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Analysis of the Determinants of Eldery Proverty in Indonesia in 2022

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ABSTRACT

Indonesia is entering a period of demographic bonus with the lowest projected dependency ratio in 2030. This bonus is expected to accelerate the development of various sectors. However, the increase in the number of elderly people, which reached 9.78% in 2020, signifies the potential of the ageing population era. Special handling is needed to avoid negative impacts on development and the risk of elderly poverty. This study uses a survey of 300 elderly people and binary logistic regression analysis to evaluate the factors that influence elderly poverty. The results showed that education, working status, area of residence, marital status, and social security had a significant effect, while functional impairment did not. Recommendations include improving access to education and equitable distribution of elderly social security programmes across Indonesia.

Keywords: Demographic bonus, ageing population, elderly poverty, education, social security

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1. Introduction

Background of the Problem

Currently, Indonesia is entering a period of demographic bonus. In 2030, it is projected that Indonesia will experience its first demographic bonus with the dependency ratio reaching its lowest point. This means that the productive age population bears the smallest number of non-productive age population. This demographic bonus is highly anticipated by many parties because it is considered to be a catalyst for accelerating development in various sectors in Indonesia. The productive-age population is the production capital that will become a big economic driver. However, on the other hand, there are certainly issues that must be resolved to face the following years after the first demographic bonus is over. According to BPS population projections, in the next three decades, Indonesia's elderly population will double or reach more than 20% of the total population. This means that 1 in 5 Indonesians will be over the age of 60. The increase in the number of elderly people will continue to occur along with an increase in life expectancy and improvements in the quality of life of the population. During this period, Indonesia officially entered the second demographic bonus period or Ageing Population. During this period, Indonesia's demographic conditions will experience a shift in population composition. Those who were previously productive will age into the elderly and have a high potential to no longer be productive. Based on the results of the 2020 Population Census released by BPS, the total population of Indonesia is 270 million with the composition of the elderly population reaching 9.78 percent. This percentage of the elderly population has increased by 2.19 percent, from the previous 7.59 percent (SP2010) to 9.78 percent (SP2020). Although the composition of the young population is still quite high, the composition of the elderly population which has almost reached 10 percent is a sign that the era of the aging population will soon occur in Indonesia.

The increasing life expectancy rate makes the potential for a person to survive longer and welfare in old age will be increasingly necessary. The high number of the elderly population certainly requires special handling so as not to have

a negative impact on the sustainability of development. This means that if not handled properly, it will result in the elderly potentially becoming poor.

2. Theory Review

2.1 Conceptual Theory

Derived from Feagin (1975), there are three main types of causes of poverty: individualistic, structuralist, and fatalistic. Individualistic factors attribute poverty to the poor themselves (personal problems) such as lack of ability, effort, and morale. Structuralist factors place causes in the social and economic system (social problems) such as lack of opportunity, discrimination, and exploitation of the poor. Fatalistic factors place causes beyond the control of the individual and the environment (fate) such as luck, illness, and chance. Departing from the above theory, individualistic factors such as lack of ability can be seen in terms of individual education. The elderly population is poorer because they are less educated than the younger generation. With lower levels of education, older people have limited economic opportunities and this in turn affects their ability to continue employment, income earned, and savings and wealth (Jariah & Sharifah, 2008). In addition, Nasreen et al. (2017) state that low education levels lead to the elderly population having less ability to work and having limited sources of income. Therefore, elderly people who have low education tend to be vulnerable to becoming poor. Then, the individual effort factor can be seen from the working status whether the individual is working or not.

Furthermore, structuralist factors state that poverty results from problems in society that lead to lack of opportunities and lack of jobs. Factors outside the individual such as place of residence are one of them. According to a journal published by Vu & Nguyen (2021), one of the factors causing elderly poverty is the difference in the area of residence. Elderly people who live in urban areas and are older require higher living costs, especially health costs, so if they do not have sufficient income, elderly people living in urban areas will be more at risk of poverty than rural areas. Then, structuralist factors also address discrimination. Based on research conducted by Muis et al. (2020), some divorced elderly people in Pattingalloang, Makassar have social problems that arise due to feelings of loneliness which lead to depression. In addition to divorce, elderly residents who have never married often feel themselves ostracized and scorned by neighbours, which also leads to depression and death with a complexity of social problems. Therefore, structural factors are also seen from the married status of individuals. Furthermore, structuralist factors are also seen from the equitable distribution of social security received by elderly individuals. OECD (2019) states that less than 10% of the elderly in Indonesia receive a pension, and it is generally low among women. As a consequence, they rely on family for income support, rather than public social protection. Financial constraints are a major challenge at retirement (Nasreen et al., 2017). The latter are fatalistic factors that are beyond the control of the individual and the environment. The elderly population is vulnerable to illness or functional impairment. Therefore, fatalistic factors are seen from the status of functional impairment whether the individual is suffering from functional impairment or not.

