

Risk of Dementia among the Elderly in a Rural Community: A Cross Sectional Study

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Abstract

Introduction: India is one of the countries in demographic transition where the elderly population is increasing. Dementia affects memory, thinking, behavior and ability to perform daily activities. It has physical, psychological, social and economic impact not only on people with dementia but also on their care givers and family members. Awareness must be raised to reinforce dementia as a public health priority.

Objectives: 1.To assess the risk of dementia among Geriatric people using Picture Memory Impaired Screening (PMIS) tool 2. To determine the factors associated with the risk of dementia.

Methods: A community based cross sectional study with study duration of 8 months among the geriatric people living in a rural area. A Non Probability Sampling was done and 87 elderly were subjected to picture memory impaired screening (PMIS) test which is a screening tool validated for use in a low education population to identify individuals at risk of dementia.

Results: Elderly at risk of Dementia accounted for 22%. There was no statistically significant association between dementia and age, gender, marital status & occupation.

Conclusions: The present study shows that elderly people living in rural area are facing risk of Dementia. The PMIS Tool is simple and easy to administer. So, the health staff working in the rural area can be trained in using PMIS Tool.

Keywords: Dementia, Picture memory impairment screen, Elderly, Rural area

Introduction

Awareness about the mental health problems of the elderly among the people remains low. [1] As per the population census 2011, elderly people (aged 60 years & above) living in India are nearly 104 million. This shows the elderly population is increasing over time, from 5.6% in 1961 to 8.6% in 2011. The report from United Nations Population Fund & Helpage India suggests that the number of elderly population is expected to grow to 173

million by 2026. Majority of elderly population of about 71% are residing in rural area & 29% in the urban areas. [2] Dementia is emerging as a public health problem & it is a major cause of disability & mortality among the elderly. [3] Due to the demographic transition taking place in India, the number of people living with dementia is expected to increase [4]. WHO says “Dementia is a syndrome, usually of a chronic or progressive nature, in which there is deterioration in memory, thinking, behavior & ability to perform everyday activities”. [5] According to a study in India, 90% of the dementia cases remain unidentified. [6] In India, the difference between number of people with the condition who need care & the number of people who receive care (treatment gap) for dementia is about 90%. [7] Although dementia is seen in older people, it is not a normal part of aging. [5] People

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are not differentiating normal aging & phenomena that are secondary to conditions such as dementia. Generally dementia is still considered culturally unacceptable & usually is not identified as a health condition. [1]

Mini Mental State Examination (MMSE) is the best known standard screening method among many of the physicians but they consider it as too long & too difficult to interpret. [8] On the other hand Picture Memory Impaired Screening (PMIS) tool is a quick & reliable screening method for dementia that can be used in older adults with little or no education. Especially among the elderly with low education, PMIS has better specificity than the MMSE. As the majority of the elderly are living in the rural areas, PMIS tool would be beneficial. Hence the present study was taken up in a rural area with the following objectives

Objectives

1. To assess the risk of dementia among elderly using Picture Memory Impaired Screening (PMIS) tool
2. To determine the factors associated with the risk of dementia.

Materials and Method

A Community based cross sectional study was conducted for a period of 8 months in the year 2018 among the elderly residing in Kakaramanahalli, a village in the rural field practice area of Rajarajeswari Medical College & Hospital, Bangalore. A non-probability sampling technique (Purposive sampling) was used. A total of 87 elderly participated in the study. A pre – designed Picture Memory Impaired Screening (PMIS) tool was used to screen for the risk of Dementia [3]. Katz activity of daily living scale was used as an interference tool. It is commonly referred as Katz ADL scale which is used to assess the functional status based

on the ability of the elderly to perform activities of the daily living (bathing, dressing, toileting, transferring, continence, and feeding). [9] Individuals aged 60 years or above residing in Kakaramanahalli were included & interviewed. The study excluded the individuals who did not give consent to the study & those with hearing and visual impairment

