Mapping evidence of collaboration between traditional health practitioners and biomedically trained healthcare professionals in the reduction of antimicrobial resistance in sub-Saharan Africa: A systematic scoping review protocol

AGANZE GLOIRE-AIME MUSHEBENGE (aganzedar@Gmail.com)
University of KwaZulu-Natal College of Health Sciences https://orcid.org/0000-0001-8745-8097

MUKANDA Gedeon KADIMA
University of KwaZulu-Natal College of Health Sciences

TIVANI MASHAMBA-THOMPSON
University of KwaZulu-Natal College of Health Sciences

MANIMBULU NLOOTO
University of KwaZulu-Natal College of Health Sciences

Protocol

Keywords: Traditional Health Practitioners, Collaboration, Absence, Prevention, Effective, Sub-Sahara Africa

Posted Date: February 4th, 2020

DOI: https://doi.org/10.21203/rs.2.22650/v1

Abstract

Background

The overuse of prescribed antimicrobials, concurrent use of both traditional medicine and prescribed antimicrobials has been shown to lead to antimicrobial resistance. The absence of collaboration between traditional health practitioners and biomedically trained healthcare professionals can contribute to antimicrobial resistance, treatment failure, overdose, toxicity and misadministration. This scoping review explores evidence on collaboration between traditional health practitioners and biomedically trained healthcare professionals in the reduction of antimicrobial resistance and treatment failure in bacterial and viral diseases.

Methods/design

We will search electronic databases such as Science Direct, Google scholar, PubMed, MEDLINE via EBSCOhost. We will also search reference lists of included studies. A two-stage mapping procedure will be carried out. Stage one (1) will consist of title, abstracts and full article screening, respectively. A piloted screening form guided by the defined eligibility criteria will be used. Stage two (2), data will be extracted from the included studies. Parallel screening and data extraction will be conducted by two reviewers. Mixed methods appraisal tool (MMAT) will be used to assess the quality of the included studies. NVIVO version 11 will be employed to aid pertinent thematic analysis. The outcomes of interest will be as follows: Primary outcome will be the prevention and the reduction of antimicrobial resistance. Secondary outcomes: Effective collaboration between traditional healthcare practitioners and biomedically healthcare professionals.

Discussion

This review anticipates uncovering pertinent publications reporting the evidence of collaboration between traditional health practitioners and biomedically trained healthcare professionals in the reduction of antimicrobial resistance in sub-Saharan Africa. The sum up of evidence acquired from the included studies will help guide for future research. The result from the research will be print and electronically exposed.

Background

Traditional treatment or indigenous health system cannot considered to be of a lower quality than the mainstream healthcare system, in contrast it is thought to be desirable and needful in treating a range of several health troubles or difficulties that mainstream healthcare system fails to cure sufficiently[1, 2]. In the view of Qi and Kelley [2], traditional herbal mixtures are a reliable, believable and dignified source of health care. Bacterial and viral infections are currently common; some pathogens have become resistant to multiple classes of antimicrobials [3]. Microbial adaptation allows microbes to persist despite the

presence of an antibiotic or antiviral agent; this reduces the potential human health benefit derived from antibiotics and/or antiviral medicines[4, 5].

The ratio of traditional health practitioners and biomedically trained professionals to the general population in the sub-Saharan of Africa is approximately 1:500 and 1:40000, respectively [6]. In addition to their modern biomedical treatment, up to 70 percent of South Africans are usually consulted by an estimated 200 000 indigenous traditional healers [6, 7]. Approximately 27 million South Africans, including people living with HIV/AIDS and bacteria infected people depend on traditional medicine(TM), for their primary health care needs [8]. STIs such as Tshofela/drop (gonorrhea), Thosola (syphilis), some other specific bacterial infections and assumed HIV/AIDS are the most common treated conditions and problems by THPs [9]. This is probably due to good accessibility of plants, affordability, confidentiality of health information between the patient and practitioner and the high cost of synthetic medicines [10]. Furthermore, consumers believe that certain infections such as acne, warts, shingles and STIs cannot be treated with western medicine by BHPs but rather by THPs [11, 12]. Medicinal plants are effective, cheap, readily available and used for cultural reasons.