2.2 Binary Logistic Regression Analysis Theory

The analysis method used is binary logistic regression analysis. The binary logistic regression model models the probability of certain conditions or statements that are qualitative in nature. This analysis method is used because the response variable is a categorical variable. In this study, the response variable is the poor status of the elderly which is grouped into two categories, namely poor elderly and non-poor elderly. Meanwhile, the explanatory variables were education, working status, residence, marital status, social security, and functional impairment status. The following is the equation of the initial logistic regression model proposed:

$$\ln\left(\frac{\pi_i}{1-\pi_i}\right) = \beta_0 + \beta_{11}X_{11} + \beta_{12}X_{12} + \beta_{13}X_{13} + \beta_{14}X_{14} + \beta_{15}X_{15} + \beta_{21}X_{21} + \beta_{31}X_{31} + \cdots + \beta_6X_6$$

Description:

Y = poor status of the elderly
X_{11} = not in school
X_{12} = did not finish elementary school
X_{13} = elementary school/equivalent
X_{14} = junior high school / equivalent
X_{15} = senior high school / equivalent
X_{21} = the elderly are working
X_{31} = the elderly live in rural areas
X_{41} = unmarried elderly
X_{42} = elderly divorced alive
X_{43} = elderly divorced dead
X_{51} = the elderly have no social security
X_6 = the number of functional disorders suffered by the body

3. Research Methods

The research method used in this study was a questionnaire interview-based survey. Data was collected through a survey of 300 elderly people selected as the research sample. The sampling frame was developed based on information on the elderly population, i.e. individuals aged 60 years and above, obtained from the Ministry of Home Affairs' Dukcapil. In this study, the sampling unit and unit of analysis are elderly individuals. The survey was conducted through direct interviews using questionnaires provided to the selected sample. This approach allows for the collection of detailed and relevant data from respondents who fit the set criteria.

3.1 Questionnaire Appendix

Below, we have attached the questionnaire that was used as a survey instrument in our interview:

I. Respondent Identity

No.	Description		Code
101	Sample Code Number		☐☐☐
102	Name of Eldery Resident		
103	Eldery Gender*	1.Male 2.Female	☐
104	Province		☐☐
105	District/City		☐☐
106	Sub-District		☐☐☐
107	Village		☐☐☐
108	Village Classification	1.Village 2.City	☐

*Fill in the appropriate code in the box provided

II. Education

Description of Eldery Education	
201	What is the highest STTB Diploma you have? (Code)
	☐
Code: 1. Not in school 2. Did not finish Elemntary School 3. Elementary School/Equivalent 4. Junior High School/Equivalent 5. Senior High School/Equivalent 6. College	

*Fill in the appropriate code in the box provided

III. Working Status

Question		Answer*
301	During the past week, did you work or do business (engage in activities to earn wages or salaries or profits for at least one hour)?	1. Yes 2. No
302	Did you have a regular job during the past week but were temporarily unemployed?	1. Yes 2. No
303	Did you take care of the household (without receiving salary or wages)?	1. Yes 2. No
304	During the past week, did you look for work or prepare for a business?	1. Yes 2. No
305	Is (name) willing to work if someone provides it?	1. Yes 2. No

* Circle the appropriate answer

**If the answer is “Yes”, go to the next question

IV. Marital Status

Question		Answer*	Code
401	What is your marital status?	1. Unmarried 2. Married 3. Living divorced 4. Death divorced	

V. Social Guarantee

Question		Answer*
501	Do you have a guaranteed pension?	5. Yes 6. No
502	Do you have saving and insurance for old age?	1. Yes 2. No
503	Do you receive any aother social security neededfor the eldery?**	1. Yes 2. No

