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Effects of Active Learning and FGD Education Methods on the DAGUSIBU Knowledge of MA Nurul Ummah Students, Yogyakarta

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ABSTRACT

A research on drugs administration in Manado in 2014 revealed that 44.77% of the local population did not procure drugs properly, 75.9% received the wrong ones, 25.3% did not store them as suggested, and 72% did not use them appropriately. As an attempt to avoid medication management mistakes in the community, the Indonesian Pharmacist Association has introduced a program termed DAGUSIBU, an abbreviated form of 'to get, use, store, and discard'. DAGUSIBU contains information on the procedures to receive, use, store, and dispose drugs correctly; hence, immediate dissemination or education is highly suggested. High school students were involved as the main cadre in the research because adolescents are at the age of rapid physical and mental development and, thereby, the most vulnerable age group to misinformation. This study was set out to determine the effects of DAGUSIBU education on the knowledge of MA Nurul Ummah students in Yogyakarta. This experimental study involved pharmacists in providing education using the active learning method (CBIA) and focus group discussion (FGD). Student's knowledge of DAGUSIBU was assessed before and after the education using a validated questionnaire. Meanwhile, differences between the students' knowledge pre- and post-education were quantified using a paired sample t-test in the SPSS v.16 program. The results indicated that on the average, the students' knowledge level increased after receiving education on DAGUSIBU. Through the active learning method (CBIA), the rate of knowledge level nearly doubled from 4.2923 ± 1.54 (pre) to 7.9231 ± 1.04 (post) ($p = 0.000$), and after the FGD, it also increased from 5.1333 ± 1.89 to 7.0167 ± 1.03 ($p = 0.000$). CBIA method is proven to be more effective in enhancing knowledge regarding DAGUSIBU compared to FGD method with p value = 0.007. In conclusion, there are significant differences in the knowledge of DAGUSIBU among the students of MA Nurul Ummah after receiving this education through active learning (CBIA) and FGD methods.

Keywords: DAGUSIBU, knowledge, active learning, CBIA, FG

1. INTRODUCTION

Self-medication is the most common way to overcome any indications or symptoms before people seek help to healthcare center/medical staff.¹ The data of National Social Economy Survey in 2014 showed that the percentage of citizens doing self-medication for health symptoms endured was 61.05%.²

According to the research employed by Harahap (2017), self-medication practice may lead to medication mistakes, such as inappropriate drug selection and inappropriate drug use (18.7%). Mistakes in self-medication are mostly caused by inappropriate use of drug dosage (34.5%).³ Another research employed by Tuarissa showed that 169 patients out of 306 patients obtained drugs properly, which means that 44.77% people obtained drugs improperly.² Raini³ conveyed that 75.9% people obtained drugs in a wrong way for mild use drugs, 25.3% misplaced the drugs, and 72% had inappropriate drug use.

Based on the commonplace medication mistakes in the community, Indonesian Pharmacist Association created a program to enhance people's understanding on drugs use. The program aims to reduce inappropriate risks in self-medication practices by providing the community with one basic

information related to the good and correct knowledge of the way to get, use, keep, and dispose drugs (DAGUSIBU).

Dagusibu is a term introduced by Indonesian Pharmacist Association that serves as one of the programs of Family's Drugs Awareness move based on Act No. 36 Year 2009. This act aims to provide information to the community about the good and correct way to get, use, keep, and discard drugs and to enhance people's understanding on drugs.⁶ The knowledge of *Dagusibu* must be provided early to prevent the spread of wrong information, especially for the young generation, adolescents aged 15-18 years old (Abhitama, et.al, 2019). Adolescents experience a rapid physical and mental growth and mental adjustment process of value and attitude development (Hurlock, 1999).

Many Senior High School Students (SMA) practice self-medication despite the fact that they do not possess adequate knowledge on drugs. The high inappropriateness of drugs use in teenagers occurs as an implication of lack information and knowledge of drugs use, especially for Over-the-Counter-Drugs (OTC) or drugs that can be consumed without a doctor's prescription. Hence, every medical staff is liable to provide Communication, Information, and Education (KIE) to the community.⁴ The study aims to reveal the knowledge

differences among students before and after the education provision on Dagusibu, and find out the effectiveness of the education method to enhance the knowledge of Dagusibu.

2. METHODS

This research employed *Quasi Experimental* design method. This research was included in *quasi experimental* research because there was no randomization in this research. Therefore, this research compared the influence on the provision of *Dagusibu* education employing *CBIA (Self Active Learning Way)* and *FGD (Forum Group Discussion)*.

CBIA (Self Active Learning Way) method was an education model employing students' active participation, while *FGD (Forum Group Discussion)* was an education method done by dividing students into three groups, which would be supervised by one Pharmacist. This research has obtained an ethical approval license from the Ethics Committee of Ahmad Dahlan University No. 011912113.

