


STUDY PROTOCOL

Assessing childhood unintentional injury literature in Africa and Zimbabwe: a protocol for a scoping literature review

Dennis Mazingi ^{1,2,*}, Amy Paterson³, Godfrey Muguti¹, Noel Peter², Soham Bandyopadhyay² and Ashok Handa² and Kokila Lakhoo^{2,4}

¹Department of Surgical Sciences, College of Health Sciences, University of Zimbabwe, Harare, Zimbabwe

²Nuffield Department of Surgical Sciences, University of Oxford, Oxford, UK

³Global Surgery Division, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa

⁴Department of Paediatric Surgery, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania

*Correspondence address. Level 5, John Radcliffe Hospital Headington, Oxford, OX3 9DU, Zimbabwe. Tel: +447782356610; E-mail: dennis.mazingi@nds.ox.ac.uk

Abstract

Injury is a looming calamity whose burden is growing rapidly and threatens to become an emergency in affected nations. The burden is experienced disproportionately in low and middle countries but attention in these countries has been focused on competing priorities of infectious diseases. Despite this, the burden of trauma deaths from injury now exceeds the deaths from human immunodeficiency virus, tuberculosis and malaria combined. This trend is expected to continue as a result of continued epidemiological transition as well as demographic changes that will see Africa's paediatric and adolescent population grow to a billion. The objective of this scoping review is to map the existing literature in unintentional injury in children in Africa. We aim to highlight areas where there is a gap in knowledge and provide an impetus for further research in this area in the continent. A systematic search of white and grey literature will be undertaken.

INTRODUCTION

Rationale

Injury is a looming epidemic that has for decades been underappreciated and neglected particularly in low- and middle-income countries (LMICs). The global burden of disease from the traditional global health priorities, such as human immunodeficiency virus, tuberculosis and malaria, has dropped dramatically as a result of sustained efforts to eradicate them [1]. Deaths from injury now exceed the combined deaths from all three conditions [2].

In LMICs, the premise for urgent attention to this growing calamity is irrefutable. 90% of all injury deaths occur in LMICs where they exact a substantial human, social and economic toll in particular on children and young adults up to 24 years old [1]. Injury is the number one cause of death in people in the 15- to 24-year age group in LMICs and is a leading cause of disability-adjusted life-years (DALYs) lost in this age group [3]. The loss is more poignant because the children of today are the productive workforce of tomorrow. The current and future

economic and social development of Africa depends on a healthy young population. Injury is a traumatic and violent reflection of socioeconomic inequality that leads to death and disability in poor regions, further aggravating poverty in these countries [4]. To add insult to injury, the resources needed for treatment of these deaths are often inadequate.

Efforts to address this considerable burden of disease in high-income countries have been very successful; however, progress in LMICs in particular in Africa has been relatively slow [5]. While many countries have managed to achieve a sustained reduction in age-standardized injury DALY rates in the past 3 decades since 1990, a few countries have lagged behind and in some countries rates have actually increased [5]. Zimbabwe is one of these countries that has been slow to address the burden of disease over the past decades. Zimbabwe is similar to the rest of Africa in having a predominantly young population [6] in demographic transition. The emphasis on communicable diseases at the expense of injury continues however with potentially

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deleterious effects due to neglect of this growing problem. This will only become more important in the future as Africa is predicted to have 315 million children and adolescents under the age of 18 by 2050 living in an increasingly urbanized society [6]. It is not clear why, despite recognition of injury as a major health issue and laudable efforts to reduce the burden of injury around the world, the burden persists in Africa and is increasing in some countries. Understanding the evidence gaps that exist may assist in focusing efforts to retard this looming epidemic.

This study aims to systematically scope and map the published literature on unintentional injury in children on the African continent. Using existing frameworks, we identify trends and focus areas for future research and action. We also include a focused mapping of grey literature from Zimbabwe in particular as one of the aforementioned countries that has lagged behind.

Objectives

The overarching objective of this review is to assess the breadth and depth of research in paediatric injury in children, to identify gaps in the literature and to assess the burden of disease of injury in children in Africa. We also aim to map grey literature sources of data for unintentional injury in Zimbabwe in particular. This methodology is useful for similar exercises in other African countries where the need is similarly urgent.

A preliminary search of MEDLINE and JBI Evidence Synthesis was conducted and no current or underway systematic reviews or scoping reviews on the topic were identified.

Review question

What is the depth and breadth of available literature pertaining to unintentional childhood injury in Africa in its constituent subregions and countries?

What levels of care and components of the trauma care system are covered in the literature in Africa?

