

*Original Article*

## The Comorbidity Profile of Neurological Disease in Elderly in the Taman Sari Public Health Center from January to December 2023

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### ABSTRACT

**Background:** The burden of neurological diseases in elderly patients is often underestimated. Therefore, our study aimed to investigate the comorbidity profile of NDs in patients aged 60 years or older at the Taman Sari Public Health Center.

**Method:** This was a retrospective, descriptive study with a cross-sectional design. The data were collected from medical records (*e-puskesmas*) and SIPTM (*Non-Communicable Diseases Surveillance Information System*) at the Taman Sari Public Health Center from January to December 2023. The study focuses on patients diagnosed with chronic diseases who also have comorbidities of NDs.

**Result:** Analysis was conducted on 803 individuals, including 382 males and 421 females which revealed that 68.4% of the participants had polyneuropathy, 26.8% were diagnosed with cerebrovascular disease, 2.1% had CNS infection, 1.1% had CNS metabolic disorders, 1.6% of patients exhibited symptoms of dementia.

**Discussion:** The study has shown that polyneuropathy is a prevalent issue, with cerebrovascular diseases exhibiting intermediate to high levels of patient comorbidity. CNS infection with tuberculosis meningitis is the leading cause of CNS infection. Furthermore, metabolic diseases can cause CNS metabolic disorders, while dementia is often associated with patient comorbidity, which significantly influences its clinical progression.

**Conclusion:** Understanding the comorbidity profile of neurological diseases in elderly patients at the Taman Sari District Health Center could improve patient care management and lead to better outcomes.

**Keywords:** *Comorbidity; Neurological Disease; Elderly.*

### INTRODUCTION

According to the World Health Organization (WHO), individuals who have reached the age of 60 years or older are considered elderly. This demographic has entered the later stages of life and experiences the natural process of aging.

It is predicted by 2030, one-sixth of the global population will be aged 60 years or older. This indicates that the proportion of individuals aged 60 years and older will escalate from 1 billion in 2020 to 1.4 billion. Furthermore, the world's elderly citizen population, 60 years and above, will double

to an estimated 2.1 billion by 2050. Additionally, the number of individuals aged 80 years or older is expected to triple between 2020 and 2050, reaching a staggering 426 million.

Indonesia's population structure is currently showing signs of aging, with about 10% of its residents being classified as elderly as of 2021. The Central Statistics Agency (BPS) predicts that this percentage will increase to 11.75% by 2023, representing a 1.27% increase from the previous year's figure of 10.48%. By the year 2050, it is estimated that the number of elderly individuals in

Indonesia will surpass 50 million, with a life expectancy exceeding 75 years.

As the population continues to age, the prevalence of chronic diseases becomes increasingly important. Medical advancements have allowed more individuals to recover from acute illnesses, leading to a higher susceptibility to chronic conditions and the potential for additional comorbidities.

Comorbidity refers to the presence of multiple diseases in a patient, where one of the diseases is the primary disease. For instance, diabetes can lead to other conditions like chronic atrial fibrillation and stroke, which are known as comorbidities. It is important to pay attention to patients with chronic neurological diseases, as they are often seen in patients with comorbidities. Neurological diseases are complex and severe, and patients with these conditions are frequently admitted to hospitals.

The burden of neurological diseases in elderly patients is often underestimated. Therefore, our study aimed to investigate the comorbidity profile of neurological disease in patients aged 60 years or older at the Taman Sari Public Health Center, which is located in the Taman Sari district of West Jakarta, Indonesia.

## METHOD

This research utilized a retrospective, descriptive approach with a cross-sectional design, gathering data from electronic

medical records (*e-puskesmas*) and the Non-Communicable Diseases Surveillance Information System (*SIPTM*) at the Taman Sari Public Health Center, spanning the timeframe of January to December 2023.

All patients who fulfilled the study criteria were included in the study using consecutive sampling. Data were obtained from medical records, specifically from *e-puskesmas* and the Non-Communicable Diseases Surveillance Information System (*SIPTM*). This approach facilitated the identification of elderly patients with chronic diseases and neurological disease based on the discharge lists and summaries. Additionally, the *e-puskesmas* and *SIPTM* systems were utilized to ensure the inclusion of all eligible patients in the study.

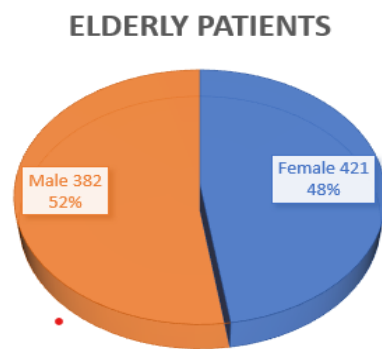
Our study focused on elderly patients with chronic diseases who had comorbid neurological diseases. Those without neurological diseases, incomplete medical records, or a unconfirmed diagnosis after transfer to another hospital were excluded from the study.

This study aims to examine the comorbidity profile (age, gender, type of chronic disease, and type of neurological disease) in elderly patients with chronic diseases and neurological disease.

## RESULT

The Taman Sari Public Health Center is located in the Taman Sari district of West Jakarta, Indonesia. According to the

projected data for 2023, Taman Sari's population is expected to reach 128,222, with 23,472 of them being elderly, constituting 18.4% of the total population. The study analyzed a sample of 803 individuals, including 382 males and 421 females.