The research procedures were as follows:

- a. Respondent Selection comprised the students of MA Nurul Ummah Yogyakarta grade X and XI. Grade X obtained *Dagusibu* education with *FGD* method, while grade XI obtained the education with *CBIA* method.
- b. Observation of students' knowledge level of *Dagusibu* through a pre-test using a questionnaire on *Dagusibu* knowledge that had been validated by Sundari (2020).⁵
- c. The delivery of *Dagusibu* knowledge using 2 different methods: *FGD* and *CBIA*.
- d. Post-test to measure students' knowledge after the education delivery using the same questionnaire.

2.1. Tools and Materials

This research used a validated questionnaire as a research tool based on the previous research on the same topic.⁸ The materials employed in this research were some leaflets containing the *PPT* explanation of *DAGUSIBU*, activity instruction, drugs sheet and drugs package consisting 3 kinds of drugs with different therapy classes, which were antipyretic analgesic, flu drug, and intestinal drugs.

2.2. Research Population and Samples

The research population was the entire students of Madrasah Nurul Ummah Yogyakarta, and the sample was the students of Madrasah Nurul Ummah grade X and XII who met the requirements criteria of inclusion and exclusion. The inclusion criteria in this research were students who had used drugs with or without prescription, and those who could read and write. The exclusion criteria in this research were samples who were unwilling to join the whole education stages, unable to come, and did not complete to questionnaire. The sampling method in this research was done by purposive sampling, which meant that research sample had been determined based on certain requirements that fulfilled the inclusion and exclusion research criteria.

2.3. Education Method

2.3.1. Education Procedures employing *FGD* method

Respondents were divided into 3 groups with 1 spokesperson for every group with 20 students as the respondents, (2) Respondents were given a leaflet on *Dagusibu* to read for 15 minutes, (3) Respondents were given material on *Dagusibu* to learn for 30 minutes, (4) Question and Answer discussion was held on the material that had been delivered.

2.3.2. Education Procedures employing *CBIA* method

Respondents would get the introduction material on *Dagusibu* delivered by a pharmacist employing the *PPT* presentation method for 45 minutes, (2) Respondents were divided into 8 groups with 6-8 members (3) Then, every group would receive a package of drugs to be observed: its brand, its ingredients with its strength, and its main and additional ingredients in each drug. Afterwards, every group would organize the drugs based on the kinds of active ingredients and discuss the observation results of the activity with the direction of the group leader. In this stage, every group would be guided by a tutor (7th semester pharmacy student), (4) The fourth-stage-activity was collecting information needed as the basis for doing self-medication and taking drugs, (5) Pleno discussion led by a moderator was held. Every group was asked to explain their experiences and important findings during the group discussion. After that, the moderator would summarize the important findings and tell the respondents to spread the knowledge of *Dagusibu* obtained in the *CBIA* activity.

2.4. Research Population and Samples

The data analysis in this research was done using univariate and bivariate analysis. The univariate analysis was selected to find out the description of the sample characteristics based on age, sex, parents' occupation, and the distance of the house to the pharmacy. The bivariate analysis in this research employed different tests on paired sample t test to discover the different level of knowledge of each group before and after the education delivery, and independent sample t test to find out the different level of knowledge between the two groups before and after the education.

3. RESULT AND DISCUSSION

3.1. Research Result

This research was done at Madrasah Nurul Ummah Yogyakarta in March 2020, with a total research sample of 125 students divided into two groups, each of which receiving two education methods, which were *CBIA (Self Active Learning Way)* for 65 students and *FGD (Group Discussion Forum)* for 60 students. Table 1 shows the respondents' demography containing sex, age, parents' occupation and the

distance of the house to the drugstore. The distribution of respondents' demography in these two groups showed that there was not any meaningful difference statistically ($p > 0,005$). In addition, it also showed that the respondents' demography characteristics in the two groups were equal. The basic characteristic differences of the two groups had to be revealed to make sure that each respondent in the two

education methods groups was in the similar level. The description of respondents' demography, which was based on sex in both of FGD and CBIA method groups, showed that most respondents were female mostly of 15 and 16 years old.

