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The Distribution of Work-Related Musculoskeletal Disorders Among Nurses in Sub-Saharan Africa: A Scoping Review Protocol

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Protocol

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Abstract

Background Globally, work related musculoskeletal disorders (WMSD) have emerged as a major occupational public health concern among healthcare workers (HCW), in particular the nurses who are at the forefront of the healthcare delivery system. The 2016 Global Burden of Disease (GBD) data for non-communicable diseases reports that Disability Adjusted Life Year (DALYs) for musculoskeletal conditions increased by 61.6% between 1990 and 2016, with an increase of 19.6% between 2006 and 2016. Furthermore, World Health Organization (WHO, 2018), states that the sustainable development goals (SDGs) and the Decade of Healthy Ageing (DHA) 2020–2030 offer a timely and favorable opportunity for increased global attention and action on musculoskeletal health both at national and global level because the burden of disease profiles are shifting from communicable conditions to predominantly long-term non-communicable diseases, commonly including musculoskeletal conditions. Literature indicates that musculoskeletal disorders (MSD) constitute a notable occupational problem among the nurses with low back pain (LBP) being the most prevalent with consequent occupational injuries. There is an increase in literature regarding the MSD which poses a major threat to the health of nurses, hence there is need to investigate measures that can be used to mitigate the burden of LBP among nurses. Therefore, the scoping review will map the existing evidence on prevalence, incidence, mortality, risk factors and economic costs associated with MSD among nurses in Sub Saharan Africa (SSA). Methods and analysis Scoping review will be done to explore, describe and map literature on the prevalence, incidence, mortality, risk factors, and economic costs related to MSD among nurses in SSA. The search will be done using databases such as PubMed, MEDLINE, CINAHL, Google Scholar, nursing academic editions and World Health Organization (WHO) library databases. The search will look for primary studies within peer-reviewed articles as well as gray literature. The list of references from included studies will also be searched. This scoping review will be reported in accordance to the MOOSE and PRISMA-ScR guidelines. The NVivo 12 data analysis software will be used to generate themes, and a thematic content analysis will be used to give the narrative account of the review. Discussion At the end, this study anticipates to uncover the relevant literature in SSA in regard to prevalence, incidence, mortality, risk factors and costs related to MSD among nurses, furthermore findings from this study will help in identifying research gaps, informing policy, priority in funding and planning and to guide future research.

Background

Work- related musculoskeletal disorders (WMSD) are described as musculoskeletal disorders that arise from work related events(1). On the other hand, Musculoskeletal disorders (MSD) is defined as a condition that include a gamut of inflammatory and degenerative conditions that affects the tendons, muscles, joints, ligaments, peripheral nerves, and supporting blood vessels with consequent pain, ache or discomfort (2). Literature indicates that MSD have increasingly become a major public health problem and a significant leading occupational burden among the nurses globally.

Epidemiological studies revealed that MSDs are a major occupational health problem in the nursing fraternity due to the nature of its job (3). A number of factors have been related to the development of

MSD among nurses; Physical factors like manual handling of patients and long-standing hours; Psychosocial factors like stress, anxiety and depression; Organizational factors like working shifts, shortage of staff and poor working conditions (4,5). Therefore, MSD pose a major threat to the quality of life for nurses, resulting in work absenteeism, work limitations and ultimate need to change jobs (6).

Nurses in Africa are arguably the most important health care workers available in most sub-Saharan nations, performing a broad range of tasks and working in settings where no other health workers, including physicians, are available (7). Prevalence of MSD among nurses may range from 33% to 90.1% around the world (6,8–10) with LBP being the most prevalent MSD reported. Despite LBP being a serious problem of medical and socio-economic dimensions and a major cause of disability, little is being done to mitigate this challenge in the nursing field.

A scoping review of the literature regarding the prevalence, incidence, mortality, risk factors and economic burden of MSD in sub-Saharan Africa (SSA) will be conducted. This scoping review will seek to find the evidence-based research gaps and help inform future research policy. Interventions directed at controlling and preventing the development of MSD among nurses in SSA should be implemented, with further emphasis on change of the research focus and funding directions.

Methods

Design

The proposed scoping review will be conducted according to PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation (11). The review will be guided by (12) methodological framework to conduct the scoping review. The framework consists of six (6) stages which are (I) identifying the research question, (II) identifying relevant studies, (III) study selection, (IV) charting the data, and (V) collating, summarizing, and reporting the results.

