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Research

Contextual Effect of Community Health Center and Sosio-Demography Determinants on the Performance of Community Health Personnel in Karanganyar, Central Java

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ABSTRACT

Background: Community Health Center is a first-level health service facility that organizes public health efforts and individual health efforts. Good health service is supported by work performance of the health personnel. This study aimed to analyze the contextual effect of community health center and socio determinants on the work performance of health personnel.

Subjects and Method: This was a cross sectional study conducted at Karanganyar community health centers, in Karanganyar, Central Java, from October to November 2019. A sample of 210 health workers was selected randomly. The dependent variable was work performance. The independent variables were age, education, tenure, distribution of services, work motivation, job skills, job satisfaction, health center accreditation status, and work environment. Data were collected by questionnaire and analyzed by a multilevel multiple logistic regression run on Stata 13.

Results: Good work performance increased with age ≥38 years (b= 1.09; 95% CI= 0.19 to 1.99; p= 0.018), adequate service (b= 0.96; 95% CI= -0.28 to 2.19; p= 0.128), high motivation (b= 0.93; 95% CI= 0.09 to 1.77; p= 0.030), good job skills (b= 0.97; 95% CI= 0.06 to 1.88; p= 0.037), good job satisfaction (b= 0.92; 95% CI= 0.05 to 1.78; p= 0.037), and good working environment (b= 0.95; 95% CI= 0.11 to 1.80; p= 0.026). Good work performance decreased with education ≥Diploma III (b= -0.40; 95% CI= -1.67 to 0.87; p= 0.535) and tenure ≥3 years (b= -0.71; 95% CI= -1.79 to 0.37; p= 0.199). Community health center had strong contextual effect on work performance with ICC= 18.00%.

Conclusion: Good work performance increases with age ≥38 years, adequate service, high motivation, good job skills, good job satisfaction, and good working environment. Good work performance decreases with education ≥Diploma III and tenure ≥3 years. Community health center has strong contextual effect on work performance

Keywords: work performance, health workers, contextual effect, multilevel analysis

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BACKGROUND

Community Health Centers are health service facilities that carry out public health efforts and first-level individual health efforts, prioritizing promotive and preventive efforts, to achieve the highest level of public health in the working area (Ministry of Health, 2014).

In carrying out these tasks and functions, community health center must carry out community health center management effectively and efficiently. The quality health center management cycle is a series of ongoing routine activities, carried out in the implementation of various quality health efforts, which must be monitored regularly, monitored and controlled at all times, so that their performance can be fixed and improved in one cycle of "Plan-Do-Check-Action (PDCA)". To ensure that the quality management cycle of the community health center runs effectively and efficiently, a community health center Management Team is established. This team can also function as a responsible person for quality management at the community health center. The team consists of the person in charge of the health effort at the community health center and is fully supported by their respective implementing community health personnel. The team is responsible for achieving the performance targets of the community health center, through the implementation of quality health efforts (Ministry of Health, 2016).

Community Health Center Performance Assessment is an objective and systematic process in gathering, analyzing and using information to determine how effectively and efficiently Community health center services are provided, as well as targets achieved as an assessment of Community health center work/ achievements. The community health center Performance Assessment is carried out by the community health center and then the results of the assessment will be verified by the district or city health office (Ministry of Health, 2016).

Karanganyar has 21 community health centers spread throughout the district. Based on the Karanganyar Regent Decree No. 440/ 1166 in 2018 regarding the establishment of the Community Health Center Technical Implementation Unit in Karanganyar District Health Office, out of 21 community health center consisting of 15 inpatient community health center and 6 inpatient community health center, 10 urban community health center and 11 rural community health center. There are 21 health centers in Karanganyar and all of them have been accredited starting from basic accredited status to main accredited. At present, there are no community health center with plenary accreditation status (Karanganyar Health Office, 2018). The achievement target of community health center accreditation at the Karanganyar District Health Office is at least have the main strata (Karanganyar Health Office, 2018).

Based on the Strategic Plan (Renstra) of the Karanganyar District Health Office, that the minimum primary health center accreditation and the achievement of the Health Center Performance Assessment (PKP) is at least good, both of them have not yet been achieved. The achievement of community health center performance and community health center accreditation is inseparable from the performance of the personnel working in it. Worker productivity has a positive effect on organizational performance at the Bank of Russia (Prosvirkina, 2015).

Based on the description above, it is important to conduct this study in order to analyze the contextual effect of community health center and socio demographic determinants on the performance of community health personnel in Karanganyar District Health Office.

