Elderly Health Perception in the Area of the Coastal Area of Surabaya Using Logistic Regression

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ABSTRACT

Increase in the number of elderly will need a serious handling because naturally elderly will experience setbacks, both physically and biology, or his mental. The increased number of elderly create health problems facing will be more complex especially related to the issue of aging. Efforts to produce a healthy aging population is not easy and requires the cooperation of the parties. The purpose of this research examines the factors that affect the perception of the health of the elderly with logistic regression approach. The results of the study showed that the perception of the health of the elderly influenced by the health of the physical, psychological, social relations and the environment. Psychological factors and physical health is the dominant factor in influencing the perception of the health of the elderly, each with odds ratio of 12.701 and 10.224. The perception of the health of the elderly tend to have positive relationship with the health of the physical, psychological, social relations and good environment.

KEY WORDS: elderly health perception, logistic regression, odds ratio

1. INTRODUCTION

Being old is a natural phenomenon as a result of the aging process. This phenomenon is not a disease but a condition fair which are universal. The aging process is regressive and includes the process of organobiologis, psychological and sosiobudaya. To be the elders determined genetically and influenced by someone [1]. According to [2], in general physical condition of a person who has entered the elderly decline. This can be seen from some changes: (1) changes the appearance on the face of the hands and the skin, (2) changes inside the body such as the nervous system: the brain, the contents of the stomach: the spleen, heart, (3) changes senses come: sight, hearing, smell, taste, and (4) motoric changes among others diminished strength, speed in moving. These changes are generally lead on diminish psychological and physical health in general will have an effect on daily life activities [3].

Elderly population (elderly) has increased including in Indonesia that was originally only occurred in the developed countries. Improvement of the inhabitants of the elderly is caused by due to increased life expectancy and increased life expectancy is caused by 3 things: (1) progress in the field of health, (2) increasing economic social and (3) increasing community knowledge [4]. Increase in the number of elderly will need a serious handling because naturally elderly is experiencing setbacks, both physically and biology, or his mental. Decrease the function of various organs of the body will make the elderly become vulnerable to the disease is acute or chronic. In addition on elderly also often occur physical dependence, will no longer be able to perform daily activities by themselves because of the disease. The increased number of elderly will also create health problems facing will be more complex especially related to the issue of aging.

The improvement of the inhabitants of the elderly start felt since 2000 namely the amount of elderly 14.4 million people with increased 7.18% with age of living hope 64.5 years. In 2006 the number of elderly 19 million people with an increase of approximately 8.9 percent by the age of living hope 66.2 years. 2010 inhabitants of elderly is expected as much as 23.9 million people with increased 9.7 percent by the age of living hope 67.4 years. And is expected in the year 2020 population of elderly in Indonesia will reach 28.8 million people with an increase of approximately 11.34 percent and the age of the living hope 71.1 years. Is expected in the years 2020-2025 Indonesia will be located in the four stages of the world under China, India and the United States [3].

Someone to stay healthy until the elders, since the young people need to be taught healthy lifestyle. Healthy Lifestyle can be done with consume nutritious foods balanced, physical activity/sports properly and orderly and not smoking. Healthy Lifestyle this must have been done since still young so that when entering the elderly someone can live their lives happily avoid many health problems. Such is the case with the lifestyle that one can affect among other health drink less water less movement, consume food that high calorie beverages, break habits that do not regularly and smoking habit [5][6].

According to [7], through the lifestyle that is not good can cause various diseases. Lifestyle changes such as the consumption of fast food, diet is not good, smoking habit and lack of physical activity physical activity the classrooms is practically one of the triggers for the emergence of dangerous diseases such as Diabetes Mellitus High Blood Pressure (hypertension), heart disease and stroke.

Individually the influence of the process of the oldness cause problems. One of the problems associated with the inhabitants of the elderly is health problems, for travel on elderly disease has its own characteristics which is unfortunately,

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the more severe and often recurrence. Elderly health issues are varied in addition to closely related with degenerative diseases also progressively the body will lose power hold against infections, besides with age appears psychological issues. In line with the increasing age of the elderly is no longer productive, the ability to physically and mentally began to decline, is not able to do the work of the work of a more serious entering retirement period, sends her dead spouse, stress face death, depression, the emergence of various diseases etc.[8][9].