I. Identifying the research question

The main research question is: “What is the evidence on the burden of work-related musculoskeletal disorders in Sub-Saharan Africa?

Research sub-questions will be as follows:

- What is the burden of WMSDs among nurses in Sub-Saharan Africa with estimation in relation to prevalence, incidence and mortality?
- What are the risk factors associated with WMSD?
- What are the economic costs associated with WMSD?

Eligibility criteria

Studies will be selected according to the PEO (population, exposure, and outcomes) framework outlined below (Table 1)

II. Identifying relevant studies

Keyword search will be conducted from various electronic databases without a date limit; PubMed, CINAHL, Google Scholar, nursing academic editions and World Health Organization (WHO) library databases. Keywords that will be used to search for these databases are as follows: Work related musculoskeletal disorders, nurses, musculoskeletal disorders, low back ache, prevalence, incidence, mortality, economic costs related to WMSD, risk factors. During the search, keywords will be separated by Boolean terms (AND, OR). MESH terms will also be used. Furthermore, the reference lists of studies eligible for inclusion will be screened for potential additional articles. Sub-Saharan African country names and truncated terms such as west Africa, east Africa or southern Africa will be used to retrieve articles indexed using African country specific names or regional terms are retrieved (Appendix I).

III. Study selection

Two independent reviewers will conduct screening, guided by the eligibility criteria for this review. The support from the University of KwaZulu-Natal library services will be sought during database searching and retrieval of articles. The PRISMA (preferred reporting items for systematic reviews and meta-analysis) flow diagram (Figure 1) will be used to document the review process (11). Articles with relevant title to the subject of the research will be uploaded to Endnote version X7 X7.7.1. The titles and abstracts that do not meet the study eligibility criteria will be excluded. Discrepancies between reviewers will be resolved through consensus and will involve a third reviewer.

Eligibility criteria

Inclusion criteria

- Study will include nurses with low back ache
- All the study designs with relevant intervention
- Studies that focus on work-related musculoskeletal disorders among nurses; prevalence, incidence, mortality, economic costs and risk factors.
- Only studies conducted in English and in other languages with an English version will be included.

Exclusion criteria

- Studies that do not focus on nurses and low back ache
- Studies that do not focus on work-related musculoskeletal disorders among nurses
- Studies conducted outside Sub-Saharan Africa
- Studies published in languages other than English and do not have an English version will also be excluded.

IV. Charting the data

The relevant data will be drawn out using an extraction form (Table 1). In addition to answering the research question a charting form will be developed in such a way that it covers all the needed variables and it will be regularly updated when need arise. The extraction form will continually be updated. Then the form (Table 2) which includes the following: author with date, study title, study design, study setting, population, study aim, intervention, percentages, outcomes of the study, key findings, and comments will be used to chart the data of all the reviewed articles, coded using a coding system. This is purposively done to keep track of the studies included and excluded during the charting process of the scoping review.

V. Collating, summarizing, and reporting the results.

The proposed scoping review aims to map the existing evidence on the distribution of work-related musculoskeletal disorders among nurses in Sub-Saharan Africa and to sum up the findings as presented in the relevant articles. All data relating to prevalence of WMSD and low back ache, incidence of WMSD, mortality of WMSD, risk factors of WMSD, economic costs related to WMSD will be extracted and structured for the purpose of identifying themes. A descriptive report of the findings from literature will be presented through thematic content analysis. The structure of the literature will assume the following estimates; prevalence, incidence, mortality, economic cost and risk factors. The explanation of the findings will be analyzed to see how they relate to the overall study purpose and the implications of these findings for future research, policy, and practice.

Discussion

WMSD has emerged to be a major public health concern globally, therefore the proposed scoping review seek to map existing evidence regarding the distribution (prevalence, incidence and mortality), risk factors, estimated costs associated to WMSD among nurses in SSA in order to publish the research gaps in this area given the sparse data in this area. According to (2), work-related musculoskeletal disorders (WMSD) are the most common cause of morbidity among the healthcare workers especially the nurses. The high prevalence of WMSD among nurses has been linked to the physical nature of their job and the organizational factors by many researchers(8,13). The burden of WMSD is commonly associated with a number of factors such as lifting patients, lifting heavy loads, patient transfer from the floor and out of bed and working in awkward postures resulting in acute and accumulative WMSDs.

