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The Relationship Between Knowledge Level And Cold Cough Self-Medication Behavior In Students Of The University Of Singaperbangsa Karawang

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ABSTRACT
Self-medication for coughing up a cold is common, especially among students. Factors such as stress, lack of sleep, unhealthy diet, and poor hygiene can increase the risk of developing a cold cough. The availability of drugs on the market significantly facilitates students to self-medicate the symptoms of the disease they experience, because it is considered faster, economical, and practical without the need for medical consultation. This study aims to determine the relationship between respondents' characteristics on the level of knowledge and self-medication behavior of cold cough and determine the relationship between the level of knowledge on cold cough self-medication behavior in active students of Singaperbangsa University Karawang. The method used was descriptive analytic with Cross Sectional approach and involved 390 randomly selected respondents. The study was conducted from February to March 2024. The results of this study showed that 59.5% of respondents had good knowledge of cold cough self-medication, and 40.5% had poor knowledge. Then the self-medication behavior of cold cough showed that 58.2% of respondents had good behavior, and 41.8% had bad behavior. There is a relationship between the characteristics of respondents to the level of knowledge and self-medication behavior of cold cough, namely faculty with a p-value knowledge level of 0.004 < 0.050, and there is a relationship between faculty and behavior obtained p-value of 0.005 < 0.050. The results of the study The Relationship of Knowledge Level to Behavior was tested using a *chi-square* p-value test of 0.001 < 0.050. It can be concluded that there is a significant relationship between the level of knowledge and the self-medication behavior of cold cough.

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INTRODUCTION

Indonesia, as a tropical country with two seasons, namely the dry season and the rainy season (A. R. Sari et al., 2020). The change from the dry season to the rainy season causes a person's immunity to decrease, thus causing a cold cough (Hapipah et al., 2023). Cold cough is one of the health problems that often occur among students. Self-medication or

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self-medication without medical consultation is often used to treat mild cold cough symptoms. Factors such as stress, lack of sleep, unhealthy diet, and a crowded environment increase the risk of coughing up colds, which are common among college students (Irwan, 2017). Studies in Europe, Africa, and Iran show a high prevalence of self-medication, with the prevalence in Iran reaching 83.3% (Keshvari et al., 2023). In Taiwan, self-medication mainly involves nonsteroidal anti-inflammatory drugs, flu or cough medications, analgesics, and antacids (Lee et al., 2017). While in Saudi Arabia, headaches, flu, and coughs are the most common reasons for self-medication among college students (Malli et al., 2023).

Data from the Central Statistics Agency (BPS) 2023 shows that in 2022, around 84.34% of Indonesia's population self-medicated, with the rate in West Java around 86.42%, an increase from previous years. However, self-medication must adhere to the principle of rational use of drugs to prevent side effects and health risks (Kuswinarti et al., 2022; Pratiwi et al., 2020). There has been no research that examines the relationship between the level of knowledge and self-medication behavior of cough and cold in students at the University of Singaperbangsa Karawang. Therefore, this study was conducted to see the relationship between the level of knowledge and the self-medication behavior of students at the University of Singaperbangsa Karawang.

This study aims to determine the level of knowledge of students at the University of Singaperbangsa Karawang about cough and cold self-medication and understand the common behaviors carried out by them. In addition, this study also aims to analyze the relationship between respondents' characteristic characteristics to the level of knowledge and self-medication behavior of cough and cold, as well as to analyze the relationship between the level of knowledge of students and their self-medication behavior towards cough and cold.

METHODS

This study uses an analytical descriptive method with a Cross Sectional approach. Data was collected using a questionnaire in the form of a google form to determine the relationship between the level of knowledge and self-medication behavior of cough and cold in active students of Universitas Singaperbangsa Karawang. Data collection was carried out from February to March 2024 with purposive sampling, namely selecting respondents based on inclusion and exclusion criteria. The questionnaire used consisted of three parts, namely respondent data, knowledge about cough and cold, and self-medication behavior. The population of this study is all active students of the University of Singaperbangsa Karawang, with a total of 14,626 students. The research sample was taken randomly with the slovin formula with an error rate of 5%, namely 390 respondents. The variables in this study include independent variables of knowledge level, behavioral bound variables, gender confounding variables, age, and faculty. The collected data was analyzed using the Statistical Product and Service Solution (SPSS) version 27 application. The first test was carried out to test the validity and reliability of the data using the Pearson product moment and Cronbach alpha methods, then a normality test was carried out using the Kolmogorov-

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Smirnov method. Then the data analysis includes univariate analysis and bivariate analysis using the chi-square test.

