



The association between hypertension and quality of life among elderly: A population based comparison study with general population in Tomohon, Indonesia

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ABSTRACT

Background

Elderly population is increasing and becoming one of the main public health problem globally. Quality of life (QoL) among elderly population is influenced by many factors. Hypertension is prevalent condition among the elderly. The objective of the current study was to compare quality of life between elderly and general population with hypertension a sub-urban area of North Sulawesi.

Method

This was a population-based cross-sectional design study at Tomohon city, one of the sub-urban area in the province, in two sub-districts area, during April-June 2017. The population was general population and elderly, who were recruited with multi-stage randomized sampling technique and meet the eligibility criteria. Hypertension was defined as a measurement of blood pressure above 140 mmHg for systolic and 90 mmHg for diastolic or had history of hypertension and/or was undertaking hypertension medication. The elderly population was defined as age above 60 years old. QoL was measured with EQ5D, which values range from 0-1. Good QoL was defined as the value > 0.5. The data were analyzed using Chi Square.

Result

From 192 samples, the mean age was 45.79 (SD 13.77), majority was in the group of age 41-50 (31.3%), female was 64.6%, educational level of senior high school 46.9%. Elderly population was 18.2%. Hypertension status was found at 33.3% of respondents. Most of the respondents were categorized as Good QoL (65.6%). The mean value of EQ5D was 0.68 (SD 0.25). Based on bivariate analysis we found that among the elderly and general population, proportion of Poor QoL were 74.3% and 25.5% respectively ($p=0.001$). Among those with hypertension, elderly group had significantly higher proportion (78.9%) of poor QoL compared to general population (44.4%).

Conclusion

In comparison with general population, elderly population with hypertension have significantly poorer quality of life.

Keywords: Hypertension, Quality of Life, Elderly

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INTRODUCTION

According to United Nation in the World Population Prospects, there will be a significant increasing number of elderly population globally. The increasing is expected to be faster in the coming decades. During 2000-2015 the number of elderly population was increased almost 50% from 607 million to 901 million in 2015. Between 2015 and 2030 the number of elderly population would increase almost 60% from 901 million to 1.4 billion. The number would then reach almost 2.2 billion in 2050. The fastest growing in the next 15 years is projected to be in Asia-Oceania region.¹

The global growing of gray population is also occurred in Indonesia. The percentage of elderly population was 7.5% of total population in 2012. It increased to 8.9% of total population in 2013 and is projected to touch 21.4% in 2050. With the total number of around 19 million elderly population, Indonesia have the biggest number of elderly among other Southeast Asia countries and globally was rank at the top 5. The trend would steadily grow due to improvement of national life expectancy during 2015-2020 which is expected to be slightly higher than global life expectancy (71.5 vs 71). The ratio would be still in the same scenario during 2045-2050 (77 vs 75.9).²

The increasing number of elderly population is followed by deterioration of health condition. Chronic condition were one of the most relevant contributors for quality of life in elderly.^{3, 4} In Kuala Lumpur of Malaysia, a study among 203 elderly at home showed that chronic comorbidities were one of the main contributor of decreasing quality of life. Other contributing factors were social support and outdoor leisure activities.⁵

Some chronic condition such us hypertension, heart diseases, stroke, kidney diseases, cancer, lung diseases and joint diseases are prevalent among elderly population. Cardiovascular diseases is prevalent both in developed and developing countries. Hypertension is one of the important condition in cardiovascular or circulation diseases.^{6,7}

Hypertension is also a global and very important

traditional risk factor for heart diseases and stroke. Beside clinical dimension, hypertension also have an economic dimension which directly influence the quality of life of the people with hypertension. Several dimension of life including vitality, social function, mental health, mood and psychological function were reported to be negatively influenced by hypertension. In addition, several symptoms of hypertension will also disturb daily activity of the people with hypertension. All of these condition will contribute to decrease quality of life, especially among elderly population.⁷

A study about determinants of quality of life in elderly is important. Health service for elderly is developed to guarantee that older people enjoying active, independent and productive life. Exploring the determinants of quality of life will provide useful information for health provider in order to effectively and efficiently serve the elderly population. Hypertension was the most prominent diseases (57.6%) among elderly population in Indonesia.⁸ Currently, there is scarcity of information about quality of life among Indonesian elderly with hypertension. Therefore, the objective of this study were to determine the prevalence of hypertension among elderly, and also to study the association between hypertension on quality of life on elderly in Indonesia.

