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An Overview of Elderly Independence Levels in Meeting Activities of Daily Living (ADL) and Cognitive Function at Group Home Teresaen Fujisaki, Aomori, Japan

Elvina Jolie Maharani[1], Meida Laely Ramdani[1]
[1]Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto

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ABSTRACT

Elderly individuals undergo biological, physical, mental, and social changes due to aging, which affect all aspects of their lives, including health. Physical changes in the elderly significantly impact their level of independence. Cognitive decline in the elderly includes disorientation in time and place, perception, thinking, and difficulties in accepting new ideas. This study aims to describe the independence levels of elderly individuals in meeting activities of daily living (ADL) and their cognitive function at Group Home Teresaen Fujisaki, Aomori, Japan. The research employs a descriptive quantitative. The population consists of all 16 elderly residents of Group Home Teresaen Fujisaki, Aomori, Japan, selected using a total sampling technique. The research instruments include the Barthel Index to measure levels of independence and the Mini-Mental State Examination (MMSE) to assess cognitive function. The findings reveal that the majority of respondents fall within the "old" age category (7590 years), accounting for 68.8%. Female respondents dominate the population, representing 81.3%. In terms of educational background, most respondents had completed junior high school (50.0%). The majority of respondents (43.8%) have hypertension as a comorbid condition. Regarding independence levels, 31.3% of the elderly are categorized as heavily dependent. For cognitive function, 43.8% exhibited moderate cognitive impairment.

Corresponding Author:
Meida Laely Ramdani
Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto
Soepardjo Rustam Street KM. 7, Banyumas, Indonesia
Email: meidalaelyramdani@ump.ac.id

1. INTRODUCTION

The World Health Organization (WHO) stated that elderly is individuals who have 60 years old or more. Aging marked with change biological, physical, mental, and various aspects of life, including health and level independence. Decline independence on elderly influenced by various fact or like decline function cognitive disorders vision and hearing, as well as level education. Condition this impact on ability elderly in operate activity daily or Activities of Daily Living (ADL), such as toileting, eating, dressing, bathing, and move place (Widiastuti et al., 2021).

Phenomenon decline independence lots found in Japan, the country with amount resident elderly the largest in the world (Nabila et al., 2022). Based on observation at Group Home Teresaen Fujisaki, Aomori, almost

all over elderly experience dependence on nurse or caregiver in do activity daily. Some of them use chair wheels, experiencing urinary incontinence, and routine consume drug laxative for expedite defecate. Decline function cognitive like disorientation time and place, decline power remember, and disturbance read write also found on all over patients in nursing homes. Condition this impact on decline quality life elderly, improve burden physique and emotional family, and cause problem social because increasing dependence to maintenance professional (Ambohamsah et al., 2023).

Japan, which is known as Kōreika Shakai or an aging society, has a very high proportion of elderly residents. The World Health Organization WHO (2015) stated that elderly individuals are those aged 60 years or older. Aging is characterized by biological, physical, mental, and social changes that influence health and independence. Furthermore, WHO (2018) estimated that the number of elderly people worldwide would reach approximately 2 billion by 2050. In addition, cognitive decline, including dementia (known in Japan as Ninchishō), is a major health issue among the elderly. It is estimated that more than 4.6 million people in Japan experience dementia, leading to full dependence in performing daily activities and requiring specialized care (Nabila et al., 2022).

Based on phenomenon said, research this done for know description level independence elderly in fulfillment of ADL and function cognitive development at Teresaen Fujisaki Group Home, Aomori, Japan. This research for describe characteristics respondents based on age, type gender, level education, and disease accompanying, as well as know level independence and function cognitive elderly.

2. RESEARCH METHOD

This study was conducted at Group Home Teresaen Fujisaki, Aomori, Japan, in November 2024. This study used a descriptive design with quantitative research methods. The population of this study was all elderly patients at Group Home Teresaen Fujisaki, Aomori, Japan. The subjects studied consisted of all elderly at Group Home Teresaen Fujisaki, Aomori, Japan, totaling 16 respondents. With inclusion criteria: 1. Elderly who are at Group Home Teresaen Fujisaki, Aomori, Japan, 2. Willing to be respondents, exclusion criteria: 1. Elderly who are being treated in the hospital, 2. Elderly who are not at the research location. Sample selection was carried out using the Total Sampling method which is data collection from all respondents.