The type of validity test used is pearson product moment, if the r calculation is greater than the r table at a certain significance, the questionnaire item can be said to be valid. The r-value of the table is calculated with a significance level of 5% of df (degree of freedom) = n-2, n as the number of research samples (Darma, 2021). In the reliability test, the cronbach alpha method is used, the reliability has a level, namely if the cronbach alpha value is 0.8 - 1.0 reliability is good, if the cronbach alpha value is 0.6 - 0.799 reliability is accepted, and if the cronbach alpha value < 0.6 reliability is not good (Gunawan, 2020). The data normality test was used the Kolmogorov-Smirnov method, a non-parametric method used to determine whether the distribution of a sample can be considered normal or not. The test result will appear in the output window, the significance value (p) of the Kolmogorov-Smirnov test will be displayed. If the value of Asymp. Sig ≥ 0.050, then the research data is distributed normally. Conversely, if the value of Asymp. Sig < 0.050, so the research data is not normally distributed (Gunawan, 2020). Univariate analysis, also known as descriptive statistical analysis, is a process that describes in detail the characteristics of the variable being investigated. In the framework of this study, univariate analysis provides a comprehensive overview of the distribution and proportion of variables such as gender, age, faculty, level of knowledge, and self-medication behavior. Bivariate analysis is an analysis stage that aims to explore the relationship between independent variables and dependent variables that are being studied through the use of chi-square statistical tests. The chi-square test process was carried out with a confidence level of 95% and a correlation value (α = 0.050). If the value of Asymp.sig ≤ 0.050, it can be concluded that there is a significant relationship between these variables. On the other hand, if the value of Asymp.sig > 0.050, then it is concluded that there is no significant relationship between these variables.

RESULTS AND DISCUSSION

This study explains the relationship between the level of knowledge and the self-medication behavior of cough and cold in students of the University of Singaperbangsa Karawang. The research period at the University of Singaperbangsa Karawang starts from February 2024 to March 2024. The data used in this study is primary data obtained from questionnaires. In this section, the description of the results and discussion of the research will be explained which consists of validity and reliability tests, normality tests, univariate analysis which includes respondent characteristics, knowledge and behavior and bivariate analysis.

Validity And Reliability Tests

The validity test was carried out on a sample of 38 respondents, the r value of the table is the value in the df (degree of freedom) column with the formula n-2, where n is the number of respondents, then 38 - 2 = 36, the r value of table 36 is 0.329 at a significance value of 5%. Of the 53 questions that cover 10 dimensions regarding the level of knowledge questions, only 46 questions are valid because the 46 questions have an R calculation > R table (0.329) with an R value of the range between 0.346 - 0.771, there are 7 questions with invalid question items. The validity and reliability test was carried out again by not

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including 7 invalid question data until all questions were valid in the validity test. The results of the validity test of 46 valid questions, all questions out of 46 questions of the knowledge level were valid with a range of r values (0.334 – 0.784) > r table (0.329). The reliability test results of 46 valid questions with a level of knowledge, namely 0.950, the Cronbach alpha value is in the range of 0.800 - 1,000, which means good reliability (Gunawan, 2020). All behavior questions were valid in the validity test with a range of r values calculated (0.369 – 0.680) > r tables (0.329). This shows that all questions out of the 30 behavior questions are valid. The results of the reliability test of 30 behavioral questions, namely 0.893 cronbach alpha values, are in the range of 0.800 - 1,000 which means good reliability (Gunawan, 2020).

Normality Test

If the value of Asymp. Sig ≥ 0.050, then the research data is distributed normally. Conversely, if the value of Asymp. Sig < 0.050, so the research data is not normally distributed (Gunawan, 2020).

