Prevalence and correlates for self-reported sleep difficulty among older persons in the slums of Kampala, Uganda

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Abstract

Introduction: Sleep is a universal and biological aspect that allows the body to recover energy lost and repair the necessary cellular components that could have been depleted during an awake period, so that they can regain the ability to function properly, be productive and also, make the entire body healthy. The purpose of this study was to establish the prevalence and correlates for self-reported sleep difficulty among older persons in the slums of Kampala, Uganda.

Methods: This study utilizes primary data collected in October 2022, on the; *"access to safe water and health services among older persons in the slum of Kampala"*. We interviewed 593 men and women aged 60 years and above. The ordered logistic regression model was used to establish the association between sleep difficulty and selected explanatory variables.

Results: The results show that only 43% of the respondents had sleep difficult. older persons who were aged 80 years and above were two times more likely to complain about sleep difficulty compared to their young counterparts aged 60-69 years (OR=2.209, 95% CI=.105-4.414), older persons who never married had reduced odds of having sleep difficulty compared to those who were married (OR=0.278, 95% CI=0.098-0.790). older persons who had obtained secondary level of education and above were less likely to have sleep difficulty compared to those who had no education (OR=0.501, 95% CI=0.269-0.933).

Conclusion: There is a strong evidence that older old persons are more likely to have sleep difficulty. We recommend that policies aimed at improving healthy living such as active ageing should be emphasized. Older persons should be encouraged to engage in physical activities and avoid sedentary life that is associated with health complications such as sleep difficulty.

Key words

Older persons, Sleep, Difficult, Slum, Informal settlements, Kampala, Uganda

Introduction

Sleep is a natural behavior that occurs more frequently within the human body and mind (Thichumpa et al., 2018). It is characterized by reduced consciousness where the brain is comparatively in a state of rest (Brinkman et al., 2022). Naturally, people, both old and young,

need sleep to allow the body to recuperate the energy lost and repair the necessary cellular components that could have been depleted during an awake period, so that they biologically function properly, be productive and healthy (Das. et al., 2020). Research shows that some important functions and process such as tissue growth, protein synthesis, growth of some hormones and muscle repair, mostly take place during sleep (Brinkman et al., 2022). Therefore, it is inexorable that sleep is an important basic human need that does not only have a restorative bearing on an individual's health but also, stimulates their quality of life (Thichumpa et al., 2018).

Further to the above, studies show that sleep is a fundamental biological aspect in human bodies, because, it creates an enabling environment for the maintenance, repair, and building of the body (Banfi et al., 2019; Medic et al., 2017). In both quantitative and qualitative terms, sleep provides numerous health benefits such, improving cognitive performance and the general growth and development of the body especially the brain of infants and children (Baranwal et al., 2023; Grimaldi et al., 2021). Generally, it is essential for the reorganization of the neural system, function and health of the structure of the brain (Brinkman et al., 2022).

Despite the above substantial roles played by sleep in our bodies, it is not fully enjoyed by everyone because of various factors such as stress, Non Communicable Diseases like diabetes and other health conditions, which cause sleep difficulty that disrupts normal sleep especially among the older persons. This difficulty can be best understood as the failure by a person to sleep well (Das et al., 2020). Numerous studies show that as people advance in age they begin to experience insufficient sleep and also, complain about sleep difficulty and poor health (Allen et al., 2013; Dangol et al., 2020; Das. et al., 2020; Yunus et al., 2017). On the other hand, sufficient sleep can have a far reaching impact on conducting activities of daily living, alertness, and overall quality of life of older persons (Brinkman et al., 2022). Research further shows that sleep disorders cause cognitive reduction as well impairing people's health (Xiong et al., 2024; Zaidel et al., 2021).

Contextually, sleep difficulty is undoubtedly a fatal incident in human lives that appears in form of Insomnia, and restless leg syndrome, which is an example of clinical sleep difficulty that contributes to medical and emotional problems of older persons as well as disrupting their normal functioning (Kim et al., 2017). It is also a gate way for sleep deprivation and its associated physical effects such as sleepiness, fatigue, hypertension; and cognitive impairment which leads to the

decline in the mental performance, concentration and intellectual capacity and also, increase in mental health problems (Cox et al., 2019; Xiong et al., 2024). Studies indicate that sleep deprivation majorly emanates from sleep disorders and it is responsible for the reduction in functional capacities, increased need for healthcare and poor quality of life among older persons (Cooke & Ancoli-Israel, 2011; Mota et al., 2021). Research further shows that insufficient sleep reduces a person's ability to think, manage stress and strengthen their immune system (Medic et al., 2017; Xiong et al., 2024).