This study used two types of questionnaires, the first being the Barthel Index to evaluate the level of independence. This questionnaire includes 10 components including eating, transferring, self-care, toileting, bathing, dressing, urinary control, defecation control, walking, and climbing stairs. Each activity is scored according to the level of independence, with a maximum score of 100 (completely independent). The final rating scale in this questionnaire consists of a score of 0-20: Total Dependence, 21-40: Severe Dependence, 41-60: Moderate Dependence, 61-90: Light Dependence, 91-100: Independent. The second questionnaire is the Mini Mental Scale Examination (MMSE), this questionnaire is used to assess a person's cognitive function. This questionnaire is usually used in a clinical context to identify the presence of cognitive disorders, such as dementia or Alzheimer's disease. This questionnaire includes 5 domains: Orientation, Registration, Attention and Calculation, Recall, and Language. The final assessment scale in this questionnaire consists of a score of 0–9: Severe Cognitive Impairment, 10–17: Moderate Cognitive Impairment, 18–23: Mild Cognitive Impairment, and 24–30: Normal. The data analysis used in this study was a frequency distribution test.

This study obtained ethical approval from the Health Research Ethics Committee of Universitas Muhammadiyah Purwokerto (Approval No. KEPK/UMP/104/XI/2024). All participants were informed about the objectives, procedures, potential risks, and benefits of the research. Written informed consent was obtained from each respondent or their legal guardian. Participants were assured of their right to withdraw at any time without penalty. All data were kept confidential and used solely for research purposes.

3. RESULT

Based on from results study obtained results as following :

3.1 Respondent Characteristics Overview

Table 1. Frequency Distribution of Respondents Based on Age Range, Gender, Education Level and Comorbidities (n=16)

Characteristics	Frequency	Percentages (%)
Age		
Old (75-90)	11	68.8
Very old (>90)	5	31.3
TOTAL	**16**	**100**
Gender		
Man	3	18.8

Characteristics	Frequency	Percentages (%)
Woman	13	81.3
TOTAL	**16**	**100**
Level of education		
Elementary School	4	25.0
Junior High School	8	50.0
Senior High School	3	18.8
Did not graduate from elementary school	1	6.3
TOTAL	**16**	**100**
Comorbidities		
Hypertension	7	43.8
Cataract	5	31.3
Diabetes	1	6.3
Alzheimer	3	18.8
TOTAL	**16**	**100**

Source: Research results, 2024
Note: Percentages in each category may not total exactly 100% due to rounding.

The age categories in this study were divided into old (75–90 years) and very old (>90 years), referring to the classification used by the Japan Ministry of Health, Labour and Welfare (MHLW, 2017) and WHO Gobel & Paneo (2024), which define elderly aged 75 years and above as "late elderly" or "old elderly". Referring to table 1, it can be explained that there are 4 characteristics of respondents including age, gender, education, and comorbidities. In terms of age, the majority of respondents are in the old age group (75-90) years, as many as 11 respondents with a percentage (68.8%). Regarding gender, the number of female respondents is more than male, namely 13 respondents with a percentage (81.3%). Based on education level, most respondents have a junior high school (SMP) education background with a total of 8 respondents, which covers a percentage (50.0%). For the last characteristic, namely comorbidities in this section, the majority of respondents have hypertension, namely 7 people with a percentage (43.8%).

3.2 Level of Independence

Table 2. Distribution Frequency Respondents Level of Independence (n=16)

Level of Independence	Frequency (n)	Percentages (%)
Independent	1	6.3
Dependence light	4	25.0
Dependence currently	3	18.8
Dependence heavy	5	31.3
Total dependence	3	18.8
TOTAL	**16**	**100**

Source : Results Research , 2024

On Table 2 explains about level independence for respondents elderly at Teresaen Group Home Fujisaki Aomori Japan according to sheet Index Barthel, who showed that dependence heavy more dominate with total of 5 people (31.3%). This is caused by by decline ability cognitive experiences by elderly, so that they No can carry out activity daily in a way independent.

3.3 Cognitive

Table 3. Distribution Frequency Respondents Based on Cognitive (n=16)

Cognitive	Frecuancy (n)	Percentages (%)
Normal	1	6.3
Mild cognitive impairment	2	12.5
Moderate cognitive impairment	7	43.8

Cognitive	Frecuancy (n)	Percentages (%)
Severe cognitive impairment	6	37.5
TOTAL	**16**	**100**

Source : Results Research, 2024

Table 3 shows the cognitive function of elderly respondents at the Teresaen Fujisaki Group Home in Aomori, Japan, assessed using the Mini-Mental State Examination (MMSE). The findings indicate that most respondents experienced moderate cognitive impairment (43.8%), followed by severe cognitive impairment (37.5%). Only a small proportion demonstrated mild impairment (12.5%) or normal cognitive function (6.3%). These results suggest that the majority of elderly residents have cognitive decline affecting daily functioning and independence.