In South Africa, antimicrobial resistance (AMR) is extremely prevalent, some bacteria and/or virus are becoming so resistant that there is either only antimicrobial of last resort or infections are untreatable [13]. AMR in South Africa is driven by many factors such as the careless use of prescribed antimicrobials, the use of traditional medicine (TM) currently not regulated, the lack of collaboration between traditional health practitioners(THPs) and biomedically trained healthcare professionals(BHPs), with the result of treatment failure, misadministration, interactions and toxicity [14]. With a view to conceptualizing the conditions for collaboration between the two systems, Pretorius [15] proposed the analogical model of the Biomedical/Traditional Medical Relationship, this model shows clearly that each aspect of the traditional medicine system may be linked to the western medicine system such as mutual referral. In addition, the WHO have adopted the strategies to ensure the integration of collaboration between research institutions and THPs based on research and management of patients; and between THPs and BHPs in human immunodeficiency virus and acquired immune deficiency syndrome (HIV/ AIDS) prevention and sexually transmitted infections (STIs)/tuberculosis programs [16].

Although there is an increase in the use of TM, it is not currently regulated, with the result of enhancement of the activities of standard medicines when used concurrently with TM [17]. Nascimento et al., reported that the danger of misadministration, drug interactions, overdose, toxicity, especially the problem of drug resistance and treatment failure can occur when TM and prescribed antimicrobials are simultaneously and indiscriminately used [18]. This review aims to mapthe evidence on the collaboration between THPs and BHPs in the reduction of antimicrobial resistance in sub-Saharan Africa.

Methods/design

Scoping review framework

A scoping review of peer-reviewed literature will be conducted on the following specific points: concurrent use of traditional medicines and prescribed antimicrobials, collaboration between THPs and BHPs and treatment of bacterial and viral diseases. Selection of scoping review method was to make easy the mapping of the topic under study and to build evidence around the related to the subject [19]. This review will use the framework developed by Arksey and O'Malley [20]. This framework stipulated the following steps (a) identification of research questions, (b) identification of pertinent studies, (c) charting the data, and (d) collation, summary and report of findings.

Identifying the research questions

The general research question of this study is "What is the evidence of collaboration between THPs and BHPs in the reduction of antimicrobial resistance in bacterial and viral diseases?" The specific research questions to answer the general question are as follows:

- What is the prevalence of patients/clients seen by THPs for antibacterial and antiviral treatments?
- What is the evidence of the concurrent use of TM, prescribed ATB and ARVs medicine for viral and bacterial infections?
- What is the evidence of the perceptions of TPHs and BHPs about interaction between TM and prescribed ATB and ARV medicine for viral and bacterial infections?
- Is there a bidirectional referral of patients between THPs and BHPs in the management of bacterial and viral diseases?

Eligibility of research questions

The study will use an amended Population, Intervention, Comparison, Outcomes and Study setting (PICOS) framework to evaluate the eligibility of research questions (Table 1).

Table 1. PICOS framework for determination of eligibility of review question

Criteria	Determinants
Population	THPs and BHPs
Intervention	Collaboration between traditional and biomedically healthcare workers
Comparison	Absence of collaboration between THPs and BHPs
Outcomes	Primary outcome: Prevention and reduction of antimicrobial resistance Secondary outcome: Effective collaboration
Setting	Sub-Sahara Africa.

Identification of relevant studies

Studies that utilize mixed methods, qualitative and quantitative published in peer-reviewed journals and grey literature, from January 2005 to January 2020, addressing the above research questions will be included. Different types of study designs will be used during the process of screening data. Electronic search will be conducted from the following electronic databases: Science Direct; Google Scholar PubMed and; MEDLINE via EBSCOhost. Internet sites such as the World Health Organization (WHO) and government internet sites will be explored for reports and policies on collaboration of healthcare workers, measures on antimicrobial resistance, safe use of traditional medicine, concurrent use of both traditional medicine and prescribed medicines. Through “Cited by”, other articles will also be searched in the reference lists of selected articles. The keywords for the search will include Traditional Health Practitioners, collaboration, absence, prevention, effective and sub-Sahara Africa.

