Login : Jurnal Teknologi Komputer
ISSN : 2302-9692 (print) | 2723-8695 (online)
Vol. 13, No. 2, December 2019, pp. 6-11
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The Effect of Compensation, Supervision and Competence on Performance of Tuberculosis Health Center Officers using Multiple Linear Regression

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Article Info

Article history:

Received, Sep 9, 2019
Revised, Okt 20, 2019
Accepted, Des 11, 2019

Keywords:

Tuberculosis,
Multiple Linear Regression,
Compensation,
Supervision,
Competence.

ABSTRACT

Tuberculosis is a direct and chronic infectious disease that is transmitted by tuberculosis sufferers, thus tuberculosis sufferers must be treated immediately until healed. Medan City, located in Indonesia, is the largest area of TB sufferers compared to other areas in North Sumatra, Indonesia. In this study, we use the Multiple Linear Regression (MLR) with the performance of TB officers from 2014-2017. Data obtained by interviews and observations using questionnaires and analyzed by multiple regression α=0,05. The results of research are showed that statistically, both partially and simultaneously, from all of respondents have assessed according to several characteristics, namely age, sex, education, years of service and marital status that the distribution of respondents from each variable of compensation, supervision and competence are affected to the performance of TB officers at Puskesmas in the Working Area of the Medan City Health Service. The compensation variable is the most influential variable on the performance of Puskesmas TBC officers in the Working Area of Medan City Health Service.

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1. INTRODUCTION

Globally in 2016 there were 10.4 million cases of TB incidence which is equivalent to 120 cases per 100,000 population. The five countries with the highest incidence of cases are India, Indonesia, China, the Philippines and Pakistan, so that Indonesia is in the second position with the highest TB burden in the world. This means that Indonesia has a big problem in dealing with TB disease [1]. Therefore, until now, TB is still a top priority in the world and is one of the goals in the SDGs (Sustainability Development Goals). According to the Directorate General of Disease Prevention and Control of the Indonesian Ministry of Health, 2018, the national case notification rate (CNR) among 100,000 population and the coverage of treatment for all TB cases (Case Detection Rate / CDR) during the last 10 years (2008-2017) illustrates The trend (trend) is increasing, but the cure rate tends to have a gap with the treatment success rate, so that the contribution of recovered patients to the success rate of treatment has decreased compared to previous years. In an effort to control disease, this phenomenon of decreasing recovery rates needs great attention because it will affect the transmission of TB disease [2].

North Sumatra Province which consists of 33 districts / cities has the number of TB case finds and the number of successful treatment (cures) in 2014-2017 after examination and treatment can be seen in Table 1.

Table 1. Number of TB Case Findings and Cure Rate in North Sumatra Province 2014-2017

Years	Number of TB Case Findings	Number of Treatment Successes (Cures)	Cure Rate (%)	Standard (%)
2014	22.032	20.622	93,6	90
2015	23.155	21.117	91,2	90
2016	23.437	21.609	92,2	90
2017	44.872	39.891	88,9	90

Based on Table 1, the number of TB case findings from 2014-2017 has an increasing trend compared to previous years, where in 2014 there were 22,032 cases, 2015 amounted to 23,155 cases, 2016 amounted to 23,437 cases and in 2017 amounted to 44,872 cases. The number of successful treatment (cures) from 2014-2016 experienced an increasing trend compared to previous years where in 2014 it was 20,622 people (93.6%), in 2015 it was 21,117 people (91.2%), in 2016 it was 21,609 people (92.2%) reached the standard, namely 90%, and in 2017 39,891 people (88.9%) were below the standard. This shows that the performance of TB officers in 2017 in order to find and succeed in treating (curing) TB sufferers in the Province is not optimal [3].

Districts / cities in the decentralization era were given autonomous authority or rights in managing health programs, so that the District / City Health Office has a very important role in determining the success of a program. One of the health service facilities in managing the program is the puskesmas. Puskesmas is the spearhead in health development, has a significant role in the effort to achieve health development. Nationally and as an organization, the performance of Puskesmas needs to be known whether the level of performance of the health centers is of optimal quality in supporting the achievement of district / city health development goals [4].

