HEALTH EDUCATION AND FOCUS GROUP DISCUSSION TO INCREASE KNOWLEDGE, MOTIVATION AND MEDICATION ADHERENCE AMONG PATIENTS WITH TUBERCULOSIS

Resti Yulianti Sutrisno[1*], Ratna Sari Dinaryanti[2], MT Arie Lilyana[3], Neneng Kurniawati[4], M Sahlan Zamaa[5], Ratna Sitorus[6], I Made Kariasa[6]

[1]Universitas Muhammadiyah Yogyakarta, Bantul, Indonesia, [2]STIKES Pertamedika, Jakarta, Indonesia, [3]Unika Widya Mandala, Surabaya, Indonesia, [4]Suyoto Hospital, Jakarta Selatan, Indonesia, [5]STIK Makasar, Makasar, Indonesia, [6]Universitas Indonesia, Depok, Indonesia
*Corresponding Author E-mail: restiyulianti@umy.ac.id

Abstract
Background: Tuberculosis is still becoming one of the major health problems in Indonesia. The preliminary study in one lung center hospital had shown that 70% stopped taking medicine due to reducing symptom. The preliminary study had identified that the patient's lack of knowledge, including the understanding impact of incomplete treatment. Therefore, it is important to increase the knowledge, motivation and taking medicine compliance of patients with TB.
Materials and Methods: The research method used quasi-experimental with pretest-posttest *without control group design.*. Sampling technique used accidental sampling — thirty respondents of outpatients. The health education was held using the focus group discussion (FGD) method. The discussions were initiated by sharing the experience of TB patients related to their symptoms, obstacles, how to solve problems while undergoing the treatment. Following this, the patients were given health education. Data analyzed used paired sample t-test.
Results: The patient's knowledge and motivation increased, the knowledge score average (from 9,30 into 10,67) and the motivation score (from 20,73 into 22,80). Based on the statistical test, it can be concluded that there is a significant difference between knowledge and motivation score before and after health education. The patient's medication adherence is also good. This study shows how important health education which focuses more on small group discussion is, so the patient can mutually share their experience and communicate their symptom as well as obtain health education intensively.
Conclusion: It has been shown that health education using focus group discussion method increased knowledge, motivation and medication adherence of respondents.
Keyword: focus group discussion, health education, knowledge, motivation, tuberculosis

Introduction
Tuberculosis (TB) is an infectious disease caused by the Mycobacterium tuberculosis, which can attack various organs, especially the lungs. This disease if untreated or the treatment is not complete can cause dangerous complications to death (Kemenkes, 2016). The number of new TB cases in 2017 is reported to increase to 6.4 million new cases. This number has increased since 2013, after four years (2009-2012) where 5.7-5.8 million new cases are reported each year. Ten countries accounted for 80% of the 3.6 million global disparities; Indonesia ranks second (11%) after India (26%), then Nigeria (9%) (WHO, 2018b).

Tuberculosis is a serious problem because it can cause death. Tuberculosis is among the top 10 causes of death globally in the world in 2016, ranking seventh as the biggest cause of death in countries with low per capita income and fifth rank in countries with middle income per capita (WHO, 2018a)

