** Methodology, Writing – Review & Editing; **Aluvaala J:** Methodology, Writing – Review & Editing; **Maina M:** Methodology, Writing – Review & Editing; **Gathara D:** Methodology, Writing – Review & Editing; **English M:** Funding Acquisition, Methodology, Writing – Review & Editing

**Competing interests:** No competing interests were disclosed.

**Grant information:** ME and JA are supported by the Wellcome Trust through a Senior Fellowship award to ME [207522] and the work of ME, MM and JA are further supported by the Wellcome Trust through a core award to the Kenya Major Overseas Programme [203077] AI and MM are supported by a grant from the National Institute for Health Research (NIHR)[NIHR130812]: Learning to Harness Innovation in Global Health for Quality Care (HIGH-Q) using UK aid from the UK Government to support global health research. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript. The views expressed in this publication are those of the author(s) and not necessarily those of the Wellcome Trust, NIHR or the UK Government. *The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.*

**Copyright:** © 2022 Imam A *et al.* This is an open access article distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**How to cite this article:** Imam A, Obiesie S, Aluvaala J *et al.* **Missed nursing care in acute care hospital settings in low-middle income countries: a systematic review protocol [version 2; peer review: 2 approved]** Wellcome Open Research 2022, 6:359 <https://doi.org/10.12688/wellcomeopenres.17431.2>

**First published:** 21 Dec 2021, 6:359 <https://doi.org/10.12688/wellcomeopenres.17431.1>

**REVISED Amendments from Version 1**

In our second version, we have provided more clarity on and defined terms we used in our objectives, for example, magnitude, categories, risk factors and reasons for missed nursing care. We have also simplified our objectives, given more detailed explanations for our risk of bias tool and provided a greater reflection on the importance of our review to policy and practice. Also, we justify our focus on missed nursing care in acute care settings

**Any further responses from the reviewers can be found at the end of the article**

## Introduction

Missed nursing care is an umbrella term that describes nursing care that is either partially or completely omitted or delayed. It encompasses all aspects of nursing care including clinical, emotional care and administrative nursing duties<sup>1</sup>. It has been described by many terms in literature including ‘task incompleteness’, ‘unmet needs’ or ‘implicit rationing’<sup>2</sup>. It largely arises from an implicit prioritisation of some tasks at the expense of others and is due largely to competing demands for nursing time<sup>3</sup>. While missed nursing care, in theory, might occur in all care settings where nurses play a role, the current evidence for this phenomenon is almost exclusively described in acute care hospital settings<sup>2</sup>. Missed nursing care has gained much significance in nursing literature and practice from hospital settings where it is viewed as an early precursor and mediator for adverse patient health outcomes and an early signal for deteriorating quality of care<sup>2,4</sup>. Some studies have demonstrated associations between missed nursing care and negative patient care outcomes, for example medication errors, patient falls, nosocomial infections, pressure ulcers, increases in the risk of readmission following discharge, mortality and decreased patient satisfaction<sup>1,4-7</sup>.

Despite the importance of the identification of missed nursing care, evidence for this phenomenon has come largely from high income countries (HICs)<sup>2,4,8</sup>. Pre-review, we identified two recently published systematic reviews on missed nursing care that do not report any findings from low-middle income countries (LMICs)<sup>1,2</sup>. We also identified a few recent studies that investigated missed nursing care in LMIC contexts<sup>9-11</sup>. Generally, LMIC settings have distinctively different hospital structures, practice environments and organisational contexts from HICs and also have limited resources including staff and technology. It is thus conceivable that the magnitude, categories of most frequently missed nursing care and its associated factors might differ significantly from those of more developed settings.

To address the aforementioned gaps in evidence, we propose a systematic review to document the magnitude (how much care is missed), categories of most frequently missed nursing care and their associated factors and reasons in LMIC contexts. Our review builds on previous LMIC focused systematic reviews on nursing staffing and patient outcomes which have

not included missed nursing care<sup>12</sup>. It will also be important to guide the conduct of future nurse staffing research in LMICs and provide important information for policymakers.

