

# Correlation Study Between Age and Level of Education with the Act of Consuming Iron Tablets in Teenage Girls to Prevent Stunting in Gresik Regency

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## Abstract

**Introduction:** Indonesia is ranked 5th in the world with a stunting prevalence of 37%. Pregnant women who are malnourished and anemia are one of the causes of the birth of stunting children. Anemia can be prevented by regularly taking iron tablets since adolescence. This study aimed to analyze the correlation of age and level of education with adolescent girls in consuming iron tablets to prevent stunting in Gresik Regency.

**Methods:** This type of study is an observational-analytic with a cross-sectional design. The sample of this study was 310 teenage girls who went to school in the Gresik Regency area with proportionate stratified random sampling technique. Data were collected using online questionnaire which refers to the theory of planned behavior. The independent variables in this study were age and level of education the teenage girls. The dependent variable was the act of consuming iron tablets in teenage girls. Pearson correlation coefficient was used to measure the correlation between independent and dependent variables.

**Results:** The results of the pearson's r analysis showed that there is an influence between age and the act of consuming iron tablets ( $p = 0,009$ ). The influence between level of education and the act of consuming iron tablets was also significant ( $p = 0,013$ ).

**Discussion:** The results of this study indicate that age and level of education are related to the act of consuming iron tablets in teenage girls. This means that support from a positive surrounding environment is needed so that the consumption of iron tablets in teenage girls can be better and the incidence of stunting in the future can be reduced.

**Keywords:** stunting, iron tablets, anemia, teenage girls

## Introduction

Stunting is a health problem throughout the world where this health problem occurs in children.

Indonesia is ranked as the 5th highest in the world with the highest prevalence of stunting under five. This health problem must be handled properly because children with stunting conditions will affect

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their long-term health condition like cognitive and motor development. This circumstance is measured by using a length or height that is much less than  $- 2$  SD (minus two standard deviation) from the WHO's median infant growth standard. Stunting is associated with other nutritional health problems such as anemia in women of reproductive age<sup>1</sup>.

During pregnancy, a woman with anemia has the potential to give birth to a stunted child. This can happen because when a person is anemic, the hemoglobin in red blood cells will decrease. This can happen because when someone is anemic, someone will lack iron. Iron is what plays an important role in the formation of hemoglobin. This causes a lack of oxygen and nutrition for the child in the womb. Therefore, it is important to meet the needs of sufficient iron for our bodies, especially in women of reproductive age.

Anemia is one of the most frequent international malnutrition troubles and influences 23% female over the age of 15 and 37% pregnant women. There are 37.1% teenage girls in Indonesia aged 15-19 years with a risk of anemia<sup>2</sup>. Therefore, improving the nutritional status of adolescent girls can break the chain of stunting, prevent anemia, increase iron reserves in the body, and prepare for a healthy, high-quality, and productive generation. Iron intake can be obtained from foods derived from animal protein, such as liver, fish, and meat. However, not all people can eat these foods. Thus, it is necessary to take additional iron intake obtained from iron tablets.

Age is one of the determining factors for a person to take an action. The level of maturity of a person's age can affect the pattern of thinking that will lead to a certain behavior. Variables related to compliance taking Fe tablets is age ( $<20$  years)<sup>7</sup>. A person's level of education can also influence an individual to take action. Someone with higher education tends to consider taking an action by seeing the benefits of the action. Meanwhile, someone with lower education tends to ignore or not know the benefits that may exist in an action. So that it makes someone with lower education choose to avoid a certain action.

A study states that there are relationship between education and adherence to consuming Fe tablets<sup>4</sup>. This study aimed to analyze the correlation between age and level of education with the act of consuming iron tablets in teenage girls in Gresik Regency.

## Material and Methods

This type of study is an observational-analytic with a cross-sectional design. The study was conducted in June - August 2021 by distributing questionnaires to respondents through Google form. The population of this research is 1,544 teenage girls consisting of 10th, 11th, and 12th grade in Gresik Regency. The calculation of the sample size for the cross-sectional study design used binomunal proportions which resulted in as many as 310 respondents for this study. The independent variables in this study were age and level of education teenage girls in Gresik Regency. The dependent variable was the act of consuming iron tablets in teenage girls in Gresik Regency.

The research instrument used in this study adapted from theory of planned behavior by Icek Ajzen<sup>6</sup> which has been modified and adapted and has gone through validity and reliability tests. The data that has been obtained were tested using SPSS to find the relationship between the independent variable and the dependent variable. The statistical test used is the Pearson correlation coefficient. Pearson correlation coefficient is the statistics test that measures the statistical relationship, or association, between two variables.

## Results

Respondents in this study were differentiated by level, that is their age and level of education. A study claim that variables related to compliance taking Fe tablets is age ( $<20$  years)<sup>7</sup> and some study states that there are relationship between education and adherence to consuming Fe tablets<sup>4</sup>. The results of that research was later also proven in this study which resulted in a relationship between age and education level with consumption of iron tablets.

