

## Conference Paper

# The Effect of Education Using PowerPoint on Students' Knowledge Regarding Self-Medication of Common Cold Drugs

Sendi Lia Yunita\*, Nuril Hidayah, Ika Ratna Hidayati

Pharmacy Department, Health Science Faculty, University of Muhammadiyah Malang, Indonesia

**ORCID**Sendi Lia Yunita: <https://orcid.org/0000-0002-7013-6742>**Abstract.**

Self-medication is a treatment that is carried out independently without getting advice from a doctor. The purpose of this study was to determine the effect of education using PowerPoint slides on students' knowledge about self-medication of common cold medicines at the Luhur Islamic Boarding School in Malang City. This was pre-experimental research with a one group pre-test post-test design. 68 students were recruited through non-probability purposive sampling. A questionnaire was given pre-test and post-test and the data were analyzed by univariate and bivariate analysis. Bivariate analysis was conducted using the Wilcoxon test. Based on the results, it could be concluded that there was a significant influence of education on the knowledge of the students of the Malang City Luhur Islamic Boarding School about self-medication of common cold medicines.

**Keywords:** common cold, education, PowerPoint slide, knowledge levelCorresponding Author: Sendi Lia Yunita; email: [sendi@umm.ac.id](mailto:sendi@umm.ac.id)**Published** 15 September 2022Publishing services provided by  
Knowledge E

© Sendi Lia Yunita et al. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the ICMEDH Conference Committee.

## 1. INTRODUCTION

Improving health is a very important thing in life. With good health conditions, a person can carry out activities well and thus can get a good quality of life. Health improvement is one of the achievements of health promotion which was previously referred to as health education. Improving health through health promotion carried out in the community can be achieved properly if it is carried out correctly and on target, and the factor that influences this success is the willingness and ability of the community itself in an effort to improve their health [1].

Quoted from *World Population Review*[2]Indonesia is a country with a majority Muslim population. Data obtained from the latest census conducted shows that 87% of the Indonesian population adheres to the Islamic faith. Pesantren is a place for students to study education, especially Islam as a life guide to be applied thoroughly. It was

**OPEN ACCESS**

also stated that education about the Islamic religion in Indonesia is usually found in pesantren. Number of Islamic boarding schools in Indonesia according to statistics by Ministry of Religion [3] on the website ditpdpontren.kemenag as many as 27,722 Islamic boarding schools with 4,175,623 students.

Law Number 20 of 2003 concerning the National Education System in Article 37 paragraph (1) requires that Religious Education along with citizenship and language education be included in the curriculum for basic, secondary and higher education. Santri study Islamic knowledge more intensely in pesantren, then santri are usually also a student or student, so that in addition to studying religious knowledge in pesantren, they also study general sciences. General education for students can be taken in school facilities provided by the pesantren environment as well as public schools or universities outside the pesantren. This causes the activities of students to be quite dense so that there is not enough rest time and can cause stress both mentally and physically. *common cold* ) [4].

The flu (common cold) is a syndrome of general symptoms caused by a viral infection of the upper respiratory tract. The type of virus that most often causes flu symptoms is rhinovirus which gives a percentage of up to 50% among other types of viruses [5]. The typical symptom complex that appears in patients with the common cold consists of rhinorrhea, nasal congestion, and a sore or itchy throat. The common cold is the most common cause of human illness leading to significant absences from school and work [6].

Self-medication is a treatment that is carried out independently without getting advice from a doctor for either diagnosis or treatment [7]. Self-medication can cause several problems if it is not based on the right science, such as abuse of over-the-counter (OTC) drugs [8] for example, dextromethorphan which is common as one of the ingredients in cold and cough medicines. Hallucination [9], then the combination of using several drugs at the same time that is not appropriate can also be a serious problem [8].

One type of self-medication carried out by the community is self-medication for the common cold. This self-medication is considered by the community as a solution to save time and money used for treatment [7]. According to information from chairman of the board of the Supreme Islamic Boarding School, there is no UKS or poskestren (Pesantren Health Post) [10] in the pesantren, and there is only a first aid kit that is managed by the Islamic Boarding School Health Department. Therefore, it is necessary to educate students to increase their knowledge of the correct way of self-medication.

