Gambaran Pengetahuan dan Sikap Mahasiswa Kesehatan dan Non Kesehatan Dalam Penggunaan Antibiotik di Provinsi DKI Jakarta Serta Tinjauannya Menurut Pandangan Islam

Knowledge and Attitudes of Health Related and Non-Health Related Students in the Use of Antibiotics in DKI Jakarta Province and the Islamic Perspectives

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ABSTRAK   **Latar belakang:** Antibiotik digunakan untuk mengatasi penyakit infeksi yang disebabkan oleh bakteri, namun karena persepsi masyarakat yang beranggapan antibiotic dapat digunakan untuk segala penyakit, serta mudahnya akses ke antibiotic karena buruknya pengawasan menyebabkan rasionalitas penggunaan antibiotik diragukan. Antibiotik yang digunakan tidak sesuai aturan akan menyebabkan masalah serius seperti timbulnya reaksi efek samping obat tersebut dan resistensi antibiotik.

Metode: Sebuah survei *cross-sectional* menggunakan kuesioner kepada mahasiswa kesehatan dan non-kesehatan dari berbagai perguruan tinggi di Provinsi DKI Jakarta. Jumlah sampel sebanyak 161 orang dengan menggunakan teknik *stratified sampling*.

Hasil: Hasil penelitian menunjukkan bahwa siswa bidang kesehatan memiliki pengetahuan baik sebesar 33%, sedangkan siswa bidang non kesehatan memiliki pengetahuan baik sebesar 6,6%. Dari keseluruhan tabulasi silang sebanyak 161 orang, sebagian besar responden memiliki tingkat pengetahuan baik dan sikap positif sebesar 81,1% terhadap resistensi antibiotik

Kesimpulan: Kesimpulan dalam penelitian ini adalah mahasiswa kesehatan memiliki wawasan yang lebih luas untuk menggunakan antibiotik dengan lebih baik jika dibandingkan dengan mahasiswa non Kesehatan. Islam mengajarkan umat muslim selalu menjaga dan memanfaatkan Kesehatan untuk berbuat kebaikan, dan selalu bersyukur atas apa yang diberikan-Nya. Serta perlunya mempelajari perilaku manusia maupun sifat bakteri yang positif maupun negatif

ABSTRACT ***Background:*** *Antibiotics are used to treat infectious diseases caused by bacteria, but because of the public's perception that antibiotics can be used for all diseases, and the easy access to antibiotics due to poor supervision causes the rationality of using antibiotics to be doubted. Antibiotics used not according to the rules will cause serious problems such as side effects of these drugs and antibiotic resistance.*

Methods: *A cross-sectional survey using a questionnaire among health and non-health related students from various tertiary institutions in DKI Jakarta Province. The number of samples is 161 people using stratified sampling technique.*

Results: *The results showed that health related students had good knowledge of 33%, while non-health related students had good knowledge of 6.6%. From the overall cross tabulation of 161 people, the majority of respondents have a good level of knowledge and a positive attitude of 81.1% towards antibiotic resistance.*

Conclusion: *The conclusion in this study is that health related students have broader insights to use antibiotics better when compared to non-health related. Islam teaches Muslims to always maintain and use their health to do good, and to always be grateful for what He gives. As well as the need to study human behavior and the positive and negative properties of bacteria.*

INTRODUCTION

Infectious diseases are an important problem for public health, especially in developing countries. Antibiotics are antimicrobial drugs used to treat infections that cause bacteria (Arrang *et al.*, 2019; Permenkes, 2021).

Several studies have found that around 40-62% of antimicrobials are not used properly, which will trigger resistance problems (Arrang et al., 2019). Antimicrobial resistance or "antimicrobial resistance; AMR" occurs when bacteria are able to withstand previously effective antimicrobials, which can lead to an increased risk of disease spread, severe illness, and even death (WHO, 2020).

The public's perception that antibiotics are a cure for all diseases and the easy access to antibiotics that occurs due to poor supervision cause the rationality of using antibiotics to be doubted (Siahaan *et al.*, 2022). In addition to the government's role in dealing with the problem of antimicrobial resistance, knowledge is one of the individual factors in using antibiotics. Several studies have shown that the level of knowledge is very influential in the use of antibiotics.

Research conducted in Malaysia stated that the level of knowledge about antibiotics was 54.7% with moderate knowledge, with sources of antibiotic prescriptions obtained through doctor's prescriptions, so it can be concluded that knowledge or education is needed in the proper use of antibiotics (Ling Oh, 2011).

