Screening of Degenerative Diseases and Quality of Life among Elderly People in Posyandu Lansia Medan Amplas Sub-Districts, Medan

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Abstract
The number of elderly people in Indonesia from year to year is increasing in line with increasing life expectancy. The number of elderly people reached 7.56% of the population. Certainly, the increase in the elderly population will be followed by an increased risk for the elderly to suffer from degenerative diseases. This study aimed to assess the role of degenerative disease screening and health counseling to the quality of life of the elderly in the health post (*Posyandu Lansia)*. This study was a descriptive analytic with prospective approach by assessing 100 elderly people. Screenings done for examination of blood pressure, blood sugar level, cholesterol level, uric acid level, and urine protein. Assessment of quality of life done by using questionnaire of WHOQOL. The elderly in *Posyandu Lansia* were educated in accordance with the results of the screening and followed up for 4 months. Screening results showed that most elderly people had high blood pressure (89% had high systolic blood pressure and 70% had high diastolic blood pressure). As much as 55% of elderly people had cholesterol levels ≥ 200 mg/dl, while blood sugar levels as ≥ 200 mg/dl were 20% of the elderly and only 20% of respondents who had uric acid levels that exceed normal limits (>8,5mg/dl). As many as 13 of respondents indicated a positive result in urine protein. Assessment of the quality of life of elderly based on the score at first examination obtained a mean of 88.26 ± 9.1. Regarding general health status, 21% of elderly felt less satisfied, 47% declared that their health status in normal conditions and 32% felt satisfied with their current health status. The score of quality of life after receiving counseling, obtained a mean of 89.31 ± 7.8. Assessment of general health status showed only 11% of elderly declared unsatisfactory health status. Result of t test showed that there was a significant difference between score of quality of life before and after screening degenerative diseases ($p<0.05$). Screening of degenerative diseases showed a majority of the elderly had a potential risk to suffer from degenerative diseases. Prevention through screening and health counseling particularly in *Posyandu Lansia* can reduce morbidity and mortality in elderly, and therefore it will improve quality of life for the elderly.
Key words: screening, degenerative diseases, elderly people, quality of life

Introduction

The number of elderly people in Indonesia from year to year is increasing, in 2010 it reached 7.56% of the population. This is in line with the increase in life expectancy, from 68.6 years in 2004 to 70.6 years in 2009 so that in 2020 estimated the number of elderly reached 28.8 million people (National Commission for the Elderly, 2010). The increase elderly population certainly will also be followed by an increase risk of suffering from degenerative diseases. Degenerative disease is the biggest problem in the elderly that can lead to loss their ability to live independently because of limited mobility, frailty or other physical or mental health problems. Many require long-term care, including home-based nursing, community, residential and hospital-based care (WHO, 2015).

The Ministry of Health has formulated various policies, programs and activities that can support the health status and quality of life of the elderly in particular through program of *Puskesmas Santun* (Primary Health Care) and *Posyandu Lansia* (Integrated Health Post for elderly). However, research shows half of the health centers showed poor performance, do not have a formal program of elderly services (Indriati et al, 2011). Morbidity of elderly population in 2012 amounted to 26.93% means that out of every 100 elderly people, there are 27 of them experience pain (MoH, 2013). Early prevention through screening and health education regarding degenerative disease is expected to reduce morbidity and mortality in the elderly.

Materials and Methods

This study was a prospective descriptive analytic approach with the number of respondents of 100 elderly people in the Elderly Posyandu, Sub-district of Medan Amplas, Medan. Eligible elderly people were explained about aim of study and the procedurs for screening examinations which will be

perfomed, and asked to sign for written informed consent. The purpose of this study was to assess the role of degenerative disease screening and health counseling to the quality of life of the elderly. Screening was performed through examination of blood pressure, examination of blood sugar level, cholesterol level, uric acid level, and urine protein by using Easy Touch GCU devices and Urine Test Strip. Assessment of the quality of life of elderly done by interview using a questionnaire which WHO recommended that the World Health Organization Quality of Life (WHOQOL) (WHO, 2004). The elderly were educated in accordance with the results of the screening examination by health cadres and were followed up for 4 months.

