THE ASSOCIATION BETWEEN KNOWLEDGE AND THE READINESS OF HEALTH WORKERS IN IMPLEMENTING WIFI TB PROGRAM

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ABSTRACT

Background: Semarang city contributes to reducing the number of missing TB cases by using Wajib Notifikasi TB (WiFi TB) application program, which began to be used simultaneously in 2018. WiFi TB application is an application to record and report every TB case found by health facilities, and it is part of Directly Observed Treatment Short-course (DOTS) strategy in monitoring, recording, and reporting component. **Aim:** Knowing the association between knowledge and the readiness of health workers in implementing WiFi TB program. **Methods:** The research design used in this study was analytic observational with a cross sectional approach. The qualitative method was also used in this study to know the evaluation about the implementation of WiFi TB program from the subjects. The sample size of this study were 27 subjects using purposive sampling method from each of the 10 Primary Clinics in Semarang city that included inclusion criteria. Data were collected by recording the results of answers to questionnaires and interviews. Fisher exact was used to test the hypothesis. **Results:** Most of the health workers from each of the 10 Primary Clinics in Semarang city had good readiness in implementing WiFi TB program. The results of this study showed a significant association between knowledge (p = 0,030) and the readiness of health workers in implementing WiFi TB program. **Conclusion:** There was an association between knowledge and the readiness of health workers in implementing WiFi TB program.

Key Words: Tuberculosis, WiFi TB, readiness, knowledge

INTRODUCTION

Tuberculosis (TB) is the leading cause of death by an infectious disease which is still the main focus of health problems in the world.[1] According to World Health Organization (WHO) report in 2016, although the number of deaths due to TB decreased by 22% between 2000 and 2015, TB is still one of the ten diseases that cause high mortality in the world.[2] Indonesia had the third-largest number of TB cases in the world, after India and China in 2019.[3]

TB control in Indonesia uses the Directly Observed Treatment Short-Course (DOTS) strategy that has been recommended by the World Health Organization (WHO) since 1995. DOTS is a strategy in controlling pulmonary TB cases which aims to break the chain of pulmonary TB transmission, so that TB morbidity and mortality rates in Indonesia are decreasing.[4]

From many reported TB cases, Indonesia is in second place with the estimated number of unreported TB cases in the National TB Control, so that it is called a missing case.[5] The Central Java Provincial Health Office reported that from 1,020,000 TB cases nationally in 2017, only 35.4% (360,564 cases) were reported, so that 64.6% (659,435 cases) were declared as missing cases. Meanwhile, the data of TB cases in Central Java in 2018, from 103,840 cases, only 44.33% (48,751 cases) were reported, so there were still 55.67% (55,089 cases) missing cases.[6]

Most of these missing TB cases were found in the private service of health facilities, which is independent practicing doctors and primary clinics.[6] The high number of missing TB cases is directly related to one of the five components of the DOTS strategy, namely the recording and reporting of TB cases standardized to facilitate monitoring and evaluation of pulmonary TB control programs.[4]

Wajib Notifikasi TB (WiFi TB) is an application based on smartphones to record and report every TB case found by health facilities. This application can be downloaded through the application store and can be used specifically for independent practicing doctors and primary clinics.[7]

Semarang city contributes to reducing the number of missing TB cases by using Wajib Notifikasi TB (WiFi TB) application program, which began to be used simultaneously in 2018. The use of WiFi TB application program is still very new in

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Semarang, so no research has been conducted on the analysis of the readiness of health workers in implementing this program. The readiness of health workers is one of many factors that contributes to the success of TB notification program.[8]

For that reason, the author is interested in conducting research at the primary clinics in Semarang city to know the readiness of health workers and also the association between knowledge of WiFi TB program and the readiness of health workers in implementing WiFi TB program. The urgency of this study is to minimize the number of missing TB cases, so that TB morbidity and mortality rates in Indonesia can be reduced.

METHODS

This study was an analytic observational study with a cross-sectional approach. The qualitative method was also used to know the evaluation about the implementation of WiFi TB program from the subjects. The study was conducted at 10 primary clinics in Semarang city, starting from July to August 2020. Ethical clearance was obtained from The Medical Research Ethical Committee of Faculty of Medicine Diponegoro University Number 141/EC/KEPK/FK-UNDIP/VI/2020.

