

## The Correlation of Age and Knowledge on Behavior to Take the Supplement during The COVID 19 Pandemic (Study Case: in Kecamatan Selat, Kabupaten Kapuas)

Laudia Hawini\*, Iwan Yuwindry<sup>1</sup>, Muhammad Riduansyah<sup>1</sup>, Dwi Ari Suryawan<sup>2</sup>

<sup>1</sup>Bachelor of Pharmacy, Faculty of Health, Sari Mulia University, Banjarmasin

<sup>2</sup>Badan Pusat Statistik, Barito Selatan (Indonesian Statistics)

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### Corresponding Authors\*:

Laudia Hawini

Faculty of Health, Sari Mulia  
University,

Jl. Pramuka No 2 Pemurus Luar  
Banjarmasin 70238

e-mail:

[laudiahawini0@gmail.com](mailto:laudiahawini0@gmail.com)

### Abstract

Changes in people's lifestyles and consumption patterns during the COVID-19 pandemic led to an increase of supplements use. Supplements are basically taken to boost nutrition in the body, not to replace it. This study aims to understand the correlation between age, level of knowledge and behavior of using supplements during the COVID-19 pandemic. The research design used was cross sectional with an analytical observational research. The population and respondents are people who use supplements in the Selat District of Kapuas Regency from November 2020 to July 2021, 44 persons as samples (n=44). This study aims to determine the correlations between age, knowledge and behavior of using supplements during the COVID-19 pandemic in the Selat District, Kapuas Regency. Based on data analysis, it was found that there was no correlation between age and knowledge ( $p=0.264 > 0.05$ ) and there was no correlation between age and behavior ( $p=0.538 > 0.05$ ). So it can be concluded that age has no effect on knowledge and behavior of supplements use during the COVID-19 pandemic in the Straits District of Kapuas Regency.

## INTRODUCTION

COVID-19 is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). SARS-CoV-2 is a new type of coronavirus that has never been previously identified in humans. Common signs and symptoms of infection include symptoms of acute respiratory distress such as fever, cough and shortness of breath. The average incubation period is 5-6 days with the longest incubation period being 14 days. In severe cases of COVID-19 it can cause pneumonia, acute respiratory syndrome, kidney failure, and even death (Kemenkes RI, 2020).

During this pandemic, the Indonesian government has suggested increasing the immune system to fight bacteria, viruses, and organisms that cause COVID-19 (Kemenkes RI, 2020). The lack of vitamin levels in the body will make the body susceptible to disease (Pratiwi, Yuwindry, & Dhea, 2020). One of the efforts to maintain the immune system is to consume health supplements. Health supplements are products that are intended to complement the nutritional needs of foods or improve health functions, have nutritional value and

or physiological effects, contain one or more ingredients in the form of vitamins, minerals, amino acids or other non-plant ingredients that can be combined with plants (BPOM, 2019).

The nutrients in health supplements are a major determinant in maintaining good health. Major dietary components such as vitamins C, D, E, zinc, selenium and omega 3 fatty acids have well-established immunomodulatory effects, with benefits in infectious diseases. Some of these nutrients have also been shown to have potential roles in the management of COVID-19 (Shakoor *et al.*, 2020).

The number of COVID-19 cases in the world on November 15, 2020 reached 53,835,175 cases, and the number of cases declared cured was 34,654,700, and those declared as deaths were 1,310,433 cases (WHO, 2020). The COVID-19 pandemic is still a topic of concern for the wider community in Indonesia. According to the data from the COVID-19 handling committee, the number of cases in Indonesia continues to increase rapidly, until November 18, 2020 as many as 478,720 confirmed cases and 15,503 deaths (Satgas Kemenkes RI, 2020).

The number of cases in Central Kalimantan Province increased by 85 people with a total of 5,399 cases, 35 patients were declared cured and 183 people were declared dead or with a Case Fatality Rate (CRF) of 3.4%. This brings the total confirmed cases to 5,399 people at this time (November 2020) (Dinas Provinsi Kalimantan Tengah, 2020).