Similarly, studies show that people who have insufficient and also, sleep difficulty, have a tendency of being less productive and they are always associated with health problems such as weight gain, memory loss and other complications (Assari et al., 2017; Leggett et al., 2017). In old age, failure to sleep leads to depression and death. Basing on the above health outcomes of sleep difficulty, it is prudent that all human beings, need restoration of expended day time energy in mental process involving information, and physical activity through sleep. However, while it is intuitively clear that sleep is important in our lives, describing what constitutes a good sleep is sometimes not easy, because, it is a complicated behavior caused by various sleep disorders such as old age, disease and other conditions which increase difficulty in sleeping among the people (Stenholm et al., 2011). Under normal circumstances, a good sleep may imply few or no awakenings during the night, and sufficient sleep time free from difficulty (Driscoll et al., 2008; Goldman et al., 2008; Qiu et al., 2011).

Sleep difficulty is among the most prevalent and poorly addressed problems of aging, and this is an area where a vast body of knowledge gap exists. It is important to note that much as numerous studies show that older adults' sleep outcomes are influenced by social and environment factors (Zepelin, McDonald, and Zammit 1984; Wilcox and King 1999), information on the prevalence and correlates of sleep difficulty among older persons remains scarce because of the limited research in this area. Considering the current study, this is an important existing knowledge gap as the proportion of the population 60 years and older in Uganda, is 4% of the country's 36.4 million people, and this figure is projected to increase further in the subsequent years (UBOS, 2016).

It is thus, incredible to stress that the issue of population aging and sleep difficulty, have been given limited attention on the healthy ageing research agenda in Uganda. This issue partly explains the dearth of information on later life sleep quality in the country. In addition, it is imperative to appreciate the fact that the discourse on the existing literature to understand the factors that could influence this subject matter is insufficient. For instance, studies done on sleep in Uganda have minly focused on children with cerebral palsy (Munyumu et al., 2018), smallholder farmers exposed to pesticide (Fuhrimann et al., 2022) and boarding secondary school students (Oluka et al., 2019).The purpose of this study was to establish the prevalence and correlates for self-reported sleep difficulty among older persons in the slums of Kampala, Uganda.

Materials and Methods

The current study used data from a cross sectional study on the determinants of access to safe water and health services by older men and women aged 60 years and older from the informal settlements of Kampala, Uganda. The study targeted 600 respondents and successfully interviewed 593 of them. This translates into a response rate of 98.8%. Eligibility for participation in the study required a participant to be a male or female older person and residing in Kampala's informal settlements (slums). Data collection was done using a structured questionnaire designed from existing survey data collection tools (WHO, 2006; WHO & UNICEF, 2018). The questions were based on the core questions on safe drinking water; and sanitation and hygiene for household surveys (WHO & UNICEF, 2018). The questionnaire was programmed on electronic tablets for computer assisted data collection. The data were collected in October, 2022. Enumerators with minimum qualification of a Bachelor's degree were recruited from the study areas within the various divisions of Kampala. These were trained on how to handle data collection exercise and also, on how to observe research ethics while conducting interviews. During the process of data collection, older persons who were sick were excluded from the study. Selection of the study sample involved the use of multi-stage cluster random sampling. At the first stage, three divisions (Kawempe, Nakawa and Rubaga) were randomly selected from Kampala city. At the second stage, 4 parishes were randomly selected out of 19 parishes in Kawempe division, 3 were selected out of 13 in Rubaga division and 5 were selected out of 23 in Nakawa division. At the third stage, zones were randomly selected from each parish. Lastly, using community leaders of the older persons, households were randomly selected from the selected zones. Selection of the households was

based on a sampling frame provided by a community leader. The older persons who consented to participate in the study were interviewed.

