

THE EFFECT OF EDUCATION LEVEL AND PUBLIC KNOWLEDGE ABOUT THE USE OF ANTIBIOTICS IN UMBULHARJO YOGYAKARTA*Mexsi Mutia Rissa^{1*}, Orviana Hara Aily², Danang Yulianto³*^{1,2,3}Akademi Farmasi Indonesia Yogyakarta, IndonesiaEmail: mexsi.pharm@afi.ac.id

* corresponding author

ABSTRACT

Antibiotics are one of the drugs used by the public in self-medication. 27.8% kept antibiotics at home. The existence of antibiotics for self-medication shows irrational use of drugs. Meanwhile, many antibiotics were stored in households, 86.1% of which were obtained without a doctor's prescription or doctor's examination. The purpose of this study was to determine the effect of the level of education and public knowledge about the use of antibiotics in Umbulharjo, Yogyakarta. The research method used is This study used a non-experimental descriptive analytic method with a cross sectional approach. The samples taken were 89 respondents, the sampling technique used was purposive sampling. This research is explorative in nature and data is obtained through a questionnaire. The research data was carried out by the Spearman rank test. The results of this study indicate that the demographic characteristics of the Umbulharjo community show that the highest age with a percentage of 42.70% and the most sexed people are women with a percentage of 58.42%. The education level of the most respondents is Senior High School 49.45%. Respondents have the highest level of knowledge with sufficient knowledge as much as 48.31% and the level of education of respondents has no effect on the level of public knowledge about antibiotics.

Keywords: level of education, knowledge level, antibiotics, public**INTRODUCTION**

Antibiotics are one of the drugs which, if used incorrectly, resistance will occur which can harm society globally (WHO, 2014). Based on data from the Health Research and Development Agency, the Ministry of Health of the Republic of Indonesia, that as many as 27.8% store antibiotics at home. The existence of antibiotics for self-medication shows irrational use of drugs. As for antibiotics, many are stored in households, 86.1% obtained without a doctor's prescription or doctor's examination (Risksedas, 2013). This happens due to a lack of public knowledge about the wise and correct use of antibiotics (Utami, 2012).

Improper use of antibiotics can lead to resistance due to lack of knowledge about the use of antibiotics, the main cause of antibiotic resistance is widespread irrational use (Utami, 2012). Inappropriate use of antibiotics in society includes abrupt discontinuation of drug use, inappropriate dosages, use of antibiotic residues, and misuse of antibiotics at inappropriate times (Shehadeh et al 2012).

Research conducted by WHO in 12 countries, including in Indonesia, 53-62% stopped taking antibiotics when they felt they had recovered (World Health Organization, 2015). The research was conducted by Guntur Satrio Pratomo (2018). Regarding the use of antibiotics at the age of 18-60 years, it is

included in the category of less knowledge with a percentage value of 34.50%. Research conducted by Tri Cahyani W (2021) The level of knowledge about antibiotics is 62% in the poor category and 1% in the good category.

Antibiotic resistance is currently the biggest threat to public health in the world, WHO coordinates global campaigns to increase public awareness and behavior towards antibiotics (World Health Organization, 2015). The general lack of knowledge about the use of antibiotics exacerbates the emergence of antibiotic resistance. The way people use antibiotics is not in accordance with the rules, consuming it not routinely and drinking it until it runs out with the excuse that it has healed (Ministry of Health, 2011).

RESEARCH METHODS

This study used a non-experimental descriptive analytic method with a cross sectional approach. This research is explorative in nature and data is obtained through a questionnaire. Data analysis was performed with descriptive statistical analysis. The sample of this research is the Umbulharjo community who fulfill the inclusion criteria by purposive sampling. Determining the number of samples using the slovin method (Notoatmodjo, 2012).

Instrumental Research

In this study using a knowledge questionnaire to determine the level of public knowledge of antibiotic knowledge. In the form of multiple choice questions of 20 questions, with yes and no answer options. This knowledge questionnaire is a validated questionnaire from Saraswati A. S., (2018).

Results analysis

Coding data, after the respondents answered the questionnaire, the researcher coded the data by scoring, namely by giving a score to the answers "Yes" and "No". In this study, each answer that was considered correct was scored 1 (one) and the answer that was considered wrong was given a score of 0 (zero).

Normality test, before conducting an analysis to find a correlation between the two research variables, the researcher first conducted a normality test. This test was conducted to find out whether the research data is normal or not. The normality test for this data uses nonparametric statistics, namely using the Klomogorof-Smirnov technique.

Hypothesis testing, Hypothesis testing was carried out using the Spearman test because the distribution of the data obtained was not normal.

