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THE CORRELATION OF EDUCATION AND SOCIAL ECONOMIC LEVELS WITH ANTIBIOTIC SELF-MEDICATION IN THE COMMUNITY OF CIREBON

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ABSTRACT

Background: *People in developing countries, like Indonesia, often conduct self-medication. One of the most common drugs used in self-medication is antibiotics. Antibiotics should be used with caution since it can cause antibiotic resistance and possible unwanted side effects of the drug. There are several factors that influence self-medication behavior such as education and socio-economic levels. This research aims to find the correlation between education and social economic levels with antibiotic self-medication in the community of Cirebon.*
Method: *This study was an analytical survey with cross-sectional method. This study was conducted from December 2018 to February 2019. A total of 300 respondents were recruited as samples using consecutive sampling technique. The respondents were recruited from 5 different pharmacies from each sub-district in Cirebon City and a validated questionnaire were used to obtain data. The collected data are analyzed using the Spearman correlation test.*
Results: *The results of this study show that there was a significant but weak positive correlation of education level (r=0.224, p=0.001) and socio-economic (r=0.210, p=0.001) with self-medication using antibiotics.*
Conclusion: *There is a significant positive correlation between education and socio-economic levels with antibiotic self-medication.*

Keywords: *self-medication, education level, socio-economic level*

INTRODUCTION

Healthy is a physical and psychological condition that avoids illness and disability [1]. People in many developing countries, such as in Indonesia, conduct self-medication to solve their complaints as the first step before going to a doctor in a hospital, clinic or other places [2].

Central Bureau of Statistics Indonesia points out that 66% of the sick people in Indonesia had self-medication in 2012. Basic Health Research Results in 2013 show 103,860 or 35.2% of households from 294,959 households in Indonesia stored medicine for self-medication [3].

In the previous study, there are several chosen drugs for medicine of self-medication; one of them is antibiotic [4]. Antibiotic should obviously be used carefully since people have to pay attention on several conditions, for example dose accuracy, group selection accuracy, duration of administration, accuracy of doctor's indications in order to minimize the occurrence of side effects such as antibiotic resistance, allergic reactions, etc. [5]. Antibiotic resistance is a condition when bacteria are not stunted by giving normal doses of antibiotics so that the bacteria become resistant to antibiotic treatment. The emergence of pathogenic bacteria that are resistant to antibiotics can inhibit the healing process of disease, control

of infectious diseases becomes weak and can cause the spread of bacterial infections endemic. Therefore, this study can reduce the risk of this case in Cirebon city [5].

There are various factors underlying self-medication in a specific community. Several previous studies show that the level of knowledge, sociodemographic factors (gender, age, level of education and occupation) relate to self-medication behavior in the community [6].

Education is a cognitive social factor that can affect behavior related to health in each individual including the behavior of antibiotic use. Whereas in previous studies, the low economic income of the community is also a factor in self-medication carried out by most poor families in several developing countries.

METHODS

The research settings of this present study are 5 pharmacies in 5 sub-districts in Cirebon City and this study was conducted from November 2018 to February 2019. This present study is an analytic survey by using sampling consecutive sampling technique, which is the selection of samples by setting subjects included in the criteria until at a certain period of time, so that the number of respondents can be fulfilled and the more homogeneous results of caused data are selected randomly. For the number of samples are 300 samples determined using Isaac Michael's table, with a total population in Cirebon in 2015 were 388,745.

The materials and tools used in this study are a questionnaire to explore information of education and socio-economics levels. Questionnaire was distributed to people who bought antibiotics at the 5 pharmacies. The inclusion criteria are those who aged 18-55 years in the productive age range and can read and write to fill out questionnaires. Human subjects are used in this study. The ethical approval has been submitted to the Research Ethics Committee of the Faculty of Medicine, Gunung Jati University.

All respondents of the study were given an explanation of the research, such as the objectives, benefits, research procedures and guarantees of the confidentiality of all information and personal data of the respondents.

Then, respondents who were willing to participate voluntarily in this present study were asked for written approval by filling out the informed consent. Once data were collected, they were tested by using the Spearman correlation test to determine the correlation of education level and socio-economic variables with antibiotics self-medication.

RESULTS

a. Characteristic of respondents

Table 1. Characteristic of Respondents

Characteristics	Amount (n)	Percentage (%)
Sex		
Males	139	46%
Females	161	54%
Age		
17-25 years old	71	23%
26-35 years old	89	29%
36-45 years old	88	29%
46-55 years old	59	19%
56-65 years old	10	3%
>65 years old	8	2.6%
Occupations		
Employment	225	75%

Characteristics	Amount (n)	Percentage (%)
Unemployment	75	25%
Education Level		
Not Graduating from Elementary	12	4 %
Elementary/Primary	37	12.3%
Junior High	80	26.6%
Senior High	101	33.6%
University	70	23.3%
Social Economy		
Low	72	24 %
Average	103	34.3 %
High	68	22.6 %
Very High	57	19 %
Antibiotics Self-medication		
By Prescription	39	13 %
Without Prescription	261	87 %

From the table above, it is known that the majority of respondents are female, i.e. 161 respondents (54%). Meanwhile, based on the age, the respondents are dominated by people from the age of 27-36 years old with the frequency of 89 respondents (29%). Furthermore, based on the occupations, the respondents of this present study are mostly employments with the frequency of 225 respondent (75%). It is revealed that the distribution of the highest number of respondents come from the senior high school education with the frequency of 101 respondents (33.6%). Most respondents belong to the average socio-economic level with 103 respondents (34.3%). The table also shows that the distribution of self-antibiotics in this study is mostly without the use of prescription.

