



The association between disability and cognitive impairment in an elderly Tanzanian population

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Abstract Cognitive impairment is thought to be a major cause of disability worldwide, though data from sub-Saharan Africa (SSA) are sparse. This study aimed to investigate the association between cognitive impairment and disability in a cohort of community-dwelling older adults living in Tanzania. The study cohort of 296 people aged 70 years and over was recruited as part of a dementia prevalence study. Subjects were diagnosed as having dementia or mild cognitive impairment according to the DSM-IV criteria. Disability level was assessed according to the WHO Disability Assessment Schedule, version 2.0 (WHODAS). A higher WHODAS score indicates greater disability. The median WHODAS in the background population was 25.0; in those with dementia and in those with mild cognitive impairment, 72 of 78 (92.3%) and 41 of 46 (89.1%), respectively, had a WHODAS score above this level. The presence of dementia, mild cognitive impairment, hearing impairment, being unable to walk without an aid and not having attended school were independent predictors of having a WHODAS score above 25.0, though age and gender were not. In summary, cognitive impairment is a significant predictor of disability in elderly

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Tanzanians. Screening for early signs of cognitive decline would allow management strategies to be put in place that may reduce the associated disability burden.

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1. Introduction

The number of people surviving into old age is increasing, with the biggest increase in the next 50 years predicted to be seen in low- and middle-income countries as they continue to undergo a demographic transition [1]. This is likely to be accompanied by an increase in the prevalence of age-related non-communicable diseases, such as dementia [2]. It is estimated that 58% of people with dementia live in low- and middle-income countries, and this figure is estimated to rise to 71% by 2050 [2].

Dementia is a major contributor to the overall worldwide disease burden in low- and middle-income countries [3–5]. However, data from sub-Saharan Africa (SSA) are sparse. The International Classification of Functioning, Disability and Health (ICF) was developed by the World Health Organization (WHO) with the aim of providing a quasi-objective framework within which subjective notions of disability and health could be more clearly defined [6]. Disability was defined as ‘the negative aspects of the interaction between an individual (with a health condition) and that individual’s contextual factors (personal and environmental factors)’ [6]. The WHO Disability Assessment Schedule, version 2.0 (WHODAS) was developed to measure levels of disability, as defined by the ICF framework [7]. The WHODAS is a global measure of disability and aims to measure the types of functional limitations that may result from any health condition. It has been extensively validated in a number of world regions in people with a variety of health conditions [8–11].

The primary aim of this study is to investigate the level of disability, as defined by the WHODAS, experienced by a cohort of elderly people living in Tanzania.

2. Methods

Ethical approval for the study was granted locally by Tumaini University ethics committee and the Tanzanian National Institute of Medical Research. Data for this study were collected as part of a wider dementia prevalence study, details of which have already been published [12]. Brief details of the study methodology are given below.

2.1. Setting and study population

The rural Hai district is located in the north of Tanzania, on the southern side of Mount Kilimanjaro. Part of the district was established as a demographic surveillance site (DSS) in the early 1990s and, as such, there are regular population censuses of the area [13]. The most recent census was completed on the first of June 2009 and recorded the population as 161,119, of whom 8869 were 70 years and over. The DSS is broadly representative of the rural population of Tanzania. People live within large family units. The majority are subsistence farmers, and daily activities for older family members might consist of agricultural work, running the household and taking care of grandchildren. All data presented here were collected between 12 April and 30 September 2010 in the study villages. Participants were seen at a place of their convenience (village health centres or in their own home). Signed informed consent was obtained from each participant. For those who could not write, a thumbprint was obtained. If participants were unable to consent due to cognitive impairment, written assent was obtained from a close relative.

It was planned to see approximately one-eighth of the entire population aged 70 years and over in the DSS. Using a random number generator, six villages, with a census population of 1277 people aged 70 years and over, were selected to form the basis of the study cohort. Exclusions, refusals and additions have been described previously [12]. The final study population was 1198 people during phase one screening. Screening was conducted by trained census enumerators using the Community Screening Instrument for Dementia (CSI-D) [14].

During the second phase, a stratified sample of those screened ($n = 296$), with over-sampling for those with moderate or poor cognitive performance by CSI-D, was fully assessed by a doctor (A.L. or S.-M.P.). The second phase sample consisted of 168 people from 184 with ‘poor performance’, 56 people from 104 with ‘moderate performance’ and 72 people from 910 with good performance, according to the CSI-D. The 72 with good performance were randomly selected from the 910 people not thought to have dementia by

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