RESULTS AND DISCUSSION

Characteristics of Respondents by Age

Age The age of the respondents ranged from 16 years to 60 years. The age of the Umbulharjo community is grouped into 5 classes, with each class having an age gap of 10 years, as presented in table I below. The older a person's age will increase the knowledge they have because of the many experiences gained (Suparlan, 1995). In general, about 42.70% of respondents aged between 16-25 years, so it is hoped that the results of the study will show a high level of respondents' knowledge about antibiotics because most of the respondents are considered educated. According to the 2019 BPS, the productive age is between 16-60 years old. Ages that are still in a productive period compared to old age are physically weak and limited so they have a higher level of productivity (Mahendra & Woyanti, 2014). This is in accordance with (Aprilyanti, 2017) and (Anis, 2017). Which states that the more old a person is, the more his knowledge, abilities and maturity will be better in thinking and receiving higher information compared to those who are old so that their physical possessions become weak and limited.

Table 1. Characteristics of Research Respondents Based on Age

Usia (tahun)	n	Percentage
16-25	38	42,70
26-35	21	23,59
36-45	14	15,80
46-55	11	12,35
56-65	5	5,61
Total	89	100

Based on table 1 above, it can be seen that the age group of 16-25 years is the most with a total of 38 respondents (42.70%). BPS 2019 that the productive age is at the age of 15-64 years. Productive age compared to old age has a weak and limited physique so it has a higher level of productivity (Mahendra & Woyanti, 2014), this is because the productive age follows the development of knowledge, besides that it has better abilities and good organ function to catch a response. This is in accordance with the results of research conducted by Aprilyanti, 2017 which states that the older a person is, the better the level of knowledge, ability to think and receive information will be affected.

Characteristics of Respondents Based on Gender

Researchers do not limit the gender of respondents who are used for research. In this study, it was found that the respondents used were mostly female, namely 52 respondents (58.42%). Questionnaires were distributed between noon and evening, so that most of those in the study area were women. This is in accordance with Waskitajani's research, 2014, which stated that female respondents would care more about health than men so that women had more knowledge about health than male.

Table 2. Characteristics of Research Respondents Gender

Gender	n	Percentage
Male	37	41,57
Female	52	58,42
Total	89	100

Characteristics of Respondents Based on Education

The last educational level of the respondent referred to here is the level of education that the respondent has already taken, so the respondent has at least an elementary school education level. The level of education is divided into 4 levels namely, Elementary, Middle School, High School, College. Can be seen in table III.

Table 3. Characteristics of Respondents Based on Education

Last education	n	Percentage
Primary School	7	7,86
Junior high school	12	13,48
Senior High School	44	49,45
College	26	29,21
Total	89	100

High school education is 49.45%, and is the highest presentation when compared to other levels of education. In fact, the higher a person's level of education, the higher the level of knowledge. Respondents with low education affect a person's ability to receive information and information related to antibiotic knowledge, this is in accordance with Larasati's research, 2015 which states that the level of education is related to a person's ability to absorb and receive health information and the ability to play an active role in

development. In general, people who have a higher approach have broad knowledge and insight and are able to participate in overcoming the health of themselves and their families. The educational process involves a series of activities so that an individual can gain extensive knowledge, understanding, and insight, including knowledge about drug information. The higher the education a person gets, the easier it is to receive information.

Characteristics of Respondents Based on Occupation

Knowledge is a collection of information that is owned by someone after seeing, experiencing, seeing, and understanding through the five senses. Knowledge is obtained from direct experience or the experience of others. Basically knowledge will increase according to the experience experienced (Mubarak, 2011). Knowledge is also interpreted as the result of making observations of objects, by itself producing the most knowledge. It is influenced by the intensity of perception of the object (Notoatmodjo, 2014).

Knowledge about the use of antibiotics was obtained from a questionnaire that was filled in by each respondent. The first stage of the activity begins with giving consent sheets as respondents then distributing questionnaires which will be filled in by each respondent after all the questionnaires have been distributed the researcher performs data processing by looking at the answers from each respondent then the results are calculated and the percentage obtained from the results of the questionnaire.

Knowledge data analysis calculated the weight for the questionnaire that measures the knowledge variable for each respondent to obtain a value for each question, namely using a score of 1 for the correct answer and a score of 0 for the wrong answer or not filled in. The scores from the correct questionnaires are then added up and then divided by the number of questions after that the percentage is calculated and then entered into the objective criteria. According to Arikunto (2011), the criteria for assessing knowledge are divided into three groups which include: the good knowledge category with a score of more than 76 - 100%, the sufficient knowledge category with a score of 60-75%, and the less knowledge category has a score of less than 60%. The following is a table regarding the level of knowledge of the Umbulharjo community regarding antibiotics

Table 4. Characteristics of respondents about antibiotics

Knowledge Category	n	Percentage
Good	20	22,47
Moderate	43	48,31
Deficient	26	29,21
Total	89	100

