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🌐 Estimating the prevalence, quality of life, economic and societal impact of arthritis in Tanzania: Protocol for a mixed methods study

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Abstract

Introduction

Musculoskeletal (MSK) disorders are one of the major causes of disability globally. A 2010 Global Burden of Disease study reported that MSK diseases account for 20% of all Years Lived with Disability (YLDs) in Low- and Middle-Income countries. This study will use mixed methods to generate new findings on the prevalence, quality of life, economic and societal impact of musculoskeletal disorders (including arthritis) in the Hai district in Tanzania.

Methods and analysis

In this mixed-methods study funded by the UK's National Institute for Health Research (NIHR) Global Health Research Units and Groups (Award no: 17/63/35) we will conduct quantitative, community-based (urban, peri - urban and rural) and hospital based prospective surveys, supported by rapid ethnographic assessments (REAs), in-depth interviews, focus group discussions (FGDs) and clinical diagnostic screening to estimate the prevalence, economic and societal impact of arthritis. A retrospective medical records baseline review at the Kilimanjaro Christian Medical Centre (KCMC) will also be conducted to assess prevailing documentation and management of arthritis.

Ethics and dissemination

Ethical approval has been obtained through Kilimanjaro Christian Medical University College (KCMUCo) Research Ethics and Review committee (CRERC) in Moshi, National Health Research Ethics Committee (NatHREC) of the National Institute for Medical research (NIMR) in Tanzania and the Medical Veterinary and Life Sciences (MVLS) Ethics committee at the University of Glasgow, UK (MVLS ethics project number:20018010). We will disseminate the findings in clinical, epidemiological, and economic peer reviewed journals. Other dissemination modalities include professional conferences, short reports, community leaflets, policy briefs and dissemination events to communities and various stakeholders including the Ministry of health in Tanzania.

Attachments

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Guidelines

Introduction

In relation to their huge disability burden, the diagnosis, treatment and management of musculoskeletal (MSK) disorders have received inadequate attention worldwide.(1,2) This is particularly true for the global south, especially East Africa where infectious diseases such as malaria, tuberculosis and HIV have traditionally consumed much of the health care resources.(3) With strategies to control many communicable diseases now being identified and implemented, attention is turning to the ever-growing health and economic challenges associated with non-communicable diseases (NCDs). Among NCDs, MSK disorders are not typically prioritised for a number of reasons including the notion that they carry a low mortality compared to the diseases mentioned in the Sustainable Development Goals.(1,2) However, MSK disorders are the largest contributor to Years Lived with Disability (YLD) worldwide, amounting to 149 million YLD.(4) Indirect costs such as lost work productivity caused by MSK disorders and arthritis are known to be greater than their direct health care costs.(5–9). This is particularly pertinent to populations already experiencing significant poverty such as those in low resource settings such as Tanzania. The prevalence of MSK and arthritis is hypothesised to be high in Tanzania and this is likely to have even greater impacts on poverty because of inability to work (indirect cost impacts) and wider household/agricultural productivity impacts as well as inability to fulfil community roles. Such high indirect costs and compounding impacts upon quality of life and depression are well documented in developing countries but little evidence exists for Tanzania. The health and economic burdens of MSK disorders are almost entirely under-reported in sub-Saharan Africa (SSA), including East Africa.

The existing evidence on the prevalence of MSK and arthritis is sparse with highly inconsistent estimates for SSA. A review revealed the prevalence of joint pain between 20% and 33% among people in lower- and middle-income countries.(10,11) MSK studies in SSA have typically focussed on Rheumatoid Arthritis (RA) which carries a high morbidity and considerable mortality in SSA. (12) A systematic review of the prevalence of arthritis in Africa (13), identified the paucity of recent clinical data from SSA, outside South Africa. Over a period of almost forty years, twenty-seven studies assessed the prevalence of arthritis in Africa with only one of these carried out in SSA and this was focussed on HIV related disease. (13,14) In Tanzania, the morbidity associated with arthritis was found to be significant in a hospital-based study with over 60% of patients requiring assistance with mobility and very few managing to access specialist care at a distant centre. (15) Populations in low resource settings clearly carry the burden of MSK disorders but have fewer resources , including adequate service provision, to diagnose and treat such conditions. A study that explores both community and hospital prevalence and case mix, quantifies the economic and quality of life impacts and illuminates personal experiences and existing management strategies has the potential to inform future policy and health care practice for the largely undiagnosed population who suffer silently from MSK disorders.