*Circle the appropriate answer

**Other sources of funding for the eldery, including local government assistance programs(if any)

VI. Functional Impairment Status

Description of functional impairment							
Are you visually impaired (can't see/difficult to see)?* 1.Yes 2.No	Are you hearing impaired (can't hear/hard of hearing)?* 1.Yes 2.No	Do you have difficulty walking/climbing stairs?* 1.Yes 2.No	Do you have any problems using/moving your hands/fingers?* 1.Yes 2.No	Do you have memory/concentration problems?* 1.Yes 2.No	Do you have any behavioral/emotional problems?* 1.Yes 2.No	Do you have trouble speaking/communicating with others?* 1.Yes 2.No	Do you have difficulty taking care of yourself?* 1.Yes 2.No
601	602	603	604	605	606	607	608
▭	▭	▭	▭	▭	▭	▭	▭

*Fill in the appropriate code in the box provided

4. Results and Discussion

4.1. Descriptive Analysis

4.1.1. Education Variable

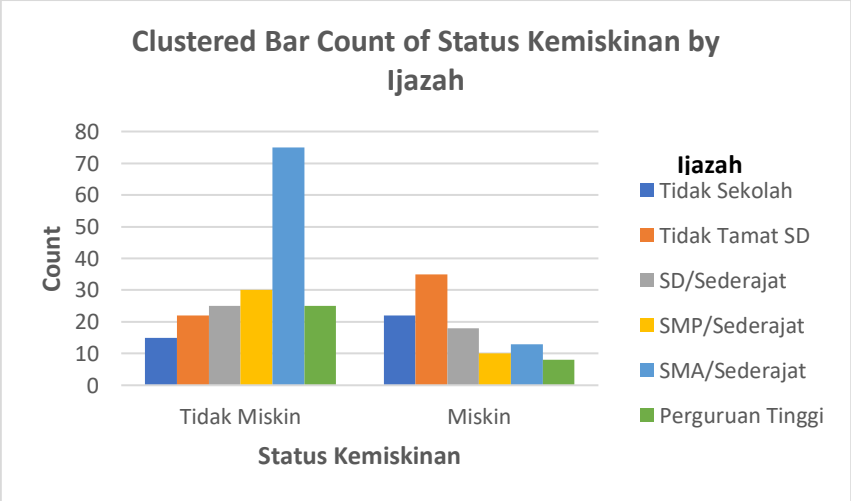

Figure 4. Bar Graph of Poor and Non-Poor Elderly by Education Level

The majority of elderly people who are not poor have a senior high school education. Then, the majority of the poor elderly did not graduate from primary school. For the non-poor population, the higher the education level, the higher the proportion of the non-poor population. The opposite is true for the poor elderly, where the higher the education, the lower the proportion of poor elderly. This is in line with research conducted by Jariah & Sharifah (2008) that a lower

level of education causes the elderly to have limited economic opportunities, making it difficult to get a job and eventually become poor.

