

RELATIONSHIP BETWEEN PERSONAL CHARACTERISTIC WITH KNOWLEDGE OF ANTIBIOTIC USAGE IN MEDAN CITYRINA AMELIA^{1*}, JULIANDI HARAHAP¹, ARLINDA SARI WAHYUNI¹, ARIEF PRATAMA M²¹Department of Public Health, Faculty of Medicine, Universitas Sumatera Utara, Jl. Dr. Mansyur No.5, Kampus USU, Medan 20155, Indonesia. ²Medical Student of Faculty of Medicine, Universitas Sumatera Utara, Jl. Dr. Mansyur No.5, Kampus USU, Medan 20155, Indonesia. Email: drrinaamelia@gmail.com

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ABSTRACT**Objective:** The objective of this research is to analyze the relationship between personal characteristics with knowledge of antibiotics usage in Medan.**Methods:** This research is an analytic research with cross-sectional approach. The data collection process was conducted in November 2013. The study population is the people residing in the district of Medan Johor; subjects are 336 people which enrolled by consecutive sampling technique. The data were obtained by interview using questionnaires that have been tested for validity and reliability. Data analysis was done using Chi-square statistical test using SPSS program.**Results:** The results showed that the level of knowledge of the Johor subdistrict community on the antibiotic usage was in the good category (79.5%). The statistical analysis showed that there was a statistically significant relationship between education level with knowledge of antibiotic usage ($p < 0.05$). There was no relationship between sex and age with knowledge of antibiotic usage.**Conclusion:** Knowledge is the main factor and has an important role which every patient should have so that they can take antibiotics appropriately. To increase the public's knowledge about the proper use of antibiotics, it is desirable that the role of physicians give a role in communicating them to the patients so that the use of antibiotics can be done appropriately.**Keywords:** Knowledge, Antibiotic usage, Educational level, Age, Gender.© 2018 The Authors. Published by Innovare Academic Sciences Pvt Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>) DOI: <http://dx.doi.org/10.22159/ajpcr.2018.v11s1.26601>**INTRODUCTION**

Antibiotics are an important drug used in the treatment of bacterial infections [1]. The use of rational antibiotics, referring to the accuracy of the dosage, the selection of antibiotics, and the dosage form that should be given to the patient [2]. More than half of patients in hospital care receive antibiotics as a treatment or prophylaxis. About 80% of antibiotic consumption is used for human benefit and at least 40% based on inappropriate indications such as viral infection. The use of irrational antibiotics may lead to increased health financing, side effect risks, prolonged treatment, decreased or loss of bacterial sensitivity to antibiotics, and risk of bacterial resistance [3,4].

According to the WHO data, Indonesia ranks 8th out of 27 countries in the world with high resistance to antibiotics [5]. This is because there is still a lack of awareness and public knowledge about the proper use of antibiotics so that 92% of Indonesians use antibiotics improperly [6]. Among others are ampicillin (34%), cotrimoxazole (29%), and chloramphenicol (25%). Other results indicate the incidence of antibiotic resistance as found by antimicrobial resistance in Indonesia (AMRIN study) which studied 2494 subjects to see the sensitivity of *Escherichia coli* to antibiotics; the result showed that 43% *Escherichia coli* resistant to various types of antibiotics. Antibiotic resistance has become a problem around the world.

There are several factors that influence the proper use of antibiotics in the community. One important factor is the level of public knowledge about antibiotics itself. Several factors affect the level of knowledge, such as the level of education from the community, doctors' explanations, and other assumptions that cause errors when taking antibiotics [6,7]. The rational use of antibiotics should be based on the knowledge about antibiotics that physicians and pharmacists can provide about pharmacological effects, side effects, drug interactions, and use instructions. Such information is the basis for patients in using antibiotics rationally. In addition, information from physicians and pharmacists is also required to support patient compliance in rational use of antibiotics [8].

The level of public knowledge in the use of antibiotics has been studied in various regions. Research conducted by Lim and Tea [9] in Putrajaya, Malaysia, mentioned that 83% of respondents did not know that antibiotics did not work against viral infections and 82% of respondents did not know that antibiotics could not treat coughs and flu, while 82.5% of respondents were seen to be very careful with the use of antibiotics that can cause allergies. The study also stated that about half of them (52.1%) did not know that antibiotics can cause many side effects. Some statements from respondents were no problem stopping the use of antibiotics when symptoms have been improved and taking a less amount of antibiotics from the doctors' prescription will be healthier than consuming all prescribed antibiotics. The level of community knowledge is also influenced by such levels of education from the community, doctors' explanations, as well as other assumptions that cause errors when taking antibiotics [6,7]. The objective of the study was for the relationship between personal characteristic with knowledge of antibiotic usage in Medan city.