Results and Discussion

1. Characteristics of respondents

In this study the characteristics of respondents, assessing age and sex. Based on the guidelines for Posyandu Implementation (National Commission for the Elderly, 2010), the age of the respondents in this study were divided based on the target group of health service for elderly in posyandu ie pre elderly age (<59 years old), the elderly (60-69 years) and elderly at high risk (> 70 year), as can be seen in the Table 1 below.

Table 1. Characteristics of Respondents

Characteristics		**n**	**%**	
Age	< 59 years	31	31	$\dot{x}$ = 65
	60 – 69 years	43	43	s = 9
	> 70 years	26	26	
Sex	Male	34	34	
	Female	66	66	

Table 1 showed the average age of respondents was 65 years, with the oldest aged 95 years and the lowest was 55 years old. According to Law No. 4 of 1965, the elderly is a person who has attained the age of 55 years. However subsequent Law No. 12 of 1998 on the Welfare of the Elderly establishes that the elderly age limit in Indonesia is 60 years and over (Darmojo and Martono, 2000; Sutarti, 2014). Based on this age group, the majority of respondents in this study were elderly people aged 60 years and over as much as 69%. Most of the respondents were female (66%).

2. Anthropometric Assessment

Anthropometri assessment is used to determine the health status of the elderly based on Body Mass Index (BMI) and waist circumference can be seen in the Table 2 below.

Table 2. Assessment Body Mass Index and Waist Circumference in Elderly

Anthropometric		**Categories**	**n**	**%**
Body Mass Index		Underweight	10	10
		Normoweight	24	24
		Overweight		
		Pre-obese	14	14
		Obese I	35	35
		Obese II	17	17
Waist Circumference	Male	< 90 cm	12	12
		≥ 90 cm	22	22
	Female	< 80 cm	14	14
		≥ 80 cm	52	52

The table above showed that the majority of respondents had a BMI in the overweight category as much as 66%, comprising 14% pre-obese, 35% obese-I and 17% obese-II. On the other hand there were 10 respondents who categorized as underweight. Waist circumference is an indirect indicator of intra-abdominal adipose tissue (fat viscera) associated with degenerative diseases. The study found that the average waist circumference of respondents was 92 cm, where the waist circumference> 90 cm in men and> 80 in women, shows the value at risk for the onset of degenerative diseases such as hypertension, diabetes, cholesterol, and cardiovascular disease. The study found 74% of respondents (men 22% and women 52%) were central type obese, only 26% of respondents who had normal waist size. Obesity is a risk factor for developing degenerative diseases.

3. Screening degenerative diseases

In line with increasing age, there is a tendency in increased blood pressure. One of the processes that affect this is the case of atherosclerosis in the blood vessels. Although there is no limit on the size of

the blood pressure by age, but often understandably occurrence of hypertension in the elderly. Based on the JNC VII for systolic blood pressure, referred to as pre-hypertension when blood pressure 120-139 mmHg, stage 1 hypertension when blood pressure 140-159 mmHg and stage 2 hypertension when blood pressure ≥ 160 mmHg. As for diastolic blood pressure, referred to as pre-hypertension when blood pressure 80-89 mmHg, hypertension stage 1 if the blood pressure of 90-99 mmHg and stage 2 hypertension when blood pressure ≥ 100 mmHg. In this study, result of screening of systolic and diastolic blood pressure in elderly is as shown in the following table.

