

# DEMENTIA IN DR. SOETOMO GENERAL HOSPITAL SURABAYA: A SYNTHETIC REVIEW OF ITS CHARACTERISTICS

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## Article History:

Received: December 26, 2019

Accepted: December 1, 2020

Published: January 1, 2021

## Cite this as:

Imami NH, Haryono Y, Sensusiaty AD, Hamdan M, Hidayati HB.

Dementia in dr. Soetomo general hospital surabaya: a synthetic review of its characteristics.

Malang Neurology Journal;

2021.7:12-16

<http://dx.doi.org/10.21776/ub.mnj.2021.007.01.3>

.2021.007.01.3

## ABSTRACT

**Background:** Dementia is a clinical syndrome characterized by progressive loss of cognitive function in elderly people interferes the ability to function independently. The number of elderly patients increased so fast in worldwide. The prevalence of dementia rapidly increases due to increasing of population. Aging demographic transition is proceeding rapidly especially in China, India, and Latin America, where dementia is rapidly becoming the major public health problem. Demographic data of elderly patients of dementia in Indonesia is still a little. Dementia's research data in Indonesia were only obtained from Bali and Yogyakarta, while data from Surabaya were not obtained. Our research data is taken from Dr. General Hospital Soetomo Surabaya, East Java, Indonesia. This study is important for dementia epidemiological data and baseline data for further treatment of dementia patients in Surabaya.

**Objective:** The purpose of this study to determine the characteristics profile of elderly patients with dementia in Dr. Soetomo General Hospital Surabaya, East Java, Indonesia.

**Methods:** Sampling was done with purposive sampling by observing the medical records of patients in the period of January 2017 to December 2017 based on inclusion and exclusion criterias that have been set. The data was taken from the patient's medical record which had been written and examined by neurologists from the neurology department in the neurobehaviour sub-department of Dr. Soetomo Surabaya.

**Results:** The majority of dementia patients are men (51,7%); the age group which is most at risk for dementia is between age of 75-79 years; most of the patients are jobless; more than half of patients are high school graduates; and Vascular Dementia (VaD) is the type of dementia that most people suffered

**Conclusion:** This characteristic's data of dementia can be used for providing information about dementia to make public health care provides a better facilities and treatment for elderly patients to prevent dementia burden.

**Keywords:** Dementia, characteristic, elderly

## Introduction

Dementia is defined as a slow progressive disease affecting the memory and cognitive ability. People with dementia will suffer a cognitive impairment, such as executive function impairment like abstract reasoning, planning, and attention or skilled movements (limb apraxia), or language (aphasia). This process should include a change from precious behaviour such as occupational or social impairing and this cannot be accounted for by other psychiatric conditions such as psychosis, other mood disorders, or depression.<sup>1</sup> Those who suffered from dementia are disabled not only losing of their cognitive function but also had common co-morbidities of ageing such as stroke, hypertension, diabetes mellitus, and heart disease. Their occupational or social function will be impaired as well. The burden of dementia can affect patients, caregivers, and

the health system as the increasing of the elderly populations.<sup>2,3</sup>

Dementia affects over 46 million individuals in worldwide. The prevalence of all-cause dementia varies in some countries. World Health Organization (2012) reported that from 35 million dementia's people, a quarter of them live in East Asia. In China, dementia's prevalence keep increasing and it was doubled or nearly tripled in age-specific groups from 1990-2010. Majority of people with dementia live in England, with the estimates of majority lived in Scotland for around 65,000 people.<sup>4</sup> The number of people who lived with dementia is expected to increase to 131.5 million by 2050.<sup>5,6</sup> This past century, life expectancy has been increasing through the years and resulted more people to spend more years at the older ages. The fact shows that

there is a persistent of longer life expectancy, dementia could affect healthcare systems, family, caregivers, and mortality directly linked to Alzheimer's disease (AD) and other dementias. It is important for all health care systems in every country to provide better epidemiological datas for people with dementia.<sup>7,8</sup>

Dementia is a burden for the world because there is a lot of cases have been recorded in the most countries in the world. There is an urgent for the world to reduce the prevalences of dementia because the number of elderly populations keep increasing and the risk of dementia to happen also increase. People with dementia will experience a more difficult life because they cannot fulfill their own basic needs and will always depend on others. The government and health services must do something to decrease the burden because of the dementia's cases. This research is needed to provide an epidemiological data of dementia so the government and public health services will easily recognize the details of the dementia patients' data that recorded here so they can quickly provide a better facilities and well treatment for the patients with dementia. This data is also useful for many people in society to be more caring to elderly who have dementia and also for caregivers to look out for the patients so they will have a better life.<sup>9</sup> Caregivers are people who can take care of Dementia's patients thoroughly. They have the most burden because they spend their time to take care of them. This data can be very useful to caregivers because they will know more about information of dementia's patients.<sup>10</sup>