Study selection

To be certain that the included studies have the specific information according to the eligibility criteria, they should respond to the questions on the evidence of collaboration between THPs and BHPs in the reduction of antimicrobial resistance and treatment failure in bacterial and viral diseases.

Inclusion criteria

For the inclusion of publications in this study, they should match with the undermentioned criteria:

- There will be a language restriction (English and French) on the inclusion of studies.
- Focus on strategies of collaboration between THPs and BHPs.
- Publications from January 2005 to January 2020.
- Report on cases of treatment failure, drug-interactions, drug-resistance and antimicrobial stewardship.
- Publications on the use of traditional medicine in conjunction with prescribed antimicrobials by community members of 18 years and above.
- Reports on death causes worldwide, with special emphasis on sub-Saharan Africa.

Exclusion criteria

Studies will be excluded if they meet the following characteristics:

- Articles published before 2005 and after January 2020.
- Articles that they do not report on the use of TM for the management of bacterial and viral diseases.
- Articles that report on other diseases than infectious diseases.

Search strategy

A pilot study will be carried out to check the appropriateness of the chosen studies, keywords and databases. Selected articles will be shared between two reviewers using research manager software such as Endnote library. A comprehensive title screening according to the eligibility criteria will be conducted by both first and second reviewer. Eligible publications will be exported using either Endnote management software. Articles will be checked for duplication using EndNote program.

Table (2) below presents how publications will be recorded. Full articles and abstracts of studies will be screened according to the eligible criteria. A third reviewer of the study will be considered in case of non-accordance between the two previous reviewers. In case of difficulty to find some articles, the assistance of the UKZN library will be needed.

However, for authors whose publications will be cited and difficult to retrieve, they will be asked for assistance through a correspondence letter. If they do not respond to the correspondence, then their articles will be excluded.

Table 2. Electronic search record

Keyword search: Search engine used Number of articles or publications selected
Mainstream healthcare system
Traditional herbal mixtures
Microbial adaptation
Mutual referral
Concurrent use
Bacterial
Viral
HIV/AIDS
Infectious diseases
Collaboration

Charting the data

Table (3) presents the flow or the charting of included studies. A data charting form will be conceived and piloted. Variables to include in order to summarize the included articles are shown in Table 3.

Table 3. Form for Data charting

Author and date
Article or study title
Journal full reference
Aims or main research question
Characteristics of participants
Recruitment context (e.g. where participants were recruited).
Sampling method
Study method or design
Theoretical background
Data collection (what data collection methods were used?)
Data analysis (how was the data analyzed?)
Intervention
Intervention outcome
Most relevant findings
Conclusions
Comments

Collating, summarizing, and reporting the findings

This study aims at mapping the evidence of collaboration THPs and BHPs in the reduction of antimicrobial resistance and treatment failure in bacterial and viral diseases in sub-Saharan Africa and to summarize the results as found from the included studies. Following data extraction, thematic content analysis will be carried out to code the data according to the following themes: types of interactions registered in publications; causes of treatment failure, approach system and medicinal plants used by THPs to treat infectious diseases; barriers and facilitators towards collaboration between THPs and BHPs and; types of infectious disease not cured by western medicine. Emerging theme will also be coded. NVIVO software version 11 will be employed to assist with coding of the themes[21].

- Coding data from the included articles
- Categorizing the codes into major themes
- Displaying the data

- Identification of key patterns in the data and identification of subthemes
- Summarizing

Synthesis

Resulting themes will be analyzed and critically examined in relationship with the research questions. The meanings of the results in reference to the aim of the research and the implications of these results for the forthcoming research, practice and policy will be analyzed by reviewers.

