Model of Determinant Factors Affecting Older People Quality of Life Among Suburban Elderly in Riau, Indonesia

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ABSTRACT

Elderly people were one of the susceptible communities which should not be neglected because of their vulnerability in suffering diseases due to the aging process. It needs contributions from family cooperation, cadres and health workers' care and local government's support. This study was aimed to elaborate determinant factors affecting older people's quality of life among suburban elderly in Riau Province, Indonesia. There were 42 elderly being interviewed using OPQoL and other questionnaires. Data was examined using SPSS and Smart PLS. Independent variables were age, gender, level of education, marital status, type of housemate. level of income, smoking habit, exercise activity, body mass index, abdominal circumference, knowledge score, level of health perception, health security and each scores consisting of activity of daily living (Barthel index), depression status (Geriatric Depression Scale), cognitive status (Abbreviated Mental Test and Mini Mental State Examination), fall risk (Hendrich and Morse Fall Scale), mini nutritional assessment, family support, quality of life using OPQoL and SF-36 questionnaires. Only four variables acting as determinant factors to older people quality of life i.e health security (p 0.004), health perception (0.006), AMT score (0.031) and social function score (p 0.016) proved by a formula using linear regression (p 0.007). It is concluded that health security, health perception and AMT score will increase OPQoL score, however, the social function score will decrease it.

Keywords : older people, elderly, quality of life, OPQoL, SF-36

1. INTRODUCTION

An elderly person is someone who has reached the age of 60 years or above. Based on data from the Badan Pusat Statistik (BPS), the number of elderly people in Indonesia until 2020 is around 27 million people ($\pm$ 10% of the total population). The percentage of the elderly population exceeding 10% of the total population, made Indonesia being categorized as a country with an old population structure. This is a challenge because this will cause an increase in degenerative health problems.

The aging process in the elderly results in problems with health aspects and also various aspects of life as individuals and in families and communities. Elderly people are vulnerable to several chronic degenerative diseases that are difficult to cure, require long-term care, and can result in disability for the rest of their lives. The results of the 2018 Riskesdas (Riset Kesehatan Dasar) show that the most common diseases in the elderly are heart disease, diabetes, stroke, rheumatism, and injury. This is made worse by the fact that many elderly people suffer from more than one health problem.

The increase in the number of elderly people has resulted in a higher dependency ratio which has become an economic burden on the population of productive age 15-59 years. The 2019 Susenas found that for every 100 people of productive age 15-59 years there are 15 elderly people. Around 8.89% of elderly people have been cared for in a year lastly, the average length of stay is around 6 days (between 4 – 7 days). The conditions faced by the elderly not only have economic impacts but also social, environmental, and psychological impacts. Decreased income due to retirement age, difficulty getting or maintaining work due to physical limitations, competition with younger workers or the inability to keep up with technological advances, often make the elderly marginalized and isolated from society. This situation makes the elderly vulnerable to health problems both physically and psychologically. According to Prabhaswari, 24.4% of the 90 elderly in the working area of the Petang I Health Center, Badung Regency, Bali, experienced depression, especially elderly women with low levels of education, with a tendency for the incidence of depression to increase with increasing age.

In public health science, quality of life assessment is not routinely used as an indicator of comprehensive health status in the elderly. This research was carried out to assess the quality of life of the elderly and its determinant factors which include the role of the family, the role of cadres, and the role of the village head in realizing the health of the elderly in their area. The data obtained was then made into a model using path analysis to assist the Village Government in formulating policies to improve the health of the elderly in their area.

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METHOD

This study was conducted in X village which is located around 36 kilometers from the city center in Riau Province. There were 42 elderly people being interviewed in this study randomly taken from 126 older people in the village, We used questionnaires to take data i.e OPQoL (older people quality of life) for quality of life scale, SF-36 (short form with 36 items) to measure 8 dimensions of life, Barthel index for measure performance of activity of dailing living (ADL), geriatric depression scale (GDS) to measure depression status, abbreviated mental test (AMT) and mini mental state examination (MMSE), mini nutritional assessment (MNA) to elaborate adequate intake, Heindrich Fall Scale, Morse Fall Scale and elderly balance assessment to count for fall risk, and family support questionnaires. We also elaborate elderly's knowledge and health perception about older people's health.

Data were categorized into categorical and numerical. OPQoL results were all in fair-quality, therefore we used OPQoL in numerical data. Numerical data was tested using correlation with OPQoL score, while categorical data using Mann Whitney or Kruskal Wallis test.

RESULTS

Each group of respondents are equal for male and female. Their age ranged from 60 to 72 years old. Approximately 47.6% respondents had low education (graduated from elementary school). Most of these elderly (54.8%) still have their spouse and live with her/him. Majority of these elderly (61.9%) had chronic diseases such as hypertension and diabetes mellitus. As many as 14.3% of them were obese, meanwhile there were only 9.5% underweight. Most of them already had health security (71.4%) but only 33.3% of them used the nearest integrated healthcare center.