What outcomes are used in the paediatric unintentional injury literature in Africa?

Which injury aetiologies have been researched in African unintentional injury literature?

What are the types and causes of childhood injuries on the African continent and what is their distribution across age groups and gender?

What published and unpublished literature concerning childhood unintentional injury exists from Zimbabwe?

Where do the evidence gaps lie with respect to childhood unintentional injury in Zimbabwe?

ELIGIBILITY CRITERIA

Inclusion criteria

Participants

This review focuses on data literature that concerns children aged 0–18 years. Studies that were only performed

among adults or did not include identifiable data on children were excluded.

Concept

Literature published from 1990 to 2022 will be included in the review. Any literature pertaining to a child who sustained an injury whose ‘intent was’ unintentional. This is defined as: conditions with International Classification of Diseases, 10th Revision (ICD–10) underlying cause-of-death (UCOD) codes V01–X59 and Y85–Y86. Studies which concerned ‘intentional injury’ will be excluded including suicide, self-inflicted injury, homicide, assault and undetermined intent.

Context

This review will be limited geographically to literature concerning Africa that clearly refers to unintentional injury. No cultural, racial or gender-based exclusion criteria will be applied.

Types of sources

The following study designs will be included: Any observational study design including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies will be considered for inclusion. This review will also consider descriptive observational study designs including case series and descriptive cross-sectional studies for inclusion. Grey literature will be included including reports, official statistics and commissioned reports of government departments and nongovernmental organizations. Literature that does not contain a clearly defined and consistently applied case definition of an unintentional injury or fatality will be excluded. Reviews, viewpoints, case reports, commentaries, letters and conference proceedings will be excluded from the review. No language restrictions will be applied at the screening stage, but an English language restriction will be applied at full-text screening.

METHODS

The 2020 guidance by the Joanna Briggs Institute for scoping reviews (JBI SUMARI template) has been followed in the design of this protocol [7] and the final review will conform to the JBI manual for evidence synthesis methodology and be compliant with the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) extension for scoping reviews (PRISMA-SCR) [8].

Search strategy

The search strategy will include published literature sources as follows: MEDLINE, EMBASE and global health databases will be searched to identify literature relevant to this review. We will also hand-search the reference lists of the eligible studies to identify additional sources of relevance. In addition, for Zimbabwe in particular, a further search of unpublished (grey) literature sources

will be undertaken to ensure that all information relevant to the subject will be included. The following grey literature databases were also searched: WorldCat Dissertations and Theses database, Open Access Theses and Dissertations and the OpenGrey database. In addition, we contacted authors, experts and organizations in Zimbabwe country as follows to identify relevant sources:

- Ministry of Health
- Departments of Health of Municipal Councils
- Traffic Safety Council
- Police
- National Statistical Office

The search terms will be determined using a combination of input from the research team, local knowledge as well as the index terms used to describe the articles derived from the ICD 10 codes for 'External causes of morbidity'. The strategy will be developed in collaboration with an experienced librarian and iterated upon after input from the research team. The terms will be inputted both as keywords in the title, abstract and full text and as subject headings. The search strategies will be adapted for each of the included databases. All literature published since 1990 to date will be included. The full search strategy is found in Appendix 1.

Source of evidence selection

Following the search, all of the identified citations will be collated and uploaded onto EndNote version 20 (Clarivate Analytics, PA, USA) and duplicates will be removed. All titles and abstracts will then be uploaded onto Covidence Systematic Review Software (Veritas Health Innovation, Melbourne, Australia). All of the collated literature will then be screened by two or more independent reviewers to assess for inclusion according to the inclusion criteria. The full text of the selected literature will then be assessed in detail by the reviewers for inclusion based on the inclusion criteria above. Quality of included literature will be assessed by two independent authors, using appropriate standardized critical appraisal tools adapted from the Joanna Briggs Institute. Grey literature will be further assessed using the AACODS checklist designed to enable evaluation and critical appraisal of grey literature. We are doing this because there is considerable variability in quality of sources of grey literature. The reasons for exclusion of any of the sources of evidence will be reported in the full review. Discordant decisions between reviewers will be unblinded and resolved by discussion with ties broken by a third impartial reviewer. The results of the search and screening process will be reported in the final scoping review using the PRISMA-ScR system.