Variables

The outcome variable for this study self-reported sleep difficulty, which was measured based on the question: "Do you have difficulty sleeping"? The responses were coded as "no difficulty, some difficulty and a lot of difficulty. The main explanatory demographic variables were: age categorized as 60-69, 70-79 and 80+ years; and sex categorized as male or female. Socio-economic explanatory variables were: Marital status (categorised as married, never married, widowed, and separated/divorced), Education level (no education, primary and secondary+), Religion (Catholic, Anglican, Pentecostal and Muslim), Sleep duration (less than 8hours, 8 hours, and more than 8hours), Memory complaint (yes and no), suffering from NCDs (yes and no), Lives alone in the household (yes and no); and Quality of house **(**well maintained, fairly maintained and dilapidated).

Statistical analysis

The study used STATA software version 15 to do statistical analyses. Frequency distributions were computed to describe background characteristics of the respondents. At bivariate level, Pearson Chi-squared test, set at $p<0.05$, was used to establish the association between the dependent variable (measured by whether or not the respondent had sleep difficulty) and each of the explanatory variables. The ordered logistic regression model was used for this analysis. The data were weighted prior to analysis to account for under and oversampling of older persons in the 3 divisions. The fitted model was subjected to the *link-test* to examine whether the explanatory variables were appropriately specified and also assess the goodness-of-fit of the model (Cleves et al., 2010; Kohler & Kreuter, 2012). The test uses the *hat* and *_hat-squared* statistic. When the model describes the data correctly and is appropriate, the *hat-squared* is not expected to be significant (*_hat-squared, p>0.05*), which implies that the observed data mirror the expected. Before fitting the model, a multi-collinearity test among independent variables was conducted.

Results

Distribution of respondents by socio-demographic characteristics

Table 1 presents the distribution of respondents by selected socio-demographic characteristics. Over half (57%) of the respondents reported that they had no difficulty sleeping. Nearly two-thirds

(65%) of the respondents were age 60–69 years. Majority (71%) of them were females. Although over two-fifths (44%) of the respondents were currently widowed, the level of those who were married was also noticeably high (34%). Nearly half (48%) of the respondents had obtained primary education. The distribution of the respondents by religion of affiliation shows that one-third (33%) were Catholics, followed by Anglicans (30%). On average, a large percentage (42%) reported that they were sleeping for less than eight hours per night. More than six in every ten (64%) had memory complaint. Nearly three-fifths (69%) were suffering from Non-Communicable Diseases (NCDS) and 89% were not living alone, while close to three-quarters (74%) were living in a well maintained house.

Table 1. Percentage distribution of selected characteristics of respondents

Characteristic	Frequency (n)	Percent (%)
Sleep difficulty		
No difficulty	341	57.5
Some difficulty	198	33.4
A lot of difficulty	54	9.1
Age		
60-69 years	385	65.0
70-79 years	128	21.5
80+ years	80	13.5
Sex		
Male	170	28.6
Female	423	71.4
Marital status		
Married	203	34.2
Never married	22	3.7
Widowed	261	43.9
Separated/divorced	108	18.2
Education		
No education	111	18.7
Primary	287	48.4
Secondary+	195	32.9
Religion		
Catholic	194	32.7
Anglican	176	29.6
Pentecostal	82	13.8
Muslim	142	23.9
Sleep duration		
Less than 8hours	249	42.0

8 hours	230	38.8
More than 8hours	114	19.2
Memory complaint		
Yes	214	36.1
No	379	63.9
Suffering from NCDs		
yes	348	58.6
No	245	41.4
Lives alone in the household		
Yes	68	11.5
No	525	88.5
Quality of house		
Well maintained	439	74.0
Fairly maintained	116	19.5
Dilapidated	38	6.4

Socio-demographic factors associated sleep difficulty

Table 2 presents bivariate results for the association between sleep difficulty and selected socio-demographic factors. Religion of affiliation by the respondent and living alone were not significantly associated with sleep difficulty among the older people. The results in the table show that the prevalence of a lot of sleep difficulty was higher among the older persons aged 80 years and above (18%; p=0.011), female older persons (10%; p=0.027), those who were Separated/Divorced (12%; p=0.045), those who had no education (12%; p=0.001), sleeping for less than an average of less than 8 hours per night (15%; p<0.001), those with memory complaint (17%; p<0.001), those Suffering from NCDs (11%; <0.001) and those living in well maintained houses (11%; p=0.006).