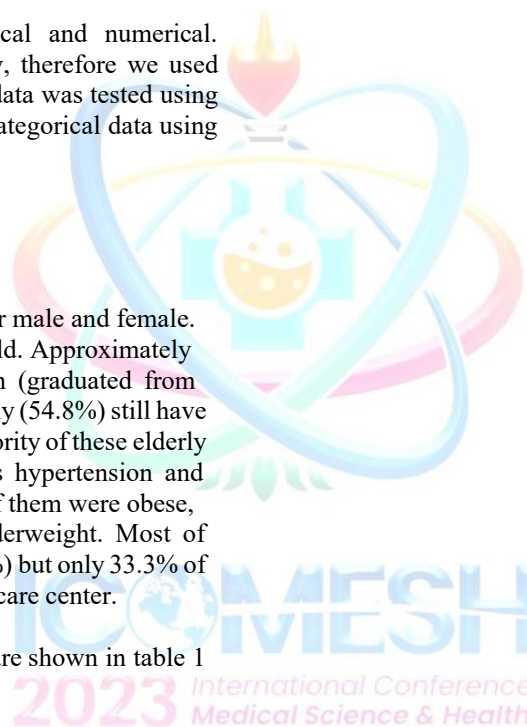The characteristics of the respondents are shown in table 1 and 2.

Table 1. Distribution of categorical data (n=42)

NO.	VARIABEL	N	%
1. Gender			
	Female	21	50
	Male	21	50
2. Educational level			
	Uneducated	12	28.6
	Graduated from Elementary School	20	47.6
	Graduated from Junior High School	6	14.3
	Graduated from Senior High School	4	9.5
3. Current employment status			
	Unemployed /	10	23.8
	Farmer / gardening	28	66.7
	civil servants / private employee / self-employed	4	9.5
4. Marital spouse status			
	Death	19	45.2
	Alive	23	54.8
5. Status of residence			
	Alone	3	7,1
	Together with spouse	23	54.8
	Gathering with children / grandchildren	13	31
	Living with other relatives	3	7.1
6. Family income			
	Under regional minimum wage	20	47.6
	Higher or same with regional minimum wage	22	52.4
7. Chronic disease			
	Yes	26	61.9
	No	16	38.1
8. Smoking habit			
	Yes	11	26.2
	No	31	73.8
9. Routine exercise			
	No	33	78.6
	Yes	9	21.4
10. Health perception			
	Neutral	19	45.2
	Positive	23	54.8
11. Health security			
	Social health security	30	71.4
	Out of pocket	12	28.6
12. Routine check at nearest integrated health care center			
	No	29	69
	Yes	13	31
13. Cadres visit			
	No	11	26.2
	Yes	31	73.8
14. Health workers' services			
	Poor	16	38.1
	Fair	26	61.9
15. Policy from village leaders			
	Poor	17	40.5
	Fair	25	59.5

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Table 2. Distribution of numerical data (n=42)

NO.	VARIABLES	DISTRIBUTION
1.	Age	65,2 ± 3,2 years old
2.	Body mass index	21,7 (15,7-30,1) kg/m²
3.	Abdominal circumference	85,2 ± 10,6 cm
4.	Geriatric Depression Scale score	7 (1-10)
5.	Abbreviated Mental Test score	8 (1-10)
6.	Mini Mental State Examination score	25 (12-30)
7.	Barthel index for Activity Daily Living	100 (55-100)
8.	Heindrich Fall Scale score	4 (0-19)
9.	Morse Fall Scale score	25 (0-100)
10.	Elderly balanced assessment score	0 (0-11)
11.	Mini Nutrition Assessment score	160 (16-275)
12.	Family support score	17 (7-19)
13.	Prior knowledge about elderly health	4 (0-13)
14.	Older People Quality of Life score	135,6 ± 9,5
15.	Physical function dimension - SF-36	25 (0-850)
16.	Physical limitation dimension - SF-36	300 (0-400)
17.	Body pain dimension - SF-36	155 (0-200)
18.	General health dimension - SF-36	350 (125-475)
19.	Body vitality dimension - SF-36	287,1 ± 62,4
20.	Social function dimension - SF-36	150 (0-200)
21.	Emotional restriction dimension - SF-36	300 (100-300)
22.	Mental health dimension - SF-36	410 (260-500)

GDS test resulted one elderly (2.4%) having depression status and 32 persons (76.2%) tended to have depression status. There were 11.9% elderly with cognitive impairment using the MMSE test, meanwhile there were 4 persons with severe cognitive impairment and 14 persons (33.3%) with fair cognitive impairment according to the AMT test. There was a good correlation between MMSE and AMT score results (p<0.001, r 0.6) for cognitive status test.