Students can be categorized in the category of young adults (adulthood), with an age range of 18-26 years [11]. Teenagers' thinking tends to be dichotomous (right or wrong),

while the concept of thinking created from the category of young adults is obtained from stronger analytical skills and is better able to distinguish between right and wrong and find a middle way of a problem. This thinking is called dialectical thinking and is considered as one of the most advanced aspects of postformal thinking [12]. The selection of the category of young adults is expected to minimize misinterpretations regarding the information conveyed by researchers. Our research was conducted by giving a pre-test followed by education to students using power point slides and then measuring again using a post-test.

## 2. RESEARCH METHODS

This research is a pre-experimental research, with a one group pre-test post-test research design. Respondents in the study were calculated using the Slovin formula. From the total student population of the Luhur Islamic Boarding School in Malang as many as 211 respondents, 68 respondents were obtained as samples with an error tolerance of 10%. The sampling technique was carried out by non-probability sampling with purposive sampling technique, namely the researcher determined the inclusion and exclusion criteria needed in sampling.

The inclusion criteria in this study are as follows:

1. Malang City Islamic Boarding School Higher Institution students aged 18 years and over 13.
2. Students of the Malang City Islamic Boarding School Higher Institution who are willing to take part in the research.
3. Students of the Luhur Islamic Boarding School Malang City who live in a boarding school dormitory.
4. Students of the Luhur Islamic Boarding School Malang City who are currently taking courses other than pharmacy, medicine and nursing majors.

Then for the exclusion criteria in this study were respondents who did not fill out the questionnaire data completely.

Respondents in the study will be given treatment in the form of education using power point slides as a form of intervention and see whether this has the potential to cause change. The research instrument used was a questionnaire given before education as a pre-test and after education as a post-test. The data obtained in the study are the demographic data of the respondents and the level of knowledge of the respondents

before and after being given education. The results obtained can be grouped into three categories, namely: Good, Fair and Unfavorable [13].

Validity is the degree of accuracy between data that occurs in the object of research and data that can be reported by researchers [14]. The validity test carried out in the study was the face, content, and construct validity test. The questionnaire was tested on 30 respondents outside the research sample which was similar to the inclusion and exclusion criteria of the real study. Preliminary tests were carried out at different Islamic boarding schools, namely the Sabilurrosyad Islamic Boarding School in Malang City in order to maintain the confidentiality of the instrument so that the possibility of data bias could be minimized. The question items in the questionnaire can be said to be valid if the value of  $r_{count} > r_{table}$  [15]. To find out the validity test using the Pearson Product Moment formula.

The reliability of a scale is defined as the extent to which a measurement process is free from error [14]. The reliability test in this study used the Cronbach Alpha formula with the help of SPSS 25. If the Cronbach's Alpha value  $> 0.60$  then the questionnaire can be declared reliable. Then the data that has been obtained were analyzed using a paired categorical comparative hypothesis test, namely the Wilcoxon test. The Wilcoxon test is used to test the significance of the comparative hypothesis between two related samples if the data is of ordinal form [16].

This research will be conducted after obtaining research ethics approval obtained from the Health Research Ethics Commission (KEPK) Faculty of Medicine, University of Muhammadiyah Malang with number No.E.5.a/200/KEPK-UMM/IX/2021.

### 3. RESULTS

This research was conducted on August 15, 2021. The data analyzed are as follows:

Questionnaires were distributed to respondents at the beginning of the study as a form of pre-test. The sample in this study was the students of the Luhur Islamic Boarding School in Malang as many as 68 students from different regions, majors and universities, with 50 female respondents and 18 male respondents. The majority of respondents are female respondents because data on students and female students from Islamic boarding schools show that the number of female students is more than the number of students, so this data supports the results of the study. The majority of respondents came from East Java Province with a percentage of 94.12%. According to information from the administrators of the Luhur pesantren, the majority of santri and female students come from the area where the pesantren was founded, namely East

TABLE 1: Demographic Characteristics of Respondents.

Characteristics of Respondents	Number of Respondent	Percentage (%)
<b>Age</b>		
18 years	9	13.24
19 years old	25	36.76
20 years	14	20.59
21 years	6	8.82
22 years	11	16.18
23 years	2	2.94
25 years	1	1.47
<b>Gender</b>		
Woman	50	73.53
Man	18	26.47
<b>University</b>		
UIN	33	48.53
UB	30	44.12
UM	3	4.41
Poltekkes	2	2.94
<b>Major</b>		
Science and Technology	38	55.88
Social and Humanities	30	44.12
<b>Origin</b>		
East Java	64	94.12
NTT	2	2.94
West Java	2	2.94

Java. Then for the origin of the most universities with a percentage of 48.53% is the State Islamic University of Maulana Malik Ibrahim Malang. The results of interviews with respondents found that the majority of santri and female students studied at the State Islamic University of Maulana Malik Ibrahim Malang and stayed at the Luhur Islamic Boarding School because the distance between the pesantren and the campus was quite close.