The knowledge gained in lectures becomes a stimulus for students and is manifested as an attitude determined by these students. Health sciences, as potential health workers, have a medical knowledge base and should be able to react wisely, while non-health sciences are expected to be more critical in understanding the use of antibiotics.

Seeing that there are still problems with irrational use of antibiotics related to the knowledge and attitude of an individual, it is very influential on the development of resistance. Strict adherence to the principles of antibiotic use must be paid close attention to by the public and those in authority in the production, distribution, and sale of antibiotics in order to minimize the occurrence of antibiotic resistance.

Islam teaches mankind to maintain health both physically and spiritually and to use it to do good, and to always be grateful for what He has given, and to study human behavior and the nature of bacteria that are both positive and negative for human life highly prioritizes Good health physically, physically and spiritually.

In this study, researchers wanted to compare knowledge and attitudes about the use of antibiotics in health and non-health sciences in DKI Jakarta Province and Their Review from Islamic Perspectives.

METHODS

The method used in this research is a descriptive analytic method using a questionnaire distributed to health and non-health sciences students in DKI Jakarta Province. The dependent variable in this study is the use of antibiotics, while the independent variables include knowledge and attitudes.

The population in this study were students of the health and non-health study programs in DKI Jakarta Province, while the samples taken by the researchers were from 161 people with stratified sampling.

The data that has been collected from the results of the knowledge level questionnaire can be categorized into good, moderate, and poor categories (Arikunto, 2010). Meanwhile, the questionnaire results on attitudes can be classified as positive [>50%] or negative [50%] (Azwar, 2011).

RESULTS

Table 1. Characteristics of Respondents

Variable	N	%
Age Group (years)		
<18	4	2.5%
18-21	131	81.4%
22-25	24	14.9%
>25	2	1.2%
Gender		
Male	53	32.9%
Female	108	67.1%
Area of Residence		
West Jakarta	20	12.4%
Central Jakarta	39	24.2%
South Jakarta	30	18.6%
East Jakarta	46	28.6%
North Jakarta	26	16.1%
Type of Educations		
Health related	100	62.1%
Non-Health related	61	37.9%
Level of Higher Education		
D3	26	16.1%
D4	20	12.4%
S1	110	68.3%
Profession	5	3.1%
Length of Study (semesters		
1	4	2.5%
3	25	15.5%
5	45	28.0%
6	14	8.7%
7	68	42.2%
8	4	2.5%

9	1	0.6%
Employement status		
Unemployed	124	77.0%
Working in The Health Sector	13	8.1%
Working Outside The Health Sector Health	24	14.9%

Based on the data in **Table 1**, 161 respondents were in the 18–21 year age group (81.4%), which showed that the majority of respondents were in the young adult age category and were female (67.1%). The majority of respondents live in DKI Jakarta, especially in East Jakarta Province, where the use of antibiotics is dominant (28.6%). The majority of respondents are in the field of health studies (62.1%), have a bachelor's degree (68.3%), with an average in the 7th semester (42.2%), and most of the respondents have not worked (77%).

Table 2. Relationship Level of Knowledge with the Use of Antibiotics

			Knowledge Level			Total
			Good	Moderate	Poor	
Respondent	HS	N	33	53	14	100
		%	33.0%	53.0%	14.0%	100.0%
	NHS	N	4	37	20	61
		%	6.6%	60.7%	32.8%	100.0%
Total		N	61	37	90	34
		%	37.9%	23.0%	55.9%	21.1%

HS = Health Science
NHS = Non-Health Science

Based on the cross-tabulation results in **table 2**, it shows that the relationship between the level of knowledge of the majority of respondents has a sufficient level of knowledge, namely 53% of health sciences and 37% of non-health sciences. This shows that the level of knowledge of health sciences about antibiotics still needs to be improved and understood, while non-health sciences still need a lot of understanding given so that when using antibiotics they can know clearly about the indications for use and side effects of these antibiotics.

Table 3. The relationship between the level of attitude and the use of antibiotics

			Attitude Level		Total
			Negative	Positive	
Respondent	HS	N	27	73	100
		%	27.0%	73.0%	100.0%
	NHS	N	34	27	61
		%	55.7%	44.3%	100.0%
Total		N	34	61	100
		%	21.1%	37.9%	62.1%

HS = Health Science
NHS = Non-Health Science

Based on the cross-tabulation results in **Table 3**, it shows the relationship between the level of respondents' attitudes and the use of antibiotics, namely in health science, with a negative attitude level of 27 people (27%), and a positive attitude level of 73 people (73%). non-health science with a negative attitude level of 34 people (55.7%) and a positive attitude level of 27 people (44.3%).