The diagnosis of dementia is unfortunately difficult and need more complex assesments because there are many different characters for each dementia. Dementia varies in their etiologies based on the clinical syndromes. To diagnose dementia correctly, it needs cognitive function examination and neuroimaging.<sup>11</sup> It helps to diagnose dementia because dementia varies in many types. Dementia is a clinical syndrome that consists a collection of symptoms and other features. The most common type of dementia that attacks people is Alzheimer's disease (AD) in western countries and Vascular Dementia (VaD) is the second. VaD and AD are not easily to differentiate because of the overlapping in pathophysiology, symptomatology, and risk factors. VaD refers to the heterogeneous group of clinical syndromes, which consist dementia, resulted from hemorrhagic, ischemic, hypoxic, or anoxic brain damage.<sup>7</sup> While in AD, there is excessive plaques of a fibrous protein called amyloid and twisted fibres called neurofibrillary tangles in brain and they interfere with brain cells' functioning. Other than that, the neurotransmitter in brain called acetylcholine which is important for memory and learning is decreasing.<sup>4</sup>

VaD and AD can be happening on the same time and it's called Mixed Dementia (MD). Usually there is a combination of various kinds of pathologies for the occurrence of MD. The most common is the pathology of AD (deposits of beta amyloid and tau tangles) and vascular pathology such as multiple infarction. In addition, in Parkinson's Disease Dementia (PDD) can also be found

vascular pathology.<sup>5</sup> Besides AD and VaD, dementia can appear in other types and etiologies such as dementia with Lewy Body, Frontotemporal Dementia (FTD), and Parkinson's Disease Dementia (PDD) but they are less common types of dementia.<sup>12</sup>

The diagnosis and differentiation of dementias needs a precise and careful history taking and examination. The histories of the patient are needed to investigate the progressivity of the cognitive impairment as well as neuropsychiatric symptoms. While physical examination is needed to examine extrapyramidal or focal neurological signs. An assesment is also suggested for presenting cognitive complaints called Mini Mental State Examination (MMSE). In recent years, the MMSE has become widely and well determined.<sup>12</sup>

## Methods

This research is a descriptive observational with retrospective study design. The population of this study is the medical records of all dementia patients treated in Dr. Soetomo General Hospital from the period of January 2017 until December 2017 based on inclusion and exclusion criterias that have been set. The inclusion criterias include complete data of demography, and dementia's types The exclusion criteria is the incomplete data in the medical records. The physicians who treated the patients were qualified specialists (neurologists and psychiatrists).

All types of dementia were included in this research such as AD, VaD, MD, and other forms. The datas were colected by observing the patients' medical records in Dr. Soetomo General Hospital Surabaya.

## Results

### Demographic Data

Dementia in elderly patients based on gender and age. Majority of the male patients are in the age range 65-69 years and 75-79 years which is 11 patients (12,4%) in each range. Majority of the female patients are in the age range 75-79 years which is 11 patients (12,4%). The total of the male patients is slightly higher than female patients which is 46 patients (51,7%) of 89 patients.

**Table 1.** Demographic table of patients based on gender and age.

Age (year)	Male (n)	Female (n)	Total percentage (%)
60-64	8 (9%)	7 (7,9%)	16,9
65-69	11 (12,4%)	7 (7,9%)	20,2
70-74	9 (10,1%)	9 (10,1%)	20,2
75-79	11 (12,4%)	11 (12,4%)	24,7
80-84	6 (6,7%)	6 (12,4%)	13,5
85-89	1 (1,1%)	2 (2,2%)	3,4
90-94	0	0	0
95-99	0	1 (1,1%)	1,1
<b>Total (n)</b>	<b>46 (51,7%)</b>	<b>43 (48,3%)</b>	<b>100</b>

### Occupations

Most of the dementia's patients in this study didn't have a job (48,3%). The rest are civil servants and armies with 22 patients (24,7%), private employees with 16 patients (18%), and for the other jobs such as farmers, entrepreneurs, and traders with 8 patients (9%).

