

## Original Research Article

# Screening for dementia in older adults using Mini-Cog scale from a rural setting of Kashmir division

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**Received:** 25 March 2019

**Revised:** 14 May 2019

**Accepted:** 16 May 2019

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## ABSTRACT

**Background:** Dementia is common in the geriatric population. It has been suggested that early detection leads to benefits for the patient and their family and cuts the costs. The solution to this problem lies in the development of brief and easily applicable tests that are acceptable to patients, their caregivers, and health professionals. The current study was undertaken for screening for dementia using Mini-Cog scale.

**Methods:** Cross sectional study from District Budgam of Kashmir Division done on individuals aged >60 yrs after providing informed consent. All participants underwent comprehensive evaluations using the Mini-Cog scale for Dementia.

**Results:** The overall prevalence of dementia was 57.5%. Majority of the individuals with dementia were illiterate (49.8%) and had completed up to primary education (63.2%). However no statistical significance was seen between marital and educational status with dementia. About 70.8% of the individuals with dementia were not aware of the availability of facilities related to mental issues.

**Conclusions:** Need of the hour is to develop culturally appropriate interventions that could be integrated with dementia services within the primary health care system.

**Keywords:** Dementia, Mini-Cog scale, Geriatrics

## INTRODUCTION

Dementia is defined as group of symptoms due to incidence of any neurological illness, brain injury and other medical condition that presents in the form of loss in memory and cognitive impairment. It is caused by many diseases; most common of these diseases are the Alzheimer's disease and cerebrovascular ischemia.<sup>1</sup> Every subtype shows different early symptoms for example memory impairment is first stage of Alzheimer's disease in elders, while vascular demented patient shows executive function impairment and cognitive slowing.<sup>1</sup> Dementia is defined by international classification of mental disorders (ICD-10) as a syndrome due to disease of the brains. In India the elderly population has risen

from 12.1 million in 1901 to approximately 77 million in Census 2001 and 104 million in census 2011 which now accounts for 8% of total population.<sup>2</sup> The projections for the ageing Indian population show that the current 'cone' shaped pyramid will swell in the middle and at the top with a huge rise in the older adult population and India has acquired the label of an ageing nation.<sup>3</sup> With the increase in the elderly population, there would be a proportionate rise in elderly suffering from dementia as the prevalence of dementia in the elderly is 5%–7%.<sup>3</sup> The overall prevalence of mental disorders is approximately 15% in adults aged 60yrs and the most common neuropsychiatric disorders in this age group are dementia and depression.<sup>4</sup> However for handling these disorders we need to empower the health care workers in screening

and management of dementia. The screening tests can help clinicians and physicians to detect undiagnosed dementia and also help us discover new therapeutic interventions that can delay disease progression from different neurodegenerative disorders to dementia. The present study was undertaken using the Mini-Cog for screening of dementia, it is actually a combination of three items, word memory, the clock drawing test.<sup>5</sup> It takes a total of approximately three minutes to administer, is easy and is a better alternative for less educated people. Effective screening at the primary level would help in identification of burden of diseases at better planning at the secondary and tertiary levels. Not many studies have been done in this regard and the results from this study will provide a baseline for applying other sophisticated tests for screening of dementia.

## METHODS

### *Type of the study*

Cross-sectional study over a period of 6 months from February 2016 to July 2016.

### *Study area*

Due to feasibility of district Budgam of Kashmir Division.

### *Study population*

All individuals aged > 60 yrs providing informed written consent with no known psychiatric morbidity at the time of the study.

### *Exclusion criteria*

All individuals aged >60 yrs; who did not give consent; morbidities like stroke with Aphasia, loss of hearing, visual impairment; known psychiatric morbidities.

### *Sample size*

District Budgam has a total of 11 tehsils and 96 villages. Making use of Random Sampling 10% of the villages were chosen for the study by lottery method. In the

chosen village all the households were covered for the study. There were approximately 3050 households in the selected villages. 289 study subjects were present, out of which 276 were found eligible for the study. The prevalence of dementia has a wide range so the study on primary health care settings was chosen and sample size was calculated using the formula  $4pq/12$ . The sample size thus estimated was 218. After obtaining informed written consent in local language data was collected on pre-designed and pre-tested questionnaire. The first part of the questionnaire included general socio-demographic variables along with questions for social and family integration. Subsequently questions on dementia using the Mini-Cog scale were included. The Mini-Cog is a very simple and brief cognitive test that comprises a three-item verbal memory task and a simplified evaluation of the clock drawing test (CDT). Mini-Cog is not influenced by education status. Validation in population-based samples is warranted indeed, in a population-based study, this test is as effective as a formal neuropsychological battery for detecting dementia.<sup>6</sup> The data was analyzed using statistical software SPSS20. Prior to the study institutional ethical committee clearance was obtained.

## RESULTS

Table 1 shows relationship of age and sex with dementia. The overall prevalence of dementia was 57.5%. Most of the individuals with risk of dementia (63%) were in the age group of 60-64 yrs and 70-74 yrs. Most of the individuals with dementia were females (63.2%). However no statistical significance was seen between age and sex distribution with respect to dementia.