So it can be concluded that health respondents have a higher level of positive category attitudes than non-health respondents.

Table 4. Relationship between Knowledge Level and Antibiotic Use Attitude

			Attitude Level		Total
			Negative	Positive	
Knowledge Level	Good	N	7	30	37
		%	18,9%	81,1%	100%
	Moderate	N	32	58	90
		%	35,6%	64,4%	100%
	Poor	N	22	12	34
		%	64,7%	35,3%	100%
Total		N	61	100	161
		%	37,9%	62,1%	100%

Based on the cross-tabulation results in **Table 4**, it can be seen that 7 people (18.9%) had good knowledge and a negative attitude, while 30 people (81.1%) had good knowledge and positive attitudes.

Respondents with a sufficient level of knowledge and a negative attitude level were 32 people (35.6%), while respondents with a sufficient level of knowledge and a positive attitude level were 58 people (64.4%).

Respondents with less knowledge and negative attitudes were 22 people (64.7%), while respondents with less knowledge and positive attitudes were 12 people (35.3%).

From the tabulation above, it can be seen that respondents with a good level of knowledge tend to have a positive attitude towards the use of antibiotics.

Table 5. Chi-Square Tests

	Value	Df	Asympto-matic Significance (2-Sided)
Pearson Chi-Square	16.256[a]	2	.000
Likehood Ratio	16.462	2	.000
N of Valid Cases	161		

Based on the statistical test results above, it can be seen that the Pearson Chi-squared value is 0.0000.05. said to be significant at 0.05, and vice versa. So it can be concluded that there is a significant relationship between knowledge about antibiotics and attitudes toward using antibiotics without a prescription.

DISCUSSION
Relationship Level of Knowledge with the Use of Antibiotics

There is a need to address the emergence and minimization of antibiotic resistance at levels ranging from the individual, household, household and community, to health care facilities, across the health sector, and finally at the national and global levels (Tomson G, 2014). Antibiotic resistance causes around 44,000 deaths annually in 2019 (CDC, 2019). Currently, antibiotics have been used freely and widely by the public without knowing the impact from the use of rules that result in the effectiveness of antibiotics will be reduced. In addition to the government's role in overcoming the problem of antimicrobial resistance, knowledge is one of the individual factors in the use of antibiotics

Less than half of students have good knowledge, but health related students have more good knowledge (33%) than non-health related students (6.6%), and if on average, both respondents have a sufficient level of knowledge in using antibiotics (23%) **(table 3).** So it can be concluded that in this study there was a significant relationship between the knowledge of the two respondents, namely health related and non-health related students with the use of antibiotics. In Silva et al's (2012) study, it was shown that the level of knowledge of health related student was higher than that of non-medical students. It is also reinforced by Handayani's research (2013) that Health related students have a higher level of knowledge (13.5%) than non-Health related students (2%).

Knowledge itself is influenced by formal education factors, in this case educational background is important in most of the data reported, from information obtained through formal education will provide short-term knowledge that will result in increasing or changing one's knowledge (I Nengah, et al., 2020). Therefore students with a health background have better knowledge.

As for respondents whose knowledge is lacking due to several factors such as health information such as health education which is still minimal, so that information on antibiotics is only limited to the experience of friends or family, such as information that antibiotics are a cure for all infectious diseases and that all medicines can be stored and reused when relapse (Meinitasari, et al., 2021).

In a study by Marzan et al (2021) showing university students in Bangladesh who showed knowledge gaps that were more common in non-biology students, many students had the misconception that antibiotics could prevent viral infections. It is also supported by Vinsensius's research (2018) which shows that there is a relationship between knowledge and the use of antibiotics in residents of Weoe Village, Webalu Hamlet RT 03, RT 04 and RT 05 who have knowledge about antibiotics and indicators of general knowledge about antibiotics, how to use them, when and duration of use of antibiotics and how to store them. antibiotics, acceptance of antibiotics and side effects of using antibiotics in the sufficient category (67%).

The relationship between the level of attitude and the use of antibiotics

Table 4 shows that there was a significant relationship between the attitudes of the two groups of respondents, health sciences and non-health sciences, toward the use of antibiotics in this study.

