

Education on Antibiotic Use to Prevent Resistance in Lengkongbarang Village Tasikmalaya Regency

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ABSTRACT

The irrational use of antibiotics can lead to drug resistance, which is a global health problem. Counseling the community about the proper use of antibiotics is very important to prevent antibiotic resistance. This study aims to improve the knowledge of the Lengkongbarang Village community regarding the proper use of antibiotics to prevent drug resistance. Counseling was conducted in July 2024 in Lengkongbarang Village with a cross-sectional approach. A total of 15 respondents aged 17 years and above participated in this activity. Pretest and posttest were used to assess the level of knowledge of respondents before and after counseling. Data were analyzed using paired t-tests to see the increase in respondents' knowledge. Results showed a significant increase in respondents' knowledge regarding the rational use of antibiotics. The average pretest score was 51.33, while the average posttest score increased to 64.00. The statistical test showed a p-value of 0.020, indicating a significant difference between the pretest and posttest scores. This counseling succeeded in increasing the knowledge and understanding of the Lengkongbarang Village community regarding the appropriate and rational use of antibiotics. Hopefully, this knowledge can be applied in daily life to prevent drug resistance.

ARTICLE INFO

Article History:

Submitted/Received 25 Jul 2024

First Revised 29 Jul 2024

Accepted 30 Jul 2024

First Available online 21 Oct 2024

Publication Date 21 Oct 2024

Keyword :

Education

Antibiotic

Resistance

INTRODUCTION

One of the global health concerns is bacterial resistance to antibiotics. Antibiotics that are not used properly can lead to resistance (CDC, 2019). Wise antibiotic use means using antibiotics with caution, considering the impact of the spread and emergence of resistant bacteria (Kemenkes, 2021). Bacterial resistance to antibiotics also reduces the efficacy of therapy. The lack of sensitivity of an antibiotic to a bacteria makes the bacteria more resistant to the antibiotic. (Rukmini *et al.*, 2019).

According to the Ministry of Health's 2016 national survey data on antimicrobial resistance, the prevalence of multidrug-resistant organisms (MDRO) with ESBL (extended-spectrum beta-lactamase) indicators producing *Escherichia coli* and *Klebsiella pneumoniae* bacteria ranged from 50-82% (Kemenkes, 2021). The results of the antibiotic use survey showed that almost all webinar participants had used antibiotics (95.1%). According to (Sahputri, 2020), antibiotics are one of the most widely used drugs. The inappropriate use of antibiotics by people today causes the problem of antibiotic resistance. One of the previous studies on UIN Sunan Ampel Surabaya students found that 80 percent of students bought antibiotics without a doctor's prescription, the results were much lower than those produced by this survey (Funsu *et al.*, 2020).

Antibiotic resistance in bacteria in intensive care units (ICUs) was shown to correlate with the amount of antibiotic use, according to research published in 2020 from Serbia. The study's analysis of the amount of antibiotic use focused on antibiotic groupings, rather than on individual antibiotic types. The results showed that there was a high association between *P. aeruginosa* resistance and the use of glycopeptides, aminoglycosides, cephalosporins, and piperacillin-tazobactam antibiotics. The resistance level of *K. pneumoniae* was closely correlated with the use of carbapenem antibiotics. In addition, a high association was also seen between *Acinetobacter* spp. Resistance and the use of cephalosporin, aminoglycoside, and penicillin antibiotics.

Non-prescription antibiotic purchases were made for a variety of reasons. The most frequent reason given by webinar participants for using antibiotics without a prescription was because they were already familiar with the type of drug (58.8%). This finding differs from other studies which show that people more often buy antibiotics without a prescription because the price is cheaper than visiting a doctor (Funsu *et al.*, 2020).

From the above problems, it is necessary to educate the public that irrational use of antibiotics can be detrimental so education is needed regarding the proper use of antibiotics. This education was carried out at the Lengkongbarang village IHC, because IHC is one form of community-sourced health efforts (UKBM) managed from, by, for and with the community, to empower the community and provide facilities for the community to obtain basic health services. (Prabawati *et al.* 2018).

METHODS

Counseling was conducted in July 2024 in Lengkongbarang Village. Data processing was obtained by using a presentation method to explain the level of public knowledge about the use of antibiotics in Lengkongbarang Village. A cross-sectional approach was used, using instruments in the form of pretests and posttests. This counseling was carried out by conducting pretests, education, and posttests. The number of respondents was 15 people aged 17 years and over.

This activity uses pretest and posttest. This pretest and posttest are about the use of antibiotics to prevent drug resistance. Pretest and posttest were distributed to respondents before and after receiving education.

Data were analyzed from the pretest and posttest scores that had been filled in by respondents. The pretest and posttest data were then processed using the paired t-test to see whether or not there was an increase in participants regarding the irrational use of antibiotics.



FIGURE 1. Flow of Extension Activities to the Lengkongbarang Village Community

The activity began with observation of the location for the implementation of counseling to the community and continued to prepare for making pretests and posttests as well as preparation of material delivery. The implementation was carried out for 1 day at Posyandu Dahlia in Lengkongbarang Village with the presence of 15 respondents. Finally, pretest and posttest data processing was carried out based on the results of the respondents' work.