The division of majors is carried out based on the Science and Technology group with a percentage of 55.88% and the Social and Humanities group with a percentage of 44.12%. Respondents have an age range between 18-25 years, which is included in the category of adulthood or young adults. This is in accordance with the inclusion criteria that have been set, namely respondents aged 18 years and over. The concept of thinking created from the category of young adults is obtained from stronger analytical skills and is better able to distinguish between right and wrong and find a middle way

of a problem. This thinking is called dialectical thinking and is considered one of the most advanced aspects of postformal thought [12].

TABLE 2: Have done self-medication, where to get common cold medicine, how to get information on common cold medicine, types of medicine to treat the common cold, symptoms after taking common cold medicine.

Variable	Number Respondents	Percentage (%)
<b>Have you ever done self-medication?</b>		
Once	63	92.65
Never	5	7.35
<b>Where to Get Common Cold Medicine</b>		
Pharmacy	47	69.12
Drug store	10	14.71
Shop	21	30.88
(Others) Supermarket	2	2.94
Given Friend	1	1.47
<b>How to Get Common Cold Drug Information</b>		
Print media	6	8.82
<i>Browsing</i> Through the internet	15	22.06
Advertising From Electronic Media	20	29.41
Health workers	38	55.88
Others Recommend	20	29.41
Other	0	0
<b>Types of Drugs to Overcome the Common Cold</b>		
Modern Medicine	37	54.41
Traditional Medicine/Herb	11	16.18
Combination of modern medicine and traditional medicine	22	32.35
Other	0	0
<b>Symptoms After Taking Common Cold Drugs</b>		
Sleepy	40	58.82
Heart beat	4	5.88
Insomnia	1	1.47
There is not any	27	39.71
Other	0	0

According to the results of demographic data, the average respondent has taken the flu medicine (common cold) obtained without a doctor's prescription with a percentage of 92.65%. This is directly proportional to demographic data regarding where to get common cold drugs, the majority of respondents received common cold drugs from pharmacies with a percentage of 69.12% and also demographic data on how to obtain information about common cold drugs, i.e. the most respondents obtained this information from health workers with a percentage of 55.88%. The majority of respondents

overcome the symptoms that arise due to the common cold by using modern medicine with a percentage of 54.41%. Then the demographic data regarding the side effects of common cold drugs showed that the majority of respondents with a percentage of 58.82% felt the side effects of drowsiness after consuming common cold drugs.

TABLE 3: Comparison of the level of knowledge of respondents before and after being given education.

Category	Indicator (%)	Number of Respondents			
		Pre-test		Post-test	
		n	(%)	n	(%)
Well	76-100	22	32.35	68	100
Enough	56-75	34	50	0	0
Not good	55	12	17.65	0	0
<b>Amount</b>		<b>68</b>	<b>100</b>	<b>68</b>	<b>100</b>

From the pre-test and post-test questionnaires, it was found that the post-test scores of all respondents increased. In Table 5.13 it is explained that before the education was carried out, the results of the percentage of respondents' scores in the "POOR" category (value 55) were 17.65%, the "ENOUGH" category (56-75) was 50%, and the "GOOD" category (value 76-100) as much as 32.35%. Then after education and post-test were carried out, all respondents' knowledge increased and were in the "GOOD" category with a range of values between 80-100. Basically all the questionnaires have been answered well at the time of the post-test. Only a few respondents were still inaccurate in answering because they did not pay attention to the delivery of educational materials and questions about statements in the questionnaire.

TABLE 4: Wilcoxon's test analysis.

Test Statistics	
	Post-test - Pre-test
Z	-7.271b
asymp. Sig. (2-tailed)	,000
a. Wilcoxon Signed Ranks Test	
b. Based on Negative Ranks	

Data analysis in this study used the Wilcoxon test, because the data were in ordinal form and the data were considered not normally distributed [17]. In the Wilcoxon test, Asymp was obtained. Sig. (2-tailed) of 0.000 which indicates that the respondent's data before and after being given education changed significantly. Thus, H0 is rejected so that it can be concluded that there is an influence of education on the knowledge of the students of the Luhur Islamic Boarding School Malang City regarding self-medication

of cold medicines (common cold). This can also be proven by looking at the value of  $Z_{count}$  in the Wilcoxon test of  $-7.271$  which is then compared with  $Z_{table}$  with  $0.05$  which is  $\pm 1.96$ . The result is  $Z_{count} < Z_{table}$ , so  $H_0$  is rejected, that is, there is an influence between education using slide power point media and the knowledge of students / students of the Luhur Islamic Boarding School regarding self-medication of cold medicines (common cold).