This study will map the evidence on the distribution of WMSD with emphasis on the trends of low back pain (LBP) among nurses. Most studies that have been conducted on WMSDs among nurses indicate that LBP is the most prevalent and a major cause of disability affecting the general well-being and performance. The 2010 Global Burden of Disease Study estimated that LBP is among the top 10 diseases and injuries that account for the highest number of Disability Adjusted Life Years (DALYs) worldwide resulting in activity limitation and work absence with consequent high economic burden on individuals, families, communities, industry, and governments (14).

It is critical to map the evidence of WMSD as this will bring out more understanding towards this disease with the aim of directing more efforts towards the health of healthcare workers, policy makers and all relevant stakeholders to fight this scourge. Furthermore, this review will uproot an economic projection of LBP and a coherent healthcare resource allocation as well as intervention program towards WMSDs in order to minimize the severity and impact on healthcare workers (HCW).

Despite numerous efforts and measures that have been put in place to help curb the prevalence of WMSDs among nurses, the prevalence of MSD still prevails. It is therefore possible that the findings to this study will address this knowledge gap with documented evidence on the burden of MSDs among nurses in SSA as well as advocate for sound strategies to tackle the disorder like governments coming up with exercise programs and regular assessment of workplaces at regular intervals by safety and health professionals to ensure that all necessary low back pain preventative measures are implemented. In addition, there will be proper identification of risk factors related to LBP which will help primary healthcare providers to implement prevention programs and coping strategies to alleviate the impact of the disease to the nurses.

Conclusion

Findings from this proposed scoping review are expected to give a reflection on the distribution WMSD in the SSA region with estimates on prevalence, incidence, mortality with the identification of risk factors, and the associated economic burden. Therefore, the evidence synthesized from this study will help researchers, decision makers, and other stakeholders to inform policy and ensure an efficient allocation of healthcare resources, improving the healthcare system performance and thus improving treatment and reduce mortality associated.

Abbreviations

DALY: Disability Adjusted Life Year

DHA: Decade healthy ageing

GBD: Global burden of disease

HCW: Healthcare workers

LBP: Low back pain

MMAT: Mixed Method Quality Appraisal Tool

MSD: Musculoskeletal disorder

PRISMA-ScR: PRISMA extension for scoping reviews

SSA: Sub-Saharan Africa

WHO: World Health Organization

WMSD: Work related musculoskeletal disorders

Declarations

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Availability of data and materials: All data generated or analyzed during this study will be included in the published systematic review article.

Contributions:

KK conceptualized the study and designed data collection methods under the supervision of TG. KK, TG and MH contributed to writing the first draft of the manuscript. All authors critically reviewed and approved of the final manuscript.

Ethics approval and consent to participate:

Not applicable

Consent for publication:

Not applicable

Competing interests:

The authors declare that they have no competing interests.

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Tables

Table 1: PEO framework for eligibility of research question

Criteria	Determinants
Population and their problem	Nurses with MSD in Sub Saharan Africa
Exposure	Hospital work
Outcome	1.Prevalence
	2.Incidence
	3.Mortality
	4.Risk factors
	5.Economic costs

Table 2: Data charting form

Author and date
Study design
Study setting
Population
· Average age
· Sample size
Aims
Intervention
Outcome
Key findings
Conclusions
Comment

Appendices

Appendix 1

("musculoskeletal diseases"[MeSH Terms] OR ("musculoskeletal"[All Fields] AND "diseases"[All Fields]) OR "musculoskeletal diseases"[All Fields] OR ("musculoskeletal"[All Fields] AND "disorders"[All Fields]) OR "musculoskeletal disorders"[All Fields]) AND ("nurses"[MeSH Terms] OR "nurses"[All Fields]) AND ("angola" [MeSH Terms] OR "angola"[All Fields]) OR ("benin"[MeSH Terms] OR "benin"[All Fields]) OR ("botswana" [MeSH Terms] OR "botswana"[All Fields]) OR ("burkina faso"[MeSH Terms] OR ("burkina"[All Fields] AND "faso"[All Fields]) OR "burkina faso"[All Fields]) OR ("burundi"[MeSH Terms] OR "burundi"[All Fields]) OR ("cameroon"[MeSH Terms] OR "cameroon"[All Fields]) OR ("cabo verde"[MeSH Terms] OR ("cabo"[All Fields] AND "verde"[All Fields]) OR "cabo verde"[All Fields] OR ("cape"[All Fields] AND "verde"[All Fields]) OR "cape verde"[All Fields]) OR ("central african republic"[MeSH Terms] OR ("central"[All Fields] AND "african"[All Fields] AND "republic"[All Fields]) OR "central african republic"[All Fields]) OR ("chad"[MeSH Terms] OR "chad"[All Fields]) OR ("comoros"[MeSH Terms] OR "comoros"[All Fields]) OR ("congo"[MeSH Terms] OR "congo"[All Fields] OR ("congo"[All Fields] AND "brazzaville"[All Fields]) OR "congo brazzaville"[All Fields]) OR ("congo"[MeSH Terms] OR "congo"[All Fields]) OR ("cote d'ivoire"[MeSH Terms] OR ("cote"[All Fields]

