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Correlated Factors on Performance of Tuberculosis Program Officers at Health Center in Increasing the Finding of New AFB Smear-Positive Cases

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Abstract

Semarang regency had CDR issues under the national target. The activity of new cases finding determine the success of the tuberculosis eradication programs, so the process of find new AFB smear-positive cases by officers is crucial. The purpose of this study was to determine factors related to the performance of tuberculosis officers at the Health Center in increasing the findingof New AFB smear-positive cases (case study in Semarang regency).
This type of research is observational analytic, with the cross-sectional design involving 45 saturated samples. Data analysis used was chi-square test.
The results showed that factors related to the performance of tuberculosis programs officers were knowledge (p = 0.022), training (p = 0.001), double duty (p = 0.014), screening for active TB suspect (p = 0.038), motivation (0.040) and attitude (p = 0.011). While there was no correlation between years of service (p = 0.152), facilities (p = 0.154), and incentive (p = 0.121).

Abstrak

Kabupaten Semarang memiliki permasalahan CDR di bawah target nasional. Kegiatan penemuan kasus baru menentukan keberhasilan program pemberantasan tuberkulosis, sehingga proses penemuan kasus baru BTA positif oleh petugas sangat menentukan. Tujuan penelitian ini adalah untuk mengetahui faktor-faktor yang berhubungan dengan kinerja petugas tuberkulosis puskesmas dalam meningkatkan penemuan kasus baru BTA positif (studi kasus di Kabupaten Semarang).
Jenis penelitian ini adalah analitik observasional, dengan desain cross sectional yang melibatkan 45 sampel jenuh. Analisis data menggunakan uji chi square.
Hasil penelitian menunjukkan faktor yang berhubungan dengan kinerja petugas program tuberkulosis puskesmas adalah pengetahuan (p = 0,022), pelatihan (p = 0,001), tugas rangkap (p = 0,014), penjaringan suspek TB aktif (p = 0,038), motivasi (0,040), dan sikap (p = 0,011). Sementara tidak ada hubungan antara faktor masa kerja (p = 0,152), sarana (p = 0,154), dan insentif (p = 0,121).

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INTRODUCTION

Tuberculosis is an infectious disease caused by germs from the *Mycobacterium* group namely *Mycobacterium tuberculosis*. These bacteria typically have an incubation period lasting 4-8 weeks with a time span of 2-12 weeks (Purniti et al., 2008). The classic symptoms of TB are a cough, phlegm, fever and decreased weight, generally improved in the first few months of treatment (Nawas, 2010). Indonesia is one of the countries with the highest number of tuberculosis cases in the world. In 2009, Indonesia ranked third, while in 2010, Indonesia was ranked fifth. According to WHO (2015), Indonesia's rank back up to rank two with India was the first rank.

The national tuberculosis control program has two main indicators: Case Notification Rate (CNR) and Treatment Success Rate (TSR). In addition, there are process indicators for achieving the national indicator namely the proportion of new bacteriologically confirmed pulmonary TB patients among suspected tuberculosis, the proportion of new bacteriologically confirmed pulmonary TB patients among all pulmonary TB patients that recorded/treated, the proportion of TB patients from children among all TB patients, Case Detection Rate (CDR), proportion of TB patients tested for HIV, proportion of TB patients tested for HIV with reactive results, Conversion rate, Cure rate, TB treatment success rate in children, and TB MDR treatment success rate.

Case Detection Rate (CDR), represents a proportion of the number of new AFB smear-positive patients found and treated against the number of new BTA positive patients estimated to be present in the region. CDR is one of the process indicators used to find new cases of AFB smear-positive. The national target of CDR used reaches 70% (Aditama & Zulfikar 2009).

Semarang Regency is one of the autonomous regencies in Central Java province that had not met the national CDR target. In 2013, Semarang Regency had not reached the national CDR of 70% . The achievement of CDR in 2013 CDR rate in Semarang Regency reached 24.42%, and in 2014, the CDR of Semarang regency decreased to 17.87%. The achievement of CDR of Semarang Regency in 2015 reached 24.95%, while the incidence of tuberculosis in Semarang regency in 2013 reached 26.1 per 100,000, while for 2015 the incidence rate rose to 26.4 per 100,000. Based on these data, it shows that the finding of AFB smear-positive pulmonary TB cases is still not optimal.