Table 1. Normality Test

Normality Test		
Asymp score results. Sig	Asymp Value. Sig	Information
0,001	< 0,050	Not Normally Distributed

Based on the results from the table above, it can be concluded that the data normality test yields Asymp values. Sig is 0.001 < 0.050 which means it has an abnormal distribution, so the cut-off point used to categorize the variable of knowledge level and self-medication behavior of cold cough is the median (Heryana, 2019). The median of each variable of knowledge level was 41 and behavior was 28. In the variable level of knowledge, if the value is ≥ 41, the level of knowledge is categorized as good, if the value is < 41, the level of knowledge is categorized as poor. In the behavioral variable, if the value ≥ 28, the behavior is categorized as good, if the value < 28, the behavior is categorized as poor.

Univariate Analysis

Demographic Characteristics of Respondents

Table 2. Respondent Characteristics (n=390)

No	Characteristic	Frequency (n)	Percentage (%)
1.	Gender		
	Man	148	37,9%
	Woman	242	62,1%
2.	Age (years)		
	17-22 Years	364	93,3%
	23-28 Years	26	6,7%
3.	Types of Faculties		
	Faculty of Health Sciences (FIKES)	107	27,4%
	Faculty of Computer Science (FASILKOM)	26	6,7%
	Faculty of Social and Political Sciences (FISIP)	41	10,5%
	Faculty of Engineering (FT)	63	16,2%

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No	Characteristic	Frequency (n)	Percentage (%)
	Faculty of Law (FH)	28	7,2%
	Faculty of Agriculture (FAPERTA)	12	3,1%
	Faculty of Economics (FE)	41	10,5%
	Faculty of Islamic Religion (FAI)	38	9,7%
	and the Faculty of Teacher Training and Education (FKIP)	34	8,7%

The study involved 390 students, with 37.9% male (148 people) and 62.1% female (242 people). The results show that women do more self-medication than men. Previous research by Sulistyaningrum et al found that the level of self-directed knowledge was higher in women (Sulistyaningrum et al., 2022). Research by Ama et al. shows that women are also more concerned about their own health and family, have better knowledge of medicine, and behave better. This difference is due to the characteristics of women who are more concerned about health and the environment (Ama et al., 2020).

The majority of respondents aged 17-22 years (93.3% or 364 students) and 6.7% (26 students) aged 23-28 years. The age group of 17-22 years has the most self-medication for coughing and colds because it interferes with daily activities. Research by Triani et al. found that 57% of respondents aged 17-29 years self-medicated cough (Triani et al., 2022). The research by Astuti et al. also noted that the majority of respondents aged 17-25 years were self-adication (Astuti et al., 2019). Widyaningrum's research shows that S1 Pharmacy students aged 17-19 years do the most self-medication (Widyaningrum et al., 2022). Efayanti et al. added that adolescents aged 12-25 years do self-medication because they want to try new things and the influence of television (Efayanti et al., 2019).

This study uses the type of respondent faculty to classify groups and find out the origin of respondents. The highest percentage came from the Faculty of Health Sciences (27.4%). This shows that students of the Faculty of Health Sciences have in-depth knowledge about cold cough self-medication. The Faculty of Health Sciences also provides access to information and education related to cough and cold self-medication (Saputra et al., 2021).

Level of Knowledge

The level of knowledge of respondents about cough and cold self-medication was assessed through 46 questions. Respondents were categorized as having good knowledge if the score was ≥ 41 and poor if the score was < 41 based on the cut-off point of the median total score of the variable knowledge level.

Table 3. Level of Self-Medication Knowledge of Cough and Cold

Level of Knowledge	Frequency (n)	Percentage (%)
Good	232	59,5%
Not Good	158	40,5%
Total	390	100%

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Of the 390 respondents, 232 respondents had good knowledge about self-medication for coughs and colds (59.5%), while 158 respondents had poor knowledge (40.5%). The results of this study are in line with previous research by Kurniawati et al. and Saputra et al. who found a good level of knowledge about cold cough self-medication (Kurniawati et al., 2023; Saputra et al., 2021). The reason for the high level of student knowledge is the popularity of this disease and easy access to information, health students also get knowledge in lectures that help in self-medication (Saputra et al., 2021). The higher a person's knowledge, the better they are at self-medication (Rabbaniyah et al., 2019).