The sample size of this study were 27 subjects using purposive sampling method from each of the 10 primary clinics in Semarang city that included inclusion criteria. The inclusion criteria of this study were subjects who were registered as active staff in the clinic and were associated to WiFi TB program, while the exclusion criteria of this study was subjects who take a leave when this research was conducted.

Data were collected by recording the results of answers to questionnaire and interview. The independent variable in this study is knowledge, while the dependent variable is the readiness of health workers in implementing WiFi TB program. Knowledge refers to respondent's knowledge about TB cases and the implementation of WiFi TB program which can affect the number of TB case finding. Readiness refers to the situation where the respondents are ready to implement WiFi TB program to reduce the number of missing TB cases. From the answers to the questionnaire, the value of each respondent's answers were calculated on average. A value above the average was categorized as good, while a value below the average was categorized as poor. Fisher exact was used to test the hypothesis for the association between the independent and dependent variables. The hypothesis is accepted if p-value <0.05. For the qualitative method, respondents were interviewed using four questions according to their opinion about the advantages, disadvantages, constraints, and things that need to be improved from WiFi TB program.

RESULTS

The study was conducted from July to August 2020 with 27 respondents who included the inclusion and exclusion criteria from each of the 10 primary clinics in Semarang city. The characteristic of respondents are in table 1.

All respondents in this study were female (100%). Most of the respondent's last education was D3 (63%), followed by S1 (29.6%), D4 (3.7%), and S2 (3.7%). Most of the respondents worked for <4 years with a percentage of 63%, while respondents who worked in the clinic ≥4 years were 37%. The data showed that most of the respondents work in the clinic as midwives (33.3%), followed by nurses (29.6%), doctors (18.5%), administrative technicians (14.8%), and medical record technicians (3.7%).

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Table 1. Characteristic of Respondents

	Frequency	(%)
Gender		
- Male	0	0.0
- Female	27	100.0
Last Education		
- D3	17	63.0
- D4	1	3.7
- S1	8	29.6
- S2	1	3.7
Length of Work		
- < 4 years	17	63.0
- ≥ 4 years	10	37.0
Job Position		
- Doctor	5	18.5
- Nurse	8	29.6
- Midwife	9	33.3
- Administrative Technician	4	14.8
- Medical Record Technician	1	3.7

Table 2. Knowledge and The Readiness of Health Workers
in Implementing WiFi TB Program

	Frequency	(%)
Knowledge		
- Good	18	66.7
- Poor	9	33.3
Readiness		
- Good	22	81.5
- Poor	5	18.5

According to this study, there were 18 respondents (66.7%) who had good knowledge and 9 respondents (33.3%) who had a lack of knowledge about the WiFi TB program. Meanwhile, in the readiness of health workers in implementing WiFi TB program, it was found that 81.5% of respondents had good readiness and 18.5% of respondents had a lack of readiness.

Table 3. Association between Knowledge and The Readiness of Health Workers
in Implementing WiFi TB Program

		Readiness		*p*-value	PR	CI 95%	
		Good	Poor			Above	Below
Knowledge	Good	17	1	0.030*	1.700	1.851	1.489
	Poor	5	4				

* : *p*-value < 0.05

The result of this study that has been tested with the Fisher Exact test obtained a significant value of knowledge ($p = 0.030$). This study showed that there was a significant association between knowledge and the readiness of health workers in implementing WiFi TB program.

For the qualitative method, five respondents were interviewed using four questions. First question was the advantages of WiFi TB program according to their opinion.

"It is easier if the clinic needs to check the data of TB patient." – US

"Recording and reporting of TB patients become more organized." – A

"Reporting of TB cases becomes easier and more practical." – ANL

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"We can report directly and conduct a survey contact." – IN

"It is easier to detect TB patients and to report TB cases." – K

The second question was the disadvantage of WiFi TB program according to their opinion.

"The application doesn't update, and there is no feedback." – US

"There is no shortage of WiFi TB program." – A

"Long time of loading when entering the application." – ANL

"The program has not been implemented optimally." – IN

"Sometimes still confused in using the application, lack of internet facilities, insufficient device memory. There is difficulty in conveying it to patient." – K

The third question was the constraints of WiFi TB program according to their opinion,

"Sometimes patient doesn't bring identify card for data entry." – US

"The time division between clinical activity and patient data entry sometimes collides." – A

"There is no constraints from infrastructure and procedure." – A

"Sometimes we don't have time to use the application when there are many patients." – IN

"Too many patients in the clinic." – K

The fourth question was the things that need to be improved from WiFi TB program according to their opinion.