## Objective and questions

This review will have four objectives:

1. Document the magnitude of missed nursing care in LMICs. and
2. Identify the categories of nursing care (specific nursing tasks) that are most frequently missed in acute hospital settings in LMICs
3. Document the factors associated with missed nursing care in LMIC settings.
4. Document the reasons associated with missed nursing care in LMICs

## Protocol

The protocol for this systematic review was developed using the Preferred Reporting Items for Systematic Reviews and Meta-analysis Protocols (PRISMA-P)<sup>13</sup> and a completed PRISMA-P checklist is available in the *Extended data*<sup>14</sup>. Our review was also registered with the International Prospective Register of Systematic Reviews (PROSPERO) on 27<sup>th</sup> October 2021 (Registration number - CRD42021286897)

## Eligibility criteria

**Study design.** Our systematic review will focus on missed nursing care, an important patient care outcome that has not previously been the focus of published reviews on nurse staffing in LMICs<sup>12,15</sup>. It will review both observational and interventional studies that describe or investigate missed nursing care in LMIC settings. The broad range of study types included will allow us to review missed nursing care in LMICs on a wider scale. We will however exclude qualitative, mixed-method studies, as our focus is more quantitative (identifying the magnitude and risk factors of missed nursing care). We will also exclude research that does not make use of primary data, for example other systematic reviews, umbrella reviews, protocols, and commentaries. The [world bank country and lending group classification system](#) will be used to identify LMICs. This system divides countries into low-income, low-middle-income and upper-middle-income economies based on gross national income per capita.

**Population.** We will include all original studies that primarily focus on missed nursing care among patients admitted to LMIC hospital settings at all levels of care. To broadly describe the magnitude and types of care missed in hospitals, we will place no restrictions on the type of hospital wards where the study populations were recruited. We will thus consider regular staffed wards, for example medical, surgical or paediatrics, and wards with enhanced staffing such as intensive care wards. We will, however, exclude studies where the patient population were recruited in ambulatory care, for example immunisation or out-patient clinics, as care provided in such settings are distinctly different from in-patient care which is the focus

of this review. For multi-country studies conducted across both HIC and LMIC settings, we will include these if the authors report their LMIC results separately.

**Exposures.** Our exposure for this review will be the categories, reasons and risk factors associated with missed nursing care described in primary research. In this review, risk factors will be patient, nurse or hospital level variables that have been shown to be associated with missed nursing care, while reasons will be rationales put forward by nurses as to why missed nursing care occurs. We can quantitatively abstract reasons for missed nursing care from primary research as one of the main missed nursing care tools, the MISSCARE survey tool has a structured section for collecting data on pre-specified reasons for missed nursing care such as reduced staffing or unavailability of essential medical equipment<sup>17</sup>. Some published studies using the MISSCARE tool have asked nurses to rank the reasons for the care that was missed during their previous shifts<sup>10,18</sup>.

Multiple missed nursing care tools describe different categories of nursing care/tasks<sup>9,19–21</sup>, but it is feasible to thematically group this into themes or domains. Kalisch *et al.* describe nine themes for nursing care that is missed i.e., patient ambulation, turning, feedings, patient teaching, discharge planning, emotional support, hygiene, intake and output documentation, and surveillance<sup>17</sup>. We propose to use this categorisation or, depending on the results of the review, use a more appropriate categorisation.

## Outcome

Our outcome for this review is the magnitude of missed nursing care. Studies on missed nursing care either report an overall percentage of care that was missed or a summary Likert score<sup>22,23</sup>. For the purposes of this review, we will document the magnitude of care missed across studies by documenting the range of overall percentages of care missed across studies.

Missed nursing care has been investigated using other synonyms, for example, omission of care, unmet nursing needs and implicit rationing of nursing care<sup>24</sup>. For the current review, we will summarise all LMIC studies on missed nursing care irrespective of the methods or missed nursing care synonyms used. For studies to be eligible for inclusion in our review they should either report on one, or any combination of, the following categories: categories, magnitude of nursing care that are missed and factors and reasons associated with missed nursing care in LMIC settings. If it is feasible to extract specific data on missed nursing care, we will also include studies where missed nursing care is not the main variable of the study (for example, studies that report on missed nursing care together with multiple other patient care)

We will exclude studies that examine missed care among other cadres of healthcare professionals. Studies reporting medication errors among nurses will also be excluded, as these do not

represent omitted nursing tasks but occur largely due to acts of commission. We will also exclude papers not published in the English language due to limitations in translation.

