THE INFLUENCE OF LITERACY AND INCOME ON PEOPLE'S DECISIONS TO HAVE INSURANCE AND PENSION PROGRAMS

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Abstract
This study aims to determine wether there is a positive and significant relationship between insurance literacy or pension programs and people's decisions to have insurance or pension programs, wether there is a positive and significant relationship between income and people's decisons to have insurance or pension programs, and wether there is a positive and significant relationship between insurance literacy or pension programs and income with people's decisions to have insurance and pension programs. The subjects of this study were respondents from the webinar "Insurance Literacy in Maintaining Finansial Stability". The method used is the Pearson Product Moment correlation tehnique to determine the relationship between each literacy variable and income to people's decisions to have insurance or pension programs. From the test results, it was obtained that there was a positive and significant relationship between literacy and people's decisions to have insurance or pension programs, there was a positive and significant relationship between income and people's decisions to have insurance literacy or pension programs, income, and people's decisions to have insurance or pension programs. Results of this study provided information for insurance industry that people will buy insurance if they have sufficient income and a good literacy about insurance and pension programs.
Keywords: *Insurance; Pension Program; Correlation Tehnique; Literacy; Income*

INTRODUCTION

In living life, we need protection from risks that can occur at any time. Risk is an unexpected loss or disaster. These risks can include illness, accident, loss, death or other losses. Apart from that, there are also risks during retirement due to not preparing savings that can be used in old age[1]. We cannot predict when and where these risks will occur. One way to minimize the risks is by having insurance and a pension program.

Otoritas Jasa Keuangan (OJK) divides financial literacy into 5 parts, namely insurance, banking, pension programs, financing, and pawnshops. The results of statistical activities in collaboration between OJK and Badan Pusat Statistik (BPS) namely Survei Nasional Literasi dan Inklusi (SNLIK) show that insurance and pension program literacy in 2022 is still relatively low, that is 31.7% and 30.4% [2]. Based on the survey results, the literacy rate in the insurance and pension program sectors is not much different, buth both are still lower when compared to the banking and pawnshop sectors which have literacy rates of 49.9% and 40.7%. Insurance ownership is not yet a priority need for some people, so they do not try to find out information about insurance literacy is still low. Only a few people know that insurance is quite important for their lives [3]. Meanwhile, low pension program literacy can be caused by a person not being able to estimate their income after retirement and they don't know how they can improve their standard of living after retirement [4].

Previous research conducted by [5] showed that financial literacy has a significant influence on someone becoming a life insurance participant. Therefore, increasing financial literacy has an impact on increasing the number of life insurance participants. Insurance ownership can also be linked to people's decision to have insurance products. In this study, the financial literacy used will be more spesific, namely insurance literacy and pension programs and the types of insurance tested are not spesific, such as life insurance, but rather all types of insurance.

Apart of literacy, income also influences people's interest in insurance and having a pension program. According to [6], income, education and awareness are the factors that most cause low public interest in having insurance. Income has a positive effect on insurance purchases [7]. A person who has a high income will fulfill needs other than primary needs, including protection by purchasing insurance products. Purchasing insurance products in this case can be linked to people's decisions in having insurance products. Apart from influencing insurance demand, income also influences a person's retirement planning. In other words, income influences people's decisions about having a pension program. According to [8], with increasing income, it will have an impact on better retirement planning.
Based on previous research, this study will determine:
1. Is there a positive and significant relationship between insurance literacy or pension programs and people's decisions to have insurance or pension programs,
2. Is there a positive and significant relationship between insurance income and people's decisions to have insurance or pension programs,
3. Is there a positive and significant relationship between insurance literacy or pension programs and income together with people's decisions to have insurance or pension programs.

METHODS
The initial step to analyze data is to determine the hypothesis, namely:
H_1: There is a positive and significant relationship between insurance literacy or pension programs and people's decisions to have insurance or pension programs.
H_2: There is a positive and significant relationship between income and people's decisions to have insurance or pension programs.
H_3: There is between insurance literacy or pension programs and income together with people's decisions to have insurance or pension programs.