Distribution of older persons by selected socio-demographic characteristics

Characteristic	**Sleeping difficulty**			**P-value**
	No difficulty (%)	**Some difficulty (%)**	**A lot of difficulty (%)**	
Age				
60-69 years	61.9	32.1	5.9	***0.011***
70-79 years	57.3	31.1	11.7	
80+ years	45.0	37.4	17.6	
Sex				
Male	68.6	24.6	6.9	***0.027***
Female	54.7	35.8	9.5	
Marital status				

Married	65.4	28.8	5.9	***0.045***
Never married	62.3	33.9	3.8	
Widowed	51.4	38.7	9.9	
Separated/Divorced	62.9	24.8	12.3	
Education				
No education	51.6	36.8	11.6	
Primary	53.2	35.5	11.3	**0.001**
Secondary+	70.8	25.9	3.3	
Religion				
Catholic	57.5	33.6	8.9	0.072
Anglican	65.2	29.9	4.9	
Pentecostals	64.4	28.1	7.5	
Muslim	48.9	37.2	14.0	
No religion	65.4	24.6	10.1	
Sleep duration				
Less than 8 hours	27.5	57.2	15.3	***<0.001***
8 hours	84.3	12.2	3.6	
More than 8 hours	74.9	20.2	4.9	
Memory complaint				
Yes	41.1	42.1	16.8	***<0.001***
No	69.1	26.9	3.9	
Suffering from NCDs				
Yes	49.2	40.0	10.8	***<0.001***
No	72.0	22.1	5.9	
Living alone				
Yes	57.1	31.8	11.1	0.799
No	58.9	32.7	8.4	
Quality of house				
Well maintained	53.8	35.5	10.8	***0.006***
Fairly maintained	72.4	24.4	3.2	
Dilapidated	72.9	25.0	2.2	

Predictors of sleep difficulty among the older persons

The findings in Table 3 show that sleep difficulty among the older persons was significantly associated with the respondents' age, marital status, education level, religion, average sleep duration at night, suffering from NCDs and memory complaint. The findings show that older persons who were aged 80 years had increased odds of complaining about sleep difficulty compared to their young counterparts aged 60-69 years (OR=2.209, 95% CI=.105-4.414), older

persons who never married had reduced odds of having sleep difficulty compared to those who were married (OR=0.278, 95% CI=0.098-0.790). Older persons who had obtained secondary level of education and above were less likely to have sleep difficulty compared to those who had no education (OR=0.501, 95% CI=0.269-0.933). Muslim older persons were more likely to have sleep difficulty compared to the Catholics (OR=2.232, 95% CI=1.309-3.808). The table further shows that the likelihood of sleep difficulty was low among older persons who slept for an average of eight hours per night compared to those who slept for less than eight hours (OR=0.084, 95% CI=0.047-0.150). It was further low among those who slept for more than eight hours (OR=1.130, 95% CI=0.073-0.232). The odds of older persons who were not Suffering from NCDs were reduced compared to those who were suffering from NCDs (OR=0.623, 95% CI=0.402-0.965). The findings also reveal that older persons who reported that they did not have memory complaint were less likely to have sleep difficulty compared to their counterparts with memory complaint (OR=0.392, 95% CI=0.258-0.596).

Table 3 Predictors of sleep difficulty among the older persons

Characteristics	**Odds Ratio**	**P-value**	**95% CI**
Age			
60-69 years	1.000		
70-79 years	1.292	0.302	0.793-2.105
80+ years	2.209	**0.025**	1.105-4.414
Sex			
Male			
Female	1.165	0.609	0.647-2.099
Marital status			
Married	1.000		
Never married	0.278	**0.016**	0.098-0.790
Widowed	1.174	0.570	0.674-2.046
Separated/Divorced	1.431	0.295	0.731-2.799
Education			
None	1.000		
Primary	1.195	0.510	0.703-2.030
Secondary+	0.501	**0.029**	0.269-0.933
Religion			
Catholic	1.000		
Anglican	1.189	0.509	0.711-1.987
Pentecostal	1.107	0.779	0.543-2.260

Muslim	2.232	**0.003**	1.309-3.808
Average duration of night sleep			
Less than 8 hours			
8 hours	0.084	**0.000**	0.047-0.150
More than 8 hours	0.130	**0.000**	0.073-0.232
Suffering from NCDs			
Yes	1.000		
No	0.623	**0.034**	0.402-0.965
Living alone			
Yes	1.000		
No	0.905	0.761	0.475-1.725
Quality of house			
Well maintained	1.000		
Fairly maintained	0.813	0.457	0.472-1.402
Dilapidated	0.605	0.247	0.258-1.418
Memory complaints			
Yes			
No	0.392	**0.000**	0.258-0.596

