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RESEARCH ARTICLE

Prevalence and factors associated with dementia in Lesotho: A cross-sectional, population-based study

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Abstract

INTRODUCTION: Limited research has examined dementia prevalence and associated factors in Lesotho. This study investigates dementia prevalence and the associated factors in Lesotho.

METHODS: A survey in Lesotho included 1738 participants screened for dementia and potential associated factors with a focus on modifiable factors. Associations were evaluated using logistic regression models.

RESULTS: The median age was 66 years, with 54.83% women. The prevalence of dementia was 4.89%. Those with depressive symptoms (adjusted odds ratio [aOR]: 3.97, 95% confidence interval [CI]: 1.39–11.30), age ≥ 75 (aOR: 2.68, 95% CI: 1.42–5.04), and underweight (aOR 2.30, 95% CI: 1.23–4.29) had increased odds of dementia. Those with moderate (aOR: 0.32, 95% CI: 0.17–0.58) to high (aOR: 0.35, 95% CI: 0.16–0.77) physical activity and obesity (aOR: 0.30, 95% CI: 0.11–0.80) presented lower odds for dementia.

DISCUSSION: This study provides a contemporary estimate of dementia prevalence in Lesotho, highlighting an association with modifiable factors.

KEYWORDS
body mass index, dementia, Lesotho, lifestyle, physical activity

Highlights

- In Lesotho there is a probable dementia prevalence of 4.89%, aligning with regional estimates for Africa.
- Depression, older age, being underweight, and low physical activity were associated with increased odds of dementia.
- Moderate to high physical activity and obesity were associated with lower dementia odds.

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• Further study of the association of dementia with potentially modifiable factors in low- and middle-income countries is warranted.

1 | INTRODUCTION

Dementia, a debilitating condition characterized by cognitive decline and memory loss, poses a global public health challenge due to its rapidly increasing prevalence in aging populations.[1] This illness is accompanied by substantial social and economic burdens on individuals, families, and health-care systems,[2] especially in low- and middle-income countries (LMICs) where families take on the burden of care,[3,4] and prevalence of dementia is on the rise.[5] Despite the growing burden of dementia in LMICs,[6] there remains a significant gap in understanding its prevalence and associated factors in these countries, specifically in the context of African populations.[7]

The pooled prevalence of dementia across Africa is 4%, with slight variability between estimates taken in West, East, and Central Africa.[8] One recent study in rural South Africa estimated the prevalence to be 8%.[9] However, there is a notable lack of studies taking place in other countries in Southern Africa.[7,8]

Given the absence of curative treatments for dementia, investigation into potential preventive or risk-reducing strategies is of utmost importance. In 2024, the Lancet Commission on dementia prevention, intervention, and care consolidated evidence for potentially modifiable risk factors of dementia, including high cholesterol, vision loss, excessive alcohol consumption, depression, diabetes, hypertension, obesity, physical inactivity, lower education, and smoking.[10] Among LMIC populations, particularly those in Africa, there is strong evidence of dementia's association with non-modifiable risk factors such as age and female sex,[7,11] but evidence for other risk factors remains sparse.[12,13]

The present study aims to address two key gaps. First, we aim to estimate the prevalence of dementia based on a population-level screening of adults aged ≥ 55 in Lesotho. Second, we investigate associated factors, with a focus on potentially modifiable factors which may be addressed in dementia prevention efforts.

2 | METHODS

This study obtained ethics clearance from the Lesotho National Health Research and Ethics Committee (ID139-2021). Clarification of responsibility was provided by the Ethics Committee of Northwest and Central Switzerland (ID AO_2021-00056). District chiefs and household heads provided verbal consent. Each participant provided written informed consent. In case of illiteracy, participants provided a thumbprint, and a witness co-signed the consent form. This cross-sectional study adheres to Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.[14]