The Ministry of Health has organized various pulmonary TB control programs. Pulmonary TB control activities are activities that are included in the health efforts of the Health Center, meaning that the Health Center is responsible for the overall pulmonary TB control effort. Health workers who are directly involved as pulmonary tuberculosis programs officers at Health Centerare all officers who have been trained in pulmonary TB control programs. Without the finding of new cases, pulmonary TB control programs will not succeed, so the process of find new cases by officers is crucial to the success of the programs. The finding process of new patients will be successful if the competencies possessed by officers in accordance with the resulting performance. The performance can be supported by several competencies, which include the knowledge, attitudes, and skills of officers obtained from the training results and supported by the available facilities (Ayulestari, 2014).

The purpose of this research is to know factors related to performance of tuberculosis officer at Health Center in increasingthe finding of New AFB smear-positive cases in Semarang Regency.

METHODS

This research used observational analytic research method with cross-sectional research design. The population of this research was all officers of TB programs at Health Center in Semarang Regency. This study used the saturated sampling technique, that is sample determination technique when all member of the population used as a sample. It took 45 TB program officersas respondents. They were taken from 24 Health Centers (Puskesmas) in Semarang Regency.

Data collection technique was using observation method and documentation. The research instrument in this study was a questionnaire containing questions related to the purpose of research and assist researchers in answering the formulation of research problems.

Primary data in this study was obtained through the preliminary study conducted by researchers to TB programs officers at Health Center, while the data taken were training data, education level, years of service, double duty, knowledge, screening for active TB suspect, facilities, motivation, and attitude. While secondary data in this research was data from WHO, Ministry of Health Republic of Indonesia, Central Java Provincial Health Office, and Semarang Regency Health Office.

Data analysis used univariate and bivariate analysis. Univariate analysis was used to perform distribution analysis and percentage of each variable. The variables studied were performance of TB program officers at Health Center, knowledge, trai-

ning, double duty, years of service, screening for active TB suspect, facilities, incentive, motivation, and attitude. Bivariate analysis was performed to see the relationship between independent variables and dependent variable with statistical test which adjusted to the existing data scale. The independent variables in this research are knowledge, training, double duty, years of service, screening for active TB suspect, facilities, incentive, motivation, and attitude with the dependent variable that is the performance of TB officers at Health Center in increasingthe finding of New AFB smear-positive cases. The statistical test in this study used chi square test, to see whether there is a significant relationship between independent and dependent variables. Terms of chi square test is a cell that has an expected value of less than 5, a maximum of 20% of the cell number. If the terms of the chi-square test are not met, then the alternative test is the Fisher test.

RESULTS AND DISCUSSION

Table 1 shows the distribution of respondents by sex and education level. Distribution of Characteristics of respondents based on sex, 17 (37.8%) of respondents have male gender characteristics and 28 (62.2%) respondents have female gender characteristics.

Distribution of Characteristics of respondentsbased on education level, 41 (91.1%) of respondents with D3 as last education and as many as 4 (8.9%) of respondents with S1 as last education.

Table 2 shows the independent and dependent variables frequency distribution or univariate analysis. Knowledge distribution of respondents with the not good category as many as 23 (51.1%) people and the good category as many as 22 (48.9%). Training distribution of respondents with the not good category as many as 27 (60.0%) people and with the good category as many as 18 (40.0%). Distribution according to years of service of TB programs respondents at the Health Centeras many as 15 (33.3%) respondents have worked less than 2 years and as many as 30 (66.7%) respondents have worked more than 2 years. Double duty distribution of TB programs respondents at the Health Center as many as 33 (73.3%) of respondents had double duty outside their main duty as TB officers and laboratory staff and as many as 12 (26.7%) respondents did not have double duty. Screening for active TB suspect distribution with respondents as many as 22 (48.9%) respondents did not do screening for active TB suspect during the last one year and as many as 23 (51.1%) respondents did screening for active TB suspect during the last one year.

Facilities distribution of respondents as tuberculosis programs officers at Health Center in Semarang Regency as many as 16 (35.6%) of respondents believed facilities available at Health Center were not good and as many as 29 (64.4%) respondents believed facilities available at Health Center were good. Incentive distribution of respondents as tuberculosis programs officers at Health Center as many as 43 (95.6%) respondents did not get incentive from Health Center where they worked and 2 (64.4%) respondents got incentive from Health Center where they worked. Distribution according to respondent's motivation of tuberculosis programs officers at Health Center as many as 19 (42.2%) respondents had a bad/not good motivation and 26 (57.8%) respondents had a good motivation. Distribution according to respondent's attitude of tuberculosis programs officers at Health Center as many as 30 (66.7%) respondents had bad/not good attitude and as many as 15 (33.3%) respondents had good attitude.