Data were obtained through a survei via WhatsApp Group social media with a sample of 30 respondents from a population of 105 people. The respondents were participants in the National Actuarial Science Webinar with the theme "Insurance Literacy in Maintaining Finansial Stability held by the Actuarial Science Undergraduate Program Department of the Muhammadiyah Bogor Raya University (UMBARA), the Actuarial Science Student Association (Himasatria) UMBARA, and BPJS Ketenagakerjaan Leuwiliang Bogor Branch on May 2025.

The instrument used in this study is in the form of a questionnaire was given to each respondent to answer several questions that had been made. The instrument used in the study are shown in APPENDIX A.

In measuring the instrument in APPENDIX A, a Likert Scale was used, namely point 5 for the answer strongly agree, point 4 for agree, point 3 for neutral, point 2 for disagree, and point 1 for strongly disagree.

In testing the associative hypothesis (relationship), correlation analysis tehnique is used. According to [9], correlation is used in determining the relationship between variables. From the result of the correlation coeeficient value shows the strength or weakness of the relationship between variables. The correlation can be positive, negative or zero. A positive correlation shows that the increasing value of variable also affects the increase in other variables. And the decreasing value of a variable affects the decrease in other variables. In a negative correlation, the decreasing value of a variable causes the increasing value of other variables and vice versa. For correlation values approaching 0, it means the weaker the relationship between the variables. The relationship level based on correlation interval present in Table 1.

Table 1. Relationship level based on correlation interval

Coefficient Interval	Relationship Interval
0,000 – 0,199	Very Weak
0,200 – 0,399	Weak
0,400 – 0,599	Medium
0,600 – 0,799	Strong
0,800 – 1,000	Very Strong

Source: [10]

Correlation Tehniques

There are several types of correlation theniques, including:

1. Pearson Product Moment Correlation Tehnique

   Pearson Product Moment correlation tehnique to determine the relationship between an independent variable and a dependent variable. The effect of the relationship is seen from the correlation value can be determined by the formula:

$$r_{XY} = \frac{n(\sum X_i Y_i) - (\sum X_i)(\sum Y_i)}{\sqrt{(n\sum X_i^2 - (\sum X_i)^2)(n\sum Y_i^2 - (\sum Y_i)^2)}}$$

   with:

   r = correlation coefficient

   X = independent variable

   Y = dependent variable

   n = number of samples.

   Testing criteria:

   1. If $r_{hitung} \geq r_{tabel}$, there is a relationship between variable and the dependent variable

   2. Conversely, the $r_{hitung} < r_{tabel}$, there is no relationship between the independent variable and the dependent variable.

   The r_{tabel} value is obtained the r Product Moment table with an error level of α and the number of samples n. The correlation coefficient value interval is

between -1 and 1. A stronger relationship is indicated by a correlation value approaching -1 or 1, for a weak relationship it is indicated by a value approaching 0. The relationship obtained only applies to samples of n. To find out the relationship, it can also be applied to the population so that its significance needs to be tested. With a certain level of confidence (α), significance is determined by the t_{hitung} value using the formula:

$$t_{hitung} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Significance criteria:

1. If $t_{hitung} \geq t_{tabel}$ it means that there is a significant relationship between the independent variable and the dependent variable.

2. Conversely, the $t_{hitung} < t_{tabel}$, means that there is no significant relationship between the independent variable and the dependent variable.

The t_{tabel} value is obtained using a t distribution table with an error rate of α and $df = n - k$ for a two tailed test.