**Table 2.** The patients' Occupations

Occupations	N	Percentage (%)
Civil servants and army	22	24,7
Private employee	16	18
Others	8	9
Not working	43	48,3
<b>Total</b>	<b>89</b>	<b>100,0</b>

### Educations

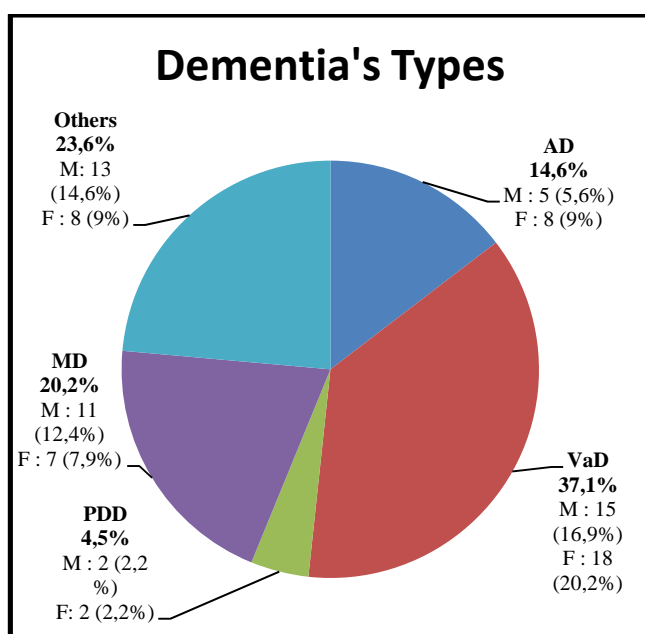
The majority of the patients' educations is senior high school's graduates (58,4%) and the second highest is junior high school graduates' patients (11,2%).

**Table 3.** Educations

Educations	N	Percentage (%)
Elementary school	11	12,4
Junior High School	10	11,2
Senior High School	52	58,4
Diploma degree	3	3,4
Bachelor degree	7	7,9
Master degree	3	3,4
Others	3	3,4
<b>Total</b>	<b>89</b>	<b>100</b>

### Dementia's Types

Vascular Dementia (VaD) is the highest case in Dr. Soetomo General Hospital which is 33 patients in total (37,1%) with 15 male patients (16,9%) and 18 female patients (20,2%). Women and men both have the greatest prevalence in VaD, with the total of female patients are 18 patients (20,2%) and male patients are 15 patients (16,9%). The second highest is other dementias that are unspecified or unexplained in the medical records which is 21 patients (23,6%) with 13 male patients (14,6%) and 8 female patients (9%). PDD has the least prevalence of either female or male patients with 2 patients each (2,2%).

**Figure 1.** The Patients' Dementia's Types

## Discussion

### Demographic Data

This study revealed that the sample of male who were diagnosed with dementia is more than the female. This result is contradictory with a study from Sweden that showed among 3,871 patients with dementia, the total of female patients are 2,485 patients and the total of male patients are 1386 patients.<sup>13</sup> It can be proved by the life expectancy in Indonesia which is lower than other countries such as in Europe. Longer life expectancy can be a risk factor for suffering from dementia in women. In Europe, their life expectancy is much higher than in Indonesia.<sup>5</sup> Life expectancy in Indonesia reached 71 years of age for female and 67 for male.<sup>14</sup> While in Europe is much higher, reaching 82 years of age for female and 75 years of age for male.<sup>15</sup>

With the high of life expectancy of women in Europe than in Indonesia, it has made women in Europe more susceptible to dementia than in Indonesia. It also explains why the elderly who suffer from dementia in this study are the most in the aged 75-79 years with 38 people (37.5%) with the number of patients decreasing as the age increase. This is in line with the report by WHO (2015) for the epidemiology of elderly's dementia in Asia, that the highest incidence is in the age range 75-79 years and continues to decline in the later age range.<sup>9</sup> As already mentioned above that life expectancy in Indonesia is different from in Europe. In Europe, their life expectancy is much higher than in Indonesia. Lifestyle differences in Europe and in Indonesia also affect the differences in life expectancy. According to WHO (2018), Europe has succeeded in reducing the number of cardiovascular disease, cancer, chronic respiratory disease, and diabetes quickly. This causes Europe to have a high life expectancy by utilizing the country's progress which can more quickly deal with existing health problems, but Europe has another more severe health problem, namely high rates of smoking, alcohol consumption, and obesity.<sup>9</sup>