Discussion of findings

Sleep difficulty is an important health concern that affects people's quality of life. In the current study, we found that the prevalence of having a lot of difficulty in sleep by older persons was 9%. This is relatively similar with that of other countries such as china and India (Mazzotti et al., 2012). The finding is also comparable with a study done in china on quality of sleep among older persons (Zhu et al., 2020). The factors that were significantly associated with sleep difficulty among older persons were age of the respondent, marital status, education, religion, average duration of night sleep, suffering from NCDs and memory complaints.

We found that advanced age is significantly associated with sleep difficulty. Older persons who were aged 80 years and above had increased significant odds of sleep difficulty compared to their counterparts in the age group of 60-69 years. This could be attributed to the older persons' vulnerability to the old age comorbidities characterized by Non-Communicable Diseases such as hypertension that could cause sleep difficulty. This finding aligns with other studies (Dangol et al., 2020; Das. et al., 2020; Vaz Fragoso & Gill, 2007), which found that old age affects the health status and physical functioning, thereby causing sleep difficulty among the older persons. Research

further shows that old age shortens the duration of sleep and also, increases the prevalence of insomnia indicators among older persons (Goldman et al., 2008; van de Langenberg et al., 2022). Other studies (Qiu et al., 2011; Zhu et al., 2020), indicate that the old age increases the risk of poor health, which in turn increases sleep difficulty among the older persons.

Our findings show variations between sleep and marital status of the older persons. Older persons who never married had reduced odds of sleep difficulty compared to those who were married. Unmarried older persons were less likely to report sleep difficulty probably because of less stress that arises from big family responsibilities and also, full enjoyment of undisrupted independence. Similarly, it could be suggestive that unmarried older persons do not probably suffer much with heath threatening risks such as domestic violence with associated physical, emotional and psychological abuses, intimate partner violence, and others experienced by their married counterparts. This could also be a probable reason that increases their likelihood of having normal sleep which is free from disturbances or difficulty. This finding resonates with a study done in Malaysia which found that older persons who experience domestic abuse and other forms of violence, were associated with poorer sleep compared to their counterparts who were not (Yunus et al., 2017). It is also consistent with other studies such as Sanchez et al. (2016), who found that women who experienced intimate partner violence in their lifetime had increased odds of stress-related sleep difficulty. Other studies shows that marital was significantly associated with poor sleep quality (Das. et al., 2020).

Education was significantly associated with reported sleep difficult among the older persons. The findings show that older persons who had attained secondary level of education and above were more likely to have reduced odds of sleep difficulty compared to those who had no education. The lower likelihood of sleep difficulty among the educated older persons is explicable in part, in terms of socio-economic status and also, sufficient health related knowledge. Such persons probably could possess enough resources and knowledge to cater for their health needs. This finding is consistent with other studies in Nepal (Dangol et al., 2020) and South Korea (Kim et al., 2017), where insomnia was significantly highly prevalent among the illiterate older persons than their literate counterparts. Furthermore, the finding also resonates well with other studies such as that done by (Mazzotti et al., 2012), which found that sleep complaint among older persons is

exacerbated by their low education level. We recommend that further research be done to establish the association between socio-economic factors and sleep difficult among older persons.

Sleep difficulty varies with the religion of affiliation among older persons. Muslim older persons were more likely to have sleep difficulty than their catholic counterparts. We find this to be an interesting finding. However, we note from the literature that, religion is associated with positive health outcomes among the people. this information is corroborated by Nguyen et al. (2022), who found that the older persons who attended religious services regularly, had greater sleep satisfaction compared to their counterparts who never attended religious services. For instance Britt et al. (2022), found that consistency in private prayer was associated with lower sleep disturbances. Further to the above, a study done in Mexico shows that religious attendance was inversely associated with sleep disturbance (Hill et al., 2020). That implies that older persons who frequently involved in church functions were less likely to report sleep difficulty compared to those who were not. We recommend that as study be done to establish the sleep variations between Muslim older persons and their catholic counterparts.