## Search strategy

We will perform initial searches in Prospero to identify any ongoing or planned reviews that relate to our proposed research before undertaking the review. We contacted a health information librarian to develop our search strategy, and this was piloted in Medline (see *Extended data*<sup>14</sup>). We will conduct additional searches in Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Global Health. No publication date restriction filters will be applied to our searches. Following primary database search, we will conduct additional literature through hand searching in select journals and forward-searching in Scopus. We will also check the references of published systematic reviews on missed nursing care to identify relevant primary articles.

## Data management

We will upload our search output into the [Zotero](#) reference management software, where we will perform initial de-duplication, and then utilise Microsoft Excel for the second round of de-duplication. We will then screen the titles and abstracts of our search output using the [Rayyan – Intelligent Systematic Review](#) software, a web-based application for screening<sup>25</sup>. This will be performed independently by two reviewers (AI and SO) to select a set of potentially relevant articles, following which both reviewers will deliberate on a final set of articles for full-text screening. Disagreements will be resolved through discussions, if this is not successful, a third reviewer will serve as an arbitrator.

## Data items

We will develop a standardised Microsoft Excel form to abstract data from our identified primary articles. This will include, as a minimum, the publication year, name of the first author, country, research context, type of care that is missed, how missed care was measured and factors and reasons for care that were missed. Both reviewers will independently abstract information from the selected primary articles. Any disagreements will be resolved through discussion and, if necessary, a third reviewer might serve as an arbitrator for unresolved conflicts.

## Assessment of study quality

For studies that meet our eligibility criteria, we will employ the Newcastle-Ottawa Scale (NOS)<sup>26</sup>. This scale widely used to appraise the quality of non-randomised studies<sup>26</sup>. There is also a published adaptation of this tool for cross-sectional studies<sup>27</sup>. This consists of three domains:

- Selection which appraises the representativeness of the study sample, its size and how valid the measurement of exposure is.
- Comparability of the study groups.
- validity of the outcome measure.

Typically, each of the 3 domains sum up to a maximum 10 and researchers might either pre-specify a value as a cut-off to include a study or not. For this review, we will not include a cut-off because we aim to provide broad information on missed nursing care in LMICs. We will include all eligible studies in our synthesis irrespective of their risk of bias scores, but we will discuss any potential impact of these scores in our evidence synthesis

We have selected the NOS as we anticipate we are unlikely to find any intervention studies or randomised control trials for missed care in LMICs through our search. Recent reviews on missed nursing care did not report any intervention research or randomised controlled trials<sup>1,2</sup>.

The risk of bias assessment will be conducted independently by two reviewers and any differences will be addressed by discussion. A third reviewer will be called to review any unresolved conflicts.

### Data synthesis

We will consider pooling data and where not feasible, resort to a narrative synthesis. This is because primary studies of missed nursing care are heterogeneous in terms of the methods and tools used to measure missed nursing care and how they present their results. Missed nursing care has been measured using either direct observational methods or subjective patient and nurse reporting of care that is missed<sup>1,8,9</sup>. Results of studies on missed nursing care are also frequently presented in different formats, as either the proportion of care that is missed or as a mean/median score when a Likert scale is used<sup>22,28,29</sup>. To describe the most frequently missed categories of missed nursing care, we will report either of these estimates and rank order them to identify the three most and least frequently missed nursing care categories.

### Ethics and dissemination

Our review is secondary research and so will not require any ethical approval. We aim to publish our findings in a peer-reviewed journal.

### Study status

We confirm that by the time of submission of this protocol we have completed our search and are conducting full-text screening of identified articles.

### Discussion

Donabedian described the structure-process-outcome framework, which has been a cornerstone in describing and researching the quality of patient care<sup>30</sup>. In summary, structures or the setup of a health system affect care processes which in turn are likely to affect health care outcomes<sup>31</sup>. Missed nursing care is a process-based indicator of the quality of patient care and is likely to signal deterioration in patient care ahead of traditional outcome-based quality indicators such as mortality

or length of stay. It is also possible missed nursing care might show earlier responses to interventions aimed at improving the quality of patient care compared to outcome-based quality indicators, underscoring the importance of this indicator. Traditionally, literature on missed nursing care has primarily been from more developed settings since the term was first described by Kalisch *et al.*<sup>17</sup>. In the last two to three years, there have been increasing missed nursing care publications from LMIC settings<sup>9,10,29</sup>, these are not currently reflected in the most recent reviews<sup>1,2</sup>. Our systematic review will sum up the current evidence on missed nursing care in LMIC settings.

