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Knowledge of elderly cadres on dementia in Yogyakarta, Indonesia

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ABSTRACT

Background: Dementia can cause disability, in addition to physical, mental, and financial stress for caregivers, and affect the nation's healthcare system and economy. Efforts are needed to improve the quality of life of people with dementia involving various sectors, especially elderly cadres. Elderly cadres are volunteers who provide screening and health education for elderly persons at the community level. Accordingly, it is crucial to identify the knowledge levels about dementia in elderly cadres to improve public awareness and interventions concerning this topic. This study aimed to determine the level of knowledge of elderly cadres about dementia.

Methods: This quantitative study was conducted with a cross-sectional design. There were 103 elderly cadres recruited using convenience sampling from November to December 2022. A demographic questionnaire and Dementia Knowledge Assessment Scale (DKAS) were used to collect the data. The data were analyzed using Spearman's rho and Mann Whitney with significance set as $p<0.05$.

Results: The median score of the elderly cadres' knowledge score was 22 (minimum-maximum = 0-44). Elderly cadres' knowledge was related significantly to training about dementia ($p=0.002$). There was no significant correlation between elderly cadres' knowledge and age ($p=0.271$), gender ($p=0.073$), and education level ($p=0.106$).

Conclusions: In general, the knowledge of elderly cadres about dementia is relatively low. However, there was a significant change in knowledge scores after dementia training, so a program to increase understanding about dementia through training is recommended for elderly cadres.

Keywords: Knowledge; dementia; elderly cadres; dementia knowledge assessment scale.
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INTRODUCTION

Dementia is a significant neurocognitive condition that impairs thinking, memory, cognitive function, and behavior. It also significantly reduces one's capacity to carry out daily tasks, leading to disability, particularly in older people.[1] Having not only severe impacts, dementia can also cause physical, mental, and financial stress for caregivers.[2] Furthermore, dementia can increase the cost of medical treatment, even doubling with severe cases,[3] which can affect the healthcare system and the country's economy.[4]

The World Health Organization (WHO) estimated there are 50 million people with dementia (PwD) worldwide, which is projected to increase to 75 million in 2030 and then to 131 million in 2050.[5] In 2015, more than 1 million people in Indonesia were diagnosed with dementia, which is estimated to increase to more than 2 million in 2030.[6] The prevalence of dementia cases in the elderly in Yogyakarta alone reached 20.1% in 2016.[7] However, the increase in the number of PwDs has not been accompanied by increased knowledge about dementia in the community.[8]

The community's knowledge in Yogyakarta about dementia is still low and limited to some basic knowledge,[4] especially among PwD's family caregivers.[9] Dementia is still considered a normal part of the aging process.[10] More knowledge about dementia is needed to improve the quality of life for PwD.[4] The Indonesian government launched the National Dementia Plan in 2016. This plan focuses on improving the PwD's quality of life and their caregivers, increasing awareness, reducing stigma, and minimizing the risk of dementia.[11] This policy is one of the first steps in improving the quality of life for PwD in Indonesia, which involves various sectors,[4] including community health centers (*Puskesmas*).

As a primary health service, the public health centers (*Puskesmas*) provide integrated services for older people (*Posyandu Lansia*) to improve the health status of older people. To carry out this function, the public health centers work closely with elderly cadres. Elderly cadres play an essential role in improving the welfare of older people through promotive and preventive efforts in integrated services for the elderly. One of the tasks of the cadres is to make the public more aware of the importance of early detection of dementia.[12] Cadres are essential in preventing dementia because they socialize with the community and often live nearby.[13] However, most elderly cadres lack knowledge regarding the definition, types, examination, prognosis, and management of dementia.[14]

It is vital to identify knowledge about dementia in elderly cadres[14] so that it can

be used to improve public health policies and interventions. Increased knowledge evaluated through population-based research is one of the keys to success in reducing the risk of dementia.[15] Accordingly, this study aimed to identify the level of knowledge of elderly cadres about dementia and differences in their level of knowledge before and after training based on their characteristics.

METHOD

This quantitative study has a cross-sectional design and a descriptive correlational method. It was conducted in the Bantul, Sleman, and Yogyakarta City areas as representative study sites of the Special Region of Yogyakarta. These three areas have several actively operating *Posyandu Lansia* and many elderly cadres.