Due to Pandemic of COVID-19, the demands of supplements have increased. The growth of household consumption in the health sector in Indonesia has increased by 5.28% (BPS, 2020). According to Notoadmodjo (2010), public health behavior can be influenced by several factors (Darmawan, 2015).

Age has been shown to be a major factor of supplements use (O'Brien *et al.*, 2017). In Kolodziej's research in 2019, it was stated that increasing age affects knowledge in supplement consumption (Nengah, 2019). This has indicated that age affects knowledge and awareness of health. According to Fitriani, Andriyani and Septian (2015), age affects a person's grasping power and mindset, where as age increases, a person's mindset and comprehension will develop so that more knowledge is obtained. Other studies also conclude that age and level of knowledge correlates with clean and healthy living behavior, while education has no correlation with the level of clean and healthy living behavior (Prihanti, 2018). In addition, age differences will result in differences in tastes and preferences for products so that age is one of the personal factors that influence consumer behavior. Age differences also affect changes in supplement consumption behavior (Tse *et al.*, 2014).

Kuala Kapuas is a city in the province of Central Kalimantan. Based on data from a preliminary study in Kapuas Regency, Selat Subdistrict, it is shown that local communities had consumed health supplements more often during the COVID-19 pandemic (from interviewing 10 of local residents). They also obtained knowledge about supplements from family, friends, and social media.

There are still many wrong practices in the use of supplements, as it is known that supplements are not products that are completely safe for everyone. Supplements with active ingredients provide pharmacological effects that can also cause side effects in susceptible individuals, requiring more warning of side effects and potential interactions to avoid serious health problems (Ronis, 2018).

With regards to the data above, this study wanted to know the correlation between age, the level of knowledge and behavior of using supplements during the COVID-19 pandemic in the Selat District of Kapuas Regency. The lack of knowledge about supplements and conjecture of age have made occurrences of mistakes in using supplements. In addition, this research can increase knowledge, experience, and insight in using supplements wisely during the COVID-19 pandemic.

## Materials and Methods

The research location is Kapuas Regency, Central Kalimantan Strait District. With a research period starting from November 2, 2021 to February 28, 2021. The unit of analysis is the community who use supplements during the COVID-19 pandemic in the Selat District of Kapuas Regency. The source of the data come from 44 respondents, the respondents then asked to complete the questionnaire given.

This study uses quantitative analytic with the design in the form of a cross sectional study. The data source used is primary data collected using a questionnaire through a form with the help of the Guttman measuring scale. In addition, this study uses three main variables, namely age, knowledge about supplements and behavior towards supplements. The analysis used to determine the correlation is Chi-square analysis with a significant alpha level of 5%.

## RESULT AND DISCUSSION

### Result

#### a) Validity and Reability

Testing the validity and reliability for the Guttman scale questionnaire using the Coefficient of Reproducibility and KR21. Decision making on the validity test is based on the value of the Coefficient of Reproducibility. While the reliability test was conducted by determine the value of the KR 2. Based on the calculations that have been conducted, it is obtained that the KR value  $> 0.939394$  where the requirement for acceptance of the reproducibility coefficient value is if the reproducibility coefficient has a value  $> 0.90$  (Singarimbun, Masri & Effendi, 2011). So it can be concluded from the validity test using the Coefficient of Reproducibility formula that the questionnaire questions weighted using the Guttman scale are declared valid. The reliability test in this study was conducted on 44 respondents. From the calculation of reliability, the value of KR 21 is = 0.58. According to Guildford, the reliability coefficient categorization (Guilford, 1956) is as follows:

- $0.80 < r_{11} < 1.00$  very high reliability
- $0.60 < r_{11} < 0.80$  high reliability
- $0.40 < r_{11} < 0.60$  moderate reliability
- $0.20 < r_{11} < 0.40$  low reliability
- $-1.00 < r_{11} < 0.20$  very low reliability (unreliable).