AND "d'ivoire"[All Fields]) OR "cote d'ivoire"[All Fields]) OR ("djibouti"[MeSH Terms] OR "djibouti"[All Fields]) OR ("equatorial guinea"[MeSH Terms] OR ("equatorial"[All Fields] AND "guinea"[All Fields]) OR "equatorial guinea"[All Fields]) OR ("eritrea"[MeSH Terms] OR "eritrea"[All Fields]) OR ("ethiopia"[MeSH Terms] OR "ethiopia"[All Fields]) OR ("gabon"[MeSH Terms] OR "gabon"[All Fields]) OR ("gambia"[MeSH Terms] OR "gambia"[All Fields]) OR ("ghana"[MeSH Terms] OR "ghana"[All Fields]) OR ("guinea"[MeSH Terms] OR "guinea"[All Fields]) OR ("guinea-bissau"[MeSH Terms] OR "guinea-bissau"[All Fields] OR ("guinea"[All Fields] AND "bissau"[All Fields]) OR "guinea bissau"[All Fields]) OR ("kenya"[MeSH Terms] OR "kenya"[All Fields]) OR ("lesotho"[MeSH Terms] OR "lesotho"[All Fields]) OR ("liberia"[MeSH Terms] OR "liberia"[All Fields]) OR ("madagascar"[MeSH Terms] OR "madagascar"[All Fields]) OR ("malawi"[MeSH Terms] OR "malawi"[All Fields]) OR ("mali"[MeSH Terms] OR "mali"[All Fields]) OR ("mauritania"[MeSH Terms] OR "mauritania"[All Fields]) OR ("mauritius"[MeSH Terms] OR "mauritius"[All Fields]) OR ("mozambique"[MeSH Terms] OR "mozambique"[All Fields]) OR ("namibia"[MeSH Terms] OR "namibia"[All Fields]) OR ("niger"[MeSH Terms] OR "niger"[All Fields]) OR ("nigeria"[MeSH Terms] OR "nigeria"[All Fields]) OR ("reunion"[MeSH Terms] OR "reunion"[All Fields]) OR ("rwanda"[MeSH Terms] OR "rwanda"[All Fields]) OR (Sao[All Fields] AND Tome[All Fields]) OR ("senegal"[MeSH Terms] OR "senegal"[All Fields]) OR ("seychelles"[MeSH Terms] OR "seychelles"[All Fields]) OR ("sierra leone"[MeSH Terms] OR ("sierra"[All Fields] AND "leone"[All Fields]) OR "sierra leone"[All Fields]) OR ("somalia"[MeSH Terms] OR "somalia"[All Fields]) OR ("south africa"[MeSH Terms] OR ("south"[All Fields] AND "africa"[All Fields]) OR "south africa"[All Fields]) OR ("sudan"[MeSH Terms] OR "sudan"[All Fields]) OR ("eswatini"[MeSH Terms] OR "eswatini"[All Fields] OR "swaziland"[All Fields]) OR ("tanzania"[MeSH Terms] OR "tanzania"[All Fields]) OR ("togo"[MeSH Terms] OR "togo"[All Fields]) OR ("uganda"[MeSH Terms] OR "uganda"[All Fields]) OR (Western[All Fields] AND ("africa, northern"[MeSH Terms] OR ("africa"[All Fields] AND "northern"[All Fields]) OR "northern africa"[All Fields] OR "sahara"[All Fields])) OR ("zambia"[MeSH Terms] OR "zambia"[All Fields]) OR ("zimbabwe"[MeSH Terms] OR "zimbabwe"[All Fields]) OR ("africa, western"[MeSH Terms] OR ("africa"[All Fields] AND "western"[All Fields]) OR "western africa"[All Fields] OR ("western"[All Fields] AND "africa"[All Fields])) OR ("africa, southern"[MeSH Terms] OR ("africa"[All Fields] AND "southern"[All Fields]) OR "southern africa"[All Fields] OR ("southern"[All Fields] AND "africa"[All Fields])) OR ("africa, eastern"[MeSH Terms] OR ("africa"[All Fields] AND "eastern"[All Fields]) OR "eastern africa"[All Fields] OR ("eastern"[All Fields] AND "africa"[All Fields])) = 17 864