Behaviour

The results of the behavior measurement were divided based on the cut-off point of the median value of the total score of the behavioral variables. Student behavior is categorized as good if the score is ≥ 28, and behavior is categorized as poor if the score is < 28.

Table 4. Self-Medication Behavior of Cough and Cold

Behaviour	Frequency (n)	Percentage (%)
Good	227	58,2%
Not Good	163	41,8%
Total	390	100%

Of the 390 respondents, 227 respondents (58.2%) had good behavior and 163 respondents (41.8%) had poor behavior in self-medication for coughing and cold. The majority of respondents have good behavior because of access to media that is widely used to search for information, such as the internet, books, journals, and television. Knowledge plays an important role in shaping behavior. Respondents with a high level of education tend to have better knowledge and actively seek human information (Yuswar & Musyafak, 2024). Behavioral control is also influenced by students' perception of their ability to control themselves in doing or not doing self-medication. The experience in self-medication also influences students' decisions in overcoming cold coughs (Kuswinarti et al., 2022).

Bivariate Analysis

Relationship of Respondent Characteristics to the Level of Self-Medication Knowledge of Cough and Cold

Table 5. Results of the Frequency Distribution of Respondent Characteristics to the Level of Self-Medication Knowledge of Cough and Cold

Characteristics of Respondents	Level of knowledge				Total		P-value
	Good		Not Good				
	n	%	n	%	n	%	
Gender							
Man	80	54,1	68	45,9	148	100,0	0,109
Woman	152	62,8	90	37,2	242	100,0	
Age (years)							
17-22 Years	212	58,2	152	41,8	364	100,0	0,095
23-28 Years	20	76,9	6	23,1	26	100,0	

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Characteristics of Respondents	Level of knowledge				Total		P-value
	Good		Not Good				
	n	%	n	%	n	%	
Types of Faculties							
Faculty of Health Sciences (FIKES)	83	77,6	24	22,4	107	100,0	
Faculty of Computer Science (FASILKOM)	13	50,0	13	50,0	26	100,0	
Faculty of Social and Political Sciences (FISIP)	22	53,7	19	46,3	41	100,0	
Faculty of Engineering (FT)							
Faculty of Law (FH)	31	49,2	32	50,8	63	100,0	0,004
Faculty of Agriculture (FAPERTA)	17	60,7	11	39,3	28	100,0	
Faculty of Economics (FE)	7	58,3	5	41,7	12	100,0	
Faculty of Islamic Religion (FAI)	23	56,1	18	43,9	41	100,0	
and the Faculty of Teacher Training and	17	44,7	21	55,3	38	100,0	
Education (FKIP)	19	55,9	15	44,1	34	100,0	

*) *chi-square* < 0.050, there is a relationship between variables

The respondents were female and had a good level of self-knowledge of cough and cold, which was 152 people (62.8%), while those who were male and had a good level of self-knowledge of cough and cold were 80 people (54.1%). The results showed that the level of self-medication knowledge of cold cough was better in women than in men. The results of the p-value statistical test were 0.109 > 0.050. So it can be concluded that there is no meaningful relationship between gender and the level of self-knowledge of cough and cold. There was no meaningful relationship between sex and the level of self-knowledge of cough and cold. This finding is in line with Purnamayanti and Artini's research, that women have a better level of knowledge than men, but the results of the p-value test do not show any significant influence in terms of statistical calculations (Purnamayanti & Artini, 2020).

The results of the age distribution in this study showed that 17-22 years old had a better level of knowledge than 23-28 years old. However, the results of the statistical test obtained a p-value of 0.095 > 0.050 showed that there was no significant relationship between age and the level of self-knowledge of cough and cold. This study is the same as the previous study, namely Kusuma (2019) which stated that there was no significant relationship between age and the level of self-medication knowledge (Kusuma, 2019). Knowledge can be learned by anyone (A. Sari & Prabaningtyas, 2022). Knowledge can be obtained in a variety of ways, both from others and personal experiences, and good knowledge will encourage appropriate attitudes, behaviors, and actions (Putri et al., 2024).