METHODS

The design of this research is analytic with cross-sectional approach. The data collection process was conducted in November 2013 in Medan Johor district, Medan city. The population of this research is the people residing in Johor subdistrict of Medan, the sample of 336 subjects with the consecutive sampling technique. Data collection was done by interview using questionnaires that have been tested for validity and reliability. Community participation is voluntary and they have previously signed informed consent. Data analysis was done using Chi-square statistical test by SPSS program.

RESULTS

Table 1 shows that the majority of respondents gender is women 207 people (61.6%), by age groups show that the most age groups in this study are >45 years old as many as 107 people (31.8%), based on education level it was showed that the majority of respondents had

medium level of education (45.2%), the most involved group in the research worked as housewife as many as 100 subjects (31.0%).

Table 2 summarized that the majority of respondents' knowledge about antibiotics is good as much as 267 respondents (79.5%).

Table 3 summarized that female had the highest level of knowledge as many as 170 respondents (63.7%), the level of knowledge is the higher among respondents who have medium education level of 133 people (49.8%), the age group >45 years had better knowledge level as many as 91 people (34.1%). Chi-square test showed that there was correlation between education level and knowledge ($p < 0.05$) while

Table 1: Distribution of respondent characteristics

Characteristics	Frequency (people) (%)
Gender	
Man	129 (38.4)
Woman	207 (61.6)
Age group (year)	
15-19	31 (9.2)
20-24	33 (9.8)
25-29	25 (7.4)
30-34	51 (15.2)
35-39	40 (11.9)
40-44	49 (14.6)
>45	107 (31.8)
Level of education	
Low (elementary)	91 (27.1)
Medium (junior and senior high school)	152 (45.2)
High (college)	93 (27.2)
Occupation	
Housewife	100 (31.0)
Civil servant	80 (6.0)
Private employee	89 (10.0)
Entrepreneur	40 (20.0)
Retired	27 (33.0)

Table 2: Frequency distribution of knowledge level of respondents

Knowledge level	Frequency (people) (%)
Good	267 (79.5)
Medium	48 (14.3)
Less	21 (6.3)
Total	336 (100)

Table 3: Relationship between characteristics with knowledge level

Characteristic	Knowledge level			p
	Good n (%)	Medium n (%)	Less n (%)	
Gender				0.192
Man	97 36.3	22 45.8	10 47.6	
Woman	170 63.7	26 54.2	11 52.4	
Age group				0.234
15-19	20 7.5	10 21	1 4.8	
20-24	27 10.1	3 6.2	3 14.3	
25-29	21 7.9	3 6.2	1 4.8	
30-34	43 16.1	6 12.5	2 9.5	
35-39	30 11.2	6 12.5	4 19.1	
40-44	35 13.1	11 22.9	3 14.3	
>45	91 34.1	9 18.7	7 33.3	
Level of education				0.0001
Low	48 18	26 54.2	17 80.9	
Medium	133 49.8	16 33.3	3 14.3	
High	86 32.2	6 12.5	1 4.8	

there was no correlation between age and sex with knowledge about antibiotics ($p > 0.05$).

DISCUSSION

In general, the level of knowledge of the people of Medan Johor district is in the good category. The results of this study are in accordance with the results of Pulungan [10] and You *et al.* [11] found that the majority of people's knowledge of antibiotics is good (77% and 70%), but this study is not in line with the research done by Ling Oh *et al.* [12] that the majority of respondents' knowledge is quite 54.7%. And by Larson *et al.* [13] gained low responders' knowledge of antibiotics of 61.1%.

Based on Chi-square test, there is correlation between knowledge level and education level ($p < 0.05$) and there is no correlation between age and gender with respondent knowledge about antibiotic ($p > 0.05$). The results of this study are in line with the research conducted by Toraya *et al.* [14] which found that the level of education affect the public knowledge about antibiotics, while the age and gender does not affect the level of public knowledge. Larson *et al.* found the similar result [13]. There was a relationship between education level and the respondent's knowledge about antibiotics, while sex has no relationship with the level of knowledge. According to Notoatmodjo [15], there are several factors that affect the level of one's knowledge, information gained, social, cultural, economic, environmental, experience, and age. A person's mindset will be appropriate to his or her level of education because education can impact on a person's ability to receive information and this information can affect his or her knowledge [15]. In Baumann and Koos's opinion, the more educated a person, the better his knowledge of health and *vice versa* [16].

CONCLUSION

There is a compelling relationship between the level of education and the knowledge about antibiotics in the community in Johor district, the provision of knowledge by health workers can reduce the use of irrational antibiotics in society so as to prevent the occurrence of resistance.

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