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Prevalence of Dementia Cases Seen in Consultation at the Neuropsychiatry Department of Toamasina, Madagascar

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Abstract

Introduction. Dementia is a growing public health challenge in low- and middle-income countries, yet local hospital-based data remain scarce in Madagascar [1-3]. This study aimed to estimate the prevalence of dementia among adults aged 60 years and older seen in consultation at the Neuropsychiatry Department of the Centre Hospitalier Universitaire Analankininina Toamasina (CHUAT), and to examine the association between sociodemographic profiles, selected clinical risk factors, and dementia severity.

Methods. We conducted a single-centre cross-sectional descriptive and analytical study based on medical records from January 1, 2022 to December 15, 2024. Included participants were outpatients aged 60 years and older who met ICD-11 criteria for major neurocognitive disorder and had complete files [4]. Dementia severity was classified with the Mini-Mental State Examination (MMSE) as mild (21-26), moderate (10-20), or severe (<10) [5,6]. Associations between severity and study variables were assessed using chi-square tests, with $p<0.05$ considered statistically significant.

Results. Among 2,667 consultations, 348 patients were aged 60 years and older. Seventy-five had major neurocognitive disorders, of whom 57 met the inclusion criteria, yielding a prevalence of 16.38% among older adults seen in consultation. Mean age was 71.42 ± 7.03 years, 52.63% were women, and Alzheimer disease accounted for 50.88% of cases. Moderate dementia was the most frequent severity category (45.61%), followed by mild dementia (42.11%). Greater dementia severity was significantly associated with older age ($p=0.0052$), male sex ($p=0.014$), low educational attainment ($p<0.0001$), chronic alcohol use ($p=0.010$), and social isolation ($p=0.016$). Hypertension and prior stroke were not significantly associated with severity.

Conclusion. Dementia represented a substantial proportion of consultations among older adults at CHUAT, with Alzheimer disease predominating. The findings highlight the importance of early case identification, routine cognitive screening, and targeted preventive strategies addressing social isolation, harmful alcohol use, and limited educational reserve in the local context.

Keywords. Dementia; prevalence; severity; older adults; Madagascar.

Introduction

Dementia is a progressive neurocognitive syndrome characterized by decline in memory and in at least one other cognitive domain severe enough to interfere with independence in everyday activities [1,4,5]. It is not an inevitable consequence of biological ageing, but its frequency rises sharply with age and its burden is increasing worldwide as populations grow older [1,2].

In clinical practice, dementia comprises heterogeneous etiologies including Alzheimer disease, vascular dementia, dementia with Lewy bodies, and frontotemporal dementia, together with potentially reversible secondary causes that must be actively

sought during assessment [3,5,7-10]. Standard diagnostic work-up relies on a detailed history, cognitive assessment, physical and neurological examination, laboratory testing, and brain imaging when available [5,11].

Several non-modifiable and modifiable determinants have been associated with dementia occurrence or progression, including age, sex-related differences, genetic susceptibility, hypertension, diabetes, harmful alcohol use, occupation, social isolation, and low educational reserve [2,12-19]. In many sub-Saharan settings, however, epidemiological data remain limited, especially from routine hospital care.

At the Neuropsychiatry Department of Toamasina, increasing numbers of older adults are being evaluated for cognitive complaints, but the local profile of dementia remains poorly documented. This study therefore sought to determine the prevalence of dementia among patients aged 60 years and older seen in consultation at CHUAT and to identify factors associated with the severity of dementia among confirmed cases.

Methods

Study design and setting

This was a single-centre cross-sectional descriptive and analytical study conducted at the Neuropsychiatry Department of CHUAT, Toamasina, Madagascar. The department is the main referral structure for specialized mental health care in the eastern part of the country.

Study period

The source period extended from January 1, 2022 to December 15, 2024. Data abstraction and manuscript preparation were carried out between July 2024 and July 2025.

Participants

We screened all outpatients aged 60 years and older who attended the department during the study period. Patients were included when they fulfilled ICD-11 criteria for major neurocognitive disorder and had complete, usable records. Patients younger than 60 years, patients without diagnosed neurocognitive disorders, patients seen outside the study period, and otherwise eligible patients with incomplete files or severe psychiatric conditions precluding reliable cognitive assessment were excluded [4].

Variables

The primary outcome was the prevalence of dementia among patients aged 60 years and older seen in consultation. Recorded variables included age group, sex, education level, former occupation, marital status, dementia subtype, selected risk factors (hypertension, prior stroke, chronic alcohol use, and social isolation), MMSE severity, and selected paraclinical findings from computed tomography and electroencephalography when available [5,11].

Severity assessment

MMSE scores were categorized as mild dementia (21-26), moderate dementia (10-20), and severe dementia (<10), in accordance with the thresholds used in the thesis dataset [6,11].

Statistical analysis

Data were analyzed with Epi Info 7.2.6.0. Descriptive statistics are presented as counts and percentages. Bivariate associations between dementia severity and candidate variables were examined using chi-square tests. Statistical significance was set at $p<0.05$.

Ethical considerations

The study used archived clinical records after authorization from the department head. Confidentiality and anonymity were preserved throughout data collection and reporting. The work received no external funding.

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Results

Among 2,667 consultations during the study period, 348 patients were aged 60 years and older. Seventy-five of these patients had major neurocognitive disorders; 18 were excluded (15 incomplete records and 3 severe psychiatric comorbidities), leaving 57 participants for analysis. The resulting prevalence of dementia among older adults seen in consultation was 16.38%.