Table 3. Systolic and Diastolic Blood Pressure in Elderly

Blood pressure	**Systolic**		**Diastolic**	
	n	**%**	**n**	**%**
Normal	11	11	30	30
Pre-hypertensi	20	20	26	26
Hypertensi stage 1	22	22	10	10
Hypertensi stage 2	47	47	34	34

The table above showed the majority of elderly people studied had high blood pressure (89% for systolic pressure and 70% for diastolic pressure), where the majority were in the category of stage 2 hypertension, respectively 47% for systolic blood pressure and 34% for diastolic blood pressure. In general, the average systolic blood pressure of respondents was 156 mmHg and the average diastolic blood pressure was 91 mmHg. Management of hypertension in the elderly, in principle no different with hypertension in general; which consists of lifestyle modification and if necessary followed by the administration of antihypertensive drugs. Commonly used medications are diuretics and calcium antagonists, with the principle that small initial doses and increased gradually. Target of blood pressure to be achieved for systolic blood pressure and diastolic respectively are ≤140 and ≤90 mmHg (Kuswadhani, 2006).

3.1. Examination for Cholesterol, Blood Sugar, Uric Acid and Protein Urine

One of the degenerative diseases that can result from excessive food consumption is coronary heart disease. The risk factors for the coronary heart disease included high cholesterol levels in the blood (hypercholesterolemia) due to excessive fat consumption. Coronary heart disease is a disease that causes the most deaths. In this study, cholesterol levels in elderly can be seen in the table below.

Table 4. Screening for Cholesterol, Blood Sugar, Uric Acid and Protein Urine

Screening		**n**	**%**	
Cholesterol				
< 200 mg/dl		45	45	$\dot{x}$ = 205.8 mg/dl
≥200mg/dl	55	55		s = 47.1mg/dl
Blood Sugar				
< 200 mg/dl		80	80	$\dot{x}$ = 180.2 mg/dl
≥200mg/dl	20	20		s = 108,6 mg/dl
Uric Acid				
< 3.5 mg/dl		9	9	$\dot{x}$ = 6.2 mg/dl
3.5 – 8.5 mg/dl		71	71	s = 2.2 mg/dl
>8.5 mg/dl		20	20	
Protein Urine				
Negative		55	55	
Doubtful		32	32	
Positive		13	13	

Based on the above table, data showed that the majority of the elderly who examined, cholesterol levels exceeding 200 mg/dl as much as 55%. Further from these data, cholesterol levels ≥ 240 mg/dl, which is considered as risky cholesterol levels, found as much as 21%. The similar result also obtained from research Khairani and Sumiera (2011) which found 23.5%. Some studies revealed that a high total cholesterol level is an important factor for the onset of coronary heart disease (CHD). Men have a greater possibility to get CHD, but the ratio of women after menopause with men develop CHD is the same (Dalal and Robbins, 2001; Kusmana and Hanafi, 1998)

Diabetes mellitus (DM) is one of the degenerative diseases. Blood sugar checks is one way to diagnose diabetes mellitus. Ideally clinical diagnosis of diabetes mellitus is based on clinical symptoms (classical complaint) and the examination of blood sugar levels while fasting and adrandom. In this study, examination of adrandom blood sugar levels done through a blood test as a DM screening in the

elderly. From the above table, it can be seen that adrandom blood sugar levels found higher in the elderly as much as 20%. The majority of respondents had blood sugar levels under 200 mg / dl. While the average blood sugar levels for the elderly was 180.2 mg/dl. Khairani (2007) also found the prevalence of diabetes in the elderly among 60-70 years about 15.8% where the number of women more than men.

Gout or gouty arthritis is just one of the two hundred more forms of different arthritis. This disease is a type of arthritis caused by the crystallization of sodium urate in or around the joints. High uric acid levels typically caused by the consumption of foods containing purines. Several other medical conditions can also increase uric acid levels, such as diabetes mellitus, hypertension, hypercholesterolemia and obesity. The table above indicated that only 20% of respondents who have a uric acid levels that exceed the normal limits, while 80% of respondents have a uric acid levels in the normal range and low. The average value obtained 6.2 mg/dl.
The presence of chronic diseases and degenerative diseases in the elderly as well as the tendency of the use of many drugs in the treatment of these diseases can worsen kidney function in the elderly. Screening to determine kidney function can be done by checking the presence of protein in the urine. it will show the complications that may occur as a result of the degenerative diseasse. The above table showed that of 100 elderly examined, only 13% were definitely indicate the presence of protein in the urine. While the results with doubtful category as much as 32%. This group has the potential risk for impaired renal function in the future.