Figures

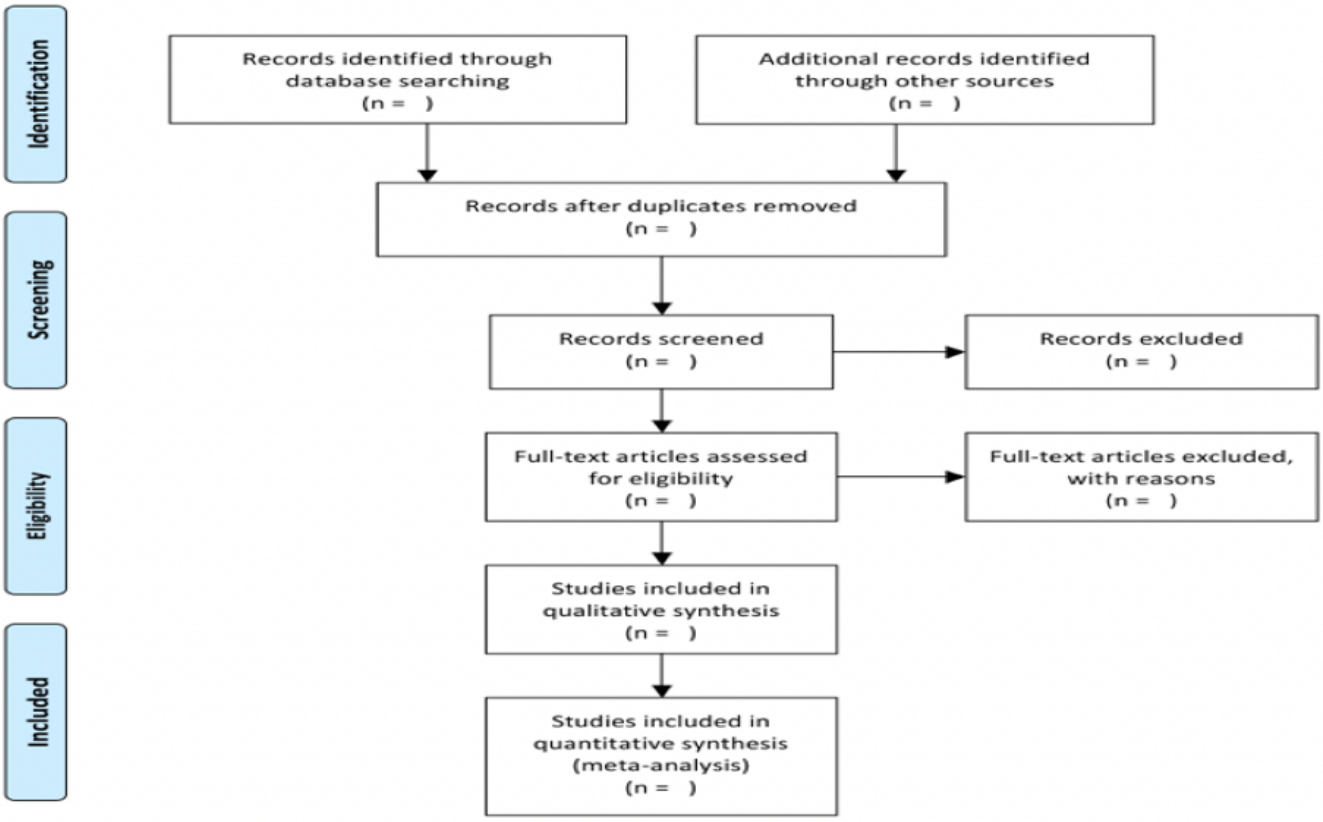

Figure 1

PRISMA flow diagram