4.1.2. Working Status Variable

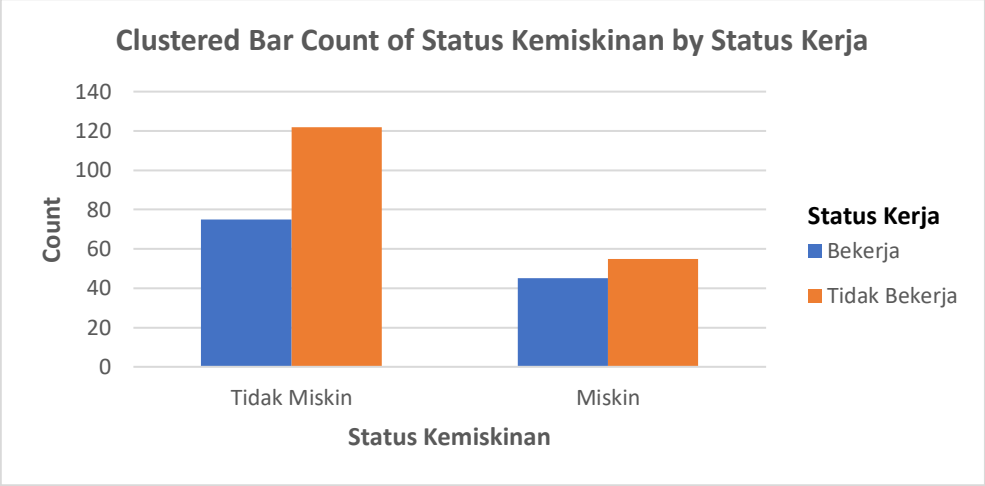

Figure 2. Bar Graph of Poor and Non-Poor Elderly by Working Status

The sample of elderly people who work and do not work is more likely to be classified as not poor because of the overall sample, the largest number is not poor. Then, there are more elderly who are not poor who do not work. The same results were also obtained for the poor elderly where those who did not work were more numerous, although there was no significant difference between the elderly who worked and did not work. This happens because based on age, the elderly have indeed reached retirement age which is no longer natural to work. According to (Zein, n.d.), a person entering the elderly will experience a decrease in ability which causes most elderly people to no longer work. This is in line with research by Nguyen (2021) which found that older people who work have a higher poverty rate than older people who do not work. These results conclude that the elderly work after retirement due to poverty.

4.1.3. Residence Area Classification Variable

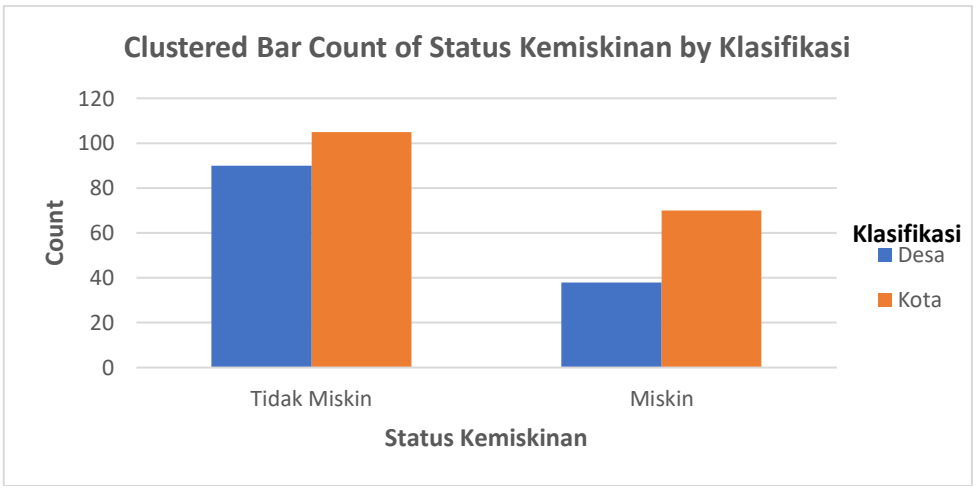

Figure 3. Bar Graph of Poor and Non-Poor Elderly by Area of Residence

There is no significant difference in the non-poor elderly for rural and urban residence categories. Poor elderly people are more likely to live in urban areas. According to Fikri et al. (2016), poverty is one of the urban problems that occurs due to urbanization and is further exacerbated by urban fragmentation. This is related to the increasing needs that arise as a consequence of the urbanization process that occurs, such as the need for job creation, the need to fulfill urban facilities in the form of housing facilities, economic facilities, and supporting facilities (facilities and supporting infrastructure). Thus, competition in urban areas leads to higher poverty.