Table 1. Demography Distribution of Students at MA Nurul Ummah Yogyakarta Based on Sex, Age, Parents' Occupation, and the Distance of the House to the Drugstore

Variable	Percentage (%)		P-value
	FGD (n = 60)	CBIA (n= 65)	
1. Sex			
a. Male	38%	46 %	0.704
b. Female	62%	54%	
2. Age			
a. 15 years old	62%	-	0.824
b. 16 years old	33%	49%	
c. 17 years old	5%	38 %	
d. 18 years old	-	11%	
e. 19 years old	-	2 %	
3. Parents' Occupation			
a. Civil Servant	17 %	22 %	0.575
b. Farmer	30%	25 %	
c. Labor	8%	2 %	
d. Entrepreneur	40%	35 %	
e. Civil Officer	5%	17 %	
4. Distance of the house to the drugstore			
a. Less than 1 km	40	55	0.812
b. 1-5 km	43	23	
c. 6-9 km	2	6	
d. More than 9 km	15	15	

Table 2. presents factual questions from research samples to notice the practice of self-medication among respondents. Most of respondents preferred self-medication when they were ill as indicated by the result of question no. 1 that most students would buy drugs at the pharmacy when they were ill. Students mostly considered the pharmacist's recommendation in selecting drugs for self-medication as indicated by the rate of 25 % in FGD group and 31 % in CBIA

group. Majority of the respondents (98 % and 96%) said that they already knew how to use drugs and most of them said that the information regarding the rules for taking medicines were obtained from the instructions in the medicine label or drug brochure (35% and 38%).

Table 2. Students' Self-Medication Practice at MA Nurul Ummah Yogyakarta

No	QUESTIONS	ANSWERS	FGD (Percentage)	CBIA (Percentage)
1	If you feel unwell, what will you do?	a. Buy drugs at the pharmacy	33%	32%
		b. Go to the doctor		
		c. Go to <i>Puskesmas</i> (local public health)	27% 15%	28% 15%
		d. Go to <i>Dukun</i> (traditional healer)		
		e. Ignore the illness until it goes on its own	0	0
		f. Others, mention it	25%	23%
			0	2%

2	If you do self-medication, which type of drugs will you take?	a. Over the counter drugs	60%	52%
		b. Free restricted drugs		
		c. Traditional drugs/herbs	18%	32%
		d. Others, mention it	22%	16%
			0%	0%
3	If you practice self-medication, what will you consider in selecting the drugs?	a. Friend's suggestion	10%	11%
		b. TV's advertisement suggestion	0%	11%
		c. Information from printed media	17%	0%
		d. Based on experience		
		e. Pharmacist's recommendation	18%	21%
		f. Doctor's recommendation	25%	31%
		g. Others, mention it		
			23%	26%
			7%	0%
4	Where do you obtain the drugs from?	a. Pharmacy	55%	68%
		b. Drugstore	2%	8%
		c. Small shop	8%	20%
		d. Doctor	17%	4%
		e. Hospital	3%	0
		f. Puskesmas (local public health)	15%	0
5	Do you know how to use the drug?	a. Yes	98%	94%
		b. No	2%	6%
6	If you know the direction to use the drug, where do you get the information from?	a. From medical staff	20%	48%
		b. From friends/relatives/ neighbours	32%	14%
		c. From medicine labels/brochure	35%	38%
		d. From advertisements		
		e. Others	8%	0
			5%	0
7	What do you read on the medicine label/drug brochure?	a. Drug's name	15%	9%
		b. indication/ direction	38%	62%
		c. Dosage	0	22%
		d. Side effects	32%	7%
		e. Warning and cautions	15%	0
		f. Others, mention it		

Table 3. DAGUSIBU Knowledge Level of Students at MA Nurul Ummah Yogyakarta

Education Method	Knowledge Level	Students' Percentage (%)	
		Pre-test	Post-test
Forum Group Discussion	Good	25%	73%
	Enough	18%	22%
	Less than average	57%	5%
CBIA (Self Active Learning Way)	Good	9,23 %	76,92%
	Enough	43,08%	21,54%
	Less than average	47,69%	1,54%

Table 4. The Effectiveness of The FGD and CBIA Methods In Increasing DAGUSIBU Knowledge of Students At MA Nurul Ummah Yogyakarta

Education Method	Average Knowledge Score ($\bar{X} \pm SD$)		p-value pre-post test	p-value pre-test between groups	p-value post-test between groups
	Pre-test	Post-test			
Group Discussion Forum	5.1333±1.89	7.0167± 1,03	0.000 ^{a*}		
CBIA (Self Active Learning Way)	4.2923±1.54	7.9231± 1.04	0.000 ^{a*}	0.07 ^b	0.000 ^{b*}

Notes: n=respondent number, \bar{X} = Mean, SD: Standar Deviation, ^aPaired Sample T-Test, ^bIndependent Sample Test, *shows meaningful different significance value

3.2. Discussion

Most of respondents, both those grouped in FGD group and those in CBIA group, were adolescents between the age of 15-19 years old. According to the Indonesian Ministry of Education and Culture, most Senior High School students are those aged 16-18 years old.⁹ WHO classifies teenagers as those who are 10 to 19 years old (WHO, 2018). According to Notoatmojo, teenagers mostly have good thinking pattern and the ability to absorb materials, so that education given to teenagers can enhance their knowledge.⁷ The knowledge level during the productive age is better than that in the elderly age because in this productive age, people develop their knowledge, and they possess good five senses that function well, therefore they can absorb information much better as well.⁸