2.1 | Study setting, design, and sample

Lesotho is a small land-locked country in Southern Africa that faces a high burden of communicable and non-communicable diseases.[15] This study is part of a larger population-based survey on the prevalence of non-communicable chronic diseases in Lesotho. It was conducted in 120 randomly sampled urban and rural settlements in Mokhotlong and Butha Buthe districts between November 1, 2021 and August 31, 2022. Details of the sampling and survey methodology have been published elsewhere.[16] Open Data Kit (ODK) software was used to collect data.[17]

Consenting survey participants aged ≥ 55 were eligible for dementia screening. Those who had a cognitive, visual, or auditory impairment that made participation impossible were ineligible for screening. For each participant, one informant from the household was interviewed about the participant's functionality in daily living. Informants did not sign a written informed consent but were covered by the verbal consent of the household head.

2.2 | Assessments

Trained study team members assessed dementia, mental and physical health, and lifestyle factors. Assessments were translated from English to Sesotho and then back-translated into English. The two versions were then compared and reconciled. Quality assurance and comprehension checks were completed by a third party who was not involved in the translation.

2.2.1 | Sociodemographic characteristics

A demographic questionnaire included age, level of education, and sex. Participant characteristics were stratified by sex. Wealth was measured at the household level using the Demographic and Health Survey (DHS) questionnaire for Lesotho 2019.[18,19] Household wealth was divided into five equal groups based on the DHS methodology (wealth quintiles).[19]

2.2.2 | Dementia

Participants were screened for dementia with the brief Community Screening Instrument for Dementia (brief CSI-D).[20] This version has been shortened from the original Community Screening Instrument for

Dementia.[21] It was designed for use in low-income and low-literacy settings and has been validated for use in Africa.

The brief CSI-D has two parts: a seven-item cognitive interview in which the participant answers questions gauging cognitive ability and completes cognitive tasks, and a six-item informant interview to gather more information about the participant's functional performance, such as activities of daily living. Inclusion of the informant interview has been shown to increase the predictive accuracy of the cognitive interview.[21,22]

Scores on the cognitive interview range from 0 to 9, with lower scores indicating higher cognitive impairment. Scores on the informant interview range from 0 to 6, with higher scores indicating higher cognitive impairment. For this study, if a participant scored 5 or 6 on the cognitive interview, the informant interview score was subtracted from the cognitive interview score to give a final score.

Based on established scoring criteria of the two sections, participants were categorized as follows: ≤ 4 = "probable dementia," which is highly suggestive of dementia; 5–6 = "possible dementia," indicating that more information is needed; and ≥ 7 = "normal," indicating no cognitive impairment, thus rendering a dementia diagnosis highly improbable.[20] Participants could reach the probable dementia threshold in two ways: (1) a score ≤ 4 on the cognitive interview or (2) a combined score of ≤ 4 on the cognitive and informant interviews. Following the approach of other researchers using the brief CSI-D in Africa,[9,23] those falling into the probable dementia category (score of ≤ 4) according to brief CSI-D scoring were considered to estimate dementia prevalence.

2.2.3 | Mental health

Depressive symptoms were assessed with the Patient Health Questionnaire.[24] This 9-item assessment has been validated for use with South African adults[25] and has been used previously in Lesotho.[26] The standard cutoff score of ≥ 10 was used to classify clinically elevated depressive symptoms.[27] Post-traumatic stress disorder (PTSD) was screened using the Primary Care PTSD Screen for DSM-5.[28] This 5-item questionnaire has been used with adults in Africa.[29] A cutoff score of ≥ 3 indicates likely presence of PTSD.[30]

2.2.4 | Lifestyle and quality of life

Substance use in the past 3 months was assessed using the World Health Organization (WHO)'s Alcohol, Smoking and Substance Involvement Screening Test,[31] which has been validated for use in Africa.[32] Physical activity was assessed using the International Physical Activity Questionnaire Short Form (IPAQ-SF). Participants were categorized as having low, moderate, or high physical activity according to IPAQ guidelines.[33] Quality of life was measured with the visual analog scale of the EQ-5D-5L.[34] Participants were asked to rate their quality of life on a continuous scale, with 0 representing "the