From the results of the calculation and categorization, it is found that the questionnaires are in the moderately reliable category, so it is decided that the questionnaires able to be used.

#### b) Univariate Analysis

##### *Characteristics of Respondents Based on Age*

Research respondents are residents who live in Selat Subdistrict, Kapuas Regency who are still in their productive age and have different age ranges. The majority of respondents who filled out the questionnaire were aged 17-25 years and 26-35 years (Table 1).

**Table 1.** Frequency table by group of age

Age	Amount	Percentage (%)
17-25 years old	33	75.0
26-35 years old	11	25.0
Total	44	100.0

Age classification is divided into two categories, late teens as a category itself (17-25 years old), meanwhile 26-36 years old were representing early adulthood. The selection of respondents' characteristics in this study is based on a study which states that a person's productive age has an age range of 17-35 years. The results of the characteristics obtained 33 respondents who are in the age range 17-25 years, and 11 respondents in the age of 26-35 years, with a total of 44 respondents.

*Characteristics of Respondents' Knowledge*

The characteristics of respondents' understanding of supplements include an understanding of the meaning of supplements and the function of supplements, especially during the COVID-19 pandemic. The table below shows the

number and percentage of correct answers in each age range.

*Characteristics of Respondents' Behavior in Taking Supplements*

Based on the results of data processing, it is known that 44 respondents previously have or are currently consuming various types of supplements. The types of supplements consumed by the people of the Straits District of Kapuas Regency are Vitamin C and multivitamins as much as 77.3%. In a 2015 study by Lieberman, it was known that the types of supplements consumed were 42% multivitamins, or multiminerals, 17% vitamin C, 17% protein/amino acids, and 13% calcium. The results of Lieberman's research in 2015 are not in line with the data obtained in this study where the majority of the types of supplements consumed were vitamin C with a percentage of 46.58%. It is may be caused due to geographical effects or the behaviour of the population in Selat subdistrict, Kapuas regencies. Based on the results, it can be seen that the effects felt by respondents after taking supplements with the following results (Table 2).

**Table 2.** Statements and frequency of respondent's answers about supplements

No	Statement	Number and Percentage of Correct Answers by Age			
		17-25 years old	%	26-35 years old	%
1.	Food supplement is a product containing one or more ingredients in the form of vitamins, minerals, protein, or other ingredients (derived from plants and not plants) that have nutritional value and or physiological effects.	33	100	11	100
2.	Food supplements are products that are used to replace the nutritional needs of food.	18	54.5	9	81.8
3.	Dietary supplements are products that are used to supplement the nutritional needs of foods.	31	93.9	11	100

**Table 3.** Effects of using supplements

Perceived effects	Amount	Percentage
More fit and healthier	28	60.9%
Not easily tired	13	28.3 %
Improve diet	10	21.7 %
Inrease height	3	6.5 %
Increase body imunity	36	78.3 %
No effect	9	19.6 %
Total	44	100.0 %

The effects felt by the people of Selat Subdistrict, Kapuas Regency as respondents tend to be varied. The effects most felt by the respondents

due to the use of supplements were more fit and healthier and the body's immunity increased (Table 3). However, the use of supplements gave different effects for each respondent. This indicates that the perceived effect tends to vary between individuals.

c) Bivariate Analysis

*Analysis of the Correlation between Age and Knowledge*

Characteristics of respondents' understanding of supplements include an understanding of the meaning of supplements and the function of dietary supplements. The following are the results of the analysis of the correlation between age and knowledge (Table 4).

**Table 4.** Table cross tabulation between age and knowledge

Age	Knowledge						Total
	Low	%	Medium	%	High	%	
17-25	1	3%	18	54,5%	14	42,4%	33
25-35	0	0	9	81,8%	2	18,2%	11
Total	1		27		16		44

In the Chi square test analysis (Table 5), the decision failed to reject  $H_0$  which means that there is no correlation between age and the respondent's level of knowledge of supplements, it shows that age differences does not affect the level of knowledge in supplements intake. This is in line with I Nengah's

research in 2020, which states that age does not affect a person's knowledge and behavior towards supplements, because respondents are still in their productive age where their cognitive function is still very good.