**Table 1: Ditribution Frequency Age of Teenage Girls in Gresik Regency (n = 310)**

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15 Years Old	96	31,0	31,0	31,0
	16 Years Old	94	30,3	30,3	61,3
	17 Years Old	120	38,7	38,7	100,0
	Total	310	100,0	100,0	

**Table 2: Ditribution Frequency Level of Education of Teenage Girls in Gresik Regency (n=310)**

Level of Education		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10th Grade	116	37,4	37,4	37,4
	11th Grade	74	23,9	23,9	61,3
	12th Grade	120	38,7	38,7	100,0
	Total	310	100,0	100,0	

**Table 3: Ditribution Frequency Action of Consuming Iron Tablets of Teenage Girls in Gresik Regency (n=310)**

Action		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	36	11,6	11,6	11,6
	Average	179	57,7	57,7	69,4
	Good	95	30,6	30,6	100,0
	Total	310	100,0	100,0	

Based on the frequency distribution table above, it can be seen that most of the respondents in this study were 17 years old that is 120 people (38,7%). There are also 96 people aged 15 years old (31%), and 94 people aged 16 years old (30,3%). Most respondents are 12th grade which is 120 people (38,7), then 116 people are 10th grade (37,4%), and also 74 people are 11th grade (23,9%). From the distribution frequency table of action of consuming iron tablets it can conclude that mostly teenage girls has an average category of action of consuming iron tablets which is 179 people (57,7). Then, there are also 95 people (30,6%) categorized good. But, there was still 36 people (11,6%) who categorized poor of action of consuming iron tablets.

**Table 4: Correlation Between Age and Action of Consuming Iron Tablets of Teenage Girls in Gresik Regency (n=310)**

		Age	Action
Age	Pearson Correlation	1	-,147**
	Sig. (2-tailed)		,009
	N	310	310
Action	Pearson Correlation	-,147**	1
	Sig. (2-tailed)	,009	
	N	310	310

**Table 5: Correlation Between Level of Education and Action of Consuming Iron Tablets of Teenage Girls in Gresik Regency (n = 310)**

		Action	Level of Education
Action	Pearson Correlation	1	-,141*
	Sig. (2-tailed)		,013
	N	310	310
Level Of Education	Pearson Correlation	-,141*	1
	Sig. (2-tailed)	,013	
	N	310	310

Based on the Pearson correlation coefficient table above show the correlation between age and action of consuming iron tablets of teenage girls in Gresik Regency is significant that obtain p - value = 0,009 which is less than  $\alpha = 0,05$ . The correlation between level of education and action of consuming iron tablets of teenage girls in Gresik Regency is significant that obtain p - value = 0,013 which is less than  $\alpha = 0,05$ . It can conclude that there are correlation between those variables.

## Discussion

Age is the size of the time a man or woman has lived considering birth. The older a man or woman is, the maturity degree and power of that person will be higher; mature in wondering and working. In phrases of trust, people who are more adults will be extra dependent on than people who are not excessive adequate level their maturity. This is as an end result of the journey and maturity of their soul. The greater mature an individual is, the greater mature and orderly the way of wondering becomes perform health behavior.

Education is the technique of altering the attitudes and behavior of an individual or group of human beings in efforts to mature people through educating and training efforts. Education is intently associated with knowledge. The greater stage of a person's education, it is anticipated that the greater the expertise the man or woman has about diet and health. Higher education can make anybody pay more interest to food to meet the consumption of vitamins that balanced<sup>5</sup>. Action is a structure of implementation of the intention on the person as a behavioral disposition. This can occur when there is the proper time and possibility to manifest intentions in the structure of action<sup>3</sup>.

Pearson correlation coefficient test between age and the act of consuming iron tablets in teenage girls resulted in a p-value = 0.009. Because p-value <  $\alpha$ , where  $\alpha = 0.05$  it means those variable above is significant, which means that there is a relationship between age with the act of consuming iron tablets in teenage girls in Gresik Regency. This result is accordance with a research that implies variables related to compliance taking Fe tablets is age (<20 years)<sup>7</sup>.

Pearson correlation coefficient test between level of education with the act of consuming iron tablets in teenage girls resulted in a p-value = 0,013. Because p-value <  $\alpha$ , where  $\alpha = 0,05$  it conclude that those variables is significant, which means there are correlation between level of education with the act of consuming iron tablets in teenage girls in Gresik Regency. This end result is accordance with research that the results of the analysis show that there are relationship between education and adherence to consuming Fe tablets<sup>4</sup>.

## Conclusion

The results of this study indicated that age and

level of education are related to the act of consuming iron tablets in teenage girls in Gresik Regency. The implications of the outcomes of this study are imperative information for the government to make a wise and right regulation for preventing the incidents of stunting and anemia of teenage girls in Gresik Regency so that teenage girls are more prepared and healthy when they become pregnant women in the future and also give birth to healthy children. Further research is needed to explore various other factors that cause stunting.

**Conflict of interest:** Nil

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