RESULTS AND DISCUSSION

This community counseling activity is one of the efforts to educate the community of Lengkongbarang Village. This counseling aims to increase the knowledge of the Lengkongbarang village community about the irrational use of antibiotics to prevent drug resistance. Community counseling activities in Lengkongbarang village can be seen in Figure 2.

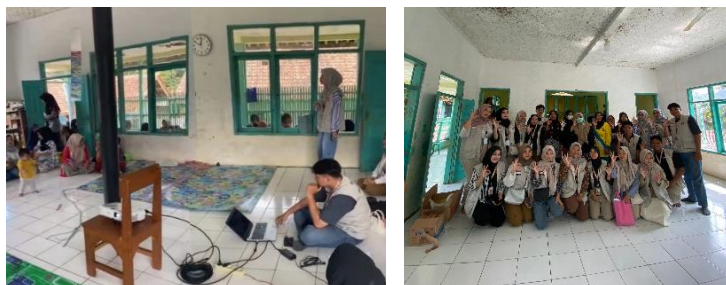


FIGURE 2. Counseling activities in Lengkongbarang Village

This counseling explains the background of why education needs to be carried out regarding the irrational use of antibiotics, and the purchase of antibiotics without a doctor's prescription which can cause drug resistance so it needs to be considered. Therefore, it is necessary to take steps to prevent resistance including using direct education methods. (Mahbub et al., 2023).

In addition, knowledge is given about the consequences that can be caused if drug resistance occurs. Antibiotic resistance is the resistance of bacteria in the body to antibiotics that are given (Lia *et al.*, 2021).

According to (Amalin et al., 2024) antibiotic resistance education activities aim to increase understanding and knowledge through the delivery of information about the right time to take antibiotics and to recognize the negative impact of inappropriate antibiotic use.

According to (Yuliana *et al.*, 2024) counseling that has been implemented in Tasikmalaya there is an increase in knowledge as evidenced by the average value of the pretest and posttest increased after counseling from 48.9% to 98.8%. According to another study, there was an increase after counseling people who knew antibiotic resistance from 60% to 100%. (Amarullah et al., 2022).

The implementation of counseling is carried out systematically starting from the opening, delivery of material and discussion, and finally closing. The level of knowledge of respondents in this counseling was assessed based on the results of respondents' answers in filling out the pretest and post-test regarding

knowledge in the use of antibiotics as many as 10 questions. The initial step in conducting counseling is to give a pretest to determine the level of knowledge of the Lengkongbarang village community about antibiotics before counseling. After doing the pretest, the participants were given counseling about antibiotics appropriately. The next step is to give a posttest with the same questions. According to (Funsu et al., 2020) the implementation of community service activities through health education in the use of antibiotics in the pretest and posttest results showed that there was a significant difference between the level of knowledge before and after counseling.

TABLE 1. Age of Respondents

No	Age	Number of Respondents (People)	Percentage
1.	< 20 years	1	6,6 %
2.	21-30 years	11	73,3 %
3.	31-40 years	2	13,3 %
4.	> 40 years	1	6,6 %

TABLE 2. Paired Sampels Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair	Sebelum Penyuluhan Antibiotik	51,33	15	13,020	3,362
1	Setelah Penyuluhan Antibiotik	64,00	15	13,522	3,491

TABLE 3. Paired Sampels Statistics

		Paired Differences							Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	df	
					Lower	Upper			
Pair	Sebelum Penyuluhan Antibiotik - Sesudah Penyuluhan Antibiotik	-12,667	18,696	4,827	-23,020	-2,313	-2,624	14	,020

The pretest and posttest score data obtained were then processed using the paired t-test. The data showed that most of the respondents were between 21-30 years old (73.3%) as shown in Table 1. Based on the results of the data analysis, it is known that the average score after counseling is higher than the average score before counseling. This can be seen from the average value before counseling is 51.33 while the average value after counseling is 64.00.

Based on the results of statistical tests using the T-test obtained p-value (0.020) < α (0.05), this indicates that there is a significant difference between the scores of respondents before and after antibiotic counseling. Thus proving that the counseling conducted can increase the knowledge and understanding of respondents about antibiotics. So that the hope is that the people of Lengkongbarang village can apply it in their daily lives to prevent drug resistance.

Counseling is one of the methods of health promotion as a foundation for the community to make changes in behavior, knowledge, and attitudes (Pebiansyah et al., 2022). The counseling is expected to increase the insight of the Lengkongbarang village community so that they can make changes in attitudes. Health education about antibiotic resistance can also increase the knowledge of IHC cadres. Because one of the factors that influences knowledge is the level of education, although knowledge is not only obtained from formal education, but with good education, IHC cadres will understand more easily and will be willing

to explore more information.(Nurfazriah *et al.*, 2021). However, it is necessary to do continuous counseling so that attitude changes are created in the community.

CONCLUSION

Results showed a significant increase in respondents' knowledge regarding the rational use of antibiotics. The average pretest score was 51.33, while the average posttest score increased to 64.00. The statistical test showed a p-value of 0.020, indicating a significant difference between the pretest and posttest scores. This counseling succeeded in increasing the knowledge and understanding of the Lengkongbarang Village community regarding the appropriate and rational use of antibiotics.

ACKNOWLEDGMENTS

The author would like to thank the supervisor and all parties of Lengkongbarang village, Tasikmalaya Regency who have supported the writing of this article well.

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