SUBJECTS AND METHOD

1. Study Design

This was an analytic observational study with a cross-sectional design. The study was conducted at community health centers in

Karanganyar, Central Java, from October to November 2019.

2. Population and Sample

The source population in this study were all community health personnel in Karanganyar. The study subjects in this study were some of the community health personnel who worked at the community health center in Karanganyar from October to November 2019. A sample of 210 health personnel was selected by a simple random sampling.

3. Study Variables

The dependent variable was the performance of community health personnel, while the independent variables are age, education, years of service, distribution of service, work motivation, job skills, job satisfaction, health center accreditation status and work environment.

4. Operational Definition of Variables

Community health personnel's performance was the result or overall success rate of community health personnel during a certain period in carrying out their duties as a community health personnel. The data were collected by questionnaire. The measurement scale was continous, but for the purposes of data analysis, it was transformed into dichotomous.

Age was the time (year) from the respondent's birth as stated on the identity card until the study as conducted. The data were collected by questionnaire. The measurement scale was continous, but for the purposes of data analysis, it was transformed into dichotomous.

Education was the last level of education taken by community health personnel based on their last diploma. The data were collected by questionnaire. The measurement scale was categorical.

Tenure was the period of time the community health personnel have worked at the community health center, from the first day the community health personnel worked until the study was conducted. The data were collected by questionnaire. The measurement scale was continous, but for the purposes of data analysis, it was transformed into dichotomous.

Service distribution was a pattern of service distribution that applies at the community health center as a basis for distributing services to the community health personnel. The data were collected by questionnaire. The measurement scale was categorical.

Work motivation was the encouragement or enthusiasm of the respondents to do health services at the community health center. The data were collected by questionnaire. The measurement scale was continous, but for the purposes of data analysis, it was transformed into dichotomous.

Job skills were the ability of community health personnel to carry out stages of work in accordance with prevailing procedures. The data were collected by questionnaire. The measurement scale was continous, but for the purposes of data analysis, it was transformed into dichotomous.

Work environment was the condition of the health center environment where the community health personnel work. The data were collected by questionnaire. The measurement scale was continous, but for the purposes of data analysis, it was transformed into dichotomous.

Job satisfaction was a statement of the community health personnel in carrying out the duties as mandated by him. The data were collected by questionnaire. The measurement scale was continous, but for the purposes of data analysis, it was transformed into dichotomous.

Community health center accreditation status was the result of accreditation assessment by the first-level health facility accreditation commission owned by community health center in the last year.

The data were collected by questionnaire. The measurement scale was categorical.

5. Data Analysis

Univariate analysis, the characteristics of continuous data samples were described using parameters n, mean, SD, minimum and maximum. Whereas the categorical data sample was described in parameters n and percentage.

Bivariate analysis, the percent difference of several groups was tested with Chi-Square.

Multivariate analysis in this study used multiple logistic regression analysis and multilevel analysis with the STATA 13 model. The multilevel model provides a strong technical framework that can be used to analyze the correlation properties of variables and were relevant when predictor variables were measured simultaneously. Multilevel analysis at the first level was on the characteristics of individuals and community health center at the second level.

6. Research Ethics

Research ethics included informed consent, anonymity, confidentiality, and ethical clearance. This study obtained ethical approval from the Health Research Ethics Commission, Faculty of Medicine, Universitas Sebelas Maret, based on decision letter number: 359/UN.27.6/ KEPK/2018.

RESULTS

1. Univariate Analysis

Univariate analysis of continuous data was identified based on the age of the age, education, years of service, motivation, service, work environment, job skills, job satisfaction, and the performance of the health personnel. Continuous data were described in n, mean, SD, minimum, and maximum (Table 1).

Table 1. Results of univariate analysis (continous data)

Characteristics	n	Mean	SD	Minimum	Maximum
Age	210	38.95	9.81	18	57
Education	210	3.23	0.68	1	5
Years of service	210	13.40	10.06	1	35
Motivation	210	4.79	1.02	2	6
Service	210	2.36	0.67	1	3
Work environment	210	17.44	2.44	10	21
Job skills	210	17.39	2.71	7	24
Job satisfaction	210	16.50	3.07	6	20
Performance	210	10.35	1.74	4	12

Univariate analysis of categorical data was identified based on age, education, tenure, motivation, services, work environment, skill, satisfaction, and performance. Univariate analysis of categorical data was described in frequency (n) and % (Table 2).

2. Bivariate Analysis

Table 3 shows that there is a correlation between education and community health personnel's performance. The level of the health personnel's education >Diploma III had the possibility to perform well 1.06 times compared to those with education <Diploma IIII.

