



Variables at the Community Health Center Have the Ecological Effect on the Performance of Health Workers: A Multilevel Evidence from Klaten, Central Java

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ABSTRACT

Background: Performance is a work achievement that can be achieved from a job. Employee performance in an organization leads to the ability of employees to complete all tasks that have become their responsibility. Various problems in the workplace can often cause work stress, if it lasts long can cause various disturbances. Success in achieving goals is supported by the role of a leader with the leadership style used. This study aimed to examine the effects of work stress and leadership style on the performance of public health workers.

Subjects and Method: This was a cross sectional study conducted at the Klaten District Health Center, Central Java, from November to December, 2019. A sample of 200 health workers was selected by stratified random sampling. The dependent variable was work performance. The independent variables were work stress, leadership style, education, tenure, and type of work. The data were collected by questionnaire and analyzed by a multilevel logistic regression run on Stata 13.

Results: Performance of health workers decreased with heavy work stress ($b = -1.65$; 95% CI = -2.58 to -0.72; $p = 0.001$). Performance of health

workers increased with democratic leadership style ($b = 1.40$; 95% CI = 0.44 to 2.36; $p = 0.004$), high education level ($b = 1.58$; 95% CI = 0.65 to 2.52; $p = 0.001$), tenure ≥ 6 years ($b = 1.72$; 95% CI = 0.73 to 2.70; $p = 0.001$), and type of work without any additions ($b = 2.05$; 95% CI = 1.07 to 3.03; $p < 0.001$). Community health center had ecological effect on performance of health workers with ICC = 12.74%.

Conclusion: Performance of health workers decreases with heavy work stress. Performance of health workers increases with democratic leadership style, high education level, tenure ≥ 6 years, and type of work without any additions. Community health center has ecological effect on performance of health workers.

Keywords: work performance, work stress, leadership style, community health center

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BACKGROUND

The organization is a group of people who work together to achieve the goals that have been determined together (Busro and Muhammad, 2018). The process of achieving goals within an organization, there are various important components to help achieve

goals. Among these components quality human resources can determine the success of an organization in achieving its goals.

Regulation of the Minister of Health of the Republic of Indonesia Number 75 of 2014 concerning Public health center states that Public health center as one type of first-level

health service facility has an important role in the national health system, particularly the health effort subsystem. Adequate resources for public health center are needed according to the type, number and function and competence according to standards. To support their duties, the health centers have health personnel who have the authority and skills in accordance with their fields of expertise (Mawaranti and Prasetio, 2018).

Success in achieving the goals of an organization is supported by the role of a leader with a leadership style in influencing employees. Leadership style basically has the understanding as an embodiment of a leader behavior regarding his ability to lead (Sam-suddin, 2018). Leadership style in an organization can affect motivation and job satisfaction among employees (Musinguzi, 2018).

According to Li et al. (2017) the higher the imbalance between individual abilities and outside demands, the higher the stress level experienced. Stress is not always a bad impact, but it can also have a positive impact on the individual because it can encourage individuals to excel (Wahyudi, 2017). Stress at work can be experienced when there is an imbalance between work requests and the ability to manage them. Job stress is one of the things that causes employee performance in an organization to decline (Shivendra and Kumar, 2016). Job stress appears to arise when someone tries to manage responsibilities, tasks, or other forms of pressure related to work that he receives (Bhui et al., 2016).

Stress can be a positive indication for an individual to achieve, but excessive stress can reduce a person's productivity quickly. Stress is divided into two namely eustress (good stress) and distress (negative/bad stress). Excessive stress is certainly not good for health, but too little is also not ideal.

Performance is a work achievement that can be achieved from a job. According to Amir et al. (2018) leadership, compensation,

and work discipline are 3 factors that influence employee performance. A leader has a duty to plan, inform, make, and evaluate various decisions that will be made by all employees to achieve a goal. This study aims to look at the effect of work stress and leadership style on the performance of public health center staff.

SUBJECTS AND METHOD

1. Study Design

This was an analytic observational study with a cross sectional design. The study was conducted at the Klaten District Health Center, Central Java, from November to December, 2019.

2. Population and Sample

A sample of 200 health workers consisting of 5 health personnel and 3 non-health personnel from each public health center in Klaten District was selected by stratified random sampling.

3. Study Variables

The dependent variable was work performance. The independent variables were work stress, leadership style, education, tenure, and type of work.

4. Operational Definition of Variables

Employee performance was the result of work achieved by a person or group in accordance with the responsibilities of each employee. The data were collected by questionnaire. The measurement scale was continuous, and converted into dichotomous, coded 0= poor performance and 1= good performance.