The results of measuring knowledge about antibiotics were carried out by giving questionnaires from 89 respondents, respondents with sufficient knowledge amounted to 43 people 48.31%. Someone with a higher education will have wider knowledge, and it is possible that not only educational factors influence one's knowledge, but also based on life experiences, information from family or friends, print and electronic media. The results of this study are in accordance with the results of research by Mahendra Agil Kusuma (2011), which states that the level of public knowledge is in the moderate category regarding antibiotics. This is due to increased public awareness of the importance of health so that people are more concerned about existing health issues and collect information about antibiotics. In addition, currently there are many sources of information available in the community that are easily accessible by all levels of society, namely from health workers, posyandu health cadres and via electronic means.

Effect of education level on the level of public knowledge about antibiotics

Hypothesis testing in this study used the Spearman correlation test. This test was carried out because it was known that the research data showed an abnormal distribution. From the results of the hypothesis testing, it was found that the relationship between education level and level of knowledge about antibiotics had a correlation coefficient (r) of 0.120 with a significance level (P) of 0.132. The P value obtained has a value greater than 0.05 indicating that a person's level of knowledge about antibiotics is not determined by the high level of education or the higher the level of education a person does not necessarily mean that the level of knowledge about antibiotics is also high, and vice versa. The results of this study are the same as the results of research conducted by Damanik that the level of education does not affect a person's knowledge of something, in this case knowledge of antibiotics in general.

CONCLUSION

The demographic characteristics of the Umbulharjo community show that the highest age group with a percentage of 42.70% and the most sexed people are women with a percentage of 58.42%. The education level of the most respondents is Senior High School 49.45%. Respondents have the highest level of knowledge with sufficient knowledge as much as 48.31% and the level of education of respondents has no effect on the level of public knowledge about antibiotics.

REFERENCE

- Alrosyidi, A. F., Hasanah, N. U., (2021). Tingkat Pengetahuan Dan Kebiasaan Masyarakat Kabupaten Pamekasan Terhadap Penggunaan Antibiotik. *Journal of* 4(2), 53–56. Retrieved from https://mail.ejurnal.stikes-bth.ac.id/index.php/P3M_JoP/article/view/733
- Arikunto, S. 2011. *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: PT. Rineka Cipta.
- Anis, F. (2017). Hubungan Faktor Sosiodemografi Terhadap Pengetahuan Swamedikasi dan Penggunaan Obat Common Cold di Desa Wukirsari Kecamatan Cangkringan Kabupaten Sleman Yogyakarta. Yogyakarta: Program Studi Farmasi Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Islam Indonesia.
- Aprilyanti, S. (2017). Pengaruh Usia dan Masa Kerja Terhadap Produktivitas Kerja. *Jurnal Sistem dan Manajemen Industri*, 1, 68 – 72.
- Aritonang, Irianton. 2012. *Penyelenggaraan Makanan, Manajemen Sistem Pelayanan Gizi Swakelola dan Jasaboga di Instalasi Gizi Rumah Sakit*. Yogyakarta: Leutika
- Badan Pusat Statistik. 2019. *Jumlah Penduduk Kecamatan Sukun Menurut Kelurahan dan Jenis Kelamin, 2011-2020*. BPS Kota Malang.
- Dinas Kesehatan Kota Salatiga. 2015. *Profil Kesehatan Kota Salatiga Tahun 2014*. Salatiga.
- Depkes, R. (2011). *Moduk Penggunaan Obat Rasional*. Jakarta: Kementerian Kesehatan Republik Indonesia
- Erlangga. 2017. *Pola Peresepan Antibiotik Pada Pasien Rawat Jalan di Puskesmas Dalam Wilayah Kota Pariaman*. Skripsi. Universitas Andalas.
- Ikhda, F. N. (2021). Tingkat Pengetahuan Masyarakat Yang Membeli Antibiotik Di Apotek X Kabupaten Malang Tentang Bijak Menggunakan Antibiotik, 48–45.
- Indriyanti, N. (2018). *Tingkat Pengetahuan Masyarakat Tentang Penggunaan Antibiotik Di Dusun Pampung (Grabag)*.
- Kementerian Kesehatan Republik Indonesia, 2016. *Situasi Gizi di Indonesia*. Pusat Data dan Informasi Kemenkes RI. Jakarta.
- Katzung. 2012. *Basic & Clinical Pharmacology 12th Edition*. San Fransisco. Lange Medical Publications.
- Larasati, Desi. 2015. *Tingkat Pengetahuan Ibu Nifas Tentang Tanda Bahaya Masa Nifas di RB An-Nuur Surakarta*. Karya Tulis Ilmiah. Program Studi DIII Kebidanan, STIKES Kusuma Husada. Surakarta