Data extraction

Data will be extracted by two or more independent reviewers using a purpose-built spreadsheet tool on Microsoft excel 2016. The data extracted from each

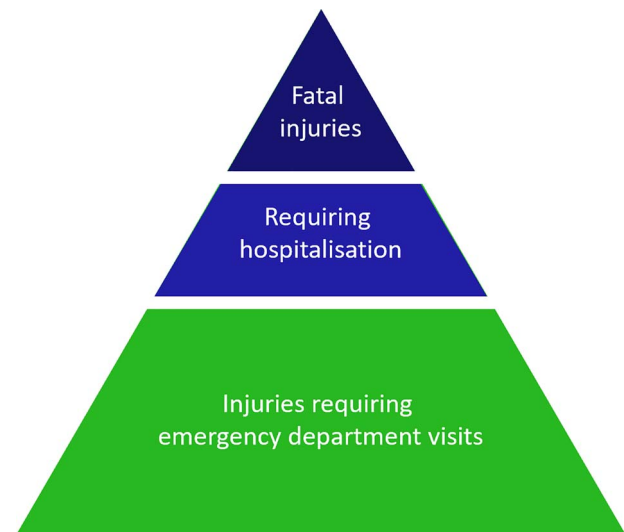


Figure 1. The injury pyramid, illustrating the relationship between fatal injuries, those requiring hospitalization and emergency department visits

article include the country of origin, date, aetiology of trauma concerned, type of study, whether nationally representative, representative of the province or multi/single institution and phase of injury (emergency department care, definitive care, physiotherapy or rehabilitation). A draft data extraction tool is included in Appendix 2. This tool will be revised as required during the process of data extraction after piloting of the first five articles. Modifications will be described with justification in the full scoping review.

Conceptual models

Our scoping review will use multiple conceptual frameworks relevant to trauma care including the framework developed by Heinrich [9] known as 'Heinrich's Pyramid' and modified by Frank Bird and others that eventually came to be known as the injury pyramid [10]. It represents the relationship between fatal injuries, serious injury requiring hospitalization and injuries requiring emergency department visits (Fig. 1). We will also be informed by the different components of a trauma system based on guidance by the World Health Organization, Trauma Association of Canada and the American College of Surgeons. These frameworks will guide synthesis of the literature and data extraction. We will also analyse data according to the levels of care in the Zimbabwean healthcare system, which is represented in a hierarchical format as shown below (Fig. 2) and is similar in African countries across the continent. Lastly, we will draw from the realist synthesis model.

Patient and public involvement statement

Patients were not involved in the conceptualization or design of this protocol. We intend to involve a patient-partner in the dissemination of the results to ascertain the most understandable, impactful way to bring to light

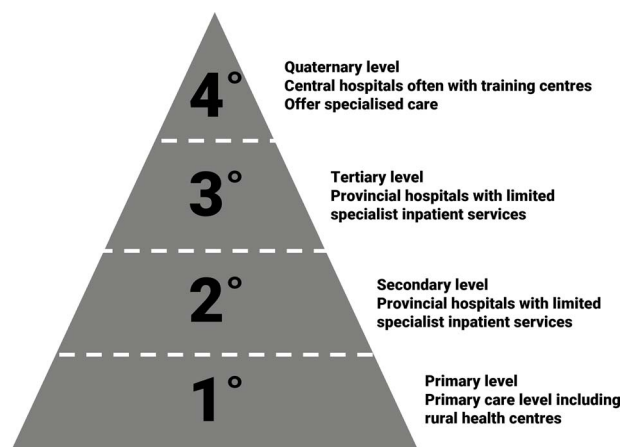


Figure 2. Hierarchical structure of health system common to many African countries

the scale of the problem including publishing results in the vernacular and in the media.

Data analysis and presentation

The included literature will be presented in tabular format. A narrative summary will accompany tables and figures and will describe how the results relate to the objectives and questions. Included studies will be analysed according to the United Nations geoscheme for Africa and visualized on a map. This study will be the first steps in a multiphase research project whose overall aims are to strengthen injury research in Zimbabwe, develop a locally built injury surveillance system for paediatric injury and investigate possible areas for intervention. The results from this scoping review will guide the next phases in this project.

AUTHORS' CONTRIBUTIONS

All authors contributed to the study design and proposed methodology. The idea was conceived of by D.M. D.M. developed the research question and study methods. D.M. wrote the first draft of the protocol, which was subsequently reviewed and edited by all authors who contributed meaningfully to the drafting and editing. This scoping review will contribute towards a doctor of philosophy degree for D.M.

FUNDING

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

CONFLICT OF INTEREST STATEMENT

None declared.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

No ethics approval nor consent was required during the preparation for his protocol.

PROVENANCE AND PEER REVIEW

Not commissioned; externally peer reviewed.

DATA AVAILABILITY

No additional data are available.

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