Quality Appraisal

The mixed method appraisal tool (MMAT)-Version 2011 will be used to evaluate the quality of the included studies [22]. This tool will allow to assess the appropriateness of the aim of the study, adequacy and methodology, study design, participant recruitment, data collection, data analysis, presentation of findings, authors' discussions and conclusions. Selected studies will be scored, based on a criterion that will use a score to describe them (50% and above).

Discussion

This scoping review will be carried out as a first part of a larger study on the evidence of collaboration between THPs and BHPs in the reduction of antimicrobial resistance and treatment failure in bacterial and viral diseases in sub-Saharan Africa. This review will identify types of interactions registered in publications, causes of treatment failure, approach system and medicinal plants used by THPs to treat infectious diseases, barriers and facilitators towards collaboration between THPs and BHPs, types of infectious disease not cured by western medicine. Although there is a growing acknowledgement that healthcare systems are encouraging ways of collaboration between THPs and BHPs [23–26], there is a paucity of knowledge about collaboration between THPs and BHPs with regard to antimicrobial resistance, treatment failure or other interactions. In addition, there are challenges related to the availability of relevant full text articles.

Articles that report on other diseases than infectious diseases will be excluded because this study is focused on the use of prescribed antimicrobials and TM in the treatment of infectious diseases. This review excludes all studies that do not report on the use of TM for the management of bacterial and viral diseases. All the reports on deaths that are not caused by infectious diseases and those are not reporting cases of interaction either in TM alone, prescribed antimicrobials alone or in the concurrent use of both TM and prescribed antimicrobials will be excluded.

Results from this study will be of benefit to researchers by highlighting gaps in evidence that may need further investigation. Study findings will be disseminated by peer reviewed publications.

Abbreviations

THPs: traditional healer practitioners BHPs: biomedically healthcare professionals PICOS: population, intervention, comparison, outcomes and study setting. MMAT: Mixed Methods Appraisal Tool, HIV/AIDS: Human Immunodeficiency Virus/ Acquis immunodeficiency deficiency Syndrome, TM: Traditional Medicine.

Declarations

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

Availability of data and material

All data generated or analyzed during this study will be included in the published scoping review.

Competing interests

The authors declare that they have no competing interests.

Funding

This study has received no funding.

Authors' contributions

AGAM and MGK drafted this manuscript. MN and TPM-T revised the manuscript for its intellectual content, technical compliance and accepted the final version of the manuscript for publication. All four authors agreed with the final version of the manuscript.

Acknowledgements

The acknowledgements are addressed to TAMBWE Willy MUZUMBUKULWA and SULE Saka AJIBOLA, Discipline of Pharmaceutical Sciences, University of KwaZulu-Natal, for proof reading this draft.

Authors' information

[1]AGANZE Gloire-Aimé MUSHEBENGE, is a PhD student in the Discipline of Pharmaceutical Sciences, School of Health Sciences, Westville Campus, University of KwaZulu-Natal, P B X54001, Durban 4000, South Africa.

References

1.Organization, W. H., *WHO guidelines on developing consumer information on proper use of traditional, complementary and alternative medicine.* 2004.

2.Qi, Z. and E. Kelley, *The WHO traditional medicine strategy 2014–2023: a perspective.* Science, 2014. *346(*6216): p. S5-S6.

3.Ledingham, J. G. and D. A. Warrell, *Concise Oxford textbook of medicine.* 2000: Oxford university press.

4.Hunt, G., et al., *Surveillance of transmitted HIV–1 drug resistance in 5 provinces in South Africa in 2011.* Communicable Diseases Surveillance Bulletin, 2013. *11(*4): p. 122–124.

5.Lathers, C. M., *Clinical pharmacology of antimicrobial use in humans and animals.* The Journal of Clinical Pharmacology, 2002. *42(*6): p. 587–600.

6.Richter, M. *Traditional healing and human rights in South Africa.* in *XV International AIDS Conference, Bangkok.* 2004.