"The application needs to be updated, because sometimes there is trouble when we want to fill in data. The section of patient data can be made easier and simpler. The health office needs to conduct more frequent evaluations of this program, or at least there is an officer to monitor it." – US

"In my opinion, WiFi TB program is good. All of patient data is recorded and reported at the health center (puskesmas) or the district level health office practically through the application. Hopefully the patient will get treatment until healed." – A

"The application may need to be repaired." – ANL

"Training and guidance are needed for using the application." – IN

"The procedures can be structured more clearly" – K

DISCUSSION

Knowledge is the respondent's intellectual ability which includes understanding the material, also the process of finding out, from not knowing to knowing and from not being able to being able.[9] This process of finding out includes various methods and concepts, either through the process of education, training, or experience.[9]

Knowledge may be reached by a person through experience of an object using special senses. Knowledge or cognition influences a person's behaviour.[10] Data was obtained using a questionnaire where the respondents were asked to work on 10 questions related to WiFi TB program. The questions includes definition, benefit, reporting mechanisms, cases that can be reported, patient data that must be reported, and features that can be used from WiFi TB application. The subject who can answer correctly to the questions, then had a better knowledge about WiFi TB program. They knew how the program is implemented, so they also had a better readiness to implement it.

Most of the health workers in the clinic had good knowledge of WiFi TB program. This is in line with the research of Eva Emaliana et al, who said that most of the health workers in the Ex Residency of Pati had good knowledge of the pulmonary TB cases detection.[11] Many health workers who had good knowledge about the WiFi TB program can be caused by the individual abilities and the success of health department management in holding training for them.[12]

The study showed that there was a significant association between knowledge of WiFi TB program and the readiness of health workers in implementing WiFi TB program. This is in line with a previous study that there was an association between knowledge and case detection of pulmonary TB.[11] Based on the theory in controlling pulmonary TB disease, knowledge has a direct effect on behavior and attitude change in achieving the Case Detection Rate (CDR).[11]

The Prevalence Ratio (PR) in this study obtained a value of 1.700, so it can be concluded that health workers who had good knowledge about the WiFi TB program would be 1.700 times better in readiness than health workers who had a lack of knowledge about the WiFi TB program. This is in line with a previous study that good knowledge can

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improve the performance of health workers in controlling pulmonary TB cases.[11]

The interview data showed the subject's opinions about the advantages, disadvantages, constraints, and things that need to be improved from WiFi TB program. In expressing their opinions and evaluations, they certainly knew the uses and the benefits of WiFi TB program, how the program works, and the outcome when the program can be implemented well.

From the interview data, knowledge was not the only factor in affecting the readiness of health workers in implementing WiFi TB program. Training, standard operating procedure, supervision and evaluation of program implementation, and infrastructure were also factors that may affect the readiness of health workers in implementing WiFi TB program. In Hariadi's research, the skills of health workers, training of health workers, and the availability of facilities were related to the coverage of TB patients detection with positive smear, which were the final target of the role of health workers in TB case detection.[13]

There were some limitations to this study. This research was conducted online to avoid unwanted events during this pandemic conditions. This resulted in the implementation of the research which was taking longer, because each respondent had to be contacted one by one, and not a few respondents gave a long response. In filling out the online questionnaire, it was possible that some respondents didn't understand it enough, even though there were clear informations on the google form. So there was also the possibility that some respondents might answer with inappropriate statements. Therefore, the researcher had rechecked the answers of each respondent.

CONCLUSION

Most of the health workers from each of the 10 primary clinics in Semarang city had good knowledge and readiness in implementing WiFi TB program. There was an association between knowledge and the readiness of health workers in implementing WiFi TB program.

Further research is needed to determine other factors related to the readiness of health workers in implementing WiFi TB program with more clinics and respondents to get better results. Further research can be conducted by involving the health

center (puskesmas), the district level health office, or the provincial health office. From the interview data, training is needed for health workers regarding WiFi TB program, especially for program implementation procedures. It is also necessary to have supervision from the health office that is implemented regularly, and the standard operating procedure can be structured more clearly.

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