Methodology

House to house survey was conducted in the study area & elderly were interviewed after obtaining the informed consent. All the elderly in the house were subjected to Picture Memory Impaired Screening (PMIS), which is a four minute long procedure where they are made to recognize 4 images from different categories learned by identifying each item when its category cue is presented i.e participants were asked to name each item (e.g apple) when the investigator said its category cue (e.g fruit). Interviewer explained the study tool in local language (kannada). Once they identified the images an interference task was given by using katz activity of daily living scale lasting for 2 minutes and then the participant was asked to recall the images that were shown in any order. If they were unable to recall, the category cue was presented. Two points were given if the images were recalled without cue and one point was given if it was recalled after the cue. Total score of 8, if the score is ≤ 5 then the memory of the participant was considered as impaired [6,10]

Statistical Analysis

Data was entered in excel and analysed using Statistical package SPSS version 20. Results were tabulated in percentages and proportions. Chi square test was applied to test the statistical significance. P value of < 0.05 was considered to be statistically significant

Results

Table 1: socio demographic profile of the study participants (N = 87)

| Characteristic | Category | Frequency | Percentage |
|----------------|--------------|-----------|------------|
| Age | 60 - 69 | 46 | 53 |
| | 70 - 79 | 30 | 34 |
| | 80 and above | 11 | 13 |

Cont... Table 1: socio demographic profile of the study participants (N = 87)

| | | | |
|--------------------|-----------------------|----|----|
| Gender | Male | 29 | 33 |
| | Female | 58 | 67 |
| Marital Status | Married | 51 | 59 |
| | Unmarried | 03 | 3 |
| | Widow/Widower | 33 | 38 |
| Educational Status | Illiterate | 82 | 94 |
| | Literate | 05 | 06 |
| Occupation | Agriculturist | 34 | 39 |
| | Currently not working | 53 | 61 |

Out of the 87 elderly, majority were in the age group of 60 – 69 years (young old) accounting for 46 (53%). Females outnumbered the males, 58(67%) were females and 29 (33%) were males. Regarding the Marital status, 51 (59%) elderly were married, 33 (38%) of the elderly were either widow or widower and 03 (3%) remained unmarried. Illiteracy among the elderly was found to be on the higher side accounting for 82 (94%). Majority of the elderly were currently not working (61%).

Table 2: Association of the Socio – demographic factors with the risk of dementia

| Characteristic | classification | Dementia | | | P Value |
|-----------------|-----------------------|---|---|-----------------|---------|
| | | Risk of dementia (n= 19) Frequency(%) | No Dementia (n= 68) Frequency (%) | Total N (87) | |
| Age (in years) | 60 - 69 | 7 (15.2) | 39 (84.8) | 46(100) | 0.22 |
| | 70 - 79 | 8 (26.6) | 22 (73.4) | 30(100) | |
| | 80 and above | 4 (36.4) | 7 (63.6) | 11(100) | |
| Gender | Male | 7 (24.1) | 22 (75.9) | 29(100) | 0.92 |
| | Female | 12 (20.7) | 46 (79.3) | 58(100) | |
| Marital status | married | 9 (17.6) | 42 (82.4) | 51(100) | 0.260 |
| | Widow/widower | 10(27.3) | 26 (72.7) | 36(100) | |
| occupation | Agriculturist | 05 (14.7) | 29 (85.3) | 34(100) | 0.19 |
| | Currently not working | 14 (26.4) | 39(73.6) | 53(100) | |

*To be read row wise

Total number of elderly at risk of dementia accounted for 19 (22%). The mean scores in PMIS screening was 6.47 ± 1.69 . Katz activity of daily living was used as an interference tool to assess the functional

status of the elderly which showed all the elderly to have full functioning capacity. The risk of dementia found was more among elderly aged 80 years & above (36.4%) followed by 70 – 79 years (26.6%). Males were

at more risk of dementia accounting for 24.1%. Married elderly were at a lesser risk for dementia (17.6%) compared to Widow/widower (27.3). Elderly those currently not working were found to be at more risk of dementia accounting for 26.4. There was no statistically significant association between dementia and any of the socio demographic factors.