7.Van Wyk, B.-E. and N. Gericke, *People's plants: A guide to useful plants of Southern Africa.* 2000: Briza Publications.

8.Street, R., W. Stirk, and J. Van Staden, *South African traditional medicinal plant trade—challenges in regulating quality, safety and efficacy.* Journal of Ethnopharmacology, 2008. *119(*3): p. 705–710.

9.Peltzer, K., *An investigation into the practices of traditional and faith healers in an urban setting in South Africa.* Health SA Gesondheid, 2001. *6(*2): p. 3–11.

10.Ballabh, B., et al., *Traditional medicinal plants of cold desert Ladakh—used against kidney and urinary disorders.* Journal of ethnopharmacology, 2008. *118(*2): p. 331–339.

11.de Wet, H., M. N. Nkwanyana, and S. F. van Vuuren, *Medicinal plants used for the treatment of diarrhoea in northern Maputaland, KwaZulu-Natal Province, South Africa.* Journal of ethnopharmacology, 2010. *130(*2): p. 284–289.

12.York, T., H. De Wet, and S. Van Vuuren, *Plants used for treating respiratory infections in rural Maputaland, KwaZulu-Natal, South Africa.* Journal of ethnopharmacology, 2011. *135(*3): p. 696–710.

13.Sadarangani, S. P., L. L. Estes, and J. M. Steckelberg. *Non–anti-infective effects of antimicrobials and their clinical applications: a review.* in *Mayo Clinic Proceedings.* 2015. Elsevier.

14.Fennell, C., et al., *Assessing African medicinal plants for efficacy and safety: pharmacological screening and toxicology.* Journal of Ethnopharmacology, 2004. *94(*2): p. 205–217.

15.Pretorius, E., *Traditional and modern medicine working in tandem.* Curationis, 1991. *14(*4): p. 10–13.

16.Busia, K. and O. M. Kasilo, *Collaboration between traditional health practitioners and conventional health practitioners: some country experiences.* Afr Health Monit, 2010. *13.*

17.Kamatou, G., et al., *In vitro evidence of antimicrobial synergy between Salvia chamelaeagnea and Leonotis leonurus.* South African Journal of Botany, 2006. *72(*4): p. 634–636.

18.Nascimento, G. G., et al., *Antibacterial activity of plant extracts and phytochemicals on antibiotic-resistant bacteria.* Brazilian journal of microbiology, 2000. *31(*4): p. 247–256.

19.Colquhoun, H. L., et al., *Scoping reviews: time for clarity in definition, methods, and reporting.* Journal of clinical epidemiology, 2014. *67(*12): p. 1291–1294.

20.Arksey, H. and L. O'Malley, *Scoping studies: towards a methodological framework.* International journal of social research methodology, 2005. *8(*1): p. 19–32.

21.Castleberry, A., *NVivo 10 [software program]. Version 10. QSR International; 2012.* 2014, AJPE.

22.Pluye, P., et al., *Proposal: A mixed methods appraisal tool for systematic mixed studies reviews.* Montréal: McGill University, 2011: p. 1–8.

23.Bedwell, W. L., et al., *Collaboration at work: An integrative multilevel conceptualization.* Human Resource Management Review, 2012. *22(*2): p. 128–145.

24.Kozlowski, S. W., et al., *Advancing multilevel research design: Capturing the dynamics of emergence.* Organizational Research Methods, 2013. *16(*4): p. 581–615.

25.Nancarrow, S. A., et al., *Ten principles of good interdisciplinary team work.* Human resources for Health, 2013. *11(*1): p. 19.

26.Walsh, J. A. and K. S. Warren, *Selective primary health care: an interim strategy for disease control in developing countries.* Social Science & Medicine. Part C: Medical Economics, 1980. *14(*2): p. 145–163.