The results of the distribution of the level of self-medication knowledge of cough and cold from 390 respondents from nine faculties showed that the Faculty of Health Sciences (FIKES) had the most good level of knowledge, which was 83 people (77.6%). The statistical test using chi-square obtained a p-value of 0.004 < 0.050 showing that there was a significant relationship between the faculty and the level of self-knowledge of cough and

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cold. Previous research by Damayanti (2017) also showed that the type of education of the faculty of health affects the level of knowledge related to self-medication (Damayanti, 2017). Because health students get better learning and access to information in terms of self-medication (Saputra et al., 2021). The type of student education can affect the level of student knowledge related to self-medication because basically self-medication or self-medication is included in health sciences where for health students they get learning related to how and use drugs when doing self-medication (Damayanti, 2017).

The Relationship of Respondents' Characteristics to Self-Medication Behavior of Cough and Cold

Table 6. Results of Frequency Distribution of Respondent Characteristics Relationship to Self-Medication Behavior of Cough and Cold

Characteristics of Respondents	Level of knowledge				Total		P-value
	Good		Not Good				
	N	%	n	%	n	%	
Gender							
Man	79	53,4	69	46,6	148	100,0	0,160
Woman	148	61,2	94	38,8	242	100,0	
Age (years)							
17-22 Years	209	57,4	155	42,6	364	100,0	0,330
23-28 Years	18	69,2	8	30,8	26	100,0	
Types of Faculties							
Faculty of Health Sciences (FIKES)	81	75,7	26	24,3	107	100,0	
Faculty of Computer Science (FASILKOM)	15	57,7	11	42,3	26	100,0	
Faculty of Social and Political Sciences (FISIP)	23	56,1	18	43,9	41	100,0	
Faculty of Engineering (FT)							
Faculty of Law (FH)	31	49,2	32	50,8	63	100,0	0,005
Faculty of Agriculture (FAPERTA)	17	60,7	11	39,3	28	100,0	
Faculty of Economics (FE)	5	41,7	7	58,3	12	100,0	
Faculty of Islamic Religion (FAI)	18	43,9	23	56,1	41	100,0	
and the Faculty of Teacher Training and	19	50,0	19	50,0	38	100,0	
Education (FKIP)	18	52,9	16	47,1	34	100,0	

*) *chi-square* < 0.050, there is a relationship between variables

From the table above, in the category of good behavior, there are 148 women (61.2%) and 79 men (53.4%), while in bad behavior, there are 94 women (38.8%) and 69 men (46.6%). The results of the statistical test obtained a p-value of 0.160 > 0.050 showed that there was no significant relationship between gender and self-medication behavior of cough and cold. The research of Ilmi et al. also showed that gender does not affect self-medication behavior (Ilmi et al., 2021). However, both men and women can self-medicate depending on their habits and beliefs in using drugs (A. Sari & Prabaningtyas, 2022).

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In this study, a p-value of 0.330 > 0.050 was obtained, meaning that there was no significant relationship between age and self-medication behavior of cough and cold. The results of the age distribution showed that good behavior was more at the age of 17-22 years, while bad behavior was more at the age of 23-28 years. A number of studies by Ilmi et al. also show that age does not affect self-medication behavior (Ilmi et al., 2021). Other factors beyond age can affect a person's habits in using drugs (A. Sari & Prabaningtyas, 2022).

The Faculty of Health Sciences (FIKES) has the highest good behavior in cough and cold self-medication, Statistical analysis shows a p-value of 0.005 < 0.050 meaning that there is a significant relationship between the faculty and the self-medication behavior of cold cough. The research of Simanjuntak et al. (2021) also shows that health students have better knowledge about self-medication, because they gain lessons on drug use and have access to relevant information (Simanjuntak et al., 2021). In contrast, non-health students have lower knowledge in this regard (Saputra et al., 2021). Therefore, the type of education that students receive is closely related to their self-directed behavior (Damayanti, 2017).