Although it has been known that drugs to treat tuberculosis and the disease can be cured, the prevention and eradication to date have not been satisfactory. Patients who drop out (defaulters, do not comply with treatment), inadequate trea tment, and resistance to anti-tuberculosis drugs (OAT) are the main obstacles that often occur in controlling tuberculosis. Patient failure in the treatment of tuberculosis can be caused by many factors such as biomedical, psycho-socio-economic, healthcare provider. (Ukpe, 2007). Based on data analysis taken from poly TB in one hospital, the percentage of patients who did not return to take medicine was 25%. From these data, it can be concluded that there is a tendency for patients not to comply with the treatment program. The results of the initial assessment based on the questionnaire distributed to 30 TB patients who had dropped out of the drug were as follows: all respondents had a desire to recover (100%). However, there are 20% of respondents who are not sure that taking TB drugs can cure the disease. 70% of respondents stop taking medication when complaints decrease. There are 10% of respondents who do not understand the definition and symptoms of TB. 20% of respondents did not understand the duration of TB treatment, which is at least six months. 30% of respondents did not understand that incomplete treatment could cause TB germs to become immune. 50% of respondents did not understand the prevention of TB transmission. 80% of respondents did not understand the side effects of drugs. There were 80% of PMOs who did not get an explanation related to TB treatment. 70% of respondents said there was a need for a group of TB patients. Based on these conditions it is important to be of concern to health workers in reducing the incidence of drop out and inadequate treatment which can be an obstacle in the successful treatment of pulmonary TB.

Materials and Methods
The study design and setting
The research was quasi-experimental with pretest-posttest *without control group design.* Intervening in one group without comparison and evaluating the effectiveness of the treatment seen by comparing the value of the post-test with the pre-test. Interventions are carried out, namely the health education was held using the focus group discussion (FGD) method. The discussions were initiated by sharing the experience of TB patients related to their symptoms, obstacles, how to solve problems while undergoing the treatment. Following this, the patients were given health education.

Population and sampling
The population in this study were TB patients in outpatient care at the hospital. The population in this study is the population, namely all TB patients in both the intensive and advanced phases. This activity was attended by 30 participants consisting of patients undergoing treatment in the intensive phase and the advanced phase. Of the 30 respondents, 13 respondents (43.3%) were undergoing an intensive treatment phase, and 17 respondents (56.7%) were undergoing a further treatment phase. The sampling technique uses convenience sampling.

Data Collection and instrument
The implementation of this education was conducted once. Thirty respondents were divided into five groups, each of the six respondents. Giving Informed consent before pretest using a questionnaire to see knowledge and motivation, then given health education with focus group discussion (FGD), and then given a questionnaire again to see the level of knowledge and motivation. Then the level of compliance with medication is seen from the card taking medication and its presence taking the drug in the following period.

Statistical analysis
Univariate analysis provides an overview of the distribution of respondents according to respondents' characteristics (age, sex, level of education, duration of TB treatment, TB treatment phase, TB case category, history of forgetting to take medication) and evaluation results of education implementation (knowledge score, motivation score, and drinking compliance) the drug from KMO returns and the patient takes medicine back. Bivariate analysis was carried out to identify the relationship between the independent variables (Health Education) and the dependent variable (knowledge score and motivation score) Bivariate analysis used was the Wilcoxon Test because the data were not normally distributed with the p-value normality test less than 0.05.

Results

Characteristics of respondents (age, gender, education level, duration of TB treatment, TB treatment phase, TB case category, history of forgetting to take medication)

Table 1 Distribution of frequency of age and duration of treatment for TB patients

Variable	Mean	SD	Median	Min-Maks	95 % CI
Age	46,27	14,66	46	21 – 77	40,79 ; 51,74
Duration of treatment (week)	13,77	11,61	12	2 – 36	9,43 ; 18,10

Table 1. shows the average age and duration of treatment the respondent has undergone. The average age of the respondent was 46.27 years with a standard deviation of 14.66 years. The youngest respondent's age is 21 years, and the oldest is 77 years. From the results of the interval estimation, it can be concluded that 95% are believed to be the average age of pulmonary TB respondents in the age range of 40.79 - 51.74 years. The average length of treatment that the respondent has undergone is 13.77 weeks with a standard deviation of 11.61 weeks. The minimum duration of treatment that has been undertaken is 2 weeks and the longest is 36 weeks. From the results of the interval estimation, it can be concluded that 95% are believed to be the average length of treatment of respondents of TB patients in the range of 9.43 - 18.10 weeks.

