

# Impact of Gender on Dementia in Elderly Urban Population

Dr. Mrs. Gayatri Godbole<sup>1</sup>, Shrirang Godbole<sup>2</sup> and Dr. Mrs. Savita Vaidya<sup>3</sup>

<sup>1</sup> Bharati Vidyapeeth Medical College, Pune

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## Abstract

Dementia is characterized by progressive deterioration in intellectual, cognitive and judgmental functions of the brain. It is associated with high levels of dependency and morbidity. Therefore early detection and prevention is more important. Material and Methods: 300 subjects aged 60 years and above were screened with MMSE. MMSE scores above 23 indicate normal cognitive function and score of < 23 indicates both the likelihood of cognitive impairment. Results: Amongst the study population, 66 subjects had a MMSE score less than 23. Out of the total male subjects 11.47

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**Index terms**— elderly population, cognitive impairment, MMSE, gender.

## 1 I. Introduction

The percentage of elderly populace across the globe is increasing day by day and dementia is emerging as an important health problem in them. Dementia is characterized by progressive deterioration in intellectual, cognitive and judgmental functions of the brain. Dementia is an irreversible clinical syndrome. It is associated with high levels of dependency and morbidity.

As the patient is increasingly dependent on other people, it becomes a great burden for him as well as his family. Additionally, associated co-morbid conditions may complicate their status. Dementia even reduces the lifespan of the affected person.

The disease is insidious in onset and progress gradually. The patient slowly moves from bad to worse. People don't take the symptoms seriously and think of it as a natural, normal process associated with advanced age. This we owe to the fact that there is less awareness about this condition in the population at large. It remains a reality that most of these cases are undetected for long or remain undiagnosed. The patients present to the clinician at a very late stage, where treatment may not have the expected benefits. As the incidence of dementia grows, the pinch of this reality is being acutely felt.

Dementia is increasing in tandem with the increasing life expectancies worldwide. This increase is resulting in huge socio-economical consequences on patients, caregivers and even communities everywhere. After taking into consideration various etiologies of dementia, age and gender remain important nonmodifiable risk factors. Some researchers state that women are at higher risk of developing Alzheimer's disease. They show a higher prevalence and increased rate of cognitive decline. While a survey conducted by Sunil Kumar Raina in residents aged 60 years and above concludes that there is no significant difference in cognitive scores between males and females. Of the other causes of dementia, some can be treated partially but others cannot. Hence, early detection, in order to prevent further deterioration, has gained much significance. This will help in instituting symptomatic treatment early and thus help to delay the progression of the disease.

The Mini Mental State Examination (MMSE) is a tool used for early identification and assessment of dementia. It assesses cognitive function in depth, through a series of questions which have their respective scores. People are then categorized based on their scores. It is comparatively an easy tool to use and analyze. Also it is well understood by the patients. This makes it a near perfect screening tool. Comprehensive neuropsychiatric and medical examinations are necessary to diagnose dementia. They are too expensive and time consuming to be used in such studies done in primary settings. Hence, a screening tool like the MMSE is valuable for early detection of dementia.

Therefore this study was planned to screen people for dementia using MMSE and to correlate it with their gender. Aim: To screen for dementia in the elderly and to study the impact of gender on it. Subjects with MMSE score <23 in both sexes were compared.

## II. Objectives

## IV. Results

A total of 300 subjects were interviewed. The study population consisted of 122 males and 178 females. Amongst them, 66 subjects had a MMSE score less than 23 (Table no.1). Out of the total male subjects 11.47% had cognitive impairment. Out of the total female subjects 29.21% of females had cognitive impairment (Table no.2).

## V. Discussion

Dementia is a major contributor towards disability amongst the elderly population. In this study total 300 people were assessed using the MMSE. Amongst the study population, 66 subjects had a MMSE score less than 23 (Table ??o.1). This group comprised of 52 females & 14 males. Out of 122 males in study population, 11.47% had cognitive impairment. In females, out of 178 total females 29.21% were cognitively impaired subjects (Table ??o.2). We can thus conclude that, it is more prevalent in females. Therefore gender is a non-modifiable risk factor for dementia.

The American Alzheimer Association also postulates that at an age above 60 years the risk of an average female getting dementia is 1 in 6 compared to an average male, who has a risk of 1 in 116.8. Other researches carried out in this field had similar results.

Luine et al. and Goodman et al. quote that estrogen plays a major role in this phenomenon. Estrogen has been reported to have beneficial effects on the brain, possibly acting as a protective factor in AD via its ability to promote the growth, survival and activity of cholinergic neurons.<sup>9, 10</sup> The hypothesis that sex hormones affect the response of the patient to acetylcholinesterase inhibitors is the basis of this important (which are an important treatment modality) has also garnered substantial evidence. Scerri et al. quote that an emerging risk factor in dementia is depression.<sup>11</sup> The greater the frequency and severity of depressive symptoms, the greater are the risks. On an average, women have higher rates of depression than men and that is related to more prevalence of cognitive impairment in females.

The variable survival rates between men and women might affect the outcome here. Hence it is prudent to extend due caution before coming to any conclusion. On the contrary Prencipe and coworkers had concluded that prevalence rates did not differ in both sexes in Alzheimer and vascular dementia.<sup>12</sup> A multitude of factors interact to give rise to the difference in dementia prevalence among men and women. Influence of genetic factors which predispose some to dementia is important. The neuroprotective effect of estrogen cannot be understated. Lastly, cultural and psychosocial factors have a lasting impact as far as gender prevalence is concerned. It is interesting to note that Indian women are more actively engaged in artistic and group activities; they are adept at socializing.

On the other hand an overall lower level of education & poor nutritional status of women put them on back foot. The interplay of these factors is an important aspect of the etiology here. But in the case of women, their advantages are often undermined by their shortcomings. This goes hand in hand with the findings of this study. After taking cognizance of the results, we can reasonably conclude that in a given sample, cognitive impairment is more prevalent in females than males.

## 5 Volume

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1. To screen elderly people for dementia using Mini Mental State Examination (MMSE) Questionnaire.
  2. To evaluate effect of gender on dementia.
- III. Methodology  
It was a cross sectional community based study in urban area. People above 60 years of age were

Figure 1:



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