Using a convenience sampling technique, the researchers collected data in November-December 2022 from 103 people. The number of samples in this study meets the minimum sample size. The researchers used the Lemeshow formula to determine the minimum sample size due to the unknown population size.[16] The Lemeshow formula is n = [Z^2 - P (1 - P)] d^2 with Z score at 95% confidence interval (CI) = 1.96; *P* (maximum estimate) = 0.5; and d (sampling error) = 10%. Based on this formula, a minimum sample size of 100 people is obtained. Inclusion criteria included training participants who are elderly cadres and are willing to fill out a questionnaire. In addition, the exclusion criteria were training participants who were non-cadres and not elderly cadres or unwilling to become participants and complete the training.

The researchers used demographic questionnaires and the Dementia Knowledge Assessment Scale (DKAS) questionnaires to measure the level of knowledge of elderly cadres about dementia. DKAS has 25 statement items with four domains: 1) Causes and Characteristics, 2) Communication and Behavior, 3) Care Consideration, and 4) Risk and Health Promotion.[17] DKAS scores range from 0 to 50. The Indonesian version of the DKAS was declared valid with a Scale-Construct Validity Index (S-CVI) value of 1.00 and considered reliable with Cronbach's alpha of 0.674.[18] The DKAS was used in this study because its content suits the study's aims. Furthermore, it has a higher Cronbach's alpha than other instruments, is readily available in the Indonesian language, and has been used on elderly cadres in previous studies.[8]

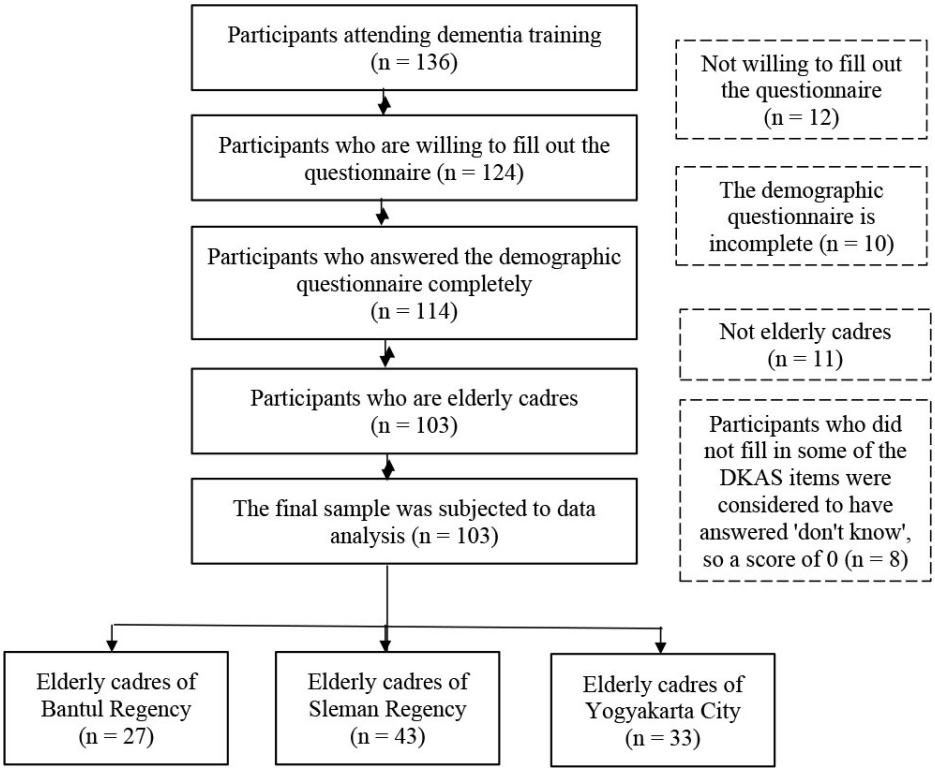

Figure 1. The flow of research sample screening.