Figures

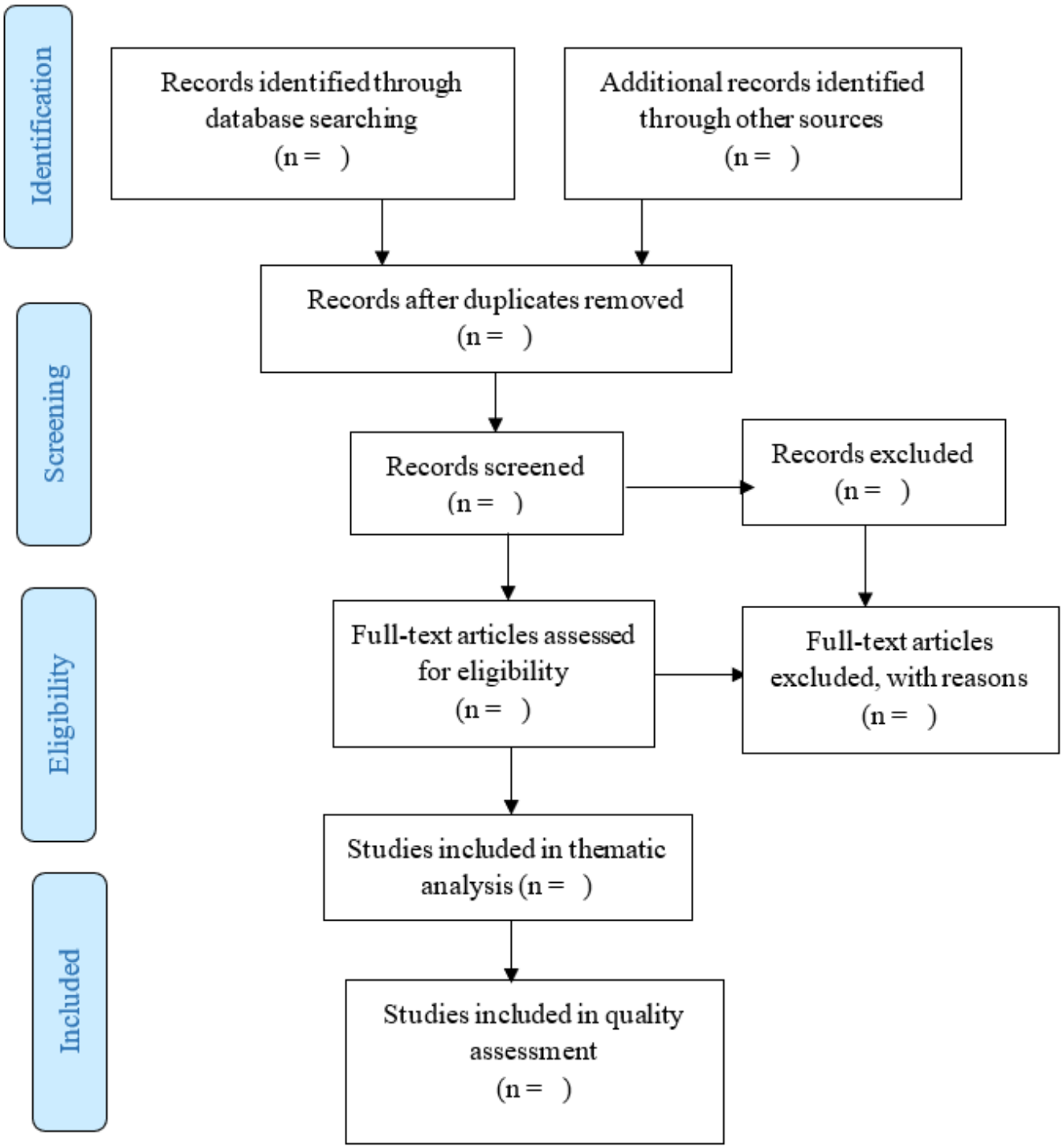

Figure 1

Illustration of the PRISMA Flow Diagram for the selection of studies.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- PRISMAPCHECKLISTPROTOCOL.docx