Parents' occupation on both groups are mostly entrepreneurs. Parents' occupation influences the knowledge and the results of the learning process of the Senior High School students. Parents with relatively high income will influence their support and attention to the details of their children's education.⁹ Moreover, the parents' occupation can influence the students' knowledge.¹⁰ The research by Suleman indicates that students coming from good social-economy have high level of academic knowledge. On the contrary, students coming from deprived social economy have worse academic knowledge.¹⁰

Respondents' habitual behavior during sickness is mostly indicated by the practice of self-medication. According to the National Socio-Economy Survey Data (Susenas) of 2014, the percentage of self-medication practice of the community due to emerging health indications was 61.05%.¹¹ The community's preference in determining self-medication was influenced by several factors, including product advertisements, medication experience, psychological conditions, education, and education background.¹² Most respondents conveyed that they considered the pharmacist's recommendation when selecting drugs. Thus, it became a challenge for a pharmacist to maximize the practice of *Pharmaceutical Care* to patients doing self-medication.¹³ Most respondents were well aware of the instructions for use of drugs. In line with the study by Candradewi (2017), most of pharmacy customers (72%) noticed the drug use instructions because

of the possibility of buying the same drugs for several times for the same indications or because they read the medicine label of the same drug package.¹⁴

According to Arikunto, the knowledge level can be classified into three categories based on questionnaire score result, namely good ($\geq 76\%$), good enough, and not good enough if the questionnaire result score is less than 55%.¹⁵ The research showed that before the education delivery on both groups, the DAGUSIBU knowledge level of students at MA Nurul Ummah Yogyakarta were mostly less than average. On the contrary, after the education delivery for both groups, it was revealed that most students at MA Nurul Ummah Yogyakarta had high knowledge level, with 73 % and 76.92% (table 3). This result indicates that the education delivery can enhance the students' knowledge level. The result of this research is in line with a research by Suci (2019) highlighting that education delivery with CBIA method has an impact on the community's knowledge of DAGUSIBU.¹⁶

The knowledge average score before and after the education on both groups demonstrates the significant differences ($p < 0.05$). The average value scores on the education delivery employing FGD are 5.1333±1.89 dan 7.0167±1.03 with significance value of $p=0.000$. The education method employing CBIA indicates result that is not too different from the knowledge average score before and after, that is 4.2923±1.54 and 7.9231± 1.04 with significance value of $p=0.000$. In accordance with the previous research employed by Musdalipah (2018), the students' knowledge of SMA Negeri 1 Kendari on DAGUSIBU improved after the education delivery employing Self Active Learning Way with *p value* of 0.026 (< 0.05).⁴

Knowledge, attitude, and action towards drug information are some indications of health behaviour.¹⁷ Therefore, it is important to have a good and correct knowledge on DAGUSIBU as a way to support proper behaviour in practicing self-medication to enhance health quality and creates high quality health standard for the community.

CBIA (Self Active Learning Way) is a student's empowerment education model to improve students' smart ability in selecting drug to allow a more effective, safe, and

economical self-medication practice. This method is also an intervention of education method adopted from the school learning method of Student's Active Learning Way (CBSA).⁴ Education employing CBIA method makes respondents become more critical in reading the medicine label as a way to enhance the knowledge of the drug to consume, and consequently, the respondents will develop better practice in using drugs. The provision of drug education will enhance knowledge, awareness, and skill of the patients and family in improving their health.⁷

The knowledge average score after the education delivery using group discussion forum (FGD) and CBIA (Self Active Learning Way) indicates test result significance of $p=0.000$. In other words, there is a meaningful difference on knowledge average score after the education delivery using the FGD compared to CBIA methods (table 4). It showed that CBIA method was more effective than FGD in enhancing the knowledge of Dagusibu. The result of the study was different from that done by Lathifah entitled "CBIA and FGD methods Comparison in Enhancing Knowledge and Appropriateness of Caregiver in Practicing Self-Medication on Kids' Fever." The result of this study demonstrated that there was no meaningful difference in CBIA and FGD methods in enhancing knowledge and appropriateness in fever self-medication on kids.

4. CONCLUSION

In conclusion, there are significant differences in the knowledge of DAGUSIBU among the students of MA Nurul Ummah after receiving this education through active learning (CBIA) and FGD methods. The education delivery in this research can enhance the knowledge of DAGUSIBU on the two method groups with p value of < 0.05 . CBIA method is more effective than FGD method in the provision of DAGUSIBU education with the significance p value of < 0.0 .

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