RESEARCH IN CONTEXT

1. **Systematic review**: The burden of dementia is rising globally,[1] with a notable impact on low- and middle-income countries (LMICs) where health-care resources are limited.[4] Studies have estimated the prevalence of dementia in various regions of Africa, but data specific to Southern Africa, including Lesotho, remains scarce.[7] The pooled prevalence of dementia in Africa is ≈ 4%,[8] with studies in rural South Africa estimating higher rates, up to 8%.[9] Despite the growing burden of dementia in LMICs,[6] there is a significant gap in understanding the prevalence and factors associated with dementia in Lesotho and similar LMIC contexts. Specifically, there is a lack of evidence related to the correlation of potentially modifiable factors such as physical activity and body mass index with dementia in these settings.[12,13]

2. **Interpretation**: There is a considerable prevalence of dementia among the elderly population in Lesotho, posing a challenge to its health and social system. Being underweight, depressive symptoms, and low physical activity were associated with dementia in Lesotho, and as they are potentially modifiable factors, warrant further study in similar settings. Our study is the first to estimate the prevalence of dementia in Lesotho, finding a prevalence of 4.89% among 1738 adults aged ≥ 55. This aligns with pooled estimates for Africa but is lower than the estimate from a recent study in the region. Factors such as depressive symptoms, older age, and being underweight were associated with increased odds of dementia. Conversely, obesity and physical activity were linked with reduced odds of dementia. The absence of associations with other common risk factors such as hypertension, sex, and human immunodeficiency virus infection highlights the need for context-specific investigations. Our findings underscore the importance of further study of physical activity and proper nutritional status to mitigate dementia risk.

3. **Future directions**: Future research should build on these findings by implementing longitudinal studies to explore causal relationships between identified factors and dementia. There is also a need for dementia prevalence estimates using more comprehensive diagnostic tools beyond screening instruments like the brief Community Screening Instrument for Dementia. Additionally, expanding dementia research to include other countries in Southern Africa will help generalize findings. Understanding the interplay between lifestyle factors and dementia risk in LMICs could inform global dementia prevention strategies, which are particularly relevant in resource-constrained settings.

worst health you can imagine" and 100 representing "the best health you can imagine".

2.2.5 | Physical health

Severe pain was measured with one item of the International Association for the Study of Pain's Brief Pain Inventory.[35] Participants were asked to grade the severity of their pain on a scale of 0 to 10. Those who rated their pain as ≥ 7 were classified as having severe pain, as suggested by previous validation studies.[36] Diabetes was defined as having a random blood glucose measurement of ≥ 5.6 millimoles per liter and glycosylated hemoglobin ≥ 6.5%, a random blood glucose measurement of ≥ 11.1 millimoles per liter, or self-report of current intake of antidiabetic medication. Hypertension was defined as the mean of the last two out of three blood pressure measurements at least 5 minutes apart of ≥ 140/90 millimeters of mercury in standardized measurement procedures according to the European Society of Cardiology/European Society of Hypertension guidelines 2018[37] or self-reported current intake of antihypertensive medication. Body mass index (BMI) was derived from measurements of weight and height, and classified into nutritional status according to WHO guidelines.[38] A BMI < 18.5 kg/m^2 classified participants as underweight, a BMI between 18.5 and 24.9 kg/m^2 as normal weight, a BMI between 25 and 29.9 kg/m^2 as overweight, and a BMI ≥ 30 kg/m^2 as obese. Participants self-reported their human immunodeficiency virus (HIV) status as negative within the past 12 months, negative > 12 months ago, unknown, or positive.