Table 3 shows bivariate analysis that is an analysis of the relationship between independent variables and dependent variable. Based on the results of research indicated that there was a relationship between knowledge with the performance of tuberculosis programs officers at Health Center in increasing the finding of New AFB smear-positive cases in Semarang Regency (*p value* = 0.022). According to Akhmadi (2012) stated that the knowledge is a major factor that affects the attitude and performance of individuals. In carrying out their duties, tuberculosis programs officers understand well the procedures for pulmonary TB control programs so that activities in the programs can be carried out properly,

Table 1 Characteristics of Respondents Distribution

No	Characteristics of Respondents	Frequency	
		N	%
1	Sex		
	Male	17	37.8
	Female	28	62.2
2	Education Level		
	D3	41	91.9
	S1	4	8.9

Table 2 Univariate Analysis

No	Variables	Frequency	
		N	%
1	**Knowledge**:		
	Not good	23	51.1
	Good	22	48.9
2	**Training**:		
	Not good	27	60.0
	Good	18	40.0
3	**Years of service**:		
	Years of service <2 years	15	33.3
	Years of service >2 years	30	66.7
4	**Double duty**:		
	Double	33	73.3
	Not double	12	26.7
5	**Screening for active TB suspect**:		
	No	23	51.1
	Yes	22	48.9
6	**Facilities**:		
	Not good	16	35.6
	Good	29	64.4
7	**Incentive**:		
	No	43	95.6
	Yes	2	4.4
8	**Motivation**:		
	Not good	19	42.2
	Good	26	57.8
9	**Attitude**:		
	Not good	30	66.7
	Good	15	33.3

these activities include TB suspect screening, diagnosing the patient, treatment to TB patients and the determination of treatment outcomes. The result of this research is in line with research done by Ratnasari (2015) with p-value 0.008 (<0.05), which stated that there is correlation between knowledge factor with the attainment of officer to case detection rate in pulmonary TB programs in Rembang Regency. This research is also in line with research conducted by Saomi (2015), with the p-value of 0.023 (<0.05), which stated that there is a correlation between knowledge with the finding of pulmonary tuberculosis cases in ex Pati Recidency. The knowledge possessed by the officers is indispensable for carrying out their duties as tuberculosis programs holder. Officers should have complete control of all pulmonary TB material in order to perform the tasks as expected and can achieve the target of pulmonary TB cases finding in accordance with predetermined targets. Good knowledge motivates to improve skill and attitude, so it has the ability to do something more effective and produce good performance in increasing the finding of tuberculosis cases. Similiar result was also finded in Nugraini (2015) that component at Health Centers with CDR ≥ 75% in accordance with provisions Health Ministry of Indonesia is duty and responsibility of the holder P2TB programs, laboratory staff, and head Health Centers, funding, networking suspected, diagnosis, and reporting. The Health Center with CDR <75%, which in accordance with provisions of the components Health Ministry of Indonesia is duty and responsibility the head of community Health Centers, funding, and diagnosis. While, based on research conducted by Awusi et al (2009) showed that there was no statistically significant relationship between TB officers knowledge and the finding of pulmonary tuberculosis cases (p = 0.19). Research conducted by Husein (2012) also showed the results of knowledge analysis that has no significant relationship with performance (p-value = 1.000). This is because the number of officers who have the knowledge both in this case indicates that in addition to the individual capabilities brought by each officer can also be the success of the health de-