A recurring theme in missed nursing care literature is the inverse relationship between nurse staffing levels and the magnitude of missed nursing care<sup>2,9</sup>. Traditionally, LMICs have poorer nurse staffing in comparison to HICs and a higher magnitude of missed nursing care described in LMICs would have implication for nurse staffing policies, suggesting a need for urgent improvement in nurse staffing levels. The challenge in many of these settings is financing Human Resources for Health which although a global problem is more prevalent in resource constrained LMICs. There is however an opportunity if the most frequently missed categories of nursing care are non-clinical duties (for example, provision of physical needs) as this might provide a justification for hiring lower skilled nurse support workers or assistants in settings where they are non-existent. This cadre of staff are paid less than nurses and are a recognised part of the health workforce in more developed climes<sup>32</sup>. If such policies are implemented, nursing assistants should not substitute existing nurses but rather be supplementary to them as there is evidence from HICs suggesting substitution of nurses might have a negative effect on care quality<sup>33</sup>.

### Data availability

#### Underlying data

No underlying data are associated with this article

#### Extended data

Open Science Framework: Missed nursing care in acute care hospital settings in low-middle income countries: a systematic review protocol. <https://doi.org/10.17605/OSF.IO/JZXRV><sup>13</sup>

This project contains the following extended data:

- Medline search strategy.docx (Medline search strategy for this proposal)

#### Reporting guidelines

Open Science Framework: PRISMA-P checklist for 'Missed nursing care in acute care hospital settings in low-middle income countries: a systematic review protocol'. <https://doi.org/10.17605/OSF.IO/JZXRV><sup>13</sup>

Data are available under the terms of the [Creative Commons Attribution 4.0 International license](#) (CC-BY 4.0).