In line with the research conducted by Mafruhah et. al. [18], Wilcoxon test analysis obtained p value of  $0.000$  which is less than  $0.05$  so that the results of the level of knowledge before and after being given counseling were significantly different. The results of the study stated that health education can increase knowledge about health, which is in accordance with the definition of health education

## 4. DISCUSSION

Self-medication is a treatment that is carried out independently without getting advice from a doctor for either diagnosis or treatment [7]. Self-medication is considered by the community as a solution to save time and money used for treatment. One type of self-medication carried out by the community is self-medication for the common cold [7]. According to the results of demographic data, the average respondent has taken the flu medicine (common cold) obtained without a doctor's prescription with a percentage of  $92.65\%$ . According to information from chairman of the board of the Supreme Islamic Boarding School, there is no UKS or poskestren (Pesantren Health Post) [10] in the pesantren, and there is only a first aid kit that is managed by the Islamic Boarding School Health Department. This is one of the factors that underlies many self-medication done by students.

Cold medicine (common cold) is a class of drugs that can be sold freely. Although treatment for this disease can be done independently, it must remain rational, appropriate to use and not excessive. Therefore, self-medication should be carried out in a pharmacy with health workers who are experts in their fields. This is directly proportional to demographic data regarding where to get common cold drugs, the majority of respondents received common cold drugs from pharmacies with a percentage of  $69.12\%$  and also demographic data on how to obtain information about common cold drugs, i.e. the most respondents obtained this information from health workers with a percentage of  $55.88\%$ .

*Common cold* is a disease that can heal by itself within 7-10 days in adults [19], but sometimes the symptoms can interfere with daily activities [6] so treatment may



be necessary. There are various ways to overcome the symptoms of the common cold, either through pharmacological therapy or non-pharmacological therapy. Non-pharmacological therapies, for example, such as drinking enough water, getting enough rest, using steam to treat nasal congestion, and so on. Pharmacological therapy can be done using drugs, both modern medicine (synthetic) and traditional medicine.

Synthetic medicine is a modern medicine made from synthetic materials or natural materials that are processed in a modern way, while traditional medicine is a form of alternative medicine that includes the use of different plants or plant extracts, for example herbal medicine [20]. The results of the interviews obtained during the question and answer session, respondents understood modern medicine as all medicines that can be obtained at pharmacies, while traditional medicine is understood as herbal medicine, both its own concoction obtained from family recipes passed down from generation to generation, as well as carrying herbs that usually sold in the respondent's area of origin. The majority of respondents overcome the symptoms that arise due to the common cold by using modern medicine with a percentage of 54.41%.

Then the demographic data regarding the side effects of common cold drugs showed that the majority of respondents with a percentage of 58.82% felt the side effects of drowsiness after consuming common cold drugs. The side effect of drowsiness can be caused by the antihistamine activity of combined OTC drugs for the common cold. First-generation antihistamines, including brompheniramine, chlorpheniramine, and clemastine, are preferred over second-generation antihistamines in the management of symptoms of the common cold. The effectiveness of first-generation agents is due to their ability to interfere with CNS histamine receptors. These agents can cause drowsiness, sedation, and fatigue [21].

According to Siregar, health education is the addition of a person's knowledge and abilities through practical learning techniques or instructions that are carried out to help individuals control their health independently by influencing, enabling and strengthening decisions or actions in accordance with the values and goals they plan. The instructions used in the study were using power point slides with lecture techniques. According to research conducted by Khaerunnisa et al. [22], Power point slide media has an effect on increasing students' interest in learning, while research by Wijayanti et al. [23], states that education using power point slides with the lecture method can increase knowledge about health as evidenced by a p-value of 0.000 which is less than 0.05, so there is a statistically significant difference between pre-test scores and post-test scores with an average increase the pre-test average was 12.13 to 34.47 in the post-test. From several studies that have been mentioned, it can be concluded

that in this study education using slide power point media was effective in increasing respondents' knowledge in terms of health education