4.1.4 Marital Status Variable

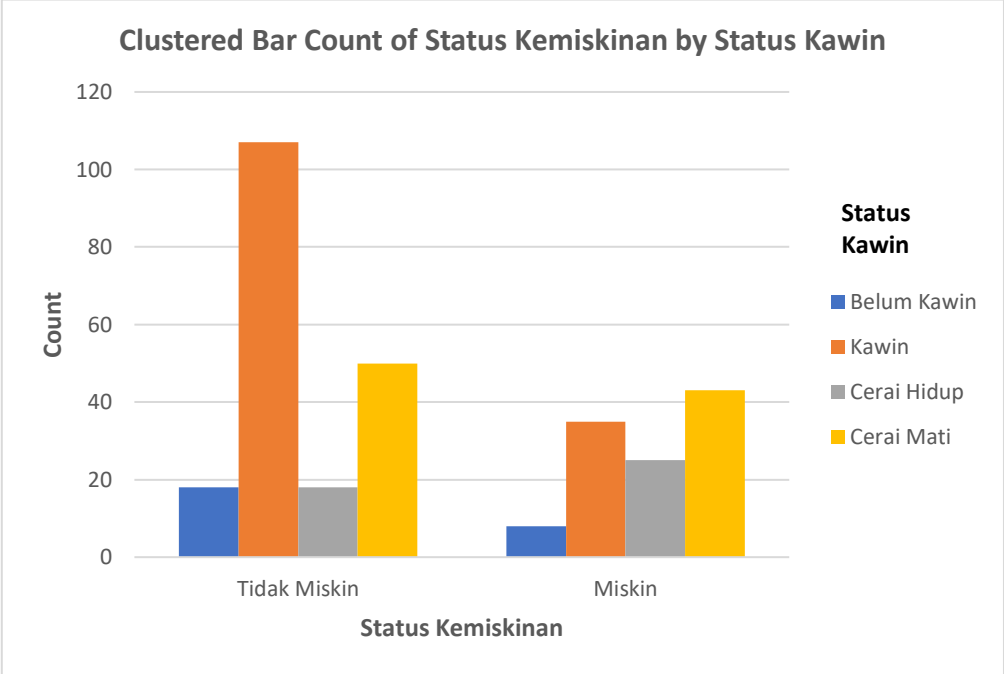

Figure 4. Bar Graph of Poor and Non-Poor Elderly by Marital Status

The majority of the elderly who are not poor are married. On the other hand, the majority of the poor elderly population are divorced. Those who are married or still have a partner will have other people who can be relied upon to fulfill their needs and consumption. Elderly people who are divorced no longer have a partner who can be relied upon to fulfill their needs. In addition, there are social problems that arise due to the divorce status of an elderly person (Muis et al, 2020) which leads to depression and unwellness.

4.1.5 Social Security Variable

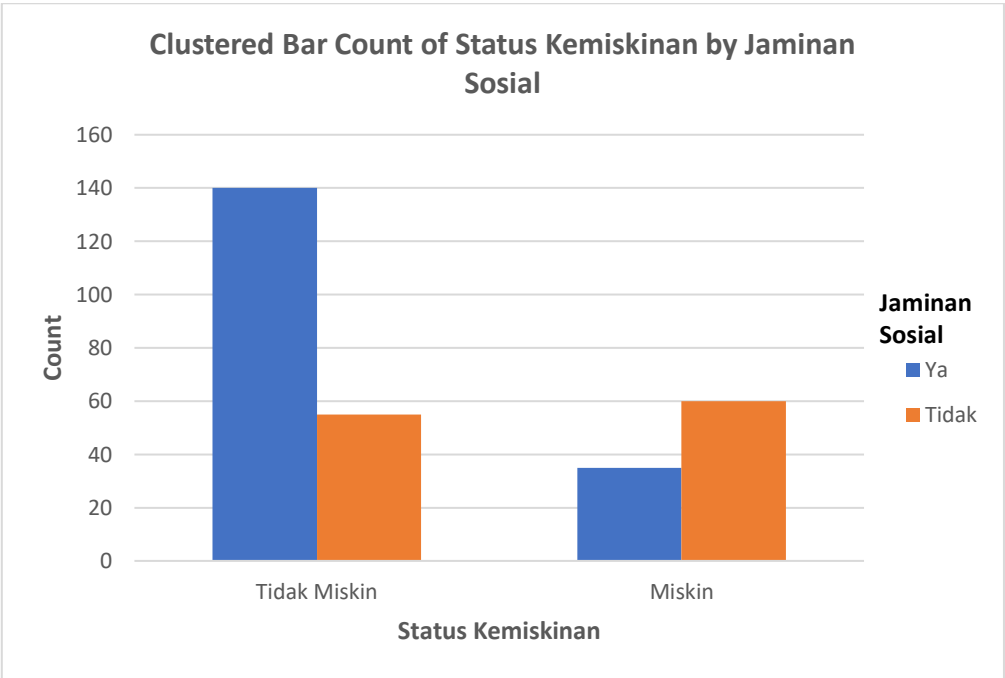

Figure 5. Bar Graph of Poor and Non-Poor Elderly by Social Security Receiptl

Elderly people who have social security tend not to be poor, while those who do not have social security tend to be poor. If it is related to working status, the majority of the elderly are no longer working due to physical limitations and intellectual abilities. Thus, the elderly will rely on funds obtained from social security which can be in the form of pension funds, insurance, savings, or social security obtained from other sources, such as local governments.