2.3 | Data analysis

A score of ≤ 4 on the brief CSI-D was used to estimate the prevalence of dementia and its relationship with risk factors. The 95% Wald confidence interval (CI) was calculated around the prevalence estimate. Median and interquartile range (IQR) were calculated for the raw brief CSI-D score and other continuous variables. Associated factors were assessed with logistic regression. To determine which factors to include in an adjusted model, factors associated with dementia in univariable models with a CI that did not contain 1 and a significance level of $P < 0.1$ were entered into one multivariable logistic regression model, which was adjusted for age, sex, and household wealth quintile. To assess the presence of multicollinearity between the predictor variables in the multivariable model, the generalized variance inflation factor (GVIF) was used. GVIF values adjusted for the degrees of freedom (df) of each predictor were examined to ensure that no variable inflated the variance of the regression coefficients substantially, with a threshold of GVIF^(1/(2*df)) ≤ 2 indicative of acceptable multicollinearity levels.[39] For the final model, missing participant characteristics were imputed using multivariate imputation by chained equations pooling results over 20 imputed datasets.[40] Odds ratios, adjusted odds ratios (aORs), and 95% CIs were calculated for the univariable and multivariable logistic regression models. With the pooled results from the imputed

datasets, we tested for two interactions: (1) age category and BMI category and (2) age category and physical activity level. Data analysis was performed using the statistical software R version 4.3.1.[41]

Following the approach of other dementia prevalence estimates in Africa,[9,23] we back-estimated the dementia prevalence while applying the global sensitivity (0.95) and specificity (0.90) of the brief CSI-D.[20] For a comprehensive description of the procedure, see the supporting information. As an alternative approach to estimating dementia, we applied a score of ≤ 6 on the cognitive interview of the brief CSI-D.[9,20] We also compared results of the pooled imputed results of a logistic regression model obtained with multiple imputation of missing information to results from complete cases without imputation.

3 | RESULTS

Among 1751 eligible survey participants, 13 were excluded as they did not consent or manage to complete the survey. Thus, 1738 (99.31%) participants who completed the brief CSI-D cognitive assessment were included in the study. Table 1 displays participant characteristics. The median (IQR) age was 66 years (61–74), and women comprised 54.83% of the sample.

Most participants reported a primary-level education, with 51% living in an urban area. Regarding lifestyle, 20% reported high physical activity, and 27% reported recent tobacco use. Regarding physical health, 15% reported to be living with HIV, while 10% had diabetes.

Among participants who had a score of 5 or 6 on the cognitive interview of the brief CSI-D, 90/168 (53.57%) had a household member as an informant to complete the informant interview. In the brief CSI-D, the median (IQR) score was 9 (8–9). A total of 85/1738 participants (4.89%, 95% CI: 3.92–6.01) scored ≤ 4 on the brief CSI-D. Prevalence of dementia rose with age, with 2.5%, 3.4%, and 11.6% among those aged 55–64 years, 65–74 years, and ≥ 75 years, respectively. In univariable logistic regression, participants with older age, symptoms of depression, severe pain, underweight BMI, and higher daily sitting time had increased odds of dementia. Participants with HIV, higher quality of life, moderate to high physical activity, and obesity had reduced odds of dementia in univariable logistic regression (see Table 2).

In multivariable analyses controlling for age, sex, and wealth quintile, those with depressive symptoms (aOR 3.97, 95% CI: 1.39–11.30), an age of ≥ 75 (aOR 2.68, 95% CI: 1.42–5.04), and who were underweight (aOR 2.30, 95% CI: 1.23–4.29) had increased odds of dementia. Conversely, moderate physical activity (aOR 0.32, 95% CI: 0.17–0.58), high physical activity (aOR 0.35, 95% CI: 0.16–0.77), and obesity (aOR 0.30, 95% CI: 0.11–0.80) remained associated with lower odds of dementia in the adjusted model (see Table 2). Figure 1 is a forest plot depicting the relationships between dementia and all covariates from the multivariable model. Neither an interaction term between physical activity and age nor age and BMI turned out to be statistically significant, avoiding further subgroup analyses (see Table S1 in supporting information).

When back-estimating the prevalence of dementia using the global sensitivity and specificity of the brief CSI-D, we found a similar demen-

TABLE 1 Characteristics of participants aged ≥ 55 in Mokhotlong and Butha Buthe, Lesotho.