4. DISCUSSION

The results of this study showed that most respondents were between 75 and 90 years old, which is categorized as old age. This finding aligns with , who reported that 70.6% of elderly individuals were within the same age group. The aging process causes neuronal cell apoptosis that leads to brain atrophy and decreased cognitive function. These biological changes result in reduced physical strength and independence, causing the elderly to depend more on others for daily activities Holifah et al (2021). In this study, elderly people in the older age category showed a lower level of independence compared to those aged above 90 years, which indicates that physical and cognitive decline occurs progressively with age. This pattern confirms that age is closely associated with both cognitive deterioration and loss of independence (Gobel & Paneo, 2024).

In terms of gender, the majority of respondents were female. This is consistent with the findings of Saputri et al (2022), who explained that women dominate the elderly population due to a longer life expectancy (86 years for women compared to 79 years for men). However, this also increases women's risk of developing cognitive decline and dependency. The results of this study also showed that most women experienced moderate to severe dependence in performing daily activities. According to Asma et al (2021), hormonal factors and the higher prevalence of hypertension among women are associated with decreased cognitive and physical function, resulting in higher dependence levels.

The majority of respondents had completed only junior high school education, which corresponds with Ayuningtyas et al (2020), who stated that elderly individuals with low education levels tend to have limited cognitive reserves. Limited education may reduce the ability to process information and perform problem-solving activities, both of which are essential for maintaining independence in daily living. Education plays an important role in cognitive resilience; individuals with higher education levels are more likely to retain functional independence in old age (Vita Efendi et al., 2024).

Comorbidities also affected independence levels. Most respondents in this study suffered from hypertension, consistent with findings from Collins et al (2021), who emphasized that hypertension in the elderly can lead to complications such as stroke and heart disease, reducing quality of life and mobility. Decreased vascular elasticity in elderly individuals disrupts oxygen and nutrient supply to the brain, accelerating cognitive decline and increasing dependency in daily activities (Juwinda & Febriana, 2022).

Based on the Barthel Index results, the majority of respondents were in the severe dependence category. These findings are consistent with research by Risfi & Hasneli (2020) at Rojinhome Toyomi Okinawa, which revealed that physical decline, comorbid diseases, and cognitive dysfunction are major factors influencing dependency. At Group Home Teresaen Fujisaki, the caregiving system applies the Self-Care Deficit Theory by Dorothea Orem, emphasizing encouragement and minimal assistance to maintain the elderly's functional ability. This approach helps stimulate independence and prevents further decline in self-care ability (Holifah et al., 2021).

In terms of cognitive function, the results of the Mini-Mental State Examination (MMSE) showed that most respondents had moderate cognitive impairment (43.8%). This finding aligns with Asma et al (2021), who reported that cognitive decline in the elderly is associated with brain atrophy and decreased neurotransmitter activity. Impaired cognition in the elderly often leads to memory loss, disorientation, and difficulty concentrating, which ultimately reduces their ability to perform daily living activities. At Group Home Teresaen Fujisaki, routine cognitive stimulation programs such as reading sessions, puzzles, and singing are implemented to slow cognitive decline and maintain independence. These interventions are crucial in maintaining quality of life and reducing caregiver burden (Mada, 2021).

Overall, this study indicates that increasing age, female gender, low education, and chronic diseases contribute significantly to decreased independence and cognitive function among the elderly. These findings emphasize the importance of integrated nursing interventions focused on maintaining both physical and cognitive functions in elderly care facilities.

5. CONCLUSION

Based on the results of data analysis and discussion, it can be concluded that most respondents were in the old age category (75–90 years), dominated by females (81.3%) and having a junior high school educational background (50.0%). The most common comorbidity among respondents was hypertension (43.8%). Based on the Barthel Index, the majority of elderly respondents were categorized as severely dependent (31.3%), while the Mini-Mental State Examination (MMSE) results indicated that most experienced moderate cognitive impairment (43.8%). These findings highlight that age, gender, educational level, and comorbidities are strongly associated with the independence and cognitive function of elderly individuals. Therefore, continuous nursing interventions and stimulation programs are essential to maintain both physical independence and cognitive health among the elderly at Group Home Teresaen Fujisaki, Aomori, Japan.

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