The Relationship of Knowledge Level to Self-Medication Behavior of Cough and Cold in Students of Universitas Singaperbangsa Karawang

Table 7. Results of Frequency Distribution of Respondent Characteristics Relationship to Self-Medication Behavior of Cough and Cold

Level of Knowledge	Behaviour				Total		P-value	OR (95% CI)
	Good		Not Good					
	n	%	n	%	n	%		
Good	164	70,7	68	29,3	232	100,0		3,637
Not Good	63	39,9	95	60,1	158	100,0	0,001	(2,376-5,567)
Total	227	58,2	163	41,8	390	100,0		

*) *chi-square* < 0.050, there is a relationship between variables

Of the 390 respondents, as many as 70.7% had good knowledge and behavior of cold cough self-medication, 29.3% had good knowledge but poor behavior, 39.9% had poor knowledge but good behavior, and 60.1% had poor knowledge and behavior of cold cough self-medication. The results of the analysis showed a p-value of 0.001 < 0.050 which showed a relationship between the level of knowledge and self-medication behavior. The odd ratio value of 3.637 shows that respondents who have good knowledge have a 3.637 times greater chance of having good cough and cold self-medication behavior. If you look at Karawang Regency as a whole, the odd ratio used is between 2,376-5,567. want to see the magnitude of the risk of a larger population, namely Karawang Regency, so they use lower (2,376) and upper (5,567) values. So it can be concluded that in Karawang Regency, people who have good knowledge of cold cough self-medication have the opportunity to behave well in cold cough self-medication between 2,376-5,567.

This study was strengthened by Probosiwi et al. who showed the relationship between the level of knowledge and self-medication behavior of coughs, colds and allergies (Probosiwi et al., 2023). Good knowledge influences good self-medication behavior

(Fitriyani et al., 2024). In fact, the higher a person's education level, the easier it is for them to obtain information and increase their knowledge (Yuswar & Musyafak, 2024). Especially for health students with the Pharmacy study program who get pharmacology and pharmacotherapy lecture materials, it can certainly support the good knowledge they have. The ability of students to be able to search the Library through the Internet can also contribute to their level of knowledge (Kresnamurti et al., 2022). Therefore, adequate knowledge can produce better behavior if accompanied by self-awareness of the individual (Hardani et al., 2023).

CONCLUSION

Based on the results of the research on the relationship between the level of knowledge and the self-medication behavior of cough and cold in students of the University of Singaperbangsa Karawang, it can be concluded that there is a relationship between the characteristics of the respondents to the level of knowledge and self-medication behavior of cough and cold, namely the faculty with the level of knowledge of self-medication of cough and cold obtained a p-value of 0.004 < 0.050, and there is a relationship between the faculty and the self-medication behavior of cough and cold. The p-value of 0.005 < 0.050 is proven in the chi-square bivariate analysis. And there is a relationship between the level of student knowledge and the self-medication behavior of cough and cold which has been proven in the chi-square bivariate analysis with a p-value of 0.001 < 0.050. The students in this study have good knowledge and behavior regarding cold cough self-medication. Researchers are further advised to consider a more balanced distribution of samples between different faculties to reduce the potential for bias. In addition, it is important to increase the number of samples and expand the scope of the study and include the characteristics of tribal origin, as each tribe may have different knowledge and self-medication behaviors. The next researcher is expected to be able to measure the level of knowledge and behavior of students regarding cough and cold self-medication in more detail on each knowledge indicator (definition of cold cough, types of cough, causes and ways to prevent cold cough, symptoms of cold cough, pharmacological and non-pharmacological therapy, rules for taking cold cough medicine, side effects of cold cough medicine, drug stability, other diseases related to cold cough, drug logo) and behavior (right indications for drugs, selection of cough and cold medicines, right rules for use and duration of drug administration, right way of storage, right follow-up, beware of drug side effects and drug use) that are on the research questionnaire. Univariate analysis was carried out one by one of each indicator to find out the percentage of each indicator of knowledge and behavior.

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