Characteristic	Total N = 1738, n (%)	Female n = 953 (54.83%)	Male n = 785 (45.17%)
Age (years)			
55–64	724 (41.66)	384 (40.29)	340 (43.31)
65–74	617 (35.50)	321 (33.69)	296 (37.71)
≥ 75	397 (22.84)	248 (26.02)	149 (18.98)
Education			
No schooling	323 (18.58)	99 (10.39)	224 (28.54)
Primary	1135 (65.30)	711 (74.61)	424 (54.01)
Secondary	236 (13.58)	121 (12.70)	115 (14.65)
Tertiary	43 (2.47)	21 (2.20)	22 (2.80)
Missing	1 (0.06)	1 (0.10)	
Settlement			
Urban	878 (50.52)	463 (48.58)	397 (50.57)
Rural	860 (49.48)	490 (51.42)	388 (49.43)
Wealth quintile			
1 (lowest)	344 (19.79)	186 (19.52)	158 (20.13)
2	350 (20.14)	182 (19.11)	168 (21.40)
3	346 (19.91)	198 (20.78)	148 (18.85)
4	348 (20.02)	197 (20.67)	151 (19.24)
5 (highest)	346 (19.91)	189 (19.83)	157 (20.00)
Missing	4 (0.23)	1 (0.10)	3 (0.38)
Dementia score, med (IQR)	9 (8–9)	9 (8–9)	9 (8–9)
Dementia			
Probable	85 (4.89)	49 (5.14)	36 (4.59)
Possible	114 (6.56)	58 (6.09)	56 (7.13)
Normal	1539 (88.55)	846 (88.77)	693 (88.28)
Depressive symptoms	30 (1.73)	20 (2.10)	10 (1.27)
Missing	5 (0.29)	3 (0.31)	2 (0.25)
PTSD symptoms	55 (3.16)	31 (3.25)	24 (3.10)
Missing	5 (0.29)	4 (0.42)	1 (0.13)
Recent alcohol use	431 (24.80)	121 (12.71)	310 (39.49)
Missing	1 (0.06)		1 (0.13)
Recent tobacco use	465 (26.75)	198 (20.78)	267 (34.01)
Missing	4 (0.23)	2 (0.21)	2 (0.25)
Recent cannabis use	21 (1.21)	0 (0)	21 (2.68)
Missing	3 (0.17)	1 (0.10)	2 (0.25)
Recent use of other drugs	28 (1.61)	26 (2.73)	2 (0.25)
Missing	4 (0.23)	2 (0.21)	2 (0.25)
Physical activity			
Low	708 (40.73)	401 (42.08)	307 (39.10)
Moderate	658 (37.86)	395 (41.45)	263 (33.50)
High	354 (20.37)	150 (15.74)	204 (26.00)
Missing	18 (1.04)	7 (0.73)	11 (1.40)

(Continues)

TABLE 1 (Continued)

Characteristic	Total N = 1738, n (%)	Female n = 953 (54.83%)	Male n = 785 (45.17%)
Sedentary hours[a], med (IQR)	3 (2–5)	4 (2–5)	3 (2–5)
Quality of life[b], med (IQR)	72 (60–85)	70 (60–80)	80 (60–90)
Severe pain	114 (6.56)	66 (6.93)	44 (5.61)
Missing	5 (0.29)	3 (0.31)	2 (0.25)
Diabetes	177 (10.18)	134 (14.10)	43 (5.48)
Missing	119 (6.87)	61 (6.40)	58 (7.39)
Hypertension	817 (47.01)	557 (58.45)	260 (33.12)
Missing	2 (0.12)	2 (0.21)	
BMI			
Underweight	186 (10.70)	57 (5.98)	129 (16.43)
Normal weight	751 (43.21)	302 (31.69)	449 (57.20)
Overweight	420 (24.17)	275 (28.86)	145 (18.47)
Obese	344 (19.79)	294 (30.85)	50 (6.37)
Missing	37 (2.13)	25 (2.62)	12 (1.53)
HIV status			
Positive	253 (14.55)	147 (15.42)	106 (13.50)
Negative	971 (55.87)	538 (56.45)	433 (55.16)
Unknown	513 (29.52)	268 (28.13)	245 (31.21)
Missing	1 (0.06)		1 (0.13)