2. Multiple correlation technique is a technique in obtaining the relationship between two independent variables simultaneously to a dependent variable. Multiple correlation is calculated using the following formula:

$$R_{YX_1X_2} = \sqrt{\frac{r_{YX_1}^2 + r_{YX_2}^2 - 2r_{YX_1}r_{YX_2}r_{X_1X_2}}{1 - r_{X_1X_2}^2}}$$

$R_{YX_1X_2}$ = Nilai korelasi ganda variabel bebas yaitu X_1 dan X_2 dengan variabel terikat Y

r_{YX_1} = *Pearson Product Moment* value between X_1 and Y

r_{YX_2} = *Pearson Product Moment* value between X_2 and Y

$r_{X_1X_2}$ = *Pearson Product Moment* value between X_1 and X_2.

According [11], testing the significance of the correlation between two independent variables simultaneously on the dependent variable by conducting an F test namely:

$$F_{hitung} = \frac{\frac{R^2}{k}}{\frac{(1-R^2)}{(n-k-1)}}$$

with:

R = multiple correlation value

k = number of independent variables.

Significance criteria:

1. If $F_{hitung} \geq F_{tabel}$, it means that there is a significant relationship between the independent variable and the dependent variable.

2. On the other hand, $F_{hitung} < F_{tabel}$, meaning that there is no significant relationship between the independent variable and the dependent variable.

The F_{tabel} value is obtained using the F distribution table with an error level of α and $df = n - k - 1$ for a two tailed test.

In determining percentage of the influence of independent variables with dependent variables on multiple correlations, it is obtained from the determination coefficient value (R^2) multiple by 100% [12].

According to [13], the determination coefficient value (R^2) represents the percentage value of the relationship between independent variable and dependent variables. The determination coefficient has a value interval of 0 – 1. The independent variable will be a good estimator of the dependent variable if the determination coefficient value is close to 1.

The correlation technique used to test the H_1 and H_2 hypotheses is the Pearson Product Moment correlation. While testing the H_3 hypothesis uses multiple correlation.

The Classical Assumption Test

The classical assumption test is used in testing to determine wether the model meets the assumptions of multiple linear regression or not [14]. The classical assumption test has 3 stages of testing that are carried out, namely the normality test, multicollinearity test and heteroscedasticity test.

1. The normality test

The normality test is to determine wether data has a normal distribution or not. With a significance value > 0,05, the data is normally distributed.

2. Multicolinearity test

Multicolinearity test is used to obtain information on wether or not there is a linear relationship between independent variables. A model that indicates symptoms of multicollinearity is if there is an independent variable that has a perfect linear relationship with another independent variable [14]. A multiple correlation must not have a linear relationship must not have a linear relationship between the two independent variables or is said to have no multicolinearitu. The multicollinearity test uses the Variance Inflation Factor (VIF) value and the Tolerance (TOL) value with the following provisions:

1. If VIF $\geq$ 10 and the TOL value $\leq$ 0,10, then multicollinearity does not occur
2. If VIF < 10 and the TOL value > 0,10, then multicollinearity occur

3. Heteroscedasticity test

The heteroscedasticity test is used to determine wether or not there is a difference in residual variance from one observation to another [15]. If the residual variance results are not different, then homoscedasticity occurs, while if there is a difference, it means heteroscedasticity occurs [16]. The method that can be used to test heteroscedasticity is the Glejser method. The Glejser method performs regression between independent variables and the absolute value of their residuals. According to [17], the Glejser method uses the following rules:

1. If the significance value < 0,05 can be interpreted as heteroscedasticity,
2. Conversely, a significance value > 0,05 can be interpreted as no heteroscedasticity.

The multiple regression model must meet the rule of heteroscedasticity symptoms.

Regression

According to [9], regression is a model that links independent variables to dependent variables that are causal (cause and effect). Independent variables influence dependent variables Y. Regression is a function that pairs variable X with variable Y. There are 2 types of regression, namely linear regression, namely linear

regression and nonlinear regression.This study used linear regression. Linear regression is a model of the relationship between independent variables and dependent variables that are at the power of one. Linear regression has two types, namely simple regression and multiple regression.