4.1.6. Functional Impairment Variables

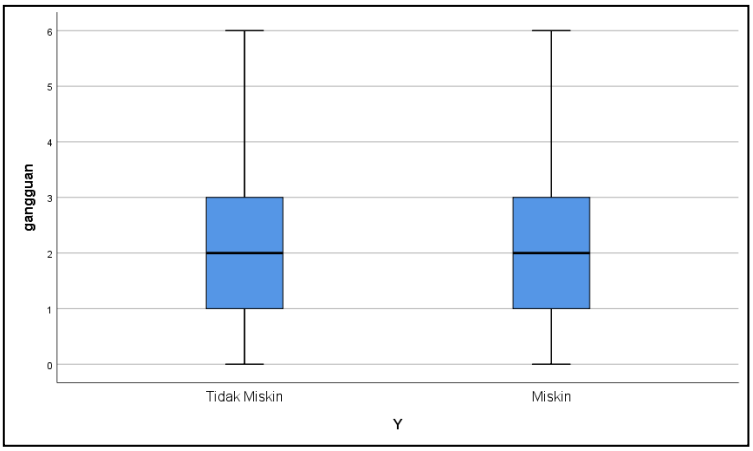

Figure 6. Bar Graph of Poor and Non-Poor Elderly by Social Security Receipt

Based on the number of functional impairments suffered, there is no difference between the poor and non-poor based on the functional impairments experienced, suggesting that this variable is not significant.

4.2. Inferential Analysis

Table 4.1. SPSS Output of Binary Logistic Regression Results

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Klasifikasi(1)	-.869	.407	4.564	1	.033	.420
	Ijazah			49.439	5	.000	
	Ijazah(1)	3.441	.764	20.260	1	.000	31.216
	Ijazah(2)	2.613	.693	14.204	1	.000	13.639
	Ijazah(3)	1.223	.706	3.000	1	.083	3.396
	Ijazah(4)	-.049	.765	.004	1	.949	.952
	Ijazah(5)	-.142	.686	.043	1	.836	.868
	status kerja(1)	.862	.349	6.102	1	.014	2.367
	Status Kawin			30.988	3	.000	
	Status Kawin(1)	.567	.674	.707	1	.401	1.762
	Status Kawin(2)	2.875	.538	28.599	1	.000	17.723
	Status Kawin(3)	1.458	.401	13.195	1	.000	4.299
	jaminan sosial(1)	2.796	.434	41.428	1	.000	16.373
	gangguan	.017	.127	.017	1	.896	1.017
	Constant	-4.301	.770	31.189	1	.000	.014

Based on the processing results, the binary logistic regression equation is obtained as follows.

$$\ln\left(\frac{p_i}{1-p_i}\right) = -4{,}301 + 3{,}441x_{11} + 2{,}613x_{12} + 1{,}223x_{13} - 0{,}049x_{14} - 0{,}142x_{15} + 0{,}862x_{21} - 0{,}869x_{31} + 0{,}567x_{41} + 2{,}875x_{42} + 1{,}458x_{43} + 2{,}796x_{51} + 0{,}017x_{6}$$

There are five variables that have a significant effect on elderly poverty in Indonesia, namely education, working status, place of residence, marital status, and social security. The variable that does not have a significant effect on elderly poverty in Indonesia is functional impairment. Based on the model fit test, it was concluded that the model is suitable to study the relationship between poverty status and the six independent variables used.