We found that self-reported duration of sleep is significantly associated with sleep difficulty. Older persons who reported that they used to sleep for 8hours and above, per night, were less likely to have sleep difficulty compared to those who slept for less than 8hours. The variation in sleep duration and self-reported sleep difficulty by the older persons who get enough sleep and their counterparts who get short sleep could probably be arising from differences in their socio-economic statuses. The advantaged older persons in terms of socio-economic well-being, could mostly likely be having low prevalence of sleep difficulty because, they are not as needy as their vulnerable counterparts, who work longer and sleep less to earn a living. This finding aligns with van de Langenberg et al. (2022), who found that socio-economically disadvantaged people are associated with short sleep duration and poor quality sleep. It is ideal for further research to be conducted to establish the impact of self-reported sleep duration on sleep difficulty among older persons.

Older persons who were not suffering from None-Communicable Diseases (NCDs), had reduced odds of sleep difficulty compared to those who were suffering from them. Suggestively, this could

perhaps imply that the absence of NCDs among those older persons would enable them to have normal sleep. This finding aligns with other studies such as that done in n low and middle income countries (Mazzotti et al., 2012), who found that self-reported health, characterized by no co-morbidities such as hypertension, cardiovascular diseases, obesity, and other disorders, is associated with limited sleep fragmentation. On the other hand, the older persons who were not suffering from NCDs, were not associate with later life sleep difficulty in Nepal (Basnet et al., 2016; Dangol et al., 2020; Koyanagi et al., 2014). Otherwise, research shows that the pain caused by unpleasant feelings and emotional disturbances, contribute to sleep difficulty (Muhammad et al., 2023).

Our findings show that sleep difficulty among older persons varied with memory complaints. Older persons who did not have memory complaints had reduced odds of reporting sleep difficulty compared to those who had them. This could be attributed to the limited incidence of stressful and emotional events, and improved mental health that minimize memory disorders among older persons. This finding is in consonance with Mazzotti et al. (2012), who found that low memory impairment score reduces sleep difficulty among older persons. Research further shows that lack of memory deficits improves sleep quality among older persons (Lucassen et al., 2014).

Limitations

Our study utilized primary data and relied on self-reports on sleep difficulty among older persons in informal settlements. Self-reports could suffer from bias given that the residents in such an environment are vulnerable to many health related problems yet, with limited support. They could give inaccurate information because, in return, they are not expecting their plight to change. Misreporting of information by older persons could therefore be a limitation to this study. This study was based on a question that required respondents to state whether had sleep difficulty. Notably also is that, this study is entirely based on self-reported responses, with limited insights on other dynamics that could have been more important.

Conclusions and policy implications

In conclusion, the current study found the prevalence and the potential factors associated with the risk for reporting sleep difficulty among the older persons in the informal settlements of Kampala. Importantly, the study found that not suffering from None-Communicable Diseases (NCDs) was

not associated with self-reported sleep difficulty. The other predictors of sleep difficulty were advanced age, which was strongly associated with it, marital status, religion, education, religion average duration of sleep per night; and having memory complaint. We recommend that policies aimed at improving healthy living should be emphasized. Older old persons should be encouraged to engage in physical activities and avoid sedentary life that is associated with health complications such as sleep difficulty. They should also be encouraged to get involved in religious functions so as to break the cycle of boredom and stressful life that subsequently results into later life sleep difficulty. All these should be done not only to improve the quality of life of older persons, but also, cultivate and nurture the culture of healthy ageing.

Ethics approval and consent to participate

Before data collection, efforts were made to meet ethical requirements for research in accordance with the research ethics guidelines (İlgili et al., 2014). Ethical clearance was obtained from the Ministry of Health Vector Control Division Research Ethic committee under number VCDREC 162 and Uganda National Council for Science and Technology (UNCST) HS2487ES. We obtained voluntary verbal informed consent from all the respondents before the commencement of each interview. Interviews were held in conditions and environments that ensured privacy of the respondents and the data were stored in a manner that did not allow access by an authorized persons. Also, the data storage removed any information such as names that can be used to identify the respondents.

Availability of data and materials

The datasets generated and analysed in the current study are not publicly available due to confidentiality reasons but are available from the corresponding author on reasonable request.

Conflict of interest: The authors have no conflicts of interest to declare.

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Contributions. FM conceived and designed the study. He also did the analysis, interpretation and drafted the manuscript. All the other authors reviewed the study protocol, participated in data collection, analysis, and drafting of the manuscript. All the authors read and reviewed the manuscript. All authors have read and approved the manuscript.

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