1. Regresi Linear Sederhana

    Simple linear regression has one independent variable X and one dependent variable Y [18]. The simple linear regression equation is as follows:

$$Y = \beta_0 + \beta_1 X$$

with:

β_0 = constant

β_1 = regression coefficient

2. Multiple Linear Regression

    Multiple linear regression is a model that relates independent variables (X_1, X_2) with Y [9]. The multiple linear regression formula is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2$$

with:

X_1, X_2 = independent variables
β_0 = constant
$\beta_1 \; and \; \beta_2$ = regression coefficient.

RESULTS AND DISCUSSIONS

In the correlation test, the variables used include X_1 literacy, X_2 income and Y community decision to have insurance or pension program. Variables X_1, X_2, dan Y have been tested for validity and reliability using SPSS software, each of the results is reliable and valid. Furthermore, the classical assumption is tested. The test results show that the data has a normal distribution, there is no heteroscedasticity and no multicollinearity.

Hypotheses H_1 and H_2 are tested with Pearson Product Moment Correlation using SPSS version 29, the results of which are shown in Table 2.

Tabel 2. Correlation Test Results

Correlation Test	r_{hitung}	r_{tabel}	t_{hitung}	t_{tabel}	Significant Remarks	r^2
X_1 dengan Y	0,532	0,361	3,327	2,048	Significant	0,258
X_2 dengan Y	0,369	0,361	2,104	2,048	Significant	0,106

Based on Table 2, the results of the correlation test of X_1 with Y obtained a correlation value of r_{hitung}=0,532. The r_{tabel} value was obtained from the r_{tabel} with α =5%. The results show the value of $r_{hitung} > r_{tabel}$ meaning acceptance of H_1 and rejection of H_0. So it is concluded that there is a positive relationship between literacy (X_1) and community decisions (Y). This conclusions is in accordance with [5] which shows that financial literacy has a significant influence on someone to become a life insurance participant.

Based on Table 1, the correlation coefficient value of 0,532 is a moderate correlation. This means that there is a moderate correlation between literacy and people's decisions to have insurance or pension programs. This correlation can only be applied to a sample of 30 respondents. To find out wether the correlation can also be applied to a population of 105 people, its significance needs to be tested. From Table 2, the value of t_{hitung}=3,327, while t_{tabel} is obtained from the table with α =5% and df=30-2=28, then t_{tabel}=2,048. When it compared, the value of $t_{hitung} > t_{tabel}$, this means that the correlation coefficient between literacy and peoples decisions of 0,532 is significant.

The coefficient of determination for the correlation test of X_1 with Y is r^2=0,258. This means that the influence of the literacy variable (X_1) on community decisions (Y) is 25,8% while the remaining 74,2% is influenced by other factors. The simple linear regression equation between literacy (X_1) and community decisions (Y) obtained from the test results is:

$$Y = 4,56 + 0,286X_1$$

From the equation, it can be interpreted that if literacy is increased, then people's decisions will also increase.

Based on Table 2, the results of the correlation test of X_2 with Y obtained a correlation value of r_{hitung}=0,369. The r_{tabel} value was obtained from the r table with α =5%. The results show the value of $r_{hitung} > r_{tabel}$, meaning acceptance of H_1 and rejection of H_0. It can be concluded that there is a positive relationship between income (X_2) and community decisions (Y). This conclusion is in accordance with [7] which explains that income has a positive effecton the desire to have insurance. In addition, [8] shows that income has a positive effect on retirement planning.

Based on Table 1, the correlation coefficient value of 0,369 is a low level relationship. So there is a low level relationship between income and people's decisions to have insurance or pension programs. The correlation can only be applied to a sample of 30 respondents. To find out the correlation, it can also be applied to a population of 105 people, namely by a significance test. From the Table 2, the value of t_{hitung}=2,104 while t_{tabel} is obtained from the t table with α =5% and df=30-2=28, then t_{tabel}=2,048. When it compared, the value of $t_{hitung} > t_{tabel}$, this means that the correlation coefficient between income and people's decisions of 0,369 is significant.