## References

1. Recio-Saucedo A, Dall'Ora C, Maruotti A, *et al.*: **What impact does nursing care left undone have on patient outcomes? Review of the literature.** *J Clin Nurs.* 2018; **27**(11–12): 2248–59.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
2. Griffiths P, Recio-Saucedo A, Dall'Ora C, *et al.*: **The association between nurse staffing and omissions in nursing care: A systematic review.** *J Adv Nurs.* John Wiley Sons Inc, 2018; **74**(7): 1474–87.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
3. Kalisch BJ, Landstrom GL, Hinshaw AS: **Missed nursing care: a concept analysis.** *J Adv Nurs.* 2009; **65**(7): 1509–17.  
[PubMed Abstract](#) | [Publisher Full Text](#)
4. Ball JE, Bruyneel L, Aiken LH, *et al.*: **Post-operative mortality, missed care and nurse staffing in nine countries: a cross-sectional study.** *Int J Nurs Stud.* 2018; **78**: 10–15.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
5. Ausserhofer D, Schubert M, Desmedt M, *et al.*: **The association of patient safety climate and nurse-related organizational factors with selected patient outcomes: a cross-sectional survey.** *Int J Nurs Stud.* 2013; **50**(2): 240–52.  
[PubMed Abstract](#) | [Publisher Full Text](#)
6. Schubert M, Glass TR, Clarke SP, *et al.*: **Rationing of nursing care and its relationship to patient outcomes: the Swiss extension of the International Hospital Outcomes Study.** *Int J Qual Health Care.* 2008; **20**(4): 227–37.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
7. Lucero RJ, Lake ET, Aiken LH: **Nursing care quality and adverse events in US hospitals.** *J Clin Nurs.* 2010; **19**(15–16): 2185–95.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
8. Dabney BW, Kalisch BJ: **Nurse staffing levels and patient-reported missed nursing care.** *J Nurs Care Qual.* 2015; **30**(4): 306–12.  
[PubMed Abstract](#) | [Publisher Full Text](#)
9. Gathara D, Serem G, Murphy GAV, *et al.*: **Missed nursing care in newborn units: a cross-sectional direct observational study.** *BMJ Qual Saf.* 2020; **29**(1): 19–30.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
10. Haftu M, Girmay A, Gebremeskel M, *et al.*: **Commonly missed nursing cares in the obstetrics and gynecologic wards of Tigray general hospitals; Northern Ethiopia.** *PLoS One.* 2019; **14**(12): e0225814.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
11. Al-Faouri I, Obaidat DM, AbuAlRub RF: **Missed nursing care, staffing levels, job satisfaction, and intent to leave among Jordanian nurses.** *Nurs Forum.* 2021; **56**(2): 273–83.  
[PubMed Abstract](#) | [Publisher Full Text](#)
12. Assaye AM, Wiechula R, Schultz TJ, *et al.*: **Impact of nurse staffing on patient and nurse workforce outcomes in acute care settings in low- and middle-income countries: a systematic review.** *JBI Evid Synth.* 2021; **19**(4): 751–93.  
[PubMed Abstract](#) | [Publisher Full Text](#)
13. Moher D, Shamseer L, Clarke M, *et al.*: **Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement.** *Syst Rev.* 2015; **4**(1): 1.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
14. Imam A, Obiesie S, Aluvaala J, *et al.*: **Missed nursing care in acute care hospital settings in low-middle income countries: a systematic review protocol.** <http://www.doi.org/10.17605/OSF.IO/JZXRV>
15. Ng'ang'a N, Byrne MW: **Professional practice models for nurses in low-income countries: an integrative review.** *BMC Nurs.* 2015; **14**(1): 44.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
16. **World Bank Country and Lending Groups.** World Bank Data Help Desk, [cited 2021 Jun 26].  
[Reference Source](#)
17. Kalisch BJ: **Missed nursing care: a qualitative study.** *J Nurs Care Qual.* 2006; **21**(4): 306–13; quiz 314–5.  
[PubMed Abstract](#) | [Publisher Full Text](#)
18. Pereira Lima Silva R, Gonçalves Meneguetti M, Dias Castilho Siqueira L, *et al.*: **Omission of nursing care, professional practice environment and workload in intensive care units.** *J Nurs Manag.* 2020; **28**(8): 1986–96.  
[PubMed Abstract](#) | [Publisher Full Text](#)
19. Kalisch BJ, Williams RA: **Development and psychometric testing of a tool to measure missed nursing care.** *J Nurs Adm.* 2009; **39**(5): 211–9.  
[PubMed Abstract](#) | [Publisher Full Text](#)
20. Siqueira LDC, Caliri MHL, Haas VJ, *et al.*: **Validation of the MISSCARE-BRASIL survey - A tool to assess missed nursing care.** *Rev Lat Am Enfermagem.* 2017; **25**: e2975.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
21. Jones TL: **Validation of the perceived implicit rationing of nursing care (PIRNCA) instrument.** In: *Nurs Forum.* Wiley Online Library; 2014; **49**(2): 77–87.  
[PubMed Abstract](#) | [Publisher Full Text](#)
22. Chegini Z, Jafari-Koshki T, Kheiri M, *et al.*: **Missed nursing care and related factors in Iranian hospitals: A cross-sectional survey.** *J Nurs Manag.* 2020; **28**(8): 2205–15.  
[PubMed Abstract](#) | [Publisher Full Text](#)
23. Hammad M, Guirguis W, Mosallam R: **Missed nursing care, non-nursing tasks, staffing adequacy, and job satisfaction among nurses in a teaching hospital in Egypt.** *J Egypt Public Health Assoc.* 2021; **96**(1): 22.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
24. Mandal L, Seethalakshmi A, Rajendrababu A: **Rationing of nursing care, a deviation from holistic nursing: A systematic review.** *Nurs Philos.* 2020; **21**(1): e12257.  
[PubMed Abstract](#) | [Publisher Full Text](#)
25. Ouzzani M, Hammady H, Fedorowicz Z, *et al.*: **Rayyan-a web and mobile app for systematic reviews.** *Syst Rev.* 2016; **5**(1): 210.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
26. Wells GA, Shea B, O'Connell D, *et al.*: **The Newcastle-Ottawa Scale (NOS) for assessing the quality of nonrandomised studies in meta-analyses.** Oxford, [Reference Source](#)
27. Modesti PA, Reboldi G, Cappuccio FP, *et al.*: **Panethnic differences in blood pressure in Europe: a systematic review and meta-analysis.** *PLoS One.* 2016; **11**(1): e0147601.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
28. Du H, Yang Y, Wang X, *et al.*: **A cross-sectional observational study of missed nursing care in hospitals in China.** *J Nurs Manag.* 2020; **28**(7): 1578–88.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
29. Nahasaram ST, Ramoo V, Lee WL: **Missed nursing care in the Malaysian context: A cross-sectional study from nurses' perspective.** *J Nurs Manag.* 2021; **29**(6): 1848–1856.  
[PubMed Abstract](#) | [Publisher Full Text](#)
30. Donabedian A: **Evaluating the quality of medical care.** *Milbank Mem Fund Q.* 1966; **44**(3): 166–206.  
[Publisher Full Text](#)
31. Donabedian A: **An introduction to quality assurance in health care.** Oxford University Press, 2002.  
[Reference Source](#)
32. Blay N, Roche MA: **A systematic review of activities undertaken by the unregulated Nursing Assistant.** *J Adv Nurs.* 2020; **76**(7): 1538–51.  
[PubMed Abstract](#) | [Publisher Full Text](#)
33. Griffiths P, Maruotti A, Saucedo AR, *et al.*: **Nurse staffing, nursing assistants and hospital mortality: retrospective longitudinal cohort study.** *BMJ Qual Saf.* 2019; **28**(8): 609–17.  
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)