b. Correlation of between Education and Social-Economic Levels with Antibiotic Self-Medication

Table 2. Correlation of Education and Social-Economic Levels with Antibiotic Self-Medication

	Antibiotics Self-medication				
Education Level	Yes	(%)	No	(%)	
Not Pass Elementary	12	4	0	0	
Elementary	37	12,3	0	0	Correlation coefficient 0.224 and (p value = 0.001)
Junior High	73	24,3	7	2.3	
Senior High	74	24,6	27	9	
University	65	21,6	5	1.9	
Social Economy					
Low	72	24	0	0	
Average	94	31.3	9	3	Correlation coefficient 0.210 and (p value = 0.001)
High	54	18	14	4,6	
Very High	41	13.6	16	5,5	

From the results of the analysis as shown in the table above, it can be seen that the variable of education level has p-value of 0.001 and correlation coefficient of 0.244 with the direction of a positive correlation. It means that the higher the results of the education level variable, the higher the antibiotic self-medication activities. The table also shows that there is a significant correlation between education level variables and self-medication antibiotics.

In addition, socio-economic variables have p-value of 0.001 and correlation coefficient of 0.210 with the direction of a positive correlation. It means that the higher the results of the socio-economic variable, the higher the antibiotic self-medication activities. It also indicates that there is a significant correlation between socio-economic and self-medication of antibiotics. Although it has a significant relationship between the independent and dependent variables, the correlation between the two variables is classified as a weak correlation.

DISCUSSION

Based on the research conducted on 300 respondents in 5 pharmacies spread across 5 sub-districts in Cirebon City regarding the correlation between the level of education and self-medication of antibiotics, the results of statistical tests have been obtained with p-value of <0.05. Therefore, it can be concluded that there is a significant correlation between education level variables (X1) and socio-economic (X2).

The basic concept can describe that the higher education owned by someone, the easier for them to receive information so that they can possess much knowledge. On the contrary, less education will hinder the development of a person's attitude towards something. This is also supported by Notoatmodjo who points out that low education can cause irrational thought [7]. If it is associated with this study, irrational thinking is the idea when people do not care about the danger of improper use of antibiotics that will harm many things [7].

The results of this study support the results of previous studies conducted by Chalik Al Faruqi in 2013 where 27 samples of 100 respondents who purchased high dose drugs without prescriptions. It is directly proportional to the lower education, the lower the ability of the community to understand the dangers of antibiotic resistance if it occurs in the wider community [11].

A study in South Korea found that age and education were most factors of the correct knowledge of antibiotic use. In respondents aged 18-39 years, the level of knowledge of antibiotic use is known to be lower than respondents aged 40-59 years and ≥ 60 years. Respondents who have graduated from college was 2.39 times better in understanding the correct use of antibiotics than respondents with the level of elementary school education. The higher the education and work of a person, the more knowledge and information obtained. Therefore, they can consider the side effects of the use of drugs that they consume against self-medication antibiotics (Y) with a weak correlation value.

Self-medication by directly buying drugs without consulting a doctor in advance is usually based on several considerations, for example, because it is easy to do, easy to reach, cheaper, and as an alternative measure of consultation with medical personnel. It is realized that these drugs are only limited to overcome symptoms of an illness, however, self-medication of antibiotics can be at risk if it is used continuously to treat a disease that is not cured [8].

There are some reasons for antibiotic self-medication activities. They are closely related to the socio-economic conditions of the community themselves, the easiness of the treatment in obtaining the medicine without waiting for a doctors' examinations, the message in informing the benefits of the drugs for any illness recovery, and information from other parties based on their experience in using a drug [9].

Irrational use of antibiotics merely because the easiness of obtaining and cheaper medical treatment can cause major problems of emerging and developing bacteria resistant to antibiotics. In other words, the occurrence of antibiotic resistance is not avoidable. If resistance to antibiotics continues and is widespread, the world will return to the period before the discovery of antibiotics (*pre-antibiotic era*). Therefore, the morbidity and mortality rate of high patient infections becomes uncontrollable [10].

One of the elements of socio-economic is the amount of income in a family. According to Hendarwan, a family's income is related to its use in obtaining health services. Revenue is the flow of economic resources in various periods of time. Higher income individuals make it possible to finance health care and the ability to meet good nutrition. Medical expense is important consideration for people with low

socioeconomic levels, so they are more likely to seek treatment based on their own socio-economic abilities [12].

The reasons for spending few of money, fast and practical are also strong reasons for drug buyers in the study by Aris Widayati entitled self-medication among urban communities in the city of Yogyakarta in 2013. Her study shows that 138 of 640 samples had a low-income level, i.e. less than Rp1,500.00 per month. It is also in line with Farkhan Anis in 2017 stating that socio-economic has become a factor in influencing consumers to make decision to buy drugs freely and this is directly proportional to the results of this study [13].

CONCLUSION

There is a correlation of education and socio-economic levels with self-medication of antibiotics with weak correlation values in the direction of positive correlation. This research is expected to be an additional knowledge and development in the field of health, especially those related to antibiotic self-medication and the factors that influence it.

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