- Mahendra, A. D. & Woyanti, N. 2014. Analisis Pengaruh Pendidikan, Upah, Jenis Kelamin, Usia dan Pengalaman Kerja Terhadap Produktivitas Tenaga Kerja (Studi Industri Kecil Tempe di Kota Semarang). *Doctoral disertation*. Fakultas Ekonomika dan Bisnis. Universitas Diponegoro.
- Mubarak, WI. 2011. *Promosi Kesehatan Masyarakat Untuk Kebutuhan*. Jakarta : Salemba Medika.
- Mansbridge, J. (2013). Riset Kesehatan Dasar. *Expert Opinion on Investigational Drugs*, 7(5), 803–809. <https://doi.org/10.1517/13543784.7.5.803>
- Notoatmodjo, S. 2012. *Ilmu Perilaku Kesehatan*. Jakarta: Rineka Cipta.
- Notoadmodjo, Soekidjo. 2012. Pendidikan dan Perilaku Kesehatan. Jakarta: Rineka Cipta
- Notoadmodjo, S. 2014. *Ilmu Perilaku Kesehatan*. Jakarta: Rineka Cipta.
- Putri, L. (2015). Pengaruh Konseling dengan Bantuan Media Leaflet terhadap Pengetahuan Penggunaan Antibiotik pada Masyarakat Patrang Kabupaten Jember. Universitas Jember, Jember.
- Pratomo, Guntur Satrio 2018, Tingkat Pengetahuan Masyarakat Desa Anjir Mambulau Tengah Terhadap Penggunaan Antibiotik.
- Riset Kesehatan Dasar (Riskesdas). (2013). Badan Penelitian dan Pengembangan Kesehatan Kementerian RI tahun 2013. Diakses: 19 Oktober 2018,
- Utami, E. R. 2012. Antibiotika, Resistensi, Dan Rasionalitas Terapi. Malang : Fakultas Sains dan Teknologi UIN Maliki Malang.
- Pambudi, R. S., Novela, B., Utari, D., Surakarta, S., Sakti, R., Universitas, P., ... Adi, J. (2020). Knowledge Level the Use of Antibiotics in Health Students of Surakarta Sahid University. *Jurnal Dunia Farmasi*, 4(3), 149–156.
- Pratomo, G. S., & Dewi, N. A. (2018). Tingkat Pengetahuan Masyarakat Desa Anjir Mambulau Tengah terhadap Penggunaan Antibiotik. *Jurnal Surya Medika*, 4(1), 79–89. <https://doi.org/10.33084/jsm.v4i1.354>
- Saraswati A. S. 2018. *Peningkatan Pengetahuan Sikap dan Tindakan Remaja Putra Terhadap Penggunaan Antibiotik di SMKN 1 PIRI Dengan Menggunakan Metode Seminar*. Yogyakarta.
- Shehadeh, M. et al., 2012. *Knowledge, attitudes and behavior regarding antibiotics use and misuse among adults in the community of Jordan. A pilot study*. *Saudi Pharmaceutical Journal*, 20(2), pp.125–133.
- Tri, C., P, A. R. H., & Agustina, E. D. (2021). Tingkat Pengetahuan Masyarakat Terhadap Perilaku Penggunaan Antibiotik Pada Konsumen Apotek Kemojing Di Kecamatan Binangun Kabupaten Cilacap. *University Research Colloquium 2021*, 709–713.
- Widayati N, Ulfina N. Studi Deskriptif Faktor-Faktor Penyebab *Default* Pada Penderita TB Paru Program *Directly Observed Treadment Short Course* (DOTS) di RSUD Batang Tahun 2012. *Skripsi*. Batang: Program Studi Keperawatan STIKes Muhammadiyah Pekajangan
- Waskitajani S. Hubungan Antara Karakteristik Sosio-Demografi Terhadap Tingkat Pengetahuan, Sikap, Dan Tindakan Penggunaan Antibiotika Tanpa Resep Di Kalangan Masyarakat Desa Bantir, Kecamatan Candiroto, Kabupaten Temanggung, Jawa Tengah. UNIVERSITAS SANATA DHARMA; 2014.
- WHO. 2014. *Antimicrobial Resistance Global Report on Surveillance*.
- WHO. *World Health Statistics 2015: World Health Organization; 2015*.
- Yulia, R., Putri, R., & Wahyudi, R. (2020). Studi Tingkat Pengetahuan Masyarakat Terhadap Penggunaan Antibiotik Di Puskesmas Rasimah Ahmad Bukittinggi. *Journal of Pharmaceutical And Sciences*, 2(2), 43–48. <https://doi.org/10.36490/journal-jps.com.v2i2.25>