One of the cities that is included in the government elements of North Sumatra Province is Medan City. Medan City has 39 Puskesmas. Of the 39 health centers, 13 of them are Microscopic Referral Health Centers (PRM) and Independent Implementing Puskesmas (PPM). Based on data from the Medan City Health Office, the number of TB case finds and the number of successful treatment (cures) in 2014-2017 after examination and treatment can be seen in Table 2.

Table 2. Number of TB Case Findings and Cure Rate in the Work Area of the Medan City Health Office 2014-2017

Year	Number of TB Case Findings	Number of Treatment Successes (Cures)	Cure Rate (%)	Standard (%)
2014	5.771	4.926	85,4	80
2015	6.541	5.122	78,3	80
2016	7.329	5.749	78,4	80
2017	8.406	6.473	77,0	80

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2. RESEARCH METHOD

In this study, we used the Multiple regression analysis to determine the effect of independent variables (compensation, supervision and competence) partially and jointly on the performance variables of TB officers, carried out using multiple regression tests at the 95% confidence level (α = 0.05) with the equation [6]

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \varepsilon \quad (1)$$

where:
Y = performance
a = intercept/
X1 = Compensation
X2 = Supervision
X3 = Competence
b1, b2, b3 = Regression coefficient
ε = Distrubance error

Before using multiple linear regression analysis, a classic assumption test must first be carried out. This is to ascertain whether multiple regression can be used or not. If the classical assumption test has been fulfilled, the multiple linear regression test tool can be used. The normality test aims to test whether in the regression method, the dependent variable and the independent variable both have a normal distribution or not [7]. A good regression model is normally distributed data. The test criteria are, If the value is Asym. Sig> 0.05, then the data is normally distributed and If the value is Asym. Sig <0.05, then the data are not normally distributed.

Multicollinearity is used to test whether the regression model finds a strong correlation between the independent variables. The method used to evaluate it is by looking at the variance inflation factor (VIF). Where the VIF value is not more than 10 and the Tolerance value is not less than 0.1. It is used to determine the significance of the influence of independent variables on the dependent variable partially or individually, so that it is known whether the hypothesis can be accepted or rejected. Testing Criteria

H0: $\beta = 0$: There is no effect of the independent variable on the dependent variable partially

H1: $\beta \neq 0$: There is an effect of the independent variable on the dependent variable partially.

Level of significant α = 5%, Decision Criteria. H0 is accepted if the significant value is> 0.05 and H1 is rejected, H1 is accepted if the significant value <0.05 and H0 is rejected.

The F test is used to determine the significance of the effect of the Compensation (X1), Supervision (X2) and Competence (X3) variables together on performance (Y). Testing Criteria

Ho: $\beta = 0$: means that there is no effect of the variable Compensation (X1), Supervision (X2) and Competence (X3) together on performance (Y). H1: $\beta \neq 0$: means that there is an effect of the variable Compensation (X1), Supervision (X2) and Competence (X3) together on performance (Y). Determination of the level of significance of 5%, or $\alpha = 0.05$

Decision Criteria, H0 is accepted if the significant value is> 0.05 and H1 is rejected H1 is accepted if the significant value <0.05 and H0 is rejected.

This analysis is used to determine how much contribution the independent variable gives to the dependent variable which is shown as a percentage seen based on the R2 (r-square) value with the formula:

KD = R2 x 100% (Sugiyono, 2013: 258)

Where:
KD = coefficient of determination
R = correlation coefficient of independent variable with dependent variable

3. RESULTS AND DISCUSSION

Based on data processing, test results obtained with multiple linear regression, test results can be seen in Table 3.