This research has received ethical approval from the Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia. The researchers conducted the initial data collection before the training activities on dementia. They explained to participants how to fill out the questionnaire and ensured the confidentiality of the respondents with informed consent. The researchers allowed the respondents who were present not to fill out the questionnaire if they did not wish to. After the respondents had completed the questionnaire, the researchers re-examined the data to determine if any incomplete questionnaires had been completed. The researchers continued with training activities on dementia. At the end of the training, the researchers allowed the respondents to discuss the answers to the completed questionnaires. The following Figure 1 shows the flow of sample screening in this study:

After collecting and cleaning the data, the researchers conducted data analysis. Kolmogorov Smirnov tested data normality since the number of respondents was more than 50.[19] Univariate data analysis was performed using SPSS 23 (IBM Corp., Armonk, NY) to determine the frequency and percentage. The data is not normally distributed (p<0.05); thus, the data is illustrated by median and minimum-maximum (min-max). Bivariate analysis used Spearman rho and Mann Whitney tests with p<0.05 (abnormal data).

RESULT

Description of Respondents' Characteristics and Knowledge of Dementia

In this study, there were 103 elderly cadres from three regions: Bantul, Sleman, and Yogyakarta City. Most respondents were women (98.1%) with 12 years of primary education (69.9%). The average age of respondents is 49.90 years. Most respondents had never received training on dementia (78.6%) (Table 1).

In this study, the knowledge of elderly cadres about dementia was measured using the 25-item DKAS. After the normality of the data was tested using the Kolmogorov-

Table 1. Characteristics of Elderly Cadres and Level of Knowledge about Dementia (n = 103)

Variable	Frequency (n)	Percentage (%)	Mean ± SD	Median (Min-Max)
Knowledge				22 (0-44)
Causes and Characteristic				4 (0-12)
Communication and Behavior				5 (0-10)
Care Consideration				8 (0-12)
Risk and Health Promotion				5 (0-11)
Characteristic				
Age			49.72 ± 11.079	
Gender				
Woman	101	98.1		22 (0 - 44)
Man	2	1.9		11.50 (0 - 23)
Level of education				
Base (12 years)	72	69.9		22 (0 - 35)
Advanced	31	30.1		23 (0 - 44)
Dementia training				
Yes	22	21.4		26 (2 - 35)
No	81	78.6		22 (0 - 44)

Information: Min-Max=Minimum-Maximum; SD=Standard Deviation.
Data source: 2022 primary data

Table 2. Differences in Knowledge about Dementia based on Characteristics among Elderly Cadres in November-December 2022 in the Regions of Bantul, Sleman, and Yogyakarta City (n = 103)

Characteristic	r	*p-value*
Age	.102	.303[a]
Gender		.271[b]
Level of education		.106[b]
Dementia training		.002*[b]

Information:
Source: Primary Data 2022
[a]Spearman; [b]Mann-Whitney; *significant at *p* value < .05

Smirnov test, the data of the knowledge scores were not normally distributed ($p<0.05$). The results show that the median knowledge score of elderly cadres was 22.00 with a min-max range of 0 to 44 (Table 1). DKAS consists of four domains; each domain's median value can be seen in Table 1. This table also describes the level of knowledge based on the characteristics of the respondents.

Table 2 provides information about differences in knowledge about dementia based on respondent characteristics. The data analysis used was Spearman's rho for the relationship between knowledge and age. Furthermore, the Mann-Whitney test was used to determine the relationship between knowledge and gender, level of education, and training about dementia. This is done because the knowledge score data were not normally distributed after being tested with the Kolmogorov Smirnov.

Overview of Knowledge of Elderly Cadres about Dementia

DKAS is divided into four domains. There are seven items in the Causes and Characteristics domain (1, 2, 3, 4, 5, 6, and 7), six items in the Communication and Behavior domain (14, 15, 16, 17, 18, and 19), six items in the Care Consideration domain (20, 21, 22, 23, 24, and 25), and six items in the Risk and Health Promotion Domain (8, 9, 10, 11, 12, and 13).

Table 3 shows the domain of questions from DKAS answered correctly by elderly cadres. These scores help determine those items that still need to be improved among the elderly cadres. Item number 11 is the statement that most respondents answered correctly, while items 6 and 13 were answered correctly by the least number of respondents. The results show that item 6 in the Causes and Characteristics domain, item 16 in the Communication and Behavior domain, and item 13 in the Risk Factor and Health Promotion domain show the lowest percentage of correct answers. In addition, all items in the Care and Consideration domain have a higher rate of correct answers than items in other domains. The item with the lowest answer is item number 22.