# Open Peer Review

Current Peer Review Status:  

---

## Version 2

Reviewer Report 19 April 2022

<https://doi.org/10.21956/wellcomeopenres.19713.r49761>

© 2022 Okebe J. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



**Joseph Okebe** 

Department of International Public Health, Liverpool School of Tropical Medicine, Liverpool, UK

I am satisfied with the response from the authors.

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Research methods, paediatrics

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.**

Reviewer Report 06 April 2022

<https://doi.org/10.21956/wellcomeopenres.19713.r49762>

© 2022 Cassarino M. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



**Marica Cassarino** 

School of Applied Psychology, University College Cork, Cork, Ireland

I thank the authors for working on the recommended revisions. All my comments have been addressed and I have no further points to raise. I wish the authors all the best with this review.

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Applied Psychology; Health Services Research

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.**

---

**Version 1**

Reviewer Report 18 February 2022

<https://doi.org/10.21956/wellcomeopenres.19274.r48768>

© 2022 Cassarino M. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**Marica Cassarino** 

School of Applied Psychology, University College Cork, Cork, Ireland

The manuscript presents a protocol for a systematic review of missed nursing care in low-medium income settings (LMIS) and the factors associated with missed nursing care. The authors state that the rationale for this review derives from a lack of evidence synthesis on the topic in LMIS and the main focus on acute settings in the available literature. The protocol is in line with the PROSPERO registration. The review methods are overall clear, although some points need clarification. I have listed my comments below:

1. Study objectives: It is unclear what the authors mean by the "magnitude" of nursing care. There is a justification of categories, but the definition of magnitude is needed. Does this entail frequency?
2. The Introduction states that there is a gap in the literature in that most evidence on the topic focuses on acute settings, which entails that this review will look more broadly at different types of care settings. However, objective 1 states that the review will focus on acute hospital settings. This needs clarification.
3. Linked to comment 2, I would encourage the authors to clarify why ambulatory care or out-patient clinics are outside the scope of the review.
4. Study design: The authors state that systematic reviews will be excluded. However, I would expect that existing reviews should be checked to see if any primary studies are relevant to this review. It would be useful to state the same.
5. Search strategy: Please state if any publication date filters have been used.
6. Data management: This may not be relevant as the authors state that they are already screening full-texts, but just as a piece of advice, Rayyan manages duplicates with quite high accuracy, without using other software.
7. Outcome: Should studies be included if missed nursing care is not the primary outcome but



it is possible to extrapolate relevant information?

**Is the rationale for, and objectives of, the study clearly described?**

Yes

**Is the study design appropriate for the research question?**

Yes

**Are sufficient details of the methods provided to allow replication by others?**

Partly

**Are the datasets clearly presented in a useable and accessible format?**

Not applicable

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Applied Psychology; Health Services Research

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.**

Author Response 22 Mar 2022

**Abdulazeez Imam**, University of Oxford, Oxford, UK

We thank the reviewer for making time to read our manuscript and providing invaluable feedback. We have responded to all their comments and our responses come in italics under each specific comment

Comment 1: Study objectives: It is unclear what the authors mean by the "magnitude" of nursing care. There is a justification of categories, but the definition of magnitude is needed. Does this entail frequency?