Table 3 Bivariate Analysis

No	Independent Variables	Performance of TB programs officers at Health Center				Total		*p* value
		Yes		**No.**				
		N	%	N	%	N	%	
1	**Knowledge**:							
	Not good	19	14.8	4	8.2	23	23.0	0.022
	Good	10	14.2	12	7.8	23	22.0	
2	**Training**:							
	Not good	23	17.4	4	9.6	27	27.0	0.001
	Good	6	11.6	12	6.4	18	18.0	
3	**Years of service**:							
	Years of service<2 years	7	9.7	8	5.3	15	15.0	0.152
	Years of service>2 years	22	19.3	8	10.7	30	30.0	
4	**Double duty**:							
	Double	25	21.3	8	11.7	15	15.0	0.014
	Not double	4	7.7	8	4.3	30	30.0	
5	**Screening for active TB suspect**:							
	No	18	14.2	4	7.8	22	22.0	0.038
	Yes	11	14.8	12	8.2	23	23.0	
6	**Facilities**:							
	Not good	13	10.3	3	5.7	16	16.0	0.154
	Good	16	18.7	13	10.3	29	29.0	
7	**Incentive**:							
	No	29	27.7	14	15.3	43	43.0	0.121
	Yes	0	1.3	2	0.7	2	2.0	
8	**Motivation**:							
	Not good	16	12.2	3	6.8	19	19.0	0.040
	Good	13	16.8	13	9.2	26	26.0	
9	**Attitude**:							
	Not good	15	19.3	15	10.7	30	30.0	0.011
	Good	14	9.7	1	5/3	15	15.0	

partment management in conducting training and this can improve the knowledge and performance of officers. Ratnasari (2015) and Saomi (2015) research have similar characteristics with this research that is when viewed on the population of respondents studied, the proportion of respondents as tuberculosis programs officers who have the bad knowledge and bad performing is greater than the officers who have good knowledge and perform well. This is because respondents with good knowledge had attended DOTS training. According to Rahayu (2015), the DOTS strategy is the most appropriate approach to improve the ability of tuberculosis programs officers to achieve national CDR targets. Many argue that direct treatment is not sufficient to combat tuberculosis and DOTS is an effective strategy to eliminate tuberculosis (Arnadottir, 2009). Therefore, officers need to improve knowledge of pulmonary TB to increase insight so as to support performance improvement in achieving the finding of New AFB smear-positive cases in Semarang Regency.

Based on the result of research indicated that

there is a correlation between training with the performance of tuberculosis officers at Health Center in increasing the finding of New AFB smear-positive cases in Semarang Regency (p-value = 0.001). According to Tuberculosis Control Guidelines 2014, training is one of the efforts to improve the knowledge, attitude and skills of officers in order to improve the competence and performance of officers. Training obtained by TB programs officers is a training that contains material about TB management, namely: TB control programs; the finding and treatment of TB; communication, information and education of TB; logistics control programs of TB in health care facilities; prevention and control of TB infection; network of TB control programs; and monitoring as well as evaluation of TB control programs.

Based on the result of the research, there is no correlation between years of service with the performance of tuberculosis programs officers at Health Center in increasing the finding of new AFB smear-positive cases in Semarang Regency (p-value = 0.152). This is different from the research of Ayulestari (2014) with p-value 0.035 (0.05), which stated that there is relationship between years of service and officer performance in CDR at Health Center of Makassar City, because officer with long working experience hence more experienced so that officers already know what they will do and take the initiative in working, so officers not only work on TB Prevention Programs (P2TB) based on Standard Operating Procedures. Based on this research, it is found that there is no correlation between years of service with the performance of tuberculosis programs officers at Health Center in increasing the finding of new case of AFB smear-positive in Semarang Regency because most of the respondent have years of service more than 2 years, but case detection rate of Semarang Regency still below the national target (70%).

Based on the result of research indicate that there is a correlation between double duty with the performance of tuberculosis programs officers at Health Center in increasing new case finding of AFB smear-positive in Semarang Regency (p-value = 0.014). The results of this study are not in line with research conducted by Awusi et al (2009), which states that there is no statistically significant relationship between double duty with the discovery of pulmonary TB patients with p-value 0.87 (0.05). This study has a result of inequality when viewed on the distribution of respondent officers based on double duty that is the proportion of officers who have double duty more than the proportion of officers who do not have double duty. According to Akhmadi et al (2012) stated that double duty will cause the workload that can affect the performance of TB officers. The high workload of healthcare employees or hospital employees can decrease effect on job performance; the high workload can be caused by double tasks or double duty.

Based on the result of the research, there is a correlation between screening for active TB suspect and the performance of tuberculosis programs officers at Health Center in increasing the finding of new cases of AFB smear-positive in Semarang Regency (p-value = 0.038). This research is in line with research conducted by Ratnasari (2015) with p-value 0.002 (<0.05), stated that there is a relationship between suspect screening and officer attainment of pulmonary TB case detection in Rembang Regency. Currently, Health Center in Semarang Regency did the passive screening more than the active screening. The finding of New AFB smear-positive cases that is passive means Health Center officers just waiting for patients to come to the Health Center to check it.