MATERIAL AND METHODS

This was a population-based cross-sectional design study at Tomohon city, one of the sub-urban area in the province, in two sub-districts area, during April-June 2017. The population was general population and elderly, who were recruited with a multistage random sampling method to select household-based and meet the eligibility criteria. Inclusion criteria were people aged 60 and over, residence of Tomohon city and agree to participate during the study. Exclusion criteria were elderly people with difficulties in communication, serious hearing problems, suffering for serious or critical illnesses, and drink caffeine 30 minute before blood pressure measurement. We also collected data about socio-demographic characteristics and current lifestyle (smoking habit, alcohol consumption, physical exercise, and cognitive function) through structured

questionnaire during face to face interview technique.

Operational definition of elderly people during this study was people aged 60 and over. Individual were identified for hypertension if they meet the following criteria during health examination: Having been diagnosed with hypertension or prescribe treatment for hypertension or having a systolic blood pressure 140 mmHg or higher and/or diastolic blood pressure is 90 mmHg or higher. Blood pressure would be checked twice, separated by 5-minutes interval and the average of the measurement would be used in final analysis.

Blood pressure was checked using a mercury sphygmomanometer to measure blood pressure. Instrument of research were health questionnaire about clinical data and EQ5D questionnaire to obtain profile of QoL. Quality of life (QoL) were measured with EuroQol-5 Dimension (EQ5D). It is a widely used instrument to measure quality of life. This study was using Indonesian version of the EQ5D by EuroQol Group. The EQ5D define quality of life in term of five dimensions: Mobility, self-care, usual activities pain or discomfort and anxiety or depression. Each dimension is rated on a scale from 1 to 5. A higher score represents a greater limitation on the corresponding dimension. We applied Thai preference score for EQ5D-5L health states, which values range from 0 – 1, because to our knowledge there is no publication about utility value of QoL in Indonesia. Good QoL was defined as the utility value > 0,5. Visual Analog Score (VAS) is a part of EQ5D which special emphasize in quantifying the

perceived-health status of subject by self-rated their health condition. It is a chart consisting score from 0 (very/critical illness) to 100 (good health, no complaint).

For data analysis, descriptive statistics were applied to describe the prevalence of hypertension and quality of life among elderly population in Tomohon. Also, it was employed to explore differences in the socio-demographic characteristics between elderly with and without hypertension. Chi square test were used to examine the association between hypertension and quality of life.

All subjects were supplied by information about the objective and contents of the study and verbal consents were obtained. This study was reported to Ethical Commission for Research of Faculty of Public Health, Sam Ratulangi University and The Association of Public Health of North Sulawesi province.

RESULTS

From 192 samples, female was 64.6%; majority of respondent have educational level of senior high school 46.9%. Most of the elderly have lower educational level than general population. We found the proportion of elderly population was 18.2%. Smoking status was 36.5%, and most of the smokers were among general population (30.7%). Hypertension status was found at 33.3% of all respondents. Only 9.9% of the hypertensive was from the elderly. Most of the respondents were categorized as Good QoL (65.6%) (Table 1).

Table 1 Demographic Distribution of Respondents

Characteristics	Elderly		General		Total	
	N	%	N	%	N	%
Sex						
Female	24	12.5	100	52.1	124	64.6
Male	11	5.7	57	29.7	68	35.4
Education						
Elementary	16	8.3	19	9.9	35	18.2
Junior High School	10	5.2	38	19.8	48	25.0
Senior High School	7	3.6	83	43.2	90	46.9
University	2	1.0	17	8.9	19	9.9

Body Mass Index						
Normal	25	13.0	104	54.2	129	67.2
Overweight	10	5.2	53	27.6	63	32.8
Smoking Status						
Yes	11	12.5	59	30.7	70	36.5
No	24	5.7	98	51.0	122	63.5
Hypertension						
Yes	19	9.9	45	23.4	64	33.3
No	16	8.3	112	58.3	128	66.7
Quality of Life						
Poor	26	13.5	40	20.8	66	34.4
Good	9	4.7	117	60.9	126	65.6
Total	35	18.2	157	81.8	192	100

In Table 2 we found that the mean age of all subject was 45.7 (SD 13.77). The mean value of EQ5D was

0.68 (SD 0.25). The mean value for Visual Analogue Scale (VAS) were 77.2 (SD 13.75) (Table 2).

Table 2 Distribution of Mean of Age, Score of EQ5D and VAS

Characteristics	Mean	SD	Min-Max	95% CI
Age	45.7	13.77	18 – 77	43.83 – 47.75
EQ5D score	0.68	0.25	0.05 – 1.00	0.65 – 0.72
VAS score	77.2	13.75	30 - 100	75.32 -79.23

Based on bivariate analysis we found that among the elderly and general population, proportion of Poor QoL were 74.3% and 25.5% respectively (p=0.001).

Elderly has 8-times likely to suffer poor quality of life compared to general population (Table 3).