**Table 5.** Table chi square analysis of the correlation between age and knowledge

	Value	df	Asymptotic Significance (2-sides)
Pearson Chi-Square	2.667 <sup>a</sup>	2	.264
Ratio possibility	3.057	2	.217
N from valid cases	44		

P-value = 0.264  
Alpha = 0.05

*Analysis of the Correlation between Age and Behavior*

Determination of the characteristics of the respondents in this study was based on the answers to the purpose of using supplements, how the respondents behaved on how to store these supplements and the effects felt by consumers when

consuming supplements. Based on the data recap, the following results were obtained (Table 6).

The categorization of behavior level that is based on the respondent's answer. It is classified as "high" if they have all of the correct answer. "medium" level if they have at least mistaken one answer. Then, in the "low" level if they have only one or lower correct answer (Table 7).

**Table 6.** Statements and frequency of respondent's answers about behavior

No	Statement	Number and Percentage of Correct Answers by Age			
		17-25 years old	%	26-35 years old	%
1	Your goal of taking supplements during the COVID-19 pandemic is to maintain your immune system	32	97	11	100
2	Usually you store supplements in a dry and cool place.	33	100	11	100
3	Do you feel your immune system increases when you take supplements during the COVID-19 pandemic? And what effects do you feel when taking supplements?	25	75.8	10	90.9

**Table 7.** Table cross tabulation between age and behavior level

Ages		Score			Total
		low	medium	high	
17-25 years old		1	7	25	33
26-35 years old		0	1	10	11
Total		1	8	35	44

**Table 8.** Chi square analysis of the correlation between age and behavior

Score		Df	Asymptotic Significance (2-sides)
Pearson Chi-Square	1.238 <sup>a</sup>	2	.538
Rasio Kemungkinan	1.578	2	.454
N from valid cases	44		

P-value= 0.538

Alpha = 0.05

In the Chi square test analysis (Table 8), the decision failed to reject  $H_0$  which means that there is no significant correlation between age and the behavior of using supplements, it can be concluded that the age difference between respondents does not show a significant difference to the respondent's behavior in consuming supplements. This is in line with the Nengah research which states that age differences do not affect a person's behavior (Nengah, 2020).

### Discussion

Research respondents are residents who live in Selat Subdistrict, Kapuas Regency who are still in their productive age and have different age ranges. The majority of respondents who filled out the questionnaire were aged 17-25 years and 26-35 years. The selection of respondent characteristics in this study was based on the 2009 Ministry of Health research according to research (Riauwi, Hasneli, and Lestari, 2014), which states that a person's productive age has an age range of 17-45 years. The results of the characteristics obtained 33 respondents who are in the age range 17-25 years, and 11 respondents in the age of 26-35 years, with a total of 44 respondents.

Respondents' knowledge of supplements includes an understanding of the meaning of supplements and the function of supplements, especially during the COVID-19 pandemic. The level of knowledge has a significant influence on the quality of life, meaning that the higher the level of knowledge of the respondents, the higher the quality of life of the respondents (Yuwindry, Wiedyaningsih, and Widodo 2016). The number and percentage of correct answers in the knowledge characteristics questionnaire table (Table 3), in statement no.1 the percentage of correct answers is 100% for the age of 17-35 years. In statement no. 2 the percentage of correct answers is 54.5% for the population aged 17-25 years and 81.8% for the population aged 26-35 years. In statement no. 3 the percentage of correct answers is 93.9% for the population aged 17-25 years and 100% for the population aged 26-35 years.