Table 4.2. SPSS Output of Model Fit Test

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	13.175	8	.106

4.2.1. Education Variable

The education of the elderly population significantly affects the poverty status of the elderly. In addition, from the output, it can be seen that a low level of education will have a greater tendency to be poor than a higher level of education. Table 4.1. provides the information exp(3,441) = 31.216, which means that elderly who did not go to school have a tendency to be poor 31.216 times greater than elderly who studied until college. In addition, table 4.1. also provides information exp(2,613) = 13.639, which means that the elderly who did not graduate from elementary school have a tendency to be poor 13.639 times greater than the elderly who studied until college. This is in line with the explanation (Bintang &

Woyanti, 2018) which states that there is a significant influence between education and poverty. This is also relevant to the opinion of (Faritz & Soejoto, 2020), that education has a significant effect on poverty levels.

4.2.2. Working Status Variable

The working status of the elderly significantly affects the poverty status of the elderly. In addition, from the output it can be seen that the elderly who work have a greater tendency to be poor than the elderly who do not work. Table 4.1. provides information exp(0.862) = 2.367 which means that the elderly who work have a tendency to be poor by 2.367 times greater than the elderly who do not work. This supports the conclusion of the descriptive analysis.

4.2.3. Region of Residence Variable

The region of residence has a significant effect on the poverty status of the elderly. Table 4.1. provides information exp(-0.869) = 0.420, which means that the elderly who live in the village have a tendency to be poor by 0.420 times compared to the elderly who live in the city. This means that the elderly who live in urban areas have a greater tendency to be poor than the elderly who live in rural areas. This is in line with Prasekti's research (2017) that the elderly who live in urban areas tend to be poorer.

4.2.4. Marital Status Variable

Marital status significantly affects the poverty status of the elderly. In addition, from the output it can be seen that the elderly who are divorced alive and divorced dead have a greater tendency to be poor than the elderly who are married. Table 4.1. provides information exp(2,875) = 17.723, which means that the elderly who are living divorced have a tendency to be poor 17.723 times greater than the elderly who are married. In addition, table 4.1. also provides information exp(1,458) = 4.299 which means that the elderly who are divorced dead have a tendency to be poor by 4.299 times greater than the elderly who are married. However, the unmarried category is not significant, this is because only a few individuals are unmarried until they reach old age. This is in line with research conducted by Li and Dalaker (2021) which states that married couples generally have significantly lower poverty rates than individuals who are not married, divorced, and divorced.

4.2.5. Social Security Variable

Social security significantly affects the poverty status of the elderly. In addition, from the output it can be seen that elderly people who do not have social security have a greater tendency to be poor than elderly people who have social security. Table 4.1. provides information exp (2,796) = 16.373 which means that elderly who do not have social security have a tendency to be poor 16.373 times greater than elderly who have social security. This supports the conclusion from the descriptive analysis.

4.2.6. Functional Impairment Variables

Functional impairment did not significantly affect the poverty status of the elderly. According to the biological view, the health condition of the elderly is associated with stochastic and non-stochastic factors (Mota et al. 2004). Stochastically, the elderly is faced with the aging process which results in organ function, causing several functional disorders of the body. So, naturally, every elderly person will experience functional impairment as they age, regardless of their socioeconomic conditions. Thus, the functional impairments suffered by the elderly, whether poor or non-poor, will be the same. Therefore, the number of functional impairments does not significantly affect the poverty status of the elderly.

5. Conclusions and Suggestions

The interpretation of the research results explains that the factors that have a significant effect on elderly poverty are education, working status, region of residence, marital status, and social security, while the variable that does not have a significant effect on elderly poverty is the number of functional disorders so that this variable has no chance of influencing elderly poverty in Indonesia.

The government should improve the education system so that it can reach all levels of society. In addition, other efforts can include equalizing education funding assistance for people who are economically disadvantaged. Some regions such as Yogyakarta have a Social Security for the Elderly (JSLU) program, Jember Regency has a Social Security for the Elderly (JASLUT) program and an Elderly Assistance (BLU) program. It is recommended that there should be an equitable provision of elderly social security programs for all of Indonesia because from the results of the study, it was concluded that social security is one of the life support for the elderly. In this study, it was found that education had a significant effect on elderly poverty. Meanwhile, the time period between when the elderly was educated and when they entered old age was very far apart. From here, the researcher considers that there is a possibility that the elderly are poor not only when they are old, but have been poor for a long time. Thus, the researcher provides suggestions for future research to conduct research on poor elderly people to see whether these elderly people become poor because they are aging and unproductive or indeed individuals who are already poor and cannot get out of poverty until their old age.

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