A positive attitude is expressed by respondents who use antibiotics rationally because they understand that doing so will reduce the incidence of antibiotic resistance.Irrational use of antibiotics includes the use of antibiotics without a prescription, sharing leftover antibiotics, a lack of adequate education and training of health workers, promotion of pharmaceutical companies, and patient-doctor interactions. However, a common factor that causes the irrational use of antibiotics by the general public and health care providers is the low level of knowledge and awareness of the use of antibiotics and AMR (Machowska A, 2018).

In a study by Tangcharoensathien et al (2021) which stated that 21.5%

remembered receiving information about the proper use of antibiotics and AMR in the last 12 months; the most information source is health workers (82.7%). Other sources playing a minor role include television and radio (14.3%), family and friends (14.3%) and online media (10.7%). Other sources such as newspapers, posters and flyers are insignificant.

The use of antibiotics that are not in accordance with the duration of use will have negative impacts, one of which is antibiotic resistance, where bacteria become resistant to antibiotics because antibiotics do not produce pharmacological effects to cure bacteria and infections easily recur. Storage and reuse of antibiotics can result in suboptimal treatment, disrupt drug stability due to improper storage, and it is feared that antibiotic storage will result in suboptimal use of antibiotics.

In Widyarahma's research (2022) it was shown that there was a relationship between attitudes towards the use of antibiotics. In this study, the attitude of the respondents regarding the use of antibiotics was still not good. Other research also shows that there is a relationship between people's attitudes and the use of antibiotics with the results obtained stating that respondents who have bad attitudes are greater because their knowledge is less than those who have good attitudes because their knowledge is good (Yarza, et al., 2015).

It can be said that if people are highly educated, then their knowledge is considered good. Information about something will influence a person's attitude or behavior. If a person's knowledge is good, then his attitude will be good; conversely, if a person's knowledge is lacking, then his attitude towards his behavior will not be good. Thus, it can be concluded that knowledge greatly influences a person's attitude towards something.

Relationship between Knowledge Level and Antibiotic Use Attitude

The results showed that there was a significant relationship between the level of knowledge of antibiotics and the behavior of using antibiotics, with a significance value of 0.000 or <0.05. This result is also in line with Notoatmodjo's (2014) theory, which states that there are several factors influencing human behavior, such as knowledge, beliefs, attitudes, people as references, and resources. The better a person's knowledge of antibiotics, the better the attitudes and behaviors that a person generates.

In Kurniawati's research (2019) it showed that there was a significant relationship between knowledge and behavior in using antibiotics among consumers of pharmacies in Glagah District, Lamongan Regency with a significance value of 0.000. Supported by Lestari's research (2014) which explains that knowledge influences the behavior of using antibiotics. Other studies have also concluded that there is a fairly strong relationship between the level of knowledge on self-medication behavior (Ananda, 2013).

In this study, the level of knowledge and attitudes of health sciences students towards the use of antibiotics was higher due to several factors, namely:
1. Antibiotics are taught to health sciences students, who have a thorough understanding of the experts involved.
2. Health sciences certainly have more space and a scope that is broader and more accurate

regarding the exchange of information on understanding the use of antibiotics.

3. Even if you don't fully comprehend, you will remember the learning outcomes regarding the use of antibiotics.

Therefore, it can be seen that there is a difference in the level of knowledge and attitudes between the health sciences and non-health sciences. Of course, different knowledge leads to different attitudes because, basically, attitudes are formed by the knowledge one has.

Wawan and Dewi (2010) argue that knowledge is a very important domain for the formation of one's actions. Based on experience and research, it turns out that behavior based on knowledge will be more lasting than that which is not based on knowledge.

Humans must maintain health both physically and spiritually, physically and spiritually and use it to do good, and always be grateful for what Allah SWT has given, the success of humans as His people will not be perfect in this world and in the hereafter if humans do not combine faith and Health. The term "zarrah" in the Qur'an is defined as matter or the smallest creature that guides humans to study human behavior as well as the positive and negative properties of bacteria. The creation of these microorganisms aims to remind humans of His presence, so that humans are not negligent and feel arrogant (Subandi, 2014).

CONCLUSIONS

According to the findings of the researchers' research, health sciences students had a broader understanding and correct use of antibiotics than non-medical students. Health professionals' capabilities must be strengthened to prescribe and administer antibiotics appropriately and to communicate effectively with patients. Governments should promote specific information on the rational use of antibiotics and AMR to certain target groups.

Humans must maintain health both physically and spiritually, physically and spiritually and use it to do good, and always be grateful for what Allah SWT has given, the success of humans as His people will not be perfect in this world and in the hereafter if humans do not combine faith and Health.

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