Table 2 Frequency distribution based on sex, education level, TB treatment phase, TB case category, history of forgetting to take medication

Variable	Total	Prosentase (%)
Gender		
Male	20	66,7
Female	10	33,3

Level of education		
Primary	7	23,3
Junior	6	20,0
Senior	14	46,7
Diploma	1	3,3
Bachelor	2	6,7
TB Treatment Phase		
Intensive	13	43,3
Continuation	17	56,7
TB Case Category		
New	25	83,3
Relapse	3	10,0
Drop out	2	6,7
History of Forgetting to Take Medicine	10	33,3
Pernah	20	66,7
Belum Pernah		

Table 2 shows the distribution of respondents by sex, education level, TB treatment phase, TB case category, history of forgetting to take medication. The results of the above data analysis show that the majority of respondents involved in the implementation of this innovation activity were male, namely as many as 20 people (66.7,%) while women as many as ten people (33.3%). Based on the level of education, the majority of high school educated as many as 14 people (46.7%), while the least educated D3 is one person (3.3%). Based on the treatment phase, 17 respondents (56.7%) were in the advanced phase, while the intensive phase had 13 respondents (43.3%). Based on the case category, the majority of new cases were 25 respondents (83.3%), while cases of relapses were three respondents (10%), and drug withdrawal cases were two respondents (6.7%). Based on history, I forgot to take medication, ten respondents (33.3%) said they had forgotten to take medication.

Knowledge and Motivation Score

Table 3 Knowledge and Motivation Scores Pre and Post Education

Variable	Mean	SD	Median	Min-Maks	95 % CI
Knowledge					
Pre	9,30	1,34	10	5 – 11	8,80 ; 9,80
Post	10,67	0,76	11	8 – 11	10,38 ; 10,95
Motivation					
Pre	20,73	2,33	21	16 – 24	19,86 ; 21,60
Post	22,80	2,06	24	18 – 24	22,03 ; 23,57

Based on table 3, there is an increase in respondents' motivation scores pre and post health education. The mean motivation score pre-health education was 20.73 with a standard deviation of 2.33. The lowest motivation score is 16, and the highest is 24. From the results of the interval estimation, it can be concluded that 95% are believed to be the value of the motivation score post health education in respondents in the range 19.86 - 21.60. While the mean score of respondents' motivation after health education is 22.80 with a standard deviation of 2.06. The lowest motivation score is 18, and the highest is 24. From the results of the interval estimation, it can be concluded that 95% are believed to be the value of the motivation score before health education in the respondents in the range 22.03 - 23.57.

Data for Returning KMO and Retrieving Medication

Table 4 Data on KMO Excavation and Return to Medication

Variabel	Jumlah	Prosentase (%)
Returning KMO		
Yes	20	100
No	0	0
Return to Medication		
Yes	20	100
No	0	0

Table 4 shows the data of respondents who have returned the Drug Drinking Card (KMO) by 20 respondents (100%). The table also shows that 100% of respondents have returned to take drugs on schedule. Of the total 30 participants applying this innovation, around ten people have not returned the KMO and have not returned to poly to take the drug because it is not time to take medicine. While 20 respondents who had entered the period of taking drugs in poly, all had returned to take the drug and return the KMO.

Differences in Knowledge and Motivation Pre and Post Education

Table 5 Differences in Knowledge and Motivation Scores Pre and Post Education

Kelompok	Variable	N	Mean	SD	MD (95%CI)	Z	p-value
Knowledge Score	Pre	30	9,30	1,34	-1,69 ;	-4,57	0,000*
	Post	30	10,67	0,76	-1,03		
Motivation Score	Pre	30	20,73	2,33	-2,61 ;	-4,32	0,000*
	Post	30	22,80	2,06	-1,52		

* significant at α 0.05 with the Wilcoxon test

Table 5 shows that the average knowledge score before being given health education is 9.30 with a standard deviation of 1.34, while the average score of knowledge after being given health education is 10.67 with a standard deviation of 0.76. Based on statistical tests it was concluded that there were significant differences between knowledge scores before and after health education (p-value 0,000).