There was 2 persons (4.8%) had high risk to fall and 17 elderly had low-risk fall based on Heindrich Fall Scale (HFS) . However, there were each 26.2% elderly with high fall risk and moderate one consecutively based on Morse Fall Scale (MFS). Elderly balanced assessment (EBA)

showed no high fall risk, in fact, only moderate fall risk (11.9%). There were three significant correlations among HFS to MFS (p <0.001, r=0.7), MFS to EBA (p <0.001, r=0.5) and HFS to EBA (p 0.004, r=0.4).

The OPQoL scores were distributed normally which was classified as fair quality of life. Therefore we use OPQoL scores rather than categorical OPQoL. There was no significant correlation between OPQoL score and any dimensions of SF-36. So, we use two dependent variables i.e OPQoL score and SF-36 scores.

We choose linear regression with OPQoL as dependent variables. All categorical and numerical data which had significant value less than 0.25 were tested all together to have a model of determinant factors affecting OPQoL score. The final model is shown in picture 1.
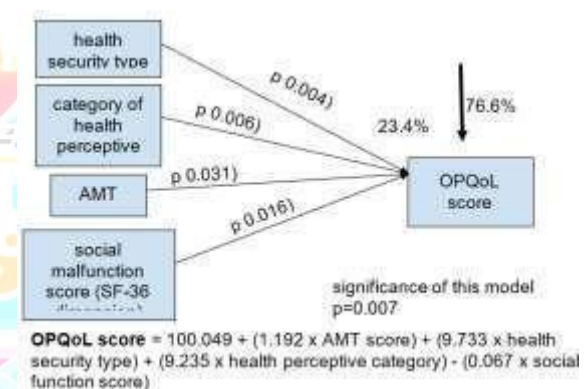

Figure 1. Model of determinant factors affecting OPQoL

DISCUSSION

This cross-sectional study demonstrated that among community-dwelling elderly in Padang Luas village, normal OPQoL as described by the distribution of the OPQOL total score and health-related OPQOL sub-score respectively, were independent predictors of several adverse health conditions. Beside OPQoL, there is SF-36 as another dependent variable. SF-36 consists of 36 items which detect positive and negative states centered on functional status and emotional wellbeing. The items are subdivided into eight dimensions: physical function 10 items, vitality, physical role, body pain, general health, social function, emotional role, and mental health.

As a dependent, OPQoL linear regression obtaining the Social Function Dimension (SF-36) has a significant value that affects the OPQoL score. This is in accordance with research on the Relationship between Social Interaction and the Quality of Life of the Elderly (2020), which found a significant relationship between social interaction and the quality of life of the elderly at

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the Melati Elderly Posyandu, Dusun Karet, Karet Village, Pleret District, Bantul Regency, Yogyakarta with a p value of 0.017 < 0.05. The conclusion of their research is that elderly people must have social interaction for an increased quality of life.

Health security with the distribution of social health security (71.4%), shows a significant relationship with OPQoL. This is in accordance with research on the Effects of Medical Insurance on the Health Status and Life Satisfaction of the Elderly (2017), shows that the regression coefficients were 0.236, 0.307, and 0.188 respectively. These results are significantly positive and indicate that the life satisfaction of the elderly who had medical insurance was higher than that of the elderly who lack any medical insurance.

Health perception with the distribution of positive (54.8%) and there is not any negative, shows a significant relationship with OPQoL. This is in accordance with research on The Relationship between Perceptions and the Quality of Life of Elderly Hypertension Patients at Sultan Syarif Mohamad Alkadrie Hospital Pontianak (2020), shows that fisher's statistical test result is a p-value of 0.00 or <0.05, which means there is a significant relationship between patient perception variables and quality of life variables. According to Benyamini, people who think their condition is fine tend to have a good quality of life, so the dimensions of the B-IPQ will tend to be more positive.

Abbreviated Mental Test Score (AMTS) with the highest score-based quartiles has a significant value that affects the OPQoL score. AMTS is an easy to perform tool for screening assessment of cognition in older subjects. According to research on The Correlation Between Cognitive Function with the Quality of Life (2016), shows that fisher' exact test results obtained values p is $0.000 < \alpha$ (0.005), so it can be stated that there is a significant relationship between cognitive function and quality of life elderly people in Barusari Village, District South Semarang. Elderly people who have normal cognitive function, namely those who have a good level of intelligence and memory, are balanced with a physical condition that is still fit so that every activity can be done alone without having to ask for help from others. Other cognitive tool tests such as Mini Mental State Examination (MMSE) were found to be not significant to the OPQoL Score. This is because MMSE refers to understanding learning, where the majority of elderly people in village X do not have a high level of education.

CONCLUSION

The issue of elderly QOL and its determinants is becoming important in order to clarify the problems of the aging generation. Their identification could be helpful in the implementation of initiatives to improve QOL. This study was aimed to elaborate determinant factors affecting older people's quality of life among suburban elderly in Riau Province, Indonesia. There were 42 elderly being interviewed using OPQoL and other questionnaires. Only four variables acting as determinant factors to older people quality of life i.e health security, health perception, AMT score, and social function score. It is concluded that health security, health perception and AMT score will increase OPQoL score, however, the social function score will decrease it.

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