4. Assessment of Quality of Life of Elderly
Assessment Quality of Life of elderly based on a questionnaire developed by the World Health Organization called the World Health Organization Quality of Life (WHOQOL). WHOQOL questionnaire consists of 26 items of questions. The questions consisted of one the questions that assess the overall quality of life, one of the questions about general health, and 24 of the questions for four domains in assessing quality of life (ie, physical, psychological, social relationships and environment).

Assessment of quality of life in general is based on questions about the respondent's own assessment towards his/her quality of life. The results revealed eight elderly people who state that their quality of life in poor condition. Meanwhile, 63 people expressed their quality of life was mediocre, about 28 elderly people who felt the quality of life in good condition. Only one elderly person who felt his quality of life very good .

Health status assessment based on question about how much satisfied toward their current health status. The results revealed 21 elderly people felt less satisfied with their current health status. A total of 47 elderly declared their health status in mediocre condition. Elderly who declared their health status good and very good were 32 people.

4.1. Assessment of Quality of Life by Scoring on Four Domains
Scoring the quality of life is based on four aspects/domains contained in the WHOQOL questionnaires, namely the domain of physical health, psychological, social relationships and environment, respectively maximum score of that domain is 35, 30, 15 and 40. Results of the assessment of these domains can be seen in the following table.

Table 5. Four Domains of Quality of Life

Domains	**Male (n =34)**	**Female (n =66)**
Physical	25.1 ± 3.8	23.6 ± 3.9
Psychological	21.7 ± 2.3	20.2 ± 2.9
Social relationship	10.9 ± 1.5	10.5 ± 1.4
Environment	27.1 ± 2.1	26.1 ± 3.1

The results from Table 5 showed that the value of quality of life based on each domain; physical health, psychological, social relations and environment was still relatively low, where elderly male relative had higher scores compared to scores in elderly women. Many factors affect the quality of life, including family roles. Elderly healthy family functions will have a better quality of life (Sutikno, 2011). After examination for degenerative diseases, the elderly were given advise and counseling by health workers according to their screening results at the Posyandu, then were followed up for 4 months and assessed their quality of life (Table 6).

Table 6. Quality of Life at First Screening Performed and After 4 Months

Quality of Life	$\bar{x} \pm s$	p value
At first	88.26 ± 9.1	0.001
After 4 months	89.31 ± 7.8	

Assessment of the quality of life of elderly based on the total value of the score at first of this examination obtained an average 88.26 ± 9.1. Scores quality of life of the elderly after 4 months of follow-up, where the elderly had received counseling about the disease, obtained an average 89.31 ± 7.8. Result of t test showed that there was significant difference between scores quality of life before and after the screening for degenerative diseases ($p<0.05$). This result indicated that in the presence of screening of blood pressure, cholesterol, blood sugar, uric acid and protein urine, increase the awareness and knowledge of elderly about the potential risk of degenerative diseases and its consequences.

A simple suggestion for reducing the risk of degenerative diseases is by exercising, especially walk by foot (Hasibuan, 2010). In this study, although through simple health education by health cadres, there was a slight increase in total scoring of quality of life of the elderly, hence the model of counseling and a more structured approach is needed to improve the health status and quality of life of the elderly.

Conclusions

Screening degenerative disease of the elderly showed a majority of the elderly have the potential to suffer from degenerative diseases. The elderly in Posyandu in Sub-district Medan Amplas found to be more likely to experience high blood pressure, hypercholesterolemia and obese. Prevention through screening degenerative diseases and health education proven to improve the quality of life of the elderly, where screening result has role as trigger for increasing awareness and knowledge about the diseases. For further improvement, model of counseling and more structured approach needed to increase the health status and quality of life of the elderly.

Acknowledgments

The authors thank to the Director of Research and Community Services, Directorate General of Higher Education Republic of Indonesia for providing funding to this research.

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