*Response:*

*We thank the reviewer for this comment and have now defined magnitude. Please see the introduction, line 28.*

Comment 2: The Introduction states that there is a gap in the literature in that most evidence on the topic focuses on acute settings, which entails that this review will look more broadly at different types of care settings. However, objective 1 states that the review will focus on acute hospital settings. This needs clarification.

*Response:*

*We thank the reviewer for this comment. Stating the evidence was mostly from acute care settings was a justification for our review to focus on these settings and not to address a gap. We have re-organised our introduction to reflect this. Please see the introduction, lines 7 to 16.*

Comment 3: Linked to comment 2, I would encourage the authors to clarify why ambulatory care or out-patient clinics are outside the scope of the review.

*Response:*

*We thank the reviewer for this comment. We have clarified this, please see population, lines 64 to 67.*

Comment 4: Study design: The authors state that systematic reviews will be excluded. However, I would expect that existing reviews should be checked to see if any primary studies are relevant to this review. It would be useful to state the same.

*Response:*

*We thank the reviewer for this comment. We have modified the protocol to include this statement. Please see search strategy, lines 112 to 115.*

Comment 5: Search strategy: Please state if any publication date filters have been used.

*Response:*

*We will not use any date restriction filters. Please see search strategy, lines 111 to 112.*

Comment 6: Data management: This may not be relevant as the authors state that they are already screening full texts, but just as a piece of advice, Rayyan manages duplicates with quite high accuracy, without using other software.

*Response:*

*We thank the reviewer for this comment.*

Comment 7: Outcome: Should studies be included if missed nursing care is not the primary outcome, but it is possible to extrapolate relevant information?

*Response:*

*We thank the reviewer for this comment, and we have now modified our protocol to include such papers. Please see outcome, lines 97 to 100.*

**Competing Interests:** No competing interests were disclosed.

Reviewer Report 17 January 2022

<https://doi.org/10.21956/wellcomeopenres.19274.r47754>

© 2022 Okebe J. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



**Joseph Okebe** 

Department of International Public Health, Liverpool School of Tropical Medicine, Liverpool, UK

This is a very interesting review proposal and the authors have made a strong case for the review going forward.

I have a few comments that could improve the review:

- Consistency in the use of terms: "categories, levels, types, magnitude" were used interchangeably without clarity on what they mean.
- Objectives were rather complex: You want to identify "*magnitude and categories*" and, document "*factors associated with and reasons*". These are different concepts. Consider defining one per objective or streamline.
- Protocol: Consider how magnitude will be coded/graded since the review is quantitative. It appears you are referring to the themes described by Kalisch *et al.*<sup>1</sup>. If so, consider using similar terms for consistency.
- Protocol: I am also not sure what the difference is between "*associated risk factors and reasons for*". I feel association is a plausible outcome to be measured than reasons for.
- Outcome: How will magnitude be measured/coded? Also, I suggest reconsidering the choice of excluding studies because missed nursing care is not the main variable reported in a study. If there is data on missed care, it should be captured unless it is presented in such a way that precludes extraction.
- Data synthesis: I suggest considering pooling data and where not feasible, resort to a narrative synthesis.
- Quality assessment: I know the Newcastle-Ottawa score is popular, but it may be useful to include a summary of either the variables or the scoring for readers who are not used to it.
- Discussion: I would like to see some reflections on the implications of the findings for policy, research, and nurse training.
- The concept analysis paper by Kalisch *et al.*<sup>2</sup> is quite a useful read. The paper provides a detailed theoretical background to the concept of missed nursing care that would be useful in describing and contextualising the findings of the review. I found it quite useful to get a grasp of what the review is trying to do. I note that it was not referenced in the paper and felt this is a useful additional resource in the background and perhaps discussion.

Overall, a clear presentation of work. Well done to the authors.