Table 3 Association Between Age and QoL Status

Age Group	QoL		Total (%)	OR (CI)	P*
	Poor (%)	Good (%)			
Elderly	26 (74.3)	9 (25.7)	35 (100)	8.45	0.005 (3.65-19.54)
General Population	40 (25.5)	117 (74.5)	157 (100)		

* *Chi square Test*

Among hypertensive population, Poor QoL were higher in elderly (78.9%) compare to general

population (44.4%). Elderly are 4-times likely to suffer from poor quality of life compared to general population (Table 4).

Table 4 Association Between Hypertension Status, Age and QoL Status

Hypertension Status	Age Group	QoL		Total (%)	OR (CI)	P*
		Poor (%)	Good (%)			
Yes	Elderly	15 (78.9)	4 (21.1)	19 (100)	4.68	0.014 (1.34 – 16.35)
	General Population	20 (44.4)	25 (55.6)	45 (100)		

* *Chi square Test*

DISCUSSION

In general, this study revealed that elderly have poorer quality of life than younger age group, regardless the hypertension status. However, this study help to identify the different of quality of life among elderly and general population without hypertension. The relationship between cardiovascular risk factors and quality of life was reported in several publication. High blood pressure are one of the risk factor for cardiovascular diseases and is prevalent among elderly. We found that the prevalence of hypertension in this study (33.3%) was higher than the reported national prevalence of hypertension based on basic health research in 2013 (25.8%). The prevalence was also higher than provincial prevalence of hypertension (27.1%) as reported by Ministry of Health (MOH) in 2014.⁸ According to Tomohon city health office reported by manadotribunnews (2015) there were 49.417 cases of hypertension in the city in 2014 or about 37.53% from total health complaints at that time.⁹

In this study we found that the prevalence of overweight in general population and elderly group was 27.6% and 5.2% respectively. The prevalence of obesity in general population was higher than national prevalence of obesity reported by MOH in 2014, which was 26%. Based on body mass index, as a risk factors for hypertension, we found that the prevalence of overweight in general population is quite high (27.6%).

We also found high prevalence of smoking status among both elderly (12.5%) and general population (30,7%). Smoking is one of the important risk factors for hypertension. Non-smoker population have a better quality of life than the smoker. A study about determinants of health-related quality of life in the multiethnic Singapore population reported that smoking is one of the influential factors to quality of life based on ethnicity.¹⁰ Raggi et al in 2016, reported the result from a study conducted in Finland, Poland and Spain that smoking cessation is one of the best effort to increase quality of life among elderly.⁴ The study, smoking status had consistent association with quality of life in the three countries.

The prevalence of hypertension in this study is quite

high (33.3%), of which 9.9% are in elderly. Raggi reported the prevalence of hypertension was 23.1% in three European countries.⁴ In Sri Lanka the prevalence of hypertension was 30.6% and significantly associated with quality of life among elderly population.¹¹ In this study, the high prevalence of hypertension and its risk factors, sadly was found in relatively younger population. The mean of age during this study was 45.7 years old. It means that we need to find some suitable intervention for our population.

The proportion of poor quality of life was 13.5% in elderly and 20.8% in general population. It seems that there are several factor that play a role as a contributing factors for that profile. We found relatively consistent founding between EQ5D score and VAS score. In general, the quality of life is good in Tomohon population. However, when we analyzed the association between age and quality of life, it seems that the poorer quality of life was significantly common in elderly than general population (74.5% vs 25.5%). According to Hamizah¹² the older the person, the poorer they quality of life. The influence of age for poorer quality of life in this study was also act as a strong independent variable for poor quality of life among elderly and general population with hypertension. The effort to understand the quality of life of the elderly is very important because the elderly is an "instrument" that can be used to evaluate the success of health intervention, welfare programs, health care and the welfare of the elderly themselves. The World Health Organization (WHO) defines quality of life (QOL) as individual perception towards her status in life and in the context of the individual's environment, the system of beliefs and goals. Thus, the quality of life is an indicator for active aging. Active ageing itself is a process of optimizing health, and improve the quality of life of the elderly.⁵

According to Basu (2013) majority of hypertension cases in middle income countries were undiagnosed, untreated and uncontrolled. To improve the outcome of patients, improvement in screening and adherence strategies is important. Basu reported that the poor diagnosis were influenced by age.¹³ The present study, although the proportion hypertension was relatively high, it might be bigger if the healthcare

providers improve their quality of service. The improvement of health service is mandatory because there are many risk factors for hypertension, specifically in elderly. To improve their quality of life, other factors should be in great consideration, especially the proportion of overweight in the current study which was relatively high.

There are several limitation of this study. The data were collected only in small area, thus the result cannot be generalized. Also, this was not an observational study, further multisite study with larger sample are suggested.

DISCLAIMER

In comparison with general population, elderly population with hypertension have significantly poorer quality of life.

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