Work stress was an imbalance between the characteristics of work aspects and can occur in all conditions of work. The data were collected by questionnaire. The measurement scale was continuous, and converted into dichotomous, coded 0= mild stress (score <20) and 1= severe stress (score ≥20).

Leadership style was a way used by a leader in interacting to influence, direct,

encourage, and control other people or subordinates to achieve a goal. The data were collected by questionnaire. The measurement scale was continuous, and converted into dichotomous, coded 0= authoritarian (score <24) and 1= democratic (score ≥24).

Education level was the level of ability of a person in a school based on the last diploma he has. The data were collected by questionnaire. The measurement scale was continuous, and converted into dichotomous, coded 0= <Diploma III and 1= ≥Diploma III.

Tenure was the length of time a person works in an institution from the first time he entered until now. The data were collected by questionnaire. The measurement scale was continuous, and converted into dichotomous, coded 0= <6 years and 1= ≥6 years.

Type of Work was the main activity carried out by study subjects and earns income from these activities both medical and non-medical. The measuring instrument used was a questionnaire. The scale of the data is continuous, and converted into a dichotomy with the criteria 0= additional work, 1= no additional work.

5. Data Analysis

Univariate analysis is used to describe each dependent and independent variable. Data is grouped according to data types and entered in the frequency distribution table. Bivariate analysis is used to determine the effect of independent and dependent variables by performing a chi-square test. Multivariate analysis explains the effect of work stress, leadership style, education, tenure, and type of work, on employee performance analyzed by multilevel logistic regression. Univariate, bivariate, and multivariate analyzes were performed using the Stata 13 program.

6. Research Ethic

This study was conducted after obtaining permission from the research ethics commission Dr. Moewardi Hospital, Surakarta, Central Java, Number: 1,155/X/HREC/ 2019. Research ethics includes consent sheets, anonymity, confidentiality, and ethical eligibility.

RESULTS

1. Sample Characteristics

Characteristics of the study subjects were identified based on employee age, main occupational type, level of education, and tenure.

Table 1. Sample characteristics

Variable	Criteria	n	%
Age	<25 years	29	14.50
	25-35 years	112	56.00
	35-45 years	53	26.50
	≥45 years	6	3.00
Occupation	Health personnel	125	62.50
	Non health personnel	75	37.50
Educational Background	Senior high school	16	8.00
	Diploma III	88	44.00
	Bachelor	87	43.50
Period of Working	Masters	9	4.50
	< 6 years	59	29.50
	≥ 6 years	141	70.50

Table 1 showed the majority of subjects aged 25-35 years were 112 people (56.00%). The main types of work are as medical workers as many as 125 people (62.50%) and

non-medical as many as 75 people (37.50%). The last education most of the study subjects were Diploma III as many as 88 people (44.00%). The most tenure are employees

who work ≥ 6 years as many as 141 people (70.50%).

2. Univariate Analysis

Based on Table 2 shows that work stress had

mean= 19.04 with the lowest score was 11. Leadership style had mean= 23.93 with the lowest score was 13. Work performance had 27.53 with the lowest score 16.

Table 2. Univariate analysis (continuous data)

No.	Variable	n	Mean	SD	Min.	Max.
1.	Work Stress	200	19.04	4.21	11	31
2.	Leadership Style	200	23.93	4.66	13	30
3.	Employee Performance	200	27.53	5.39	16	38

Table 3 shows univariate analysis data (dichotomous data) on 200 study subjects which showed that the majority of study subjects experienced mild stress of 115 people (57.50%) and 85 people (42.50%) experien-

ced severe stress. The leadership style perceived by most of the study subjects using the democratic leadership style of 135 people (67.50%) and 65 people (32.50%) rated the authoritarian leadership style.

Table 3. Univariate analysis (dichotomous data)

Variable	Criteria	Frequency (n)	Percentage (%)
Work Stress	Mild	115	57.50
	Severe	85	42.50
Leadership Style	Authoritarian	65	32.50
	Democratic	135	67.50
Education	Senior high school and Diploma III	104	52.00
	Bachelor and masters	96	48.00
Period of working	< 6 years	59	29.50
	≥ 6 years	141	70.50
Occupational Status	With side job	89	44.50
	No side job	111	55.50
Employee Performance	Poor	73	36.50
	Good	127	63.50

Study subjects with the highest education level of high school and diploma three were 104 people (52.00%) and 96 people (48.00%) had the last undergraduate and postgraduate level of education. Study subjects whose work period was ≥ 6 years were 141 people (70.50%) and 59 people (29.50%) who worked for <6 years. Most of them do not have additional work, as many as 111 people (55.50%) and those who have additional work are 89 people (44.50%).