DISCUSSION

Description of Knowledge about Dementia in Elderly Cadres

Knowledge related to dementia is crucial because it can impact people's awareness of prevention, treatment, and social stigma associated with the progression of dementia.[20] This study's median knowledge score about dementia was 22.00 (min-max = 0-44). The knowledge of elderly cadres about dementia was higher than that of the general population in Yogyakarta (mean with SD: 17.17±2.91; min-max = 7-23).[4] This difference could be because the cadres have more experience related to elderly health, and some elderly cadres (21.4%) have received training on dementia than the general public. The knowledge scores of the elderly cadres were also higher than the knowledge scores of long-term care staff in nursing homes, including nurses, social workers, attendants, and security guards) (mean with SD: 19.89±7.80; max = 50).[21] This could be due to differences in various educational backgrounds in previous studies.[21] In this study, knowledge scores were still lower than knowledge about dementia among nursing students

Table 3. DKAS Correct Answers to Elderly Cadres in November-December 2022 in the Regions of Bantul, Sleman, and Yogyakarta City (n = 103)

Domain	Item	Statement	Correct Answer	
			(n)	(%)
Causes and Characteristics	1	Dementia is a normal part of the aging process.	10	9.7
	2	Alzheimer's disease is the most common form of dementia.	56	54.4
	3	People can recover from the most common forms of dementia.	12	11.7
	4	Dementia does not result from physical changes in the brain.	25	24.3
	5	Planning for end-of-life care is generally not necessary following a diagnosis of dementia.	49	47.6
	6	Blood vessel disease (vascular dementia) is the most common form of dementia.	2	1.9
	7	Most forms of dementia do not generally shorten a person's life.	5	4.9
Communication and Behavior	14	It is impossible to communicate with a person who has advanced dementia.	48	46.5
	15	A person experiencing advanced dementia will not generally respond to changes in their physical environment.	10	9.7
	16	It is important to correct people with dementia when they are confused.	7	6.8
	17	People experiencing advanced dementia often communicate through body language.	43	41.7
	18	Uncharacteristic behaviors in a person experiencing dementia are generally a response to unmet needs.	37	35.9
	19	Medications are the most effective way of treating behavioral symptoms of dementia.	30	29.1
Care Consideration	20	People experiencing dementia do not generally have problems making decisions.	53	51.5
	21	Movement is generally affected in the later stages of dementia.	41	39.8
	22	People with advanced dementia may have difficulty speaking.	34	33.0
	23	People experiencing dementia often have difficulty learning new skills.	55	53.4
	24	Difficulty eating and drinking generally occurs in the later stages of dementia.	41	39.8
	25	Daily care for a person with advanced dementia is effective when it focuses on providing comfort.	72	69.9
Risk and Health Promotion	8	Having high blood pressure increases a person's risk of developing dementia.	32	31.1
	9	Maintaining a healthy lifestyle does not reduce the risk of developing the most common form of dementia.	31	30.1
	10	Symptoms of depression can be mistaken for symptoms of dementia.	34	33.0
	11	Exercise is generally beneficial for people experiencing dementia.	79	76.7
	12	Early diagnosis of dementia does not generally improve the quality of life for people experiencing the condition.	36	35.0
	13	The sudden onset of cognitive problems is characteristic of common forms of dementia.	2	1.9

Source: Primary Data 2022.

(median = 24; min-max = 7 - 40),[18] and nurses in the hospital (mean with SD: 23.52±7.93; min-max = 0-50).[22] Nursing students and nurses receive lectures on dementia, so they have slightly higher scores than the elderly cadres.[18,22]

The Causes and Characteristics domain scored the lowest in this study. These results are in line with previous studies. The Causes and Characteristic Domain was used to measure knowledge about dementia in biological and pathological aspects.[23] Generally, society has limited knowledge about the pathology of worsening dementia.[24] People's assumptions about dementia usually appear based on personal observations, knowledge, beliefs, hopes, experiences, and interactions with others.[25]

The common misunderstandings and social stigma about dementia can cause insufficient knowledge of the information in the Causes and Characteristics domain. Dementia is usually described based on

symptoms such as memory loss. This condition is still considered normal aging, especially in Indonesian society.[11] Poor knowledge about dementia symptoms and their course can hinder seeking help and reduce access to and use of services.[26]