The coefficient of determination for the correlation test of X_2 with Y is r^2=0,106. This means that the influence of the income variable (X_2) on community decision (Y) is 10,6% and the remaining 89,4% is influenced by other factors. The simple linear regression equation between income (X_2) and community decisions (Y) obtained from the test results is:

$$Y = 8,415 + 0,194X_2$$

From the equation, it can be interpreted that if income is increased, then people's decisions will also increase. Hypothesis H_3 was tested with multiple correlation using SPSS software. The correlation coefficient value obtained was R_{hitung}=0,566 which shows that there is a positive relationship between literacy (X_1) and income (X_2) simultaneously with people decisions (Y). The multiple correlation coefficient value is greater than the Pearson Product Moment correlation value for X_1 with Y and X_2 with Y. This means that literacy and income

simultaneously have a greater influence on people's decisions than the influence of each, namely literacy on people's decisions or income on people's decisions. By having good knowledge of insurance literacy or pension programs and sufficient income, people will fell need to have insurance or a pension program.

Based on Table 1, the correlation coefficient value of 0,566 is a moderate correlation. This means that there is a moderate correlation between literacy and income together with people's decisions to have insurance or pension programs. This correlation can only be applied to a sample 0f 30 respondents. To find out the correlation, it can also be applied to a population of 105 people, namely by using a significance test. After testing, the value of $F_{hitung}=6,360$ while F_{tabel} was obtained from a table with a numerator of df=30-2-1=27, then F_{tabel}=3,35. When compared, the value of $F_{hitung} > F_{tabel}$, this means that the correlation coefficient between income and people's decisions of 0,566 is significant. The coefficient of determination value for the correlation test X_1 and X_2 with Y is R^2=0,32. The value shows that the influence of literacy (X_1) and income (X_2) on community decisions (Y) is 32% and the remaining 68% is influenced by other factors.

The multiple regression equation obtained is as follows:

$$Y = 3,701 + 0,246X_1 + 0,108 X_2$$

From the multiple regression equation, it can be interpreted that if the multiple regression equation obtained shows that if literacy and income increase, then community decisions will also increase.

CONCLUSIONS

Individually there is a positive relationship between insurance literacy or pension programs and people's decisions to have insurance or pension programs, there is a positive relationship between income and people's decisions to have insurance or pension programs. In addition, there is also a positive relationship between insurance literacy or pension programs and income together with people's decisions to have insurance or pension programs. *Results of this study provided information for insurance industry that people will buy insurance if they have sufficient income and a good literacy about insurance and pension programs.*

RECOMMENDATIONS

Suggestions for further research can determine the influence of other variables on people's decisions to purchase insurance and pension programs, for example the image of insurance company, company's service to consumer and so on.

APPENDICES
APPENDIX A
Research Instrumen

Variable	Instrument
Literacy or pension programs	1. I know that insurance provides insurance money if a risk occurs 2. I know that pension programs provide protection in old age

	3. I understand the benefits and advantages of being an insurance participant
	4. I understand the benefits and advantages of being a pension program participant
	5. I know that as an insurance customer I am requires to pay premiums/contributions
	6. I know that as a pension program customer I am requires to pay premium/contributions
Income	7. I can meet living needs and have insurance products from my income
	8. I can meet my living needs and have a pension program from my income
	9. I have additional income from other bussiness
	10. I am able to meet my family's needs from my income
	11. I have high family responsibilities
Keputusan Masyarakat	12. I feel that being an insurance participant is a necessity to protect against risk
	13. I feel that being a pension program participant is a necessity for protection in old age
	14. The insurance money received by insurance participants must be commensurate with the risk of loss incurred

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