There was a correlation between years of service and the performance of health personnel. Community health personnel who had tenure ≥3 years had the possibility to perform well 0.57 times compared to those who had tenure <3 years.

There was a correlation between service and health personnel's performance. Community health personnel who obtain adequate services had the possibility to

perform well 2.73 times compared to those who receive poor services.

There was a correlation between job skills and performance of health personnel. Community health personnel who have good job skills had the possibility to perform well 3.23 times compared to those who had poor job skills.

There was a correlation between motivation and community health personnel's performance. Community health personnel who had high motivation have the possibility to perform well 3.34 times compared to those who had less motivation.

There was a correlation between job satisfaction and employee performance. Community health personnel who had good job satisfaction have the possibility to perform well 2.96 times compared to those who had less job satisfaction.

There was a correlation between the work environment and the performance of officers. Community health personnel who had a good work environment had the possibility to perform well 3.86 times compared to those who had a poor work environment.

Table 2. Results of univariate analysis (categorical data)

Characteristics	Frequency (n)	Percentage (%)
Age		
<38 years	98	46.67
≥38 years	112	53.33
Education		
<Diploma III	23	10.95
≥Diploma III	187	89.05
Tenure		
<3 years	57	27.14
≥3 years	153	72.86
Motivation		
Poor	82	39.05
Good	128	60.95
Service		
Not as expected	22	10.48
As expected	188	89.52
Work environment		
Poor	73	34.76
Good	137	65.24
Job Skills		
Unskilled	57	27.14
Skilled	153	72.86
Job Satisfaction		
Unsatisfied	78	37.14
Satisfied	132	62.86
Performance		
Poor	47	22.38
Good	163	77.62

3. Multivariate Analysis

Table 4 shows that community health personnel with age ≥38 years had a good performance 1.09 units greater than those with age <38 years (b= 1.09; 95% CI= 0.19 to 1.99; p= 0.018).

Community health personnel with education ≥Diploma III had a good performance 0.40 units greater than those with

education <Diploma III (b= -0.40; 95% CI= -1.67 to 0.87; p= 0.535). Community health personnel with tenure ≥3 years had a good performance of 0.71 units higher than those with years of service <3 years (b= -0.71; 95% CI = -1.79 to 0.37; p= 0.199).

Table 3. Bivariate analysis results

Independent Variables	Work Performance				Total		OR	p
	Poor		Good					
	n	%	n	%	n	%		
Age								
<38 years old	27	27.6	71	72.4	98	100	1.75	0.093
≥38 years old	20	17.9	92	82.1	112	100		
Education								
<Diploma III	7	30.4	16	69.6	23	100	1.06	0.326
≥Diploma III	40	21.4	147	78.6	187	100		
Tenure								
< 3 years	9	15.8	48	84.2	57	100	0.57	0.162
> 3 years	38	24.8	115	75.2	153	100		
Service								
Inadequate	9	40.9	13	59.1	22	100	2.73	0.028
Adequate	38	20.2	150	79.8	188	100		
Job skills								
Poor	22	36.6	35	61.4	57	100	3.23	0.001
Good	25	16.3	128	83.7	153	100		
Motivation								
Weak	29	35.4	53	64.6	82	100	3.34	<0.001
Strong	18	14.1	110	85.9	128	100		
Job satisfaction								
Low	27	34.6	51	65.4	78	100	2.96	0.001
High	20	15.2	112	84.8	132	100		
Work environment								
Poor	28	38.4	45	61.6	73	100	3.86	<0.001
Good	19	13.9	118	86.1	137	100		

Community health personnel who got adequate services had a good performance 0.96 units higher than those who got less services (b= 0.96; 95% CI= -0.28 to 2.19; p= 0.128).

Community health personnel with strong motivation had a good performance 0.93 units higher than those with weak motivation (b= 0.93; 95% CI= 0.09 to 1.77; p= 0.030).

Community health personnel with good skills had a good performance 0.97 units higher than those with poor skills (b= 0.97; 95% CI= 0.06 to 1.88; p= 0.037).

Satisfied health personnel had a good performance 0.92 units higher than unsatisfied health personnel (b= 0.92; 95% CI= 0.05 to 1.78; p= 0.037).

Community health personnel with good working environment have good performance 0.95 units greater than those with poor work environment (b= 0.95; 95% CI= 0.11 to 1.80; p= 0.026).

There was a contextual effect of community health center on the performance of community health personnel. Table 4 shows the ICC value = 18.00%. This means that 18.00% of the variation in the performance of community health personnel is determined by variables in the community health center.