The mean age of included patients was 71.42 ± 7.03 years. Most patients were 60-74 years old (63.16%), women accounted for 52.63%, 42.11% had primary-level education, 59.65% had previously worked in the primary sector, and 52.63% were widowed. Alzheimer disease was the most frequent diagnosis (50.88%), followed by dementia due to other general medical conditions (15.79%), vascular dementia (10.53%), and Parkinson disease dementia (10.53%).

Hypertension was present in 66.67% of cases, social isolation in 64.91%, chronic alcohol use in 52.63%, and prior stroke in 10.53%. According to MMSE, 24 patients (42.11%) had mild dementia, 26 (45.61%) had moderate dementia, and 7 (12.28%) had severe dementia.

Table 1. Sociodemographic and clinical characteristics of the 57 included patients

Characteristic	n	%
Age group, 60-74 years	36	63.16
Age group, 75-84 years	18	31.58
Age group, >=85 years	3	5.26
Female sex	30	52.63
Primary education	24	42.11
Former occupation in primary sector	34	59.65
Widowed	30	52.63
Alzheimer disease	29	50.88
Vascular dementia	6	10.53
Dementia due to other general medical conditions	9	15.79
Chronic alcohol use	30	52.63
Social isolation	37	64.91
Hypertension	38	66.67
Prior stroke	6	10.53

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Mild dementia (MMSE 21-26)	24	42.11
Moderate dementia (MMSE 10-20)	26	45.61
Severe dementia (MMSE <10)	7	12.28

Older age, male sex, and low educational attainment were associated with more severe dementia. Chronic alcohol use and social isolation were also significantly associated with greater severity, whereas hypertension and prior stroke were not statistically significant in this sample.

Table 2. Factors associated with dementia severity

Variable	**Category**	**Mild n (%)**	**Moderate n (%)**	**Severe n (%)**	**p value**
Age	60-74 years	20 (55.56)	13 (36.11)	3 (8.33)	0.0052
	75-84 years	4 (22.22)	12 (66.67)	2 (11.11)	
	>=85 years	0 (0.00)	1 (33.33)	2 (66.67)	
Sex	Male	6 (22.22)	16 (59.26)	5 (18.52)	0.014
	Female	18 (60.00)	10 (33.33)	2 (6.67)	
Education	Illiterate	1 (7.70)	6 (46.15)	6 (46.15)	<0.0001
	Primary	3 (12.50)	20 (83.33)	1 (4.17)	
	Secondary	14 (100.00)	0 (0.00)	0 (0.00)	
	University	6 (100.00)	0 (0.00)	0 (0.00)	
Chronic alcohol use	Yes	7 (23.33)	18 (60.00)	5 (16.67)	0.010
	No	17 (62.96)	8 (29.63)	2 (7.41)	
Social isolation	Yes	11 (29.73)	19 (51.35)	7 (18.92)	0.016
	No	13 (65.00)	7 (35.00)	0 (0.00)	

Discussion

This study found a dementia prevalence of 16.38% among adults aged 60 years and older seen in consultation at a tertiary neuropsychiatry department in Toamasina. The estimate lies above most pooled community estimates reported globally and in sub-Saharan Africa, but this is plausible given the hospital-based design, referral bias toward symptomatic individuals, and the inclusion of specialist consultations rather than community screening [1,12,13].

Alzheimer disease was the leading subtype, consistent with the broad international literature showing that Alzheimer disease accounts for most dementia cases worldwide [1,5,7]. The predominance of women among cases also aligns with literature showing higher dementia and Alzheimer disease incidence in women at older ages [14,15].

Severity was significantly associated with age and educational level. Increasing age remains the strongest non-modifiable determinant of dementia burden, while lower education is commonly interpreted through the cognitive reserve framework, in which fewer lifelong cognitive resources may reduce resilience against neurodegenerative injury [2,14,20].

Chronic alcohol use was associated with more severe dementia in this cohort. This finding is biologically plausible and agrees with evidence linking harmful alcohol use to structural brain injury, cognitive decline, and higher dementia risk [18]. The association with social isolation is likewise consistent with current prevention models, which identify poor social connectedness as a modifiable contributor to worse cognitive outcomes [2].

The high frequencies of hypertension and chronic alcohol use also reflect the broader cardiometabolic and behavioral environment in which dementia occurs. Although hypertension and prior stroke were not significantly associated with severity in this sample, both remain clinically important given the established links between vascular risk, cerebrovascular injury, and cognitive decline [10,16,17].

Limited access to neuroimaging and electroencephalography, together with the retrospective use of routine clinical files, may have constrained etiological precision. Nevertheless, the study provides rare local data from eastern Madagascar and may support earlier screening, improved family counseling, and better risk-factor control in older adults presenting to psychiatric and neurocognitive services.

Limitations

This work was based on a single specialist centre and a small sample, which limits generalizability and statistical power.

The retrospective design relied on routine medical records, some of which lacked complete paraclinical information.

Because the analytical component explored severity only among confirmed dementia cases, the study cannot establish causal relationships or identify predictors of dementia occurrence in the general population.

Conclusion

Dementia constituted a substantial burden among older adults seen in consultation at the Neuropsychiatry Department of Toamasina, with Alzheimer disease as the predominant subtype. Older age, male sex, low education, chronic alcohol use, and social isolation were associated with greater severity. These findings support the implementation of routine cognitive screening, earlier referral pathways, and multidimensional prevention strategies adapted to the Malagasy context.

Conflicts of interest

The authors declare no conflicts of interest.

Author contributions

All authors critically revised the manuscript and approved the final version.

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