3. Bivariate Analysis

Table 4 shows the bivariate analysis with the results of work stress, leadership style, level

of education, tenure, and type of work, have a positive relationship with employee performance. The relationship between mild work stress and good employee performance was 91 study subjects (79.13%) and severe work stress with poor performance as many as 49 study subjects (57.65%).

Study subjects with mild work stress were 0.19 times more likely to perform better than study subjects with severe work stress and it was statistically significant (OR= 0.19; $p < 0.001$).

Study subjects with a democratic leadership style on their leaders are 4.95 times

more likely to perform better than those with an authoritarian leadership style (OR= 4.95; p= 0.002).

Study subjects with undergraduate/postgraduate education levels were 2.94 times more likely to perform better than those with education Diploma III (OR= 2.94; p= 0.001). Study subjects with tenure ≥6

years had 3.56 times likelihood to perform better than those with tenure <6 years (OR= 3.56; p= 0.001).

Study subjects without additional work were 3.33 times more likely to perform better than study subjects who received additional work and it was statistically significant (OR= 3.33; p<0.001).

Table 4 Bivariate analysis of the effects of work stress, leadership style, level of education, years of service and type of work on employee performance

Independent Variable	Employee Performance				Total		OR	p
	Poor		Good		N	%		
	N	%	N	%				
Work Stress								
Mild	24	20.87	91	79.13	115	100	0.19	<0.001
Severe	49	57.65	36	42.35	85	100		
Leadership Style								
Authoritarian	40	61.54	25	38.46	65	100	4.95	0.002
Democratic	33	24.44	102	75.56	135	100		
Education								
SHS, DIII	50	48.08	54	51.92	104	100	2.94	0.001
Bachelor, Master	23	23.96	73	76.04	96	100		
Tenure								
< 6 years	34	57.63	25	42.37	59	100	3.56	0.001
≥ 6 years	39	27.66	102	72.34	141	100		
Type of Job								
With side job	46	51.69	43	48.31	89	100	3.33	<0.001
No side job	27	24.32	84	75.68	111	100		

4. Multivariate Analysis

Employees with heavy work stress had a possibility (logodd) to perform well 1.65 units lower than mild stress (b= -1.65; 95% CI= -2.58 to -0.72; p= 0.001).

Employees with a democratic leadership style have the possibility (logodd) to perform well 1.40 units greater than the authoritarian leadership style (b = 1.40; 95% CI = 0.44 to 2.36; p = 0.004).

Employees with an undergraduate / graduate level of education have a (logodd) good performance 1.58 units greater than

employees with a high school / diploma III level of education (b = 1.58; 95% CI = 0.65 to 2.52; p = 0.001).

Employees with a work period of ≥ 6 years have the possibility (logodd) to perform well 1.72 units greater than the tenure of <6 years (b = 1.72; 95% CI = 0.73 to 2.70; p = 0.001).

Employees who do not have additional work have the possibility (logodd) to perform better at 2.05 units than employees with additional work (b = 2.05; 95% CI = 1.07 to 3.03; p<0.001).

Table 5 Multilevel logistic regression analysis on the influence of public health center, work stress and leadership style on the performance of health workers

Independent variables	b	95% CI		P
		Lower limit	Upper limit	
Fixed Effect				
Work Stress (good)	-1.65	-2.58	-0.72	0.001
Leadership Style (democratic)	1.40	0.44	2.36	0.004
Education (≥bachelor)	1.58	0.65	2.52	0.001
Tenure (≥ 6 years)	1.72	0.73	2.70	0.001
Occupational status (no side job)	2.05	1.07	3.03	<0.001
Constanta	-2.45	-3.86	-1.04	0.001
Random Effect				
Public Health Center				
Var (constanta)	0.48	0.06	3.72	
n observation = 200				
Log likelihood= -87.36				
LR test vs. logistic regression, P= 0.09				
ICC= 12.74 %				

DISCUSSION

1. The effect of work stress on work performance

The results of this study indicate that there is a negative influence of work stress on employee performance at the public health center (b= -1.65; 95% CI= -2.58 to -0.72; p= 0.001). Employees with heavy work stress have the possibility (logodds) to perform well -1.65 units lower than employees with mild work stress and are statistically significant.