Table 4. Results of multilevel logistic regression analysis

Independent Variables	Multilevel Regression Coefficient (b)	95% CI		p
		Lower Limit	Upper Limit	
Fixed effect				
Age (≥38 years)	1.09	0.19	1.99	0.018
Education (≥Diploma III)	-0.40	-1.67	0.87	0.535
Years of service (> 3 years)	-0.71	-1.79	0.37	0.199
Services (adequate)	0.96	-0.28	2.19	0.128
Motivation (high)	0.93	0.09	1.77	0.030
Job Skills (good)	0.97	0.06	1.88	0.037
Job satisfaction (good)	0.92	0.05	1.78	0.037
Work environment (good)	0.95	0.11	1.80	0.026
Constanta	0.79			
Random Effect				
Community Health Centre				
Var (Constanta)	0.79			
n observation= 210				
Log likelihood= -87.66				
LR test vs. Logistic Regression p = 0.012				
Intraclass Correlation (ICC)= 18.00%				

DISCUSSION

1. The Effect of Community Health Personnel Age on Performance

The results of multilevel logistic regression analysis showed that there was an effect of the age of the community health personnel on the performance of the health center community health personnel and statistically significant. Community health personnel with age ≥38 years have a good performance 1.09 units greater than those with age <38 years (b = 1.09; 95% CI = 0.19 to 1.99; p = 0.018).

The results of this study are in line with studies conducted by Odhiambo et al. (2018) which stated that there is a positive and statistically significant correlation between age diversity and the performance of State University employees in Western Kenya.

Age is the length of time of life or since birth. Age also affects a person's psychology which at a young age often causes tension, confusion, anxiety and fear so that it can affect his behavior. Usually, the more mature, the more likely it is to get away from it and the more knowledgeable the real problem. The more you age, the more experience you get, so that you can increase your mental and intellectual maturity so you can make wise decisions in action (Harahap, 2018).

At the age of 25-44 years, a person has established himself in the work he has chosen and is no longer interested in changing jobs if he is not in a pressured condition. Whereas at the age of 45-60 years, a person (employee) begins to pursue and increase the occupational or task quality and responsibilities entrusted by the institution or organization where he works (Harahap, 2018). Older workers are best suited to support production strategies that focus on quality, but there are obstacles to adopting manufacturing technology (Thun et al., 2007).

2. The Effect of Education on the Performance of Community Health Personnel

The results of the multilevel logistic regression analysis showed that there was an effect of the education of the community

health personnel on the performance of the health center officers, but statistically it was not significant. Community health personnel with education ≥Diploma III have a good performance 0.40 units lower than community health personnel with education < Diploma III (b= -0.40; 95% CI= -1.67 to 0.87; p= 0.535).

The results of this study are also supported by study Harmiyati et al. (2016) which stated that there is no correlation between individual characteristics (age, sex, marital status and education) with the performance of nurses in Community health center in Palembang City.

Education is so important because education becomes a basic requirement for companies that will accept someone to work or occupy certain positions according to their level of education. Many companies accept job applicants with a higher level of education, job applicants with higher education can get jobs in accordance with their education and job applicants with low education increasingly narrow to be able to get a job in accordance with the level of education. Human resources or employees occupying certain positions in the organization are sometimes not because of their abilities, but because of the formations that exist in the company, so that new employees need additional capabilities they need. The level of employee education does not guarantee the ability to improve performance (Mandang, 2017).

3. The Effect of Years of Service on the Performance of Community Health Personnel

The results of the multilevel logistic regression analysis showed that there was an effect of the length of service of the community health personnel on the performance of community health center officers, but not statistically significant. Community health personnel with tenure ≥3 years have a good performance 1.71 units lower than community health personnel with tenure <3 years (b = -0.71; 95% CI = -1.79 to 0.37; p = 0.199).

The results of this study are supported by a study conducted by Apriliyanti (2017) which stated that there is no correlation between work tenure and the performance of employees of PT. OASIS Water Indonesia, Palembang Branch. This is also in line with study conducted by Damingun (2018) that the length of service does not significantly effect the performance of the Rector of Mulawarman University Samarinda. This is also in line with the study stated by Fachri and Zaenudin (2018) that work period does not significantly affect the work ethic of freelance daily workers in the City of Pontianak Sanitation and Parks Department.

Work period is the period of time or the length of time that the worker works in a place. The length of a person's work can be related to the experience gained at work (Harahap, 2018). A person's experience of carrying out his work continuously is able to increase his technical maturity. The longer the working period of a work, the skills and ability to do work should increase (Apriliyanti, 2017).