Also, table 5 shows that the average motivation score before being given health education is 20.73 with a standard deviation of 2.33, while the average score of motivation after being given health education is 22.80 with a standard deviation of 2.06. There were significant differences between motivation scores pre and post health education (p-value 0,000).

Discussion
The application of health education to the method of group discussion affects increasing respondents' knowledge and motivation. This can be seen by the increase in the average score of knowledge and motivation scores after being given health education. Based on statistical tests it was concluded that there were significant differences between knowledge scores before and after health education and there were significant differences between motivation scores before and after health education.

Based on the research conducted Kulkarni et al. (2013) in 156 TB patients who carried out TB treatment with an average age of 32.99 years it was explained that health workers had a positive influence to adhere to treatment. Education provided adequately by health workers can increase the knowledge of TB patients about TB and treatment that must be carried out thoroughly. Through informative education, knowledge and self-awareness about TB and its treatment show a positive influence to adhere to treatment.

Health education is important for improving adherence to taking medication for TB patients. This is because TB treatment must be carried out for a long time, which is at least six months. So that patients diagnosed with TB must understand the importance of TB treatment to completion and the impact of drug withdrawal. Mbuthia, G. W., Olungah, C. O., & Ondicho (2018) which states that if someone is cured of TB, they must adhere to treatment for a long period. The majority of participants view this as a major challenge in dealing with this disease. However, some patients indicated that they had left pre-treatment after their health improved. This only results in more

suffering because the disease recurs and patients are forced to restart the full treatment regimen. This might be due to a lack of knowledge about TB treatment among some TB patients in West Pokot District. This was alluded to by the participants in their narration. "The problem with TB is that you have to take medication for a very long time and sometimes you give up. I swallowed medicine until I felt recovered. I swallowed for one and a half months, and I felt I had improved and so I stopped the medicine.

Health education with FGD can also add positive experiences and help patients overcome their illnesses. This is in line with researchers by Afshar, Memarian, & Mohammadi (2014) that the quality of life of DM patients increases after group discussions with positive feedback on the occasion, patients have the opportunity to share experiences and receive positive feedback.

References

Afshar, M., Memarian, R., & Mohammadi, E. (2014). The Effect of Group Discussion on the Quality of Life and HbA1c Levels of Adolescents With Diabetes, *16*(8), 1–5. https://doi.org/10.5812/ircmj.21110

Kemenkes, R. (2016). *Tuberkulosis Temukan Obati Sampai Sembuh*. Jakarta.

Kulkarni, P., Akarte, S., Mankeshwar, R., Bhawalkar, J., Banerjee, A., & Kulkarni, A. (2013). Non-adherence of new pulmonary tuberculosis patients to anti-tuberculosis treatment. *Annals of Medical and Health Sciences Research*, *3*(1), 67–74. https://doi.org/10.4103/2141-9248.109507

Mbuthia, G. W., Olungah, C. O., & Ondicho, T. G. (2018). In a pastoralist community in Kenya : a qualitative study. *The Pan African Medical Journal*, (30), 1–6. https://doi.org/10.11604/pamj.2018.30.287.14836

Ukpe, I. S. (2007). Tuberculosis patients' reasons for defaulting on tuberculosis treatment: A need for a practical patient-centered approach to tuberculosis management in primary health care [3]. *South African Family Practice*, *49*(6), 17. https://doi.org/10.1080/20786204.2007.10873569

WHO. (2018a). *Global Health Estimates 2016 Summary Tables: Deaths By Cause, Age And Sex, By World Bank Income Group, 2000-2015*. Geneva, Switzerland. Retrieved from http://www.who.int/healthinfo/global_burden_disease/en/

WHO. (2018b). *Global Tuberculosis Report 2018*. France. Retrieved from https://www.who.int/tb/publications/global_report/en/