## 5. CONCLUSION

The results of the analysis using the Wilcoxon test, namely Asymp. Sig. (p) 0.000 is smaller The results of the study obtained data on the level of knowledge in the form of pre-test before education and post-test data after education. The data were analyzed using the Wilcoxon test, and obtained asymp. Sig. (2-tailed) of 0.000 which indicates that the respondent's data before and after being given education changed significantly. Thus, H<sub>0</sub> is rejected so that it can be concluded that there is an influence of education on the knowledge of the students of the Luhur Islamic Boarding School in Malang regarding self

## References

- [1] Susilowati D. Nursing print teaching materials module: Health promotion. Jakarta: Health Human Resources Center - Ministry of Health of the Republic of Indonesia; 2016.
- [2] World Population Review, Indonesian Population 2020 (Demographics, Maps, Graphs). 2021.
- [3] Ministry of Religion. Islamic Boarding School Database.
- [4] Bhargava HD. Things that suppress your immune system.
- [5] Kardos P, Malek FA. Common cold - An umbrella term for acute infections of nose, throat, larynx and bronchi. *Pneumologie*. 2017;71(4):221–226.
- [6] Pappas DE. Principles and practice of pediatric infectious diseases. Stanford: Elsevier Inc.; 2017. Chapter 26, The common cold.
- [7] Alkhatatbeh MJ, Alefan Q, Alqudah MAY. High prevalence of self-medication practices among medical and pharmacy students: A study from Jordan. *International Journal of Clinical Pharmacology and Therapeutics*. 2016;54(5):390–398.
- [8] Qais A, Halboup A. Pharmacy practice in developing countries. New York, NY: Elsevier Inc.; 2016. Chapter 11, Pharmacy practice in Jordan. p. 211–232.
- [9] Casarella J. Commonly abused prescription and OTC drugs.
- [10] Ministry of Health. Minister of Health Regulation Number 1 of 2013 concerning guidelines for the implementation and development of islamic boarding school health posts.

- [11] Sawyer SM, Azzopardi PS, Wickremarathne D, Patton GC. The age of adolescence. *The Lancet Child and Adolescent Health*. 2018;2(3):223–228.
- [12] Tyler S. Cognitive development in late adulthood. *Human Behavior and the Social Environment I*. 2020.
- [13] Zulmiyetri, Nurhastuti, Safaruddin. *Scientific writing*. 1st ed. 2020.
- [14] Ahyar H, Andriani H, Sukmana DJ, et al. *Qualitative & quantitative research methods*. Yogyakarta, Indonesia: CV Group Science Library; 2020.
- [15] Hidayat AA. *Develop research instruments & validity-reliability test*. NA Aziz (ed.). 1st ed. Surabaya, Indonesia: Health Books Publishing; 2021.
- [16] BPOM. Smart choosing flu medicines.
- [17] Kurniawan AW, Puspitaningtyas Z. Quantitative research methods. In *philosophy of science*. Yogyakarta, Indonesia: Pandiva Book; 2016.
- [18] Mafrurah OR, Nugraheni DA, Safitri SR. The effect of Cbia education (how active mothers learn) on knowledge levels of common cold drugs in the village. *Journal of Pharmaceutical Management and Services*. 2016;6(1):69–74.
- [19] American College of Nurses–Midwives. The common cold. *Journal of Midwifery & Women’s Health*. 2019;64(3):359–360.
- [20] Lau SHA, Herman H, Rahmat M. Comparative study of community knowledge levels about herbal medicines and synthetic medicines in Campagayya, Panaikang Village, Makassar City. *Journal of Pharmacy Sandi Karsa*. 2019;5(1):33–36.
- [21] George BO, Etzel JV, Ambizas EM. The common cold: A review of OTC options. *Journal of Clinical Excellence*. 2018;43(1):6–10.
- [22] Khaerunnisa F, Sunarjan Y, Atmaja HT. The influence of the use of power point media on interest in learning history of class X students of SMA Negeri 1 Bumiayu. *Indonesian Journal of History Education*. 2018;6(1):31–41.
- [23] Wijayanti T, Isnani T, Kesuma AP. The effect of counseling (lecture with Power Point) on knowledge about leptospirosis in Tembalang District, Semarang City, Central Java. *Journal of Research and Development on Disease Control from Animal Source Banjarnegara*. 2016;12(1):39–46.