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THE RELATIONSHIP BETWEEN OLDER PEOPLE'S COGNITIVE FUNCTION AND FAMILY BURDEN

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Abstract

The currently ageing population is affecting an increasing number of older people. Families have a role in caring for older people, but caring for older people can burden families. Families with family burden can have negative impacts such as neglect of older people, decreased care, and family quality of life. This study aims to determine the relationship between the cognitive function of older people and the family burden in caring for older people. This type of research is quantitative research with a cross-sectional design. A sample of 119 respondents was taken with a simple random sampling technique. The instruments used were the Mini-Mental State Examination (MMSE) and Zarit Burden Interview (Z.B.I.), analyzed using Kendall's Tau test. The analysis showed that the majority of older people experienced a mild decline in cognitive function by 46.2%, and the majority of families caring for older people did not experience a burden of 90.8% and obtained a p-value of 0.010 (p <0.05). There is a relationship between the cognitive function of older people and the family burden in caring for them.

***Keywords**: Cognitive Function, Older people, Family Burden*

1. INTRODUCTION

The ageing population is happening worldwide, increasing the number of older people. Since 2021, Indonesia has entered the ageing population era, with the percentage of the older people population reaching 10% [1]. Older people generally experience cognitive decline as they age, and dementia is one of the symptoms of cognitive decline in older people [3]. In Indonesia, there were 1.2 million older people experiencing dementia in 2016, and it is predicted to increase to 4 million in 2050 [4]. Currently, the prevalence of dementia in Yogyakarta reaches 20.1% [5].

Decreased cognitive function in older people causes changes, such as declined memory and self-care, forgetting the closest people, and total dependence on others [6]. Due to changes in the cognitive function of older people, it is necessary to have assistance from the family. The impact that will occur during the family's role as a caregiver is the cost of care, the demand to fulfil the Activity of Daily Living (A.D.L.) and Instrumental Activity of Daily Living (I.A.D.L.) of the older people, feelings of anxiety, sadness, upset and disruption of social activities [7]. Seeing some of the impacts that occur, if the family does not have preparation and readiness, it will cause a burden for the family when providing care to older people.

Family burden is the pressure and unpleasant feelings that arise when caring for family members with certain diseases [8]. The level of cognitive function is the most burdensome factor in the care process because if the cognitive function of older people decreases, the difficulties and needs in caring for older people will also increase [9]. A high level of family burden will have an impact on older people and the family, where taking care of older people with cognitive decline will become a new routine for the family. If the perceived burden becomes high, it can trigger neglect or neglect of older people. It aligns with previous research, namely that a relationship exists between caregiving burden and neglect [10]. In addition, the family is also responsible for caring for older people, which causes the family to be unable to take care of their own needs, which can interfere with their health and decrease care.

The form of efforts that Alzheimer's Indonesia has made to overcome family burden is to hold a family caregiver meeting program for families as a forum for exchanging experiences while caring for older people, which is expected to reduce the burden of caregiving after sharing experiences with fellow older people caregivers [11]. The preliminary survey found that families experienced a burden during care for older people with cognitive decline. Therefore, this study aims to determine the relationship between the cognitive function of older people and the family burden in caring for older people.

2. METHODOLOGY

This type of research is quantitative with a cross-sectional design, where each subject is only observed once at a particular time. The research was conducted in one of the hamlets assisted by the Kasihan I Health Center in September 2023-April 2024 with a population of 168. The research sample of 119 respondents was taken with a simple random sampling technique. Inclusion criteria include older people who are ≥65 years old and willing to become respondents, older people who can write and read, family members responsible for caring for older people, and family members who are at least 17 years old. Exclusion criteria include older people who experience verbal communication disorders, older people with a history of depression, stroke, kidney failure, cancer, and family members who refuse to do research.