Abbreviations: BMI, body mass index; HIV, human immunodeficiency virus; IQR, interquartile range; Med, median; PTSD, post-traumatic stress disorder.
[a]N = 1353.
[b]Quality of life was measured with the EQ-5D-5L's visual analog scale.

tia prevalence of 80/1738 (4.82%). This is explained by the high sensitivity and specificity of 0.95 and 0.90, respectively, reported by Prince et al.[20] Using another classification of dementia, which considers only the cognitive interview through a score of ≤ 6, we more than double the estimated prevalence (See details in Table S2 in supporting information). Sensitivity analysis on the complete case dataset (see Table S3 in supporting information) showed a similar magnitude of the estimated model parameters, implying robustness with regard to the imputation of missing data.

4 | DISCUSSION

To our knowledge, this is the first study to assess dementia prevalence in Lesotho and among the largest population-based dementia surveys in an LMIC. We found a prevalence of dementia of 4.89% (95% CI: 3.92–6.01) among adults aged ≥ 55. Age, depression, and being underweight were associated with an increase in the odds of dementia. Physical activity and being obese were associated with a reduction in the odds of dementia. We found no association with other commonly reported risk factors, such as HIV, sex, arterial hypertension, or alcohol or tobacco use.

The estimated prevalence of dementia in this study aligns with a recent pooled estimate of 4% for Africa.[8] Researchers using the brief CSI-D in rural South Africa found a higher rate of 8%.[9] However, as participants in this study were aged ≥ 60 only residing exclusively in rural areas, this figure may not be directly comparable to the estimate in our study. Many of these differences may be due to heterogeneity in screening tools used, study design, sampling methods, and demographics.

We found no significant association between self-reported living with HIV and dementia. One potential explanation could be the successful rollout of antiretroviral therapy, thus mitigating the neurological effects of HIV. The absence of sex as a factor associated with dementia is mirrored by the findings of a recent study in South Africa.[9] No association was found between arterial hypertension and dementia. However, the definition of hypertension used for this study included those with medically controlled hypertension, which has been previously found to not significantly increase dementia risk.[42] Our study also found no association between dementia and alcohol use, which might be due to underreporting. Lastly, similar to another study among LMIC populations,[43] we did not find an association between tobacco use and dementia.