## References

1. Kalisch BJ: Missed nursing care: a qualitative study. *J Nurs Care Qual.* **21** (4): 306-13; quiz 314 [PubMed Abstract](#) | [Publisher Full Text](#)
2. Kalisch BJ, Landstrom GL, Hinshaw AS: Missed nursing care: a concept analysis. *J Adv Nurs.* 2009; **65** (7): 1509-17 [PubMed Abstract](#) | [Publisher Full Text](#)

**Is the rationale for, and objectives of, the study clearly described?**

Partly

**Is the study design appropriate for the research question?**

Yes

**Are sufficient details of the methods provided to allow replication by others?**

Partly

**Are the datasets clearly presented in a useable and accessible format?**

Not applicable

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Research methods, paediatrics

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.**

Author Response 22 Mar 2022

**Abdulazeez Imam**, University of Oxford, Oxford, UK

We thank the reviewer for making time to read our manuscript and providing invaluable feedback. We have responded to all their comments and our responses come in italics under each specific comment.

Comment 1: Consistency in the use of terms: "categories, levels, types, magnitude" were used interchangeably without clarity on what they mean

*Response:*

*Thank you for this comment. We have now streamlined the use of these terms throughout the manuscript and stuck to two terms, magnitude and categories. We have also defined both terms. Please see the introduction, line 28 and objective 2, lines 36-37.*

Comment 2: Objectives were rather complex: You want to identify "magnitude and categories" and, document "factors associated with and reasons". These are different concepts. Consider defining one per objective or streamline.

*Response:*

*We thank the reviewer for this comment, and we have now split the objectives of the review into 4. Please see Objective and questions, lines 35-39.*

Comment 3: Protocol: Consider how magnitude will be coded/graded since the review is quantitative. It appears you are referring to the themes described by Kalisch *et al.*<sup>1</sup>. If so, consider using similar terms for consistency

*Response:*

*We thank the reviewer for this comment. The magnitude will be determined from the individual papers by extracting the overall proportion of care that is missed. Please see line outcome, lines 86-90. The Kalisch classification or a more appropriate classification will be used to identify categories of care thematically, please see Exposures, lines 79-84.*

Comment 4: Protocol: I am also not sure what the difference is between "associated risk factors and reasons for". I feel association is a plausible outcome to be measured than reasons for.

*Response:*

*We have now clarified this better and how we would abstract reasons. Please see Exposures, lines 69-78*

Comment 5: Outcome: How will magnitude be measured/coded? Also, I suggest reconsidering the choice of excluding studies because missed nursing care is not the main variable reported in a study. If there is data on missed care, it should be captured unless it is presented in such a way that precludes extraction.

*Response:*

*We thank the reviewer for this comment. Magnitude will be determined from the individual papers by extracting the overall proportion of care that is missed. Please see outcome, lines 86-90.*

*We understand the reviewer's concern about excluding studies where missed nursing care is not the main variable reported and have now revised our protocol to include this. Please see outcome, lines 97-100.*

Comment 6: Data synthesis: I suggest considering pooling data and where not feasible, resort to a narrative synthesis.

*Response: This has now been modified. Please see Data synthesis, lines 155-159*

Comment 7: Quality assessment: I know the Newcastle-Ottawa score is popular, but it may be useful to include a summary of either the variables or the scoring for readers who are not used to it.

*Response:*

*We thank the reviewer for this comment and we have now provided summary information for the Newcastle-Ottawa score. Please see Assessment of study quality, lines 133-146.*

Comment 8: Discussion: I would like to see some reflections on the implications of the findings for policy, research, and nurse training.

*Response:*

*We thank the reviewer for this comment and have provided our reflections in the discussion, lines*

185-198.

Comment 9: The concept analysis paper by Kalisch et al.<sup>2</sup> is quite a useful read. The paper provides a detailed theoretical background to the concept of missed nursing care that would be useful in describing and contextualising the findings of the review. I found it quite useful to get a grasp of what the review is trying to do. I note that it was not referenced in the paper and felt this is a useful additional resource in the background and perhaps discussion.

*Response:*

*The reviewer is right about this landmark paper by Kalisch who coined the term missed nursing care. We have drawn from this paper to inform our introduction. Please see the introduction, lines 5-7. We have also drawn on other works by Kalisch throughout the manuscript.*

**Competing Interests:** No competing interests were disclosed.

---