According to the World Health Organization, less healthy lifestyle can be a 1 from 10 causes of death and disability in the world. More than two million deaths every year due to the lack of moving or less physical activity, this is because the calories that entered is not comparable with calories out so that more and more calories to accumulate and become a burden for the body and the body to be disturbed which then cause physical setbacks that may eventually cause various diseases such as Diabetes Mellitus, high blood pressure, heart disease and stroke [10].

Some research results about the lifestyle and the perception of the elderly in Indonesia among others, which were held in the Clinic Pekayon Jaya Bekasi City shows that the health status of low on elderly health clinic Pekayon target Jaya of 66,9%. The results of the analysis bivariat shows no relationship between physical activity with health status values (p=0.004) and the habit of rest with health status (p=0,000 value). Based on the results of research and it is recommended to increase the knowledge of the elderly about the lifestyle and the impact on health status through the promotion of health in the target areas the clinic Pekayon Jaya Bekasi city [11].

Research [7], give description that the health status of the elderly obtained 10% health status of the elderly is good, 83,3% health status of the elderly enough and 6.7% health status of the elderly less. Overall the results of research explains that the need to provide information about health [2]. According to the results of research done [9] in 27 provinces in Indonesia obtained the results of the percentage of elderly women (53.0%) is greater than the percentage of elderly men (47%). But the percentage of the elderly sick more on elderly men than elderly women. The majority of elderly admits of no health failure during the 1 weeks before loading data and only 27.5% farmers percent elderly who have health complaints such as cough, runny nose, hot and headache repeatedly that to interfere with the daily activities.

Efforts to produce a healthy aging population is not young and requires the cooperation of the parties, among others: elderly itself, family, community, government organization and the welfare of the observer and to health professionals what is more important is that the active role of the elderly themselves and family in implementing healthy lifestyle. Along with the growing population of the elderly, the government has formulated various policies. Health Services at the community level is the Posyandu elderly health services elderly base level is a health clinic and health services advanced level is the Hospital [10]. Based on explanation above, this research examines the factors that affect the perception of the health of the elderly with logistic regression approach [12].

2. METHODOLOGY

The population in this research is the elderly in Surabaya City. Samples in this research as much as 89 senior citizens in the coastal areas: Kenjeran Sub-district and the orphanage wreda: Hargo Dedali, UPT Liponsos Whitish with a method simplerandom sampling [13]. Independent variables in this research is the physical health (X1), psychological (X2), social relations (X3) and the environment (X4). Physical health covers the activities of daily living, reliance on drug materials and medical assistance, energy and fatigue. Mobility pain and discomfort, sleep and healthy working capacity. Includes the description of the body and psychological appearance, negative emotion, positive feelings, awards themselves, spirituality / religion / personal beliefs, thinking, learning memory and concentration. Social relationships include the personal relationships, sexual support, sexual activities. Environment include financial resources, physical security and security, health and the environment and social concerns the house, the opportunity for new information and skills, participation and opportunities for recreation, physical environment (population / voice / mobility / climate change), transportation. The dependent variables in this research is the perception of the health of the elderly (Y) that it consist of positive and negative perception, with the framework of the following concepts [10][11].
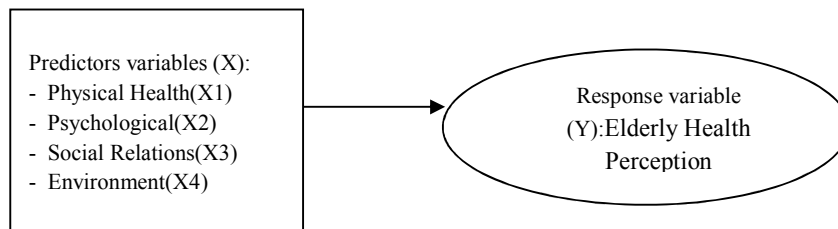

Figure 1. The Conceptual Framework of Health Elderly Perception

Logistic regression model describes the probability or risk from an object, served as follows [12][14]:

$$\pi(x) = \frac{e^{(\beta_0 + \beta_1 x_1 + \ldots + \beta_k x_k)}}{1 + e^{(\beta_0 + \beta_1 x_1 + \ldots + \beta_k x_k)}}$$

In the regression model linier, it is assumed that the observations of the response variable expressed as:

$$y = E(Y|x) + \varepsilon \, ,$$

With $E(Y|x) = \beta_0 + \beta_1 X_1 + ... + \beta_k X_k$ is mean population and ε is random component that shows the deviation from mean observations. *Odds* from the result between the individual with x = 1 is defined as $\pi(1)/[[1 - \pi(1)]]$. Similar to the odds of the result between the individual with x = 0 is defined as $\pi(0)/[[1 - \pi(0)]]$. Odds ratio, shortened OR, is defined as the ratio of the odds for x =1 to odds x=0, and given from the following equation [14][15]:

$$OR = \frac{\pi(1)/[[1 - \pi(1)]]}{\pi(0)/[[1 - \pi(0)]]}$$

3. RESULTS AND DISCUSSION

Research variable frequency distribution consists of the perception of the health of the elderly, health physical, psychological, social relations and the environment is presented in the following table.