Discussion

The elderly population is increasing over a period of time & majorities are living in the rural area. So emphasis should be on the rural elderly population. More studies are needed to address dementia among rural elderly. In the present study the mean age of the elderly was 68.6 ± 6.36 years with majority being in the age group of 60 – 69 years (53%) & females formed the major group with 67%. Similar findings were seen in a study conducted in an urban underprivileged area, Bangalore by Mathew G et al (2018) [10] where 75.74% were in the age group of 60–70 years with a mean age of 68.01 years (SD 8.18 years) & 69.8% were females. In the study by Mathew G et al majority of the elderly, 56% were widows or widowers, 65% elderly were illiterates & 83% of the elderly were currently not working but in the present study majority were married (59%) , 94% of the elderly were illiterates & 59% were current not working. Illiteracy was high in the present study may be as the elderly were from rural area.

By using PMIS screening tool to detect the risk of dementia, the present study found the risk of dementia among the elderly to be 22%. The finding of the present study was comparable with a hospital based study by Joe Varghese et al [6] in Kerala for the validation of PMIS which showed a prevalence of 21.3% among the elderly in 2010.

In a study conducted in an urban underprivileged area, Bangalore by Mathew G et al (2018) [10] using PMIS the prevalence of dementia among the elderly was 15.3%. In an epidemiological study of dementia done by Shaji S using Mini Mental Status Examination (MMSE) Scale in a rural community in Kerala, India (1996) [11] found the prevalence rate of 33.9 per thousand and another study done by Mummadi MK using MMSE scale in the old age homes of Hyderabad (2013) [12] the prevalence of dementia was 8%. In a study by Poddar K et al in Uttar Pradesh (2011) [13] prevalence of dementia

was 5.1%. Studies by Mathew G et al (2018) [10], Joe Varghese et al [6] & the present study showed magnitude of dementia between 15.3% to 22% where PMIS tool was used to screen dementia whereas in the studies by Shaji S (1996) [11], Mummadi MK (2013) [12] & Poddar K et al (2011) [13] prevalence was between 3.39% & 8% where MMSE scale was used to screen dementia. The variation in the studies may be due to the use of different screening tools.

Findings of the present study when compared to the study by Mathew G et al conducted in a urban underprivileged area, Bangalore (2018) [10] where same screening tool was used to screen dementia (PMIS) were as follows, in the present study the risk of dementia found was more among elderly aged 80 years & above 36.4% & similarly in their study majority for the risk of dementia were in the age group of above 80 years accounting for 61.5%. In the present study males were at more risk of dementia accounting for 24.1% whereas in their study it was females who were at more risk accounting for 17%. In the present study there was no statistically significant association between dementia and any of the socio demographic factors but in their study statistically significant association was found between the age & dementia & there was no statistically significant association between gender & dementia.

Findings of the present study when compared to the study by Poddar K et al conducted in Uttar Pradesh (2011) [13] where unlike to present study MMSE screening tool was used to screen dementia were as follows, in their study prevalence of dementia was more among elderly aged 80 years & above (15%), similarly in the present study dementia was more among elderly aged 80 years & above (36.4). In the present study, dementia was more among males (24.1%) but in their study dementia was more among females (7.2%). In the present study married elderly were at a lesser risk for dementia (17.6%) compared to Widow/widower (27.3) & similarly in their study dementia was more among widow/widower (9.3) when compared to married elderly (4.3). In the present study there was no statistically significant association between dementia and any of the socio demographic factors but in their study statistically significant association was found between the age, gender & marital status. The sample size of their study was quiet high (2890) when compared to the present

study (87), this might be the reason for the statistically significant association in their study.

In a study Mummadi MK in 2013 [12] statistically significant association was found between dementia with age, occupation but with gender there was no statistically significant association whereas in the present study there was no statistically significant association between dementia and any of the socio demographic factors.

In the present study all the elderly showed to have full functioning capacity which was assessed using Katz activity of daily living scale but over the course of the disease all the areas of daily living might get affected among the elderly who are at risk of dementia [14]

Limitations:

The sample size of the study is limited. As the sampling method is purposive sampling technique, the findings cannot be generalized to the community.

Conclusion

PMIS is validated for use in a low education population, majority of the elderly in the study were illiterates and currently not working. The present study shows that elderly people living in rural area are facing risk of dementia. There was no statistically significant association between risk of dementia and Socio-demographic factors. The PMIS tool is simple and easy to administer. So, the health staff working under primary health center in the rural area can be trained in using PMIS Tool & it can also be used as a screening tool for elderly in the outpatient department.

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