This study's strength is the population-based sampling across 120 villages, with > 99% of eligible respondents included. The study has, however, several limitations. The brief CSI-D, used to estimate the prevalence of dementia, is a screening tool rather than a diagnostic interview. In Lesotho, dementia diagnosis is limited to mental health
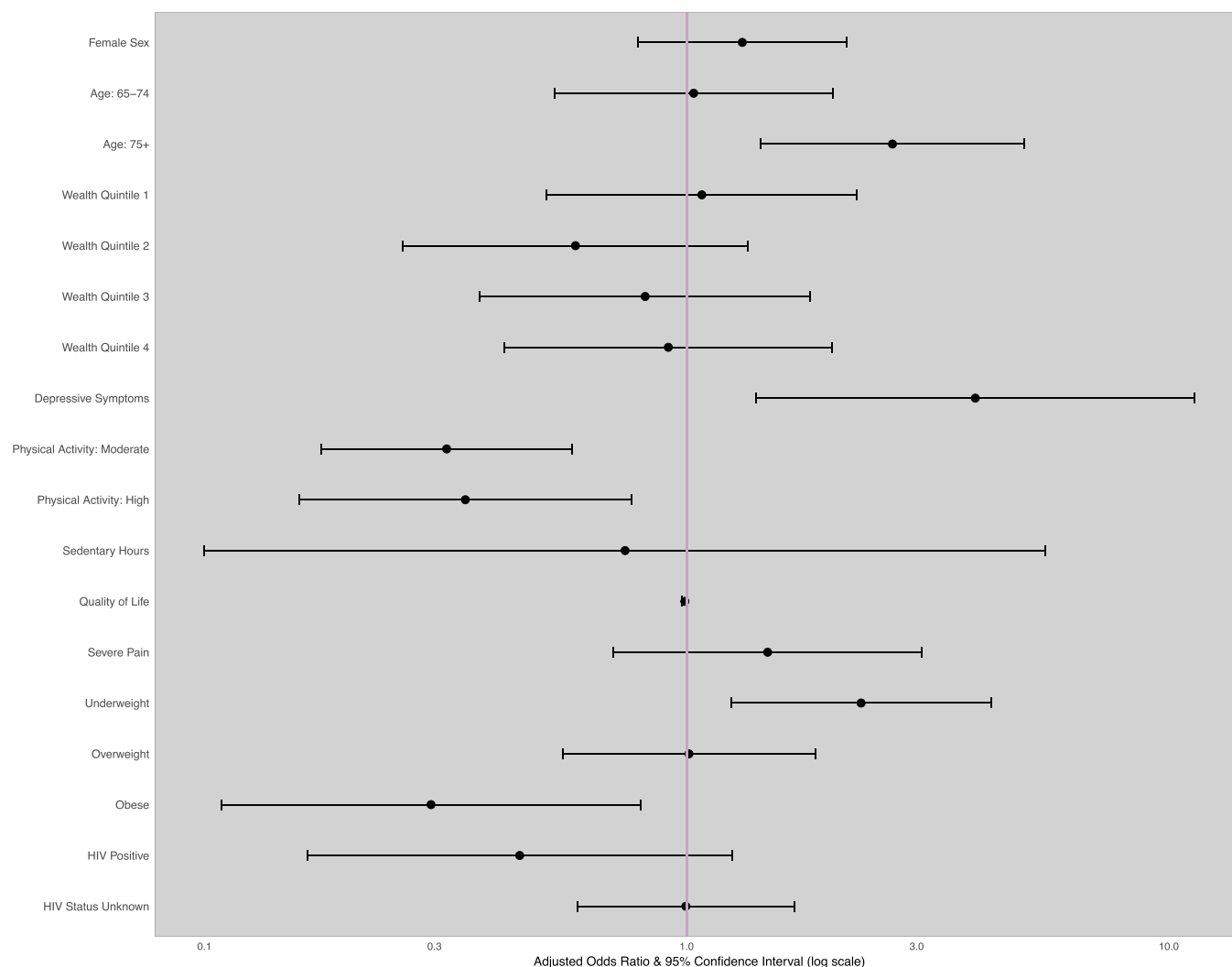
TABLE 2 Univariable and multivariable logistic regression to determine potential risk factors for dementia.