Early and intensive treatment of MSK disorders including inflammatory arthritis has been demonstrated to improve functional outcomes among patients (16). Reliable local data on the burden of MSK disorders therefore has the potential to strengthen advocacy in resource allocation for early intervention leading to decreased disability and higher quality of life. There has been increasing recognition of the need for action in SSA with input from the International League Against Rheumatism (ILAR) (17) and the African League against Rheumatism (AFLAR)(3). However, in Tanzania there are presently no data on the prevalence of arthritis, nor on how people experience and

manage the disease or the impact it has on income, productivity, health care expenditure and quality of life. The need to assess community prevalence in tandem with a hospital-based survey is paramount to understanding the prevailing burden of MSK disorders in general and particularly arthritis. Such insight will inform requirements for local capacity building in MSK.

Study settings

This study is being conducted in the Kilimanjaro region of Tanzania, commencing April 2018. The regional population is more than 1,600,000 individuals of whom about one third live in urban areas(4). The main ethnic group is the Chagga who are distributed in seven districts. These studies are being conducted in two of these districts, Moshi urban and Hai district. The Hai district was selected because it is an established site for demographic surveillance in Tanzania(18). The Hai district which is in the Kilimanjaro highlands (approximately 1900 metres above sea level) of Kilimanjaro is mainly made up of subsistence farms but also cash crops such as coffee. In contrast, Moshi urban is in the Kilimanjaro lowlands (approximately
900 metres above sea level) with temperatures between 37 degrees centigrades and 24 degrees centigrades.(19) Moshi urban was selected by convenience of location of an urban population. The lowest organisational unit at a Tanzanian street or village level is the Ten cell leader also known as a Balozi.(20) Several 10-cell leaders comprise a village which is the lowest administrative structure in the rural setting. Several villages then make up a ward followed by a district and then a region. In the urban setting, streets are in place of villages.

Objectives and Research Questions

This research study has the following objectives:

1. To estimate the prevalence of the main forms of MSK in hospital and community settings in the Hai district in Tanzania.
2. To estimate the frequency of comorbid NCDs, especially with reference to those associated with arthritis and its treatment, in the community and a hospital setting in the Hai district in Tanzania.
3. To assess how arthritis is understood by community members, health care professionals and patients in the Hai district in Tanzania.
4. To describe the experiences of living with joint pain and arthritis in the Hai district in Tanzania.
5. To describe the management of arthritis in a Tanzanian clinical setting.
6. To adopt and pilot instruments to measure arthritis quality of life (QOL), health seeking behaviour & resource utilisation in community and hospital settings in the Hai district in Tanzania.

Based on these objectives, this study has four key research questions:

1. What is the lived experience of joint pain and arthritis in Tanzania?
2. What instruments are best suited to measuring & valuing quality of life and resource use
3. What is the extent and nature of joint pain and arthritis in clinical settings in Tanzania?
4. What is the prevalence, health, economic and societal burden of the main forms of arthritis in Tanzania?
5. In Tanzania can they be administered within a household survey?

Consenting

In all methods described, apart from the retrospective survey, consent will be sought for the collection of data collected on individuals' joint pain, co-morbidities related health, economic, and quality of life. Children aged 5-17 attending as inpatients will be consented via their parents/guardians, who will be provided with a PIS and sign informed consent for their children to participate. In addition to parental consent, children aged 12-17 will be asked to assent to their participation. For individuals who do not wish to participate, researchers will note their estimated age and gender to assess whether the data is subject to a participation bias. The study will not collect any other data from non-consenting individuals, and participants will not be approached again.

Dissemination and Implications of expected results

We will disseminate the findings in manuscripts in clinical, epidemiological, and economic peer reviewed journals. Other dissemination modalities include professional conferences, short reports, community leaflets, policy briefs and dissemination events to communities and various stakeholders including the Ministry of health in Tanzania. The results from this study will be used to guide clinical health practice, intervention design, service provision, socio cultural practices and health promotion and awareness activities both at KCMC institutional level, Kilimanjaro region and at national level. This study will highlight the prevalence of rheumatological conditions and the scope of their economic and societal impact. This research will guide Tanzania and wider SSA strategy and policy making process towards increased focus and attention to neglected rheumatological diseases. This study will act as a baseline study to be used as reference by future studies, interventions, and scientific ventures on the topic nationally and internationally.

Author Contributions

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Emma McIntosh (PhD)-University of Glasgow	Original Idea
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Troubleshooting

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Prospective Hospital-based patient survey

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Analysis of qualitative data, Statistical Analysis and Health Economic Analysis

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