### Occupations

The majority of the dementia patients in this study didn't have a job. This is in line with the research in Bali 2018 about people with dementia results that elderly with 'not working' status has a higher proportion of dementia compared to elderly people with 'working' status with a ratio of 2 times folding. This is due to an increase in brain stimuli in work activities. The longer of the stimulated brain, the more protected the elderly from dementia.<sup>16</sup> Having no job means less activity that these patients did where physical activity is a beneficial thing to do for reducing the risk of all-cause dementia but not VaD. Physical activity is even more beneficial for AD which accounts for about 60-70% of dementia cases.<sup>17</sup>

### Educations

These patients' last education are mostly senior high school graduates that consist of 52 patients (58,4%). High levels of education should be able to improve the cognitive abilities of patients and can reduce the risk for dementia. This can be proven in research in Bali 2018, that there is a percentage of dementia patients who didn't go to school as much as 48,2% of all dementia patients.<sup>16</sup> This is such a contradictive from what happened at Dr. Soetomo General

Hospital. even with the large number of patients graduating from high school, many of them did not work. That way, the risk of dementia will continue to increase.<sup>18</sup>

### Dementia's Types

This study showed that VaD is the highest case (37,1%) followed by other unspecified dementia (23,6%), MD (20,2%), AD (14,6%), and PDD (4,5%). It is different from that happened in the world because AD is the most common case among western countries with 60% cases, while VaD is the second with 20% cases of all dementia's cases.<sup>7</sup> The high prevalence of VaD In Indonesia can be because of the high vascular comorbidities in Indonesia such as stroke. Stroke in Indonesia was the leading cause of death, killing 328.5 thousand people.<sup>19</sup> A study showed that stroke subtypes such as lacunar and haemorrhagic strokes can become risk factors for post-stroke dementia. The presence of the location of stroke (e.g. left hemisphere), multiple lesions, and the volume of infarcts have also been identified as risk factors for post-stroke dementia.<sup>20</sup>

The other dementias is the second highest after VaD. Other dementias consist of unspecified dementia and undiagnosed dementia. Some of the clinicians did not specify the dementia in each subtype in the medical records. The large number of dementia diagnoses that are not included in subtypes cause many dementias to fall into other dementia categories. It's because the lack of awareness from the clinicians to divide them into specific types.

AD is not the major type in this study due to there's still less of awareness from the patient or the caregiver to treat the Alzheimer's patients to the hospital and still assume that forgetfulness is a negligible thing which is not needed to be treated in hospital. This is still an iceberg phenomenon, many patients do not consider to check themselves to hospital and many cases are not ultimately not diagnosed and recorded in medical records. Clinicians are also difficult to diagnose AD. Whereas to diagnose AD there is a radiological picture that can show the characteristics of AD. That is a progressive atrophy of the brain means there is a neurodegeneration that can be visualized by MRI. The incidence of hippocampal atrophy in AD is 3-5% per year, possibly in the presence of this, the temporal lobe also undergoes the process of atrophy.<sup>21</sup>

Mixed Dementia is the third leading cases in this study with 18 patients (20,2%). This study in line with a study from Podcasy and Epperson on 2016, in an autopsy, vascular pathology was found in 28% of AD cases.<sup>5</sup> Neuropathological studies indicate that MD is a very common finding in elderly with a prevalence about 22%. The clinical presentation of AD and VaD are almost overlapping. The example is cerebrovascular lesions such as lacunes and white matter lesions are common in patients with AD. Likewise, pathological changes of AD such as amyloid plaques and Neurofibrillary Tangles (NFT) are observed in patients with VaD. The brain lesions of AD and VaD often overlap together and affect the cognitive decline.<sup>22</sup>

Parkinson's Disease Dementia is the least subtype in this study with 4 patients in total (5,4%). According to Podcasy and Epperson, of the entire population in the world, those suffering from Parkinson's Dementia are only between

0.3% to 3%.<sup>9</sup> Dementia patients with Parkinson in one year can reach 100 out of 1,000 patients each year, so of all Parkinson's patients it is estimated that there are 10% of patients who initially did not develop Dementia but later on will develop Dementia.<sup>23</sup>

## Conclusion

Dementia is major important health issue in Indonesia. The prevalence still increase and become a social burden of family, caregiver, also the government. Dementia in elderly population can be characterized in many ways. The demographic data of dementia patients showed the age range and genders of the patients. Dementia patients can be suffered of any types of dementia. The patients also have different occupations and educations. Recognizing characteristic of dementia is one of dementia awareness. Our data showed characteristic of dementia in order to provide an information in to give a better facilities and treatment of dementia in elderly population to prevent dementia burden.

## Acknowledgement

The authors thank Department of Neurology of Faculty Medicine, Airlangga University and Dr. Soetomo General Hospital Surabaya's medical records team for their support and facilities.

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