Mini-Mental State Examination (MMSE) is a questionnaire to assess older people's cognitive function. It was adopted from the research [12]. This questionnaire was first introduced by [13]. The questionnaire consists of 11 questions to measure five cognitive functions: orientation, registration, attention and calculation, memory, and language. The interpretation of MMSE is that if the score is 27-30, then cognitive function is expected; the score of 21-26 has a mild decline; the score of 11-20 has a moderate decline, and the score of 0-10 severely declines. The MMSE is a standardized questionnaire for assessing older people cognition with a validity value of r: 0.776 and reliability of r: 0.887 [14].

The Zarit Burden Interview (Z.B.I.) questionnaire to assess family burden was adopted from research [15]. This questionnaire was developed by [16]. The questionnaire consists of 22 questions to determine the negative impact of caring for older people, including physical health, emotional, economic, social, and family relationships. The interpretation of Z.B.I. is that if the score is 0-20, then there is no burden, a score of 21-40 is a mild-moderate burden, a score of 41-60 is a moderate-heavy burden, and a score of 61-88 is a heavy burden. The Indonesian version of the Z.B.I. has been tested for validity and reliability using the product moment test with a Cronbach alpha value of 0.931 [17].

The data analysis technique used Kendall's Tau test to determine the relationship between two variables. The ethical principles of this research include anonymity, justice, beneficence, and informed consent. In applying the principle of anonymity, researchers do not include the names of respondents directly. Applying the principle of justice, researchers are

fair in selecting respondents according to the inclusion and exclusion criteria. Applying the principle of beneficence, researchers have minimized harm to respondents. Researchers also provide informed consent as proof that respondents are willing to participate in this study. Informed consent contains the purpose and benefits of the study, the data collection process, and the right for respondents to refuse or resign. The Alma Ata Yogyakarta University Committee issued the ethical feasibility of this research, so this research was feasible with the approval number KE/AA/I.10111350/E.C./2024.

3. RESULTS

Below is information on the study's results, including a description of the cognitive function of older people and family burden and the results of Kendall's Tau test.

Table 1: *Description of cognitive function of older people*

Category	f	%
Normal	20	16,8
Mild	55	46,2
Moderate	36	30,3
Heavy	8	6,7
Total	119	100

Based on Table 1, older people with normal cognitive levels in as many as 20 people (16.8%), mild cognitive decline in as many as 55 people (46.2%), moderate cognitive decline in as many as 36 older people (30.3%), and severe cognitive decline as many as eight people (6.7%).

Table 2. *Description of family burden*

Category	f	%
No Burden	108	90,8
Mild-Moderate Burden	11	9,2
Moderate-Heavy Burden	0	0
Heavy Burden	0	0
Total	119	100

Based on Table 2, families who care for older people have no burden of as many as 108 people (90.8%), experiencing a mild-moderate burden of as many as 11 people (9.2% %), no families experiencing a moderate-heavy burden (0%), and no families experiencing a heavy burden (0%).

Table 3: *Kendall's Tau Test Results Relationship between Older people Cognitive Function and Family Burden*

Cognitive Function of The Older people	Family Burden										*P*-value
	No Burden		Mild-Moderate Burden		Moderate-Heavy Burden		Heavy Burden		Total		
	f	%	f	%	f	%	f	%	f	%	
Normal	19	95,0	1	5,0	0	0	0	0	20	100	
Mild	53	96,4	2	3,6	0	0	0	0	55	100	
Medorate	31	86,1	5	13,9	0	0	0	0	36	100	0,010
Heavy	5	62,5	3	37,5	0	0	0	0	8	100	
Total	108	90,8	11	9,2	0	0	0	0	119	100	

Based on Table 3, families caring for older people with normal cognitive levels, as many as 19 families (95.0%) did not experience burden, and one family (5.0%) experienced mild-moderate burden. In families caring for older people with mild cognitive decline, as many as

53 people (96.4%) did not experience burden, and two families (3.6%) experienced mild-moderate burden. Families caring for older people with moderate cognitive decline were 31 families (86.1%) who did not experience burden, and five families (13.9%) experienced light-moderate burden. In families who care for older people with severe cognitive decline, as many as five families (62.5%) do not experience the burden, and three families (37.5%) experience a moderate burden. In this study, no families experienced moderate-heavy burden (0%) or heavy burden (0%). A p-value of 0.010 or p-value <0.05 was obtained, so it can be concluded that there is a relationship between the cognitive function of older people and the family burden in caring for them.