Based on the result of research indicate that there is no correlation between facilities with the performance of tuberculosis programs officers at Health Center in increasing new case finding of AFB smear-positive in Semarang Regency (p-value = 0,154). The results of this study are not in line with the research of Hariadi et al (2009) stated that there is a significant relationship between the availability of facilities with pulmonary tuberculosis positive patients with p-value of 0.000 (<0.05), based on the research the facilities and pre-facilities are factors that affect work behaviour other than the environment. Facilities are the supporting factors to achieve the objectives, without facilities, tasks and objectives of the tuberculosis programs officers cannot be completed properly (Minardo, 2015). There is a characteristic inequality in this study because the available facilities at the Health Center in Semarang Regency were mostly available and available on time.

According to Henderson and Tulloch (2008), the main function of incentive is to provide responsibility and encouragement for employees to achieve the goal. However, based on the results of the study showed that there is no relationship between the incentive with the performance of tuberculosis programs officers at Health Center in increasing the finding of new cases of AFB smear-positive in Semarang Regency (p-value = 0.121).The results of this study are in line with research conducted by Awusi et al (2009) which stated that there is no statistically significant relationship between incentives with the finding of pulmonary TB patients with p-value of 0.89 (> 0.05), this is because the incentive given to each TB officers is equal value regardless of the TB officer's performance, thus enabling other TB officers to become indifferent to achieving the global target of expected pulmonary TB findings (70%).

Incentive does not affect the performance of tuberculosis programs officers at Health Center because the average Health Center in Semarang Regency did not provide incentives to tuberculosis programs officers without taking into account the performance of TB officers in increasing the finding of New AFB smear-positive cases, there are only two officers who get incentive when the target of new case detection of AFB smear-positive fulfilled.

Based on the result of research indicate that there is a correlation between motivation with the performance of tuberculosis programs officers of at Health Center in increasing new case finding of AFB smear-positive in Semarang Regency (p-value = 0.040). According to Kusumawardani (2012), motivation is the reason and encouragement that exists within a person as a motivator that causes a person wants to do and do something in achieving the predetermined goal. However, this study is not in line with research conducted by Ratnasari (2015), which stated that there is no statistically significant relationship between motivation with the finding of pulmonary TB patients with p-value of 1.000 (> 0.05), due to high motivation as well as low still have a chance to have a good performance. Based on this research, it was found that there is a correlation between the motivation with the performance of tuberculosis programs officers at Health Center in increasing the finding of new case of AFB smear-positive in Semarang Regency because the respondent's distribution of tuberculosis programs officers who have bad motivation more than the respondent's distribution who have good motivation.

Based on the result of research indicate that there is correlation between attitude with the performance of tuberculosis programs officers at Health Center in increasing new case finding of AFB smear-positive in Semarang Regency (p value = 0.011). According to Gibson, stated that one of the factors that affect the performance is the individual attitude. Good individual attitude will increase the individual's performance level. This study is in line with research conducted by Ayu Lestari (2014), which states that the attitude of officers has a relationship with case finding rate with p-value of 0.006 (<0.05) because one of the factors affecting performance is the attitude of the individual. Good attitude will increase the individual's performance level. This study has similar characteristics with this research that is when viewed from the study population used were the tuberculosis programs officers and the distribution of respondents with the bad attitude and bad performing more than respondents who have good attitude. This is because the duties as P2TB program officers are a tough task and have big responsibilities.

CONCLUSION

The results showed that p value knowledge (p = 0.022), training (p = 0.001), years of service (p = 0.152), double duty (p = 0.014), screening for active TB suspect (p = 0.038) (p = 0.154), incentive (p = 0.121), motivation (0,040), and attitude (p = 0,011). The conclusion of this research was there was correlation between knowledge, training, double duty, screening for active TB suspect, motivation, and attitude with the performance of tuberculosis programs officers in increasing the finding of new case of AFB smear-positive in Semarang Regency.

The suggestion for the next researcher is to dig deeply in other factors that influence the performance of tuberculosis programs officers at Health Center in increasing the finding of New AFB smear-positive cases not only using questionnaire instrument but also using interview technique so that information get more detail and need the addition of other variables such as proportion of patients with AFB smear-positive pulmonary tuberculosis among all patients with sputum examined, case notification rate, conversion rate, laboratory error rate, etc.

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