Indonesia's knowledge of dementia still needs to be improved compared to other countries, making this situation challenging.[26] However, the existence of elderly cadres in Indonesia provides an opportunity to increase public knowledge and awareness regarding dementia on a larger scale. This is following the WHO goal of approaching the community at large with socialization programs to reduce the health burdens due to dementia and increase community knowledge, awareness, response, and support for dementia caregivers.[15,27,28]

Knowledge of Dementia based on Characteristics of Elderly Cadres

This study shows that most elderly cadres are women (98.1%) with a basic education level of 12 years (69.9%). These results are similar to previous studies, where most elderly cadres in the Sleman area have junior and senior high school educational backgrounds.[14] The average age of elderly cadres is 49.90. This result is in line with previous studies, which found that most cadres are older than 40.[14] Most elderly cadres have never received training on dementia (78.6%).

In this study, there was no significant difference in the knowledge score about dementia based on the age of the elderly cadres. This result aligned with previous studies, where there was no significant difference in knowledge scores with the age of nurses in hospitals[2] and long-term care staff in nursing homes.[21] In contrast to research conducted on nursing students,[18,28] it was found that there were significant correlations between the knowledge of dementia scores and the age of nursing students. This difference could be due to 'tacit knowledge' in older nursing students.[28] Tacit knowledge is knowledge obtained from the individual's experience.

This study found no significant difference in the scores of knowledge about dementia based on the sex of the elderly cadres. These results align with previous studies on nurses in hospitals,[22] and long-term care staff in nursing homes.[21] In contrast, the studies conducted on adults in Switzerland and Italy showed differences in dementia-related knowledge based on gender.[26] This difference could be because there were primarily female respondents and only a small number of male respondents involved in the research. In the previous study,[26] the knowledge level of dementia was higher in women. This could be because women usually become PwD caregivers. There may be differences in health information behavior,[29] and health literacy, where women are more active in seeking information on health-related topics.[30]

In addition, this study also found no significant correlation between the knowledge scores about dementia and the education level of elderly cadres. These results are in contrast to previous studies, where education level can impact the understanding of dementia nurses in hospitals,[22] long-term care staff in nursing homes,[21] and adults in Switzerland and Italy.[26] This could be because elderly cadres with advanced education may not necessarily receive education about dementia.

This study found a significant difference in the scores of knowledge about dementia in elderly cadres who have attended training related to dementia and elderly cadres who have never participated in the training. People with a history of dementia training also showed higher knowledge scores for nurses in Indonesian hospitals,[22] and health professionals in Japan;[23] but this was not the case for the general public.[4] However, the number of people who have attended dementia training in this study is much smaller than those who have attended it,[4] so they are not comparable. Based on the results of the analysis above, one proper step in introducing dementia in the community is educating elderly cadres about what dementia is and how to prevent it.[8] This approach works because training about dementia has been shown to increase knowledge about dementia,[8] which is also supported by the results of this study.

Limitation

This study did not involve two areas (Gunung Kidul and Kulonprogo) in Yogyakarta and did not compare them with the other three areas in Yogyakarta. In addition, we did not compare the differences in knowledge about dementia in each area. Further research can be conducted with a larger sample to obtain better results.

CONCLUSION

There is little research concerning dementia in elderly cadres in Indonesia, so this study can improve public health policies and interventions, especially for elderly cadres. In general, elderly cadres' knowledge about dementia is relatively low. There is a significant difference in knowledge scores among respondents who have attended training on dementia, so a program to increase knowledge about dementia through training is recommended for elderly cadres.

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CONFLICT OF INTERESTS

The authors declared no potential conflicts of interest concerning this article's research, authorship, and publication.

AUTHOR CONTRIBUTION

SM – concept; design; definition of intellectual content; literature research; data acquisition; data analysis; statistical analysis; manuscript preparation, editing, and review; and guarantor.

KDC – literature research; data acquisition; manuscript preparation and review.

DL – literature research; data acquisition; data analysis; statistical analysis; manuscript preparation, editing, and review.

AIU – literature research; data acquisition; data analysis; statistical

analysis; manuscript preparation, editing, and review.

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