Table 1. Research Variable Frequency Distribution

Independent variables	Elderly Health Perception				
	Positive		Negative		Total
	f	%	f	%	F
Physical Health					
Good	33	94.3	2	5.7	35
Good enough	33	61.1	21	38.9	54
Psychological					
Good	54	80.6	13	19.4	67
Good enough	12	54.5	10	45.5	22
Social Relations					
Good	44	86.3	7	13.7	51
Good enough	22	57.9	16	42.1	38
Environment					
Good	45	90.0	5	10.0	50
Good enough	21	53.8	18	46.2	39

Table 1 shows that the elderly with good physical health has a positive health perception (94.3%) and negative (5.7%), while physical health good enough to have a positive health perception (61.1%) and negative (38.9%). Elderly with good psychological perception tend to have positive health (80.6%) and negative (19.4%), while the psychological good enough have a positive health perception (54.5%) and negative (45.5%). Elderly with good social relationships tend to have a positive health perception (86.3%) and negative (13.7%), while social relations good enough have a positive health perception (57.9%) and negative (42.1%). Elderly with good environment tend to have a positive health perception (90.0%) and negative (10.0%), while the Environment good enough have a positive health perception (53.8%) and negative (46.2%).

The relationship of physical health, psychology, social and environmental with elderly health perception is done with test dependencies. The results of analysis presented in the following table.

Table 2. p-value on the relationship of independent variables with elderly health perception

Independent variables	Chi-Square	P value
Physical Health	12.195	0.000
Psychological	5.865	0.015
Social Relations	9.151	0.002
The Environment	14.944	0.000

Table 2 shows the relationship between the independent variables with the dependent variables, all values Asymptotic Significance (2-sided) smaller than $\alpha = 0.05$. This can be interpreted that physical health (X1), psychological (X2), social relations (X3) and the environment (X4). There are significant relationships with health elderly perception. Then the estimation of the parameters of binary logistic regression model with Maximum Likelihood Estimation method (MLE) presented in Table 3.

Table 3. The p-value and Prevalence Risk Simultaneously

Predictors variables	Estimator	P value	Prevalence of risk
Physical Health	2.325	.025	10.224
Psychological	2.542	.003	12.701
Social Relations	1.653	.014	5.222
Environment	1.680	.048	5.368

Table 3 shows that of all the variables thought to be related to the perception of the health of the elderly found a significant statistic with $\alpha = 0.05$ The health of the physical, psychological, social relations and the environment. Physical health just given positive health perception on elderly obtained Odds Ratio (OR) = 10.224 means a good physical health will give positive health perception on elderly of 10.224 times compared with sufficient physical health. The results of the analysis on psychological variables with the perception of the health of the elderly shows the p-value = 0.003 with OR = 12.701 psychological means that both will give positive health perception on elderly of 12.701 times compared with enough psychological. The results of the analysis on the variable social relations with the perception of the health of the elderly shows the value p = 0.014 with OR = 5.222 means good social relations will give positive health perception on elderly of 5.222 times compared with the social relations that enough. The results of the analysis on the environment variables with the perception of the health of the elderly shows the value p = 0.048 with OR = 5.368 means good environment provide positive health perception on elderly of 5.368 times higher compared with the Environment enough. This is in accordance with [16] stated that the quality life depends on cultural norms and perceptions of relative population. The quality of life related to health includes functional limitations that physical or mental and physical welfare positive expression, mentally and spiritually. Health-related Quality of Life(HQL) can be used as an integrative size that unites the morality and morbidity and are the various elements of the index that covers death, morbidity functional limitations and healthy state peace.

4. CONCLUSION

The results of the study showed that the perception of the health of the elderly influenced by the health of the physical, psychological, social relations and the environment. The perception of the health of the elderly tend to have positive relationship with the health of the physical, psychological, social relations and good environment. Psychological factors and physical health is the dominant factor in influencing of elderly health perception,

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