Table 2 shows relationship between marital and educational status with dementia. Dementia was more in married individuals (59.8%). Majority of the individuals with dementia were illiterate (49.8%) and had completed upto primary education (63.2%). However no statistical significance was seen between marital and educational status with dementia.

Table 3 shows the nearest health care facility availed by individuals with dementia. Majority of the individuals with dementia 58.6% had availed primary health care centers and 57.7% had availed other health facilities which included CHC, sub-district and district hospitals.

**Table 1: Age and sex relationships with dementia.**

	Dementia	No dementia	Total	Significance
	N (%)	N (%)		
<b>Age (in years)</b>				
<b>60-64</b>	63 (63)	37 (37)	100	Pearson Chi-Square: (0.029)
<b>65-69</b>	49 (55.7)	39 (44.3)	88	
<b>70-74</b>	36 (62.1)	22 (58)	58	
<b>75 and above</b>	6 (28.6)	15 (71.4)	21	
<b>Total</b>	154 (57.5)	113 (42.2)	267	

	Dementia	No dementia	Total	Significance
	N (%)	N (%)		
<b>Sex</b>				
Male	80 (53.3)	70 (46.7)	150	Pearson Chi-Square: (0.104)
Female	74 (63.2)	43 (36.8)	117	
Total	154	113	267	

**Table 2: Relationship between educational and marital status with dementia.**

	Dementia	No dementia	Total	Significance
	N (%)	N (%)	N (%)	
<b>Marital status</b>				
Unmarried	3 (1.1)	2 (0.7)	5 (1.9)	Pearson Chi-Square: (0.720)
Married	118 (59.8)	82 (41.)	200 (74.9)	
Single	33 (12.4)	29 (10.9)	62 (23.2)	
Total	154 (57.5)	113 (42.2)	267 (100.0)	
<b>Educational status</b>				
illiterate	133 (49.8)	97 (36.3)	230	Pearson Chi-Square: (0.982)
Primary	13 (63.2)	11(4.1)	24	
Secondary	6 (57.7)	4 (1.5)	10	
Above high school	2 (0.7)	1(0.4)	3	
Total	154 (57.7)	113 (42.3)	267	

**Table 3: Level of nearest health facility availed by individuals with dementia**

Nearest health facility	Dementia		Total
	Dementia	No dementia	
	N (%)	N (%)	
Primary health center (PHC)	106 (58.6)	75 (41.4)	181
Sub center	7 (46.7)	8 (53.3)	15
Others	41 (57.7)	30 (42.3)	71
Total	154 (57.7)	113 (42.3)	267

**Table 4: Awareness about availability of health care services for mental issues.**

Awareness of availability of health services for mental issues	Dementia		Total	
	Dementia	No dementia		
	N (%)	N (%)		
Aware	45 (29.2)	33 (29.2)	78	(0.998)
Not Aware	109 (70.8)	80 (70.8)	189	
Total	154	113	267	

Table 4 shows the awareness about availability of health care facilities for mental issues. About 70.8% of the individuals with dementia were not aware of the availability of facilities related to mental issues and only a small percentage of individuals, 29.2% were aware of availability of such health care facilities.

## DISCUSSION

The study reveals that dementia was present in 57.5% of the study subjects and most of the individuals with dementia were female's (63.2%). However study done by Michieletto et al showed the estimated prevalence as 23.1% and no gender differences were observed. In our

study 49.8% of the study subjects with dementia were illiterate or had just completed education upto primary level. Almost similar results were obtained by Michieletto in which 63.1% of illiterate subjects scored positive for dementia.<sup>7</sup>

70.8% of the individuals were not aware of the availability of the health care services for mental issues. In contrast a study done by Chung et al showed that subjects with dementia diagnosis had significantly more OPD visits and significantly higher OPD cost than comparison subjects.<sup>8</sup> While some studies reported the healthcare utilization of patients with dementia alone others have attempted to compare differences in healthcare utilization or costs between patients with and

those without dementia. For example, a study by Fick et al. found that the annual costs were US\$7557 and US\$4766 for the dementia-only group and neither dementia nor delirium group, respectively, in the US.<sup>9</sup> However, all such studies investigating the health care utilization of people with dementia were conducted in Western societies, and there is little information on the economic burden on the healthcare system attributable to dementia in Asian countries. Due to shortage of resources and awareness about dementia interventions, addressing the needs of the people should be at improving quality of life of the people and developing culturally appropriate interventions that can be delivered within existing resources.

## CONCLUSION

Seeing the high burden of dementia by applying the basic screening test there is a need for long term prospective research to obtain a full picture of mental disorders at the community level. Steps for early identification and management of dementia should be initiated. Programs to raise awareness to reduce stigma, and wide screening using a reliable tool should be considered. The focus should be to integrate dementia services with the primary health care system and also to improve interventions at the secondary and tertiary level. Every step should be taken to improve awareness regarding dementia and its preventive measures, to halt the epidemic, thereby contributing to a healthy and prosperous nation.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Jan Y, Mushtaq B, Bhat AA. Screening for dementia in older adults using Mini-Cog scale from a rural setting of Kashmir division. Int J Community Med Public Health 2019;6:2579-82.