This is in line with Gharib et al. (2016), on 102 academic staff who showed that moderate or low levels of work stress showed good or increased performance. Job stress is one of the occupational diseases for workers and can affect individuals physically and psychologically which can cause pressure on the individual so that it impacts on employee performance. Stress has a positive effect to some extent that employees can overcome it, if it exceeds the limits of his ability he can have a negative impact on employees (Ahmed and Ramzan, 2013). Support from a leader for employees in completing a job also has an important role, where the lack of support can increase high job stress and have an impact on dissatisfaction in employee performance (Murali et al., 2017).

2. The effect of leadership style on work performance

The results showed a positive influence between leadership style on employee performance at the public health center (b= 1.40; 95% CI= 0.44 to 2.36; p= 0.004). Employees with democratic leadership perceptions have the possibility (logodds) to perform well 1.40 units greater than authoritarian leadership perception.

This is in line with Fitria et al. (2018), which shows that there is a significant relationship between leadership and the performance of public health center employees. Basically, a leader has an important role in influencing one's performance. Leadership has an important role in the sustainability of an organization, where good leadership leads to better performance and achievement of goals. Poor performance can be caused by one factor that is the leadership style of unsuccessful leaders (Shah et al., 2016).

The democratic leadership style also known as the participative leadership style encourages its employees to participate in the decision making process in the organization. A democratic leadership style enables an organization to get the full benefit when implementing it in its organization where

management excellence is better employee performance (NawoseIng'ollan and Roussel, 2017).

3. Effect of education on work performance

The results of this study indicate that there is a positive influence on the level of education on employee performance at the public health center ($b = 1.58$; 95% CI = 0.65 to 2.52; $p = 0.001$). Employees with an undergraduate / graduate level have a (logod) good performance 1.58 units greater than employees with diploma III level. This is in line with Miranti et al. (2016), which states that the variable level of education has a significant influence on employee performance. With the increase in the level of education of its employees, it will also be followed by a significant increase in employee performance. Kiram (2014) states that some stressors experienced by public health center employees are work incompatibility with employee education. With inappropriate education with the program it is his responsibility to cause the work carried out is not optimal.

Education is an attempt by a person or group of people to grow up or reach a level of life or obtain a higher income. Employee performance is influenced by the level of education where higher education is able to produce a quality workforce and have a progressive mindset (Juliani, 2017). According to Abdulrahmon et al. (2018), shows that education significantly influences employee performance. Employees with higher educational qualifications show better job performance. The relationship between education level and performance in addition to positively influencing the performance of core tasks, education level is also related to increasing employee creativity (Hassan and Ogunkoya, 2014).

4. Effect of tenure on work performance

The results of this study indicate that there is a positive effect on the length of service of

employees on the performance of employees at the health center ($b = 1.72$; 95% CI = 0.73 to 2.70; $p = 0.001$). Employees with a service period of ≥ 6 years have a possibility (logod) to perform well 1.72 units greater than employees with tenure < 6 years and are statistically significant.

According to the Miranti et al. (2016), shows that tenure has a positive influence on employee performance. With an increase in work tenure, it will also be followed by a significant increase in work productivity. Employees who have experience in the workplace are more accustomed to those who are younger, non-experience or fresh graduates. Employees are accustomed to work pressure, work culture and work ethics applied in the workplace.

5. Effect of Job Type on Employee Performance

The results of this study indicate that there is a positive influence on the work type of employees on employee performance in health centers ($b = 2.05$; 95% CI = 1.07 to 3.03; $p < 0.001$). Employees without additional work have the possibility (logod) to perform better at 2.05 units than employees with additional work and the effect is statistically significant.

According to Widiанти (2018), there are still employees at the public health center who are placed not in accordance with their main tasks and functions. According to Rajan (2018), the existence of additional types of work delegated to employees outside their core duties resulted in excessive workload. High workload has an impact on employee health and if it lasts longer can affect employee performance. Weight loss, fatigue, and stress are effects that are often felt. The workload in addition to influencing health also affects the behavior, job satisfaction, commitment, family relationships, and social life of its employees. Another opinion in Kiram (2014), states that some employees at

the public health center feel that there is a lack of workforce which causes more work to be done which makes the workload of each employee heavier.

AUTHOR CONTRIBUTION

Nia Handayani conducted all stages of the study and wrote the paper. Didik Gunawan Tamtomo was instrumental in developing ideas, study designs, and hypotheses. Bhisma Murti has a role in preparing the study framework, processing data analysis, representing the results.

CONFLICT OF INTEREST

There was no conflict of interest.

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