The results of the answers to the questionnaire which were analyzed using the Chi square test were obtained  $P = 0.264$  with an Alpha value = 0.05. The results stated that the decision failed to reject  $H_0$ , meaning that there was no significant correlation between age and knowledge of the use of

supplements during the COVID-19 period in the Selat District, Kapuas Regency. This is not in line with the research of Sari and Atiqoh (2020), which states that there is a correlation between age and knowledge. This may happen because the knowledge of each individual is different in each region.

The respondent's behavior towards supplements includes what type of supplement is being used and what effects are felt by the respondent. The results show that 44 respondents are currently consuming various types of supplements. The types of supplements consumed by the people of the Straits District of Kapuas Regency are Vitamin C and multivitamins as much as 77.3%. The effects felt by the people of Selat Subdistrict, Kapuas Regency as respondents tend to be varied. The effects most felt by the respondents due to the use of supplements were more fit, healthier and increasing body immunity. However, the use of supplements gave different effects for each respondent. This indicates that the perceived effect tends to vary between individuals. This is in line with research (Nengah, 2020), which states that each individual's response to supplements is different, one of the reasons behind the differences in responses or effects between individuals is the genetic basis. In addition, the environment, diet, age, lifestyle and health conditions of the individual can also affect a person's response. This is different from Murman's 2015 study which states that age affects cognitive function. The difference occurs because in Murman's research (2015) was conducted on respondents who have different age ranges, namely 20-80 years, where the elderly tend to experience psychosocial disorders, decreased health status due to acute and chronic diseases, work or position, friends and relations (Murman, 2015).

The results about the questionnaires answer points, which that have been analyzed before, shows that there is no correlation between age and the behavior of using supplements during the COVID-19 pandemic in the Straits sub-district of Kapuas Regency. These results were obtained from the Chi square test analysis which stated that the decision failed to reject  $H_0$ , where  $P = 0.538$  and Alpha = 0.05, in this analysis the value of Alpha = 0.05, because the P value is more than 0.05, it means that there is no significant correlation. There is a significant difference between age with knowledge and behavior of using supplements, it can be

concluded that the age difference between respondents does not show a significant difference to the respondents' behavior in consuming supplements. The results obtained in this study are not in line with research (Murman, 2015) which states that age affects a person's cognitive function. This difference occurs because the study was conducted on respondents who have an age range of 20-80 years. However, the results obtained are in line to the research from (Nengah, 2020) which states that there is no correlation between age, knowledge, and behavior of using supplements in students. The absence of correlation between age and respondents' knowledge of supplements in this study may be caused by the age of respondents who are still in a productive age where their cognitive function is still very good, so that knowledge about supplements between respondents aged under 19 years to over 21 years tends to be the same. In addition, there is no correlation between age and knowledge and behavior of using supplements during the COVID-19 period because during this pandemic all people really have to maintain a good immune system, one of which is by consuming supplements, which is why both young and old have bad behavior tend to be the same towards the use of supplements.

## CONCLUSION

Based on research conducted using the Chi Square test, the results show that there is no correlation between age and knowledge of supplements during the COVID-19 pandemic in the Selat District, Kapuas Regency with Alpha = 0.05.

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The same results also occur for the correlation between age and behavior of using supplements during the COVID-19 pandemic with an alpha of 0.05. This shows that age does not have a significant correlation with knowledge and behavior of using supplements during the COVID-19 pandemic.

## SUGGESTION

Hopefully this research can also be useful and be used as a reference for further research, regarding errors in the use of supplements during the pandemic. For further research, researcher(s) may develop another model or statistics test about knowledge and behavior of using supplements during the pandemic. It is also hoped that future research(s), to add more samples for comparison, to control the use of supplements during the pandemic. We also recommend using other variables beside age, such as education and many more.

## Declaration of Interest Statement

The authors declare that we have no conflict of interests.

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From: Main Author.

For my mom, Yurita...

I want to let you know how much I appreciate the positive impact you have given on my life. Thank you for your concern and supportive advice, it has meant more to me than you will ever know. I will make you happy in your old age, God bless you.

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