Table 2 shows that the majority of older people experienced mild cognitive decline. This result can be caused by age because cognitive decline is related to a decrease in brain function, which begins with a deterioration in memory or memory. It is in line with Salthouse's opinion that a person's nervous system will slow down with age, so the ability to understand information decreases, and memory performance becomes unoptimum [18]. In addition to age, a factor that can aggravate cognitive decline is a history of disease. The ageing process makes older people vulnerable to diseases such as hypertension, which causes the thickening of blood vessels and increased blood pressure, affecting memory. Hypertension causes impairment in cognitive function due to the thickening and narrowing of the arterial wall due to the accumulation of collagen substances; if it occurs continuously, it will affect brain function because the brain lacks oxygen reserves, resulting in impaired brain perfusion [19].

Older people with normal cognitive function are influenced by gender. Women are twice as prone to cognitive decline and have a longer life expectancy than men due to hormonal differences that cause differences in maintaining cognitive function. Previous research says the cognitive decline is faster in women because as they get older than men, women experience a decrease in the production of the hormone estrogen, which eventually leads to menopause because the decline in this hormone can increase the risk of neurodegenerative diseases because the hormone estrogen plays a role in maintaining brain function [20].

From the results of this study, families do not experience family burden in caring for older people. The family considers caring for older people a form of reciprocity from children to parents. The results of this study are supported by previous research, which states that families do not consider older people a burden because of society's values of upholding and respecting older people [21]. Some families have a relationship as children so that the family is not burdened with caring for older people. In Indonesia, the relationship between parents and children has been established for a long time, so when children grow up, they will act as nurses to care for their parents [22]. The family does not feel a heavy burden while caring for older people due to the level of education that makes the family understand how to reduce stress and pressure; the family has an awareness that caring for older people is a form of responsibility, returning the favour, being grateful that they still have time to care for their parents so that feelings of sincerity and ability arise in caring for older people [7].

Families can experience family burdens influenced by the economy and duration of care. Financial problems are a factor in the emergence of burden, where caregivers have responsibility for all costs for the needs and health of older people and their own families [23]. In addition, the duration of care also affects the burden because families who care for older people for only 1-5 years have yet to feel the burden. After all, older people are still independent, different from families caring for older people for years. They will feel more burdened because older people increasingly depend on their families to carry out activities. The longer the caregiver feels tired, the more time spent with others will affect the emergence of the burden [24].

Based on the results of statistical tests using Kendall's Tau, it is known that the p-value is 0.010 or p <0.05, so it can be concluded that there is a relationship between the level of cognitive function of older people and the family burden in caring for them. This study is in line with previous research that there is a relationship between the decreased cognitive function of older people and caregiver burden in caring for older people with a p-value of 0.001 [25] & [15].

Previous research said that the burden felt by caregivers depends on the severity of cognitive impairment experienced by older people; the more severe the severity of cognitive impairment, the heavier the burden felt by caregivers [26]. Other studies also mention that the level of caregiver burden will be related to the severity of dementia [10]. Based on the results of this study, family burden arises because of the dual roles played by family members, such as working, taking care of the household, and having to care for and meet the needs of older people and the condition of older people who are getting senile, making the family stressed, if family stress management is poor, it can trigger the emergence of family burden [27].

4. CONCLUSIONS

This study focuses on the cognitive function of older people and family burden. It presented a relationship between the cognitive function of older people and the family burden in caring for older people with a p-value of 0.010 (p <0.05). Health facilities such as Puskesmas can advance the coverage of screening the cognitive level of older people as an early detection effort for older people.

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