Table 3. Multiple Linear Regression Test Results Effect of Compensation, Supervision and Competence, on the Performance of Public Health Center TB Officers in the working area of the Medan City Health Office

Variabel	*Coefficients*	*t*	*Sig.*
	B		
(Constant)	0,081	0,014	0,989
Kompensasi	1,035	8,100	0,000
Pengawasan	1,017	6,696	0,000
Kompetensi	0,574	4,373	0,000

Based on Table 3 above, the results of the regression test can be written with the equation:

$$\hat{Y} = 0{,}081 + 1{,}035X_1 + 1{,}017X_2 + 0{,}574X_3 + \varepsilon$$

The results of the multiple linear regression equation show that Constant = 0.081.
If the variables of compensation, supervision, and competence are assumed to be 0 then the performance of TBC officers = 0.081 units.
Compensation Coefficient
The compensation coefficient value is 1.035. This shows that if the compensation increases by one unit, the TBC officer performance will increase by 1.035 units.
Supervision Coefficient
The supervisory coefficient value is 1.017. This shows that if the supervision increases by one unit, the TBC officer performance will increase by 1.017 units.
Competency Coefficient
The competency coefficient value is 0.574. This shows that if the competency increases by one unit, the TBC officer performance will increase by 0.574 units. Knowing the significance or presence or absence of the influence of the independent variable on the dependent variable partially or individually is used a partial test, so that it is known whether the hypothesis can be accepted or rejected. This can be seen from the statistically significant value of the test. If the significant value <0.05, the independent variable partially affects the dependent variable, on the other hand, if the significant value is> 0.05, the independent variable partially has no effect on the dependent variable. The results of statistical tests can be seen in Table 4 above. The partial test results are as follows. Based on the results of the multiple linear regression statistical test compensation has a sig = 0.000 <0.05, this indicates that compensation has a positive and significant effect on the performance of TB officers, so the hypothesis which states "There is an effect of compensation on the performance of TBC Puskesmas officers in the Health Office Work Area. Medan City accepted.

The results of this test mean that the more fulfilled the compensation, the better the TBC officer performance. Based on the results of multiple linear regression statistical tests, supervision has a sig = 0.000 <0.05, this indicates that supervision has a positive and significant effect on the performance of TB officers, so the hypothesis which states "There is an effect of monitoring on the performance of TB officers in Puskesmas in the Health Office Work Area. Medan City accepted. The results of this test mean that the better the supervision, the better the TBC officer performance.

Based on the results of multiple linear regression statistical tests, the competence has a sig = 0.000 <0.05, this indicates that competence has a positive and significant effect on the performance of TB officers, so the hypothesis which states "There is an effect of competence on the performance of TBC Puskesmas officers in the Health Service Work Area. Medan City accepted. The results of this test mean that the better the competence, the better the TBC officer performance.

Knowing the significance of the effect of variable compensation (X1), supervision (X2) and competence (X3) together or simultaneously to the performance (Y) used F test, so it is unknown

whether the hypothesis can be accepted or rejected. If the F-test significance value <0.05, then there is the influence of independent variables on the dependent variable simultaneously. The results of the F test can be seen in Table 4.

Table 4. F Test Results

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1643,291	3	547,764	68,799	,000[a]
	Residual	589,170	74	7,962		
	Total	2232,462	77			

a. Predictors: (Constant), Kompetensi, Pengawasan, Kompensasi

b. Dependent Variable: Kinerja

Based on test results obtained significance value F sig = 0.000 <0.05. This shows that simultaneous independent variable compensation, supervision and competency positive and significant impact on the performance of the officer tuberculosis, so the hypothesis that "There is an effect of compensation, supervision and competence, on the performance of TB officer in the Work Area Health Center Health Office of Medan" acceptable.

Determinant coefficient (R2) was used to determine the contribution of the independent variable (compensation, supervision and competence) to the dependent variable, namely the performance of TB officer. Determinant coefficient test results are shown in Table 5.

Table 5. Result of Determinant Coefficient Analysis (R2)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,858[a]	,736	,725	2,822

a. Predictors: (Constant), Kompetensi, Pengawasan, Kompensasi

Statistical analysis showed the determinant coefficient (R2) is equal to 0.736, it is meant that the independent variable compensation, supervision and competence able to explain the variation of the change in the performance variable TB officer by 73.6%, while the remaining 26.4% is influenced by other factors outside the model, such as motivational variables or work environment.

4. CONCLUSION

It can be concluded that in this study compensation value positive and significant impact on the performance of TB officer in the Work Area Health Center Health Office of Medan. Value Monitoring positive and significant impact on the performance of TB officer in the Work Area Health Center Health Office of Medan. Value Competency positive and significant impact on the performance of TB officer in the Work Area Health Center Medan City Health Office.

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