Characteristic	Univariable analysis		Multivariable analysis[a]	
	OR (95% CI)	p value	aOR (95% CI)	p value
Female sex	1.13 (0.73–1.76)	0.59	1.30 (0.79–2.15)	0.30
Age (years)				
55–64	1		1	
65–74	1.38 (0.73–2.64)	0.32	1.03 (0.53–2.01)	0.93
≥ 75	5.14 (2.99–9.22)	<0.01	2.68 (1.42–5.04)	<0.01
Education				
No schooling	3.99 (0.82–71.99)	0.18		
Primary	1.90 (0.40–33.94)	0.53		
Secondary	1.28 (0.22–24.32)	0.82		
Tertiary	1			
Urban settlement	0.96 (0.42–2.17)	0.83		
Wealth quintile				
1 (lowest)	1.92 (0.98–3.95)	0.06	1.08 (0.51–2.26)	0.85
2	1.07 (0.49–2.33)	0.87	0.59 (0.37–1.34)	0.21
3	1.32 (0.64–2.82)	0.46	0.82 (0.37–1.81)	0.62
4	1.32 (0.63–2.80)	0.47	0.92 (0.42–2.00)	0.83
5 (highest)	1		1	
Depressive symptoms	5.21 (1.89–12.34)	<0.01	3.97 (1.39–11.30)	0.01
PTSD symptoms	0.35 (0.02–1.02)	0.30		
Recent alcohol use	0.93 (0.54–1.52)	0.79		
Recent tobacco use	1.29 (0.79–2.04)	0.29		
Recent cannabis use	2.07 (0.33–7.28)	0.33		
Recent other drug use	0.72 (0.04–3.43)	0.75		
Physical activity				
Low	1		1	
Moderate	0.24 (0.13–0.42)	<0.01	0.32 (0.17–0.58)	<0.01
High	0.24 (0.11–0.48)	<0.01	0.35 (0.16–0.77)	0.01
Sedentary hours, med (IQR)	1.22 (1.13–1.33)	<0.01	0.75 (0.10–5.63)	0.77
Quality of life[b], med (IQR)	0.98 (0.97–0.99)	<0.01	0.99 (0.98–1.01)	0.23
Severe pain	2.49 (1.25–4.58)	0.01	1.47 (0.71–3.07)	0.30
Diabetes	1.68 (0.87–3.02)	0.10		
Hypertension	1.08 (0.69–1.67)	0.74		
BMI				
Underweight	2.56 (1.39–4.58)	<0.01	2.30 (1.23–4.29)	0.01
Normal weight	1		1	
Overweight	1.12 (0.62–1.97)	0.69	1.01 (0.55–1.85)	0.97
Obese	0.33 (0.08–0.79)	0.02	0.30 (0.11–0.80)	0.02
HIV status				
Negative	1		1	
Positive	0.38 (0.13–0.88)	0.04	0.45 (0.16–1.24)	0.12
Unknown	1.21 (0.75–1.91)	0.42	1.00 (0.59–1.67)	0.99

Abbreviations: aOR, adjusted odds ratio; BMI, body mass index; CI, confidence interval; HIV, human immunodeficiency virus; IQR, interquartile range; Med, median; OR, odds ratio; PTSD, post-traumatic stress disorder.
[a]Parameter estimates are pooled estimates from models fitted to 20 imputed datasets.
[b]Quality of life was measured with the EQ-5D-5L's visual analog scale.

FIGURE 1 Forest plot of adjusted odds ratios and 95% confidence intervals of a multivariable logistic regression model to determine factors associated with dementia. HIV, human immunodeficiency virus

specialists primarily located in the capital, within the only psychiatric hospital. The limited access of dementia diagnosis and the high sensitivity and specificity for the brief CSI-D in a similar setting[20] reinforce this study's relevance for identifying potential cases of dementia in areas where clinical diagnostic services are not readily available. A notable challenge is that more than half of participants identified as having possible dementia due to their cognitive interview scores lacked informant interviews, potentially skewing our prevalence estimate toward the lower end. To address this, we have provided an alternative estimate of dementia, which considers only the cognitive interview to define dementia. Furthermore, because some participants had cognitive impairment, the reliability of their self-reported information may be compromised, which could affect the accuracy of our findings. Lastly, the cross-sectional design of the study precludes any causal interpretation of the observed associations: further studies with longitudinal data and a causal framework are needed to investigate these findings.

In this survey in Lesotho, the prevalence of dementia was 4.89% among individuals aged ≥ 55. The study identified older age, depres-

sion, being underweight, and low levels of physical activity as factors associated with dementia, while not showing an association with other commonly cited risk factors, such as sex, living with HIV, or arterial hypertension. This study confirms the increasing prevalence of dementia in low-income regions, emphasizing the need for health and social systems to address the prevention of dementia and to establish frameworks for diagnosis, treatment, and care of affected individuals. Particularly, the identified links between dementia and factors that could be related to lifestyle, like BMI and physical activity, warrant further study in LMICs similar to Lesotho.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest. Author disclosures are available in the supporting information.

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