In this study, the working period had no significant effect on performance due to the thin range of work periods, which was between <3 years and ≥3 years, so that community health personnel still had almost the same experience and skills.

4. The Effect of Services on The Performance of Community Health Personnel

The results of multilevel logistic regression analysis showed that there was an effect of the services of community health personnel on the performance of community health personnel and were statistically significant. Community health personnel who get

enough services have good performance 0.96 units greater than community health personnel who get less services (b = 0.96; 95% CI = -0.28 to 2.19; p = 0.128).

The results of this study are also supported by Putri and Pribadi (2018) which stated that services have a significant effect on the performance of health workers. A study conducted by Kim and Jang (2020) stated that increasing incentives can improve employee performance in restaurant companies in the USA.

5. The Effect of Motivation on The Performance of Community Health Personnel

The results of multilevel logistic regression analysis showed that there was an effect of community health personnel's motivation on the performance of community health personnel and was statistically significant. Community health personnel with good motivation have good performance 0.93 units greater than community health personnel with less motivation (b= 0.93; 95% CI= 0.09 to 1.77; p= 0.030).

This study is in line with a study conducted by Pang and Lu (2018) which stated that motivation (remuneration and work dimensions) has a positive impact on performance (dimensions of return on assets, asset growth and profitability) in container shipping companies in Taiwan. A study conducted by Eide et al. (2020) also stated that the personal motivation of leaders influences leadership behavior and the company's sustainability strategy in Norway.

6. The Effect of Job Skills on The Performance of Community Health Personnel

The results of the multilevel logistic regression analysis showed that there was an effect of the job skills of the community health personnel on the performance of community health personnel and were statistically significant. Community health personnel with good job skills have good performance 0.97 units greater than community health personnel with less job skills (b= 0.97; 95% CI = 0.06 to 1.88; p = 0.037).

The results of this study are supported by a study by Hanafi and Ibrahim (2018) which stated that there is a positive and significant correlation between job skills and the performance of telecommunications employees in Sudan. Skills are skills or skills to do a job that is only obtained from practice, both through practice and through experience (Maringan et al., 2016). Improving the quality and access to high-level skills training can greatly improve worker performance (Cookey and Janamm, 2017).

7. The Effect of Job Satisfaction on the Performance of Community Health Personnel

The results of the multilevel logistic regression analysis showed that there was an effect of job satisfaction of community health personnel on the performance of community health personnel and was statistically significant. Community health personnel who said they were satisfied in doing work had a good performance 0.92 units greater than those who said they were not satisfied (b= 0.92; 95% CI= 0.05 to 1.78; p= 0.037).

This study is in line with a study by Khan et al. (2012) that the job satisfaction of health workers has a significant effect on the performance of health workers in Pakistan. In this study aspects of job satisfaction such as salary, promotion, work safety and security, relations with colleagues, working conditions, relations with superiors and the nature of work affect the performance of health workers in autonomous institutions in Pakistan. A study conducted by Inuwa (2016) stated that there is a positive and significant correla-

tion between job satisfaction and the performance of non-academic health personnel at Bauchi State University Gadau Nigeria.

8. The Effect of Work Environment on The Performance of Community Health Personnel

The results of the multilevel logistic regression analysis showed that there was an effect of the work environment of the community health personnel on the performance of community health personnel and was statistically significant. Community health personnel with good working environment have a large performance of 0.95 units greater than community health personnel with less working environment (b = 0.95; 95% CI = 0.11 to 1.80; p = 0.026).

This study is in line with a study by Abdullah (2019) that the workforce health environment significantly influences employee performance at J&K Hospital's India. Better working environment conditions will improve employee performance at the hospital. A study conducted by Anastasios and Mufti (2019) stated that the environment and management support have a strong impact on the work performance of companies in Greece.

9. The Effect of Contextual Community Health Center on Patients' Satisfaction

Multilevel analysis results show that the ICC= 18.00%, the indicator shows that the variation of the characteristics of each community health center has a contextual effect on the performance of officers.

The results of this study are in line with a study conducted by Kurniawan et al. (2019) which stated that variations in the characteristics of each community health center have a contextual effect on variations in patient satisfaction (ICC = 13.03%). The contextual effect (accreditation) of each community health center influencing the quality of health services was also stated by Ghareeb et al. (2018).

AUTHOR CONTRIBUTION

Mujiran collected the data and wrote the scripts of the study. Setyo Sri Raharjo compiled the results of the study and provided material in the discussion. Bhisma Murti developed the ideas, designed the study and conducted data analysis

CONFLICT OF INTEREST

This study was funded independently by the author.

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There was no conflict of interest.

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