**Figure.1** Gender ratio of sample population

According to the findings, a majority of the participants (68.4%) were diagnosed with polyneuropathy. This amounts to 260 cases among male patients and 289 cases among female patients. Polyneuropathy is a medical condition that results from damage to the peripheral nerves, which connect the brain and spinal cord to the rest of the body. On

the other hand, 26.8% of the sample had cerebrovascular disease. This includes 111 cases among male patients and 104 cases among female patients. Cerebrovascular disease refers to the conditions that affect the blood vessels and blood supply in the brain. In addition, a small percentage of 2.1%, that is, 5 and 12 cases among male and female patients, showed symptoms of central nervous system (CNS) infection. This type of infection can be caused by bacteria, viruses, or other pathogens that attack the brain or spinal cord. Furthermore, 1.1% of the sample had CNS metabolic disorders, which affected 2 male and 7 female patients. CNS metabolic disorders are conditions that affect the body's ability to process nutrients and energy properly, leading to neurological symptoms. Lastly, 1.6% of the sample exhibited symptoms of dementia, which is 4 and 9 cases observed among male and female patients. Dementia is a progressive condition that leads to a decline in cognitive function and memory loss.

Table 1. The comorbidity profile of neurological disease in elderly patients

| Variable                     | n   | %    |
|------------------------------|-----|------|
| Gender                       |     |      |
| Male                         | 382 | 47.9 |
| Female                       | 421 | 52.4 |
| Type of Chronic Disease      |     |      |
| HT                           | 579 | 72.1 |
| DM                           | 364 | 45.3 |
| CAD/HHD                      | 486 | 61   |
| TB                           | 72  | 8.9  |
| Other systemic infection     | 65  | 8    |
| Autoimmune diseases          | 8   | 0.9  |
| Comorbid Disease             |     |      |
| 1                            | 416 | 52   |
| >1                           | 387 | 48   |
| Type of Neurological Disease |     |      |
| Polineuropathy               | 549 | 68.4 |
| Cerebrovascular disease      | 215 | 26.8 |
| CNS Infections               | 17  | 2.1  |
| Memory disorder/dementia     | 13  | 1.6  |
| CNS metabolic                | 9   | 1.1  |

Overall, these findings provide valuable insights into the prevalence and distribution

of different neurological conditions within this particular cohort. This information can

be useful in developing targeted interventions and treatments for affected individuals, as well as identifying potential risk factors and underlying causes of these conditions.

## **DISCUSSION**

Our team conducted a thorough investigation on elderly patients aged 60 years and above who were admitted to Taman Sari Public Health facility due to chronic diseases with comorbidity of neurological disease to assess the morbidity of patients and its burden. It is noteworthy that all patients in our study were classified as having comorbidity (100%).

Based on our data, polyneuropathy was one of the most common neurological diseases. Polyneuropathy is common in elderly patients, but it is often an underdiagnosed condition, particularly diabetic neuropathy, usually accompanied by several comorbidities, such as cardiovascular disease, pulmonary chronic disorders, and peripheral vascular disorders.

Cerebrovascular diseases were among the neurological diseases with patient comorbidities, with approximately 40% of these patients having two or more chronic diseases. The cerebrovascular disease was second among the most common neurological diseases associated with chronic illnesses such as hypertension, diabetes, cardiovascular disorders, dyslipidemia, and peripheral vascular disorders.

A CNS infection that is common is meningitis TB due to disseminated TB.

Nevertheless, CNS metabolic disorders like metabolic encephalopathy underlying diabetes, hypertension, and cardiovascular disease. Dementia is considered one of the most common disorders among memory disorders. Dementia is often associated with patient comorbidity, which significantly influences its clinical progression.

As the data we possess is secondary, we cannot determine if the neurological disease noted during that period was an acute or chronic condition. It is possible that the patient had been experiencing symptoms for some time, but the disorder remained undetected until the medical examination. Therefore, we cannot accurately determine the exact duration of the condition or the precise time of onset. Nevertheless, it is worth noting that our study's robust features, including a sizable sample size and effective patient data retrieval methods, enhance its credibility.

## **CONCLUSION**

Our research has found that elderly patients who are admitted to the ambulatory care from Taman Sari have a high prevalence of comorbidities, specifically polyneuropathy and cerebrovascular disease. The study is based on a significant sample size and reliability in retrieving patient data. These findings indicate that neurological diseases are quite common among elderly patients with chronic illnesses. By gaining a better understanding of the comorbidity profile of neurological diseases in elderly patients at the Taman Sari District Health Center, we

can improve patient care management and ultimately lead to better outcomes.

## REFERENCES

1. Bacellar A, Assis T, Pedreira BB, Cortez L, Santana S, Nascimento OJM. Multimorbidity and associated outcomes among older adult inpatients with neurological diseases. *Arquivos de Neuro-Psiquiatria*. 2021 Jan;79(1):30–7.
2. Divo MJ, Martinez CH, Mannino DM. Aging and the Epidemiology of Multimorbidity. *European Respiratory Journal* [Internet]. 2014 Aug 19;44(4):1055–68. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4918092/>
3. World Health Organization. Ageing and Health [Internet]. World Health Organization. 2022. Available from: <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>
4. Triple Burden Ancam Lansia [Internet]. [www.kemkes.go.id](http://www.kemkes.go.id). [cited 2024 Feb 16]. Available from: <https://www.kemkes.go.id/id/rilis-kesehatan/triple-burden-ancam-lansia>
5. Statistik penduduk lanjut usia, 2023 : hasil Survei Sosial Ekonomi Nasional (Susenas) Maret 2023, Survei Angkatan Kerja Nasional (Sakernas) Agustus 2023. Jakarta, Indonesia: Badan Pusat Statistik; 2023.