

Contextual Effect of the Integrated Non-Communicable Disease Health Post on the Performance of Community Health Workers: A Multilevel Analysis Evidence from Karanganyar, Central Java

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ABSTRACT

Background: Epidemiological transition is causing a shift from Communicable to Non-Communicable Diseases (NCD). NCD is a serious threat because it impacts decreasing productivity and increasing economic and social burdens for the community. The control of NCD risk factors in Indonesia is carried out by empowering the community through the Integrated Non-Communicable Diseases Health Post (Posbindu NCD). One of the important factors determining the success of implementing Posbindu is the role of cadres. This study aims to analyze the factors that affect the performance of Posbindu cadres.

Subjects and Method: This was an analytic observational study with a cross-sectional design. The study was conducted in 25 posbindus in Karanganyar, Central Java, from February to April 2020. A sample of 200 cadres from 25 cadres was selected by stratified random sampling. The dependent variable was the performance of the Posbindu cadres. The independent variables were training, ability, length of employment, motivation, the leadership of the Posbindu chairman, social network support and appreciation. Data were analyzed using multilevel logistic regression with Stata 13.

Results: Job performance increased with training ($b = 1.75$; 95% CI= 0.28 to 3.22; $p = 0.019$),

good ability ($b = 2.50$; 95% CI= 0.95 to 4.04; $p = 0.002$), tenure ≥ 1 year ($b = 1.99$; 95% CI= 0.05 to 3.92; $p = 0.044$), strong motivation ($b = 2.57$; 95% CI= 1.25 to 3.89; $p < 0.001$), good leadership of Posbindu chairman ($b = 1.73$; 95% CI= 0.44 to 3.03; $p = 0.009$), and strong social network support ($b = 1.24$; 95% CI= 0.14 to 2.34; $p = 0.028$). Incentive increased job performance, but it was statistically non-significant ($b = 1.19$; 95% CI= -0.35 to 2.73; $p = 0.132$). Posbindu had a strong contextual effect on job performance with an ICC of 62.73%.

Conclusion: Job performance increases with training, good abilities, tenure ≥ 1 year, strong motivation, good leadership of Posbindu chairman, strong social network support, and appropriate incentives. Posbindu has a strong contextual effect on job performance.

Keywords: performance, cadre, non-communicable disease

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BACKGROUND

Non-Communicable Diseases (NCD) is the cause of death for 41 million people every year or equivalent to 71% of deaths worldwide, 32 million (78%) of which occur in low-

and middle-income countries (WHO, 2018). Indonesia is currently facing an epidemiological transition that has led to a shift in disease from infectious diseases to NCD (Ministry of Health, 2019). The prevalence of

NCD based on the results of the Basic Health Research (Riskesmas) in 2018 has increased compared to the 2013 Riskesdas. The prevalence of cancer increased from 1.4% to 1.8%, chronic kidney disease from 2% to 3.8%, and stroke prevalence from 7% to 10.9%. Based on the examination of blood sugar, diabetes rose from 6.9% to 8.5%. From the blood pressure measurements, hypertension rose from 25.8% to 34.1% (Ministry of Health, 2019).

Increased morbidity and mortality due to NCD is a serious threat because it impacts the economic and social burden on the community (Ministry of Health, 2014).

NCD's macroeconomic impact is very large because it causes loss of productivity and a decrease in Gross Domestic Product (Kundu et al., 2018). In Indonesia, NCD risk factor control is carried out by engaging community participation through the Integrated Development Post (Posbindu) (Ministry of Health, 2014). One of the important factors determining the success of implementing Posbindu is the role of cadres. Posbindu cadres are at the forefront of change agents in preventing and controlling NCD (Ministry of Health, 2019). Fuadah (2018) stated that cadres' participation is needed to further socialize Posbindu to the community. This is in accordance with a study conducted by Sari and Savitri (2018), which stated that cadres' role is the most dominant factor in the use of Posbindu. Rusdiyanti (2018) concluded that cadres' role has the greatest effect on the activeness of community visits to Posbindu. Jeet et al. (2017) stated that cadres' role in health can be effective in developing countries, especially in controlling smoking behavior, blood pressure, and diabetes.

The performance of Posbindu cadres has a strategic function because Posbindu agendas depend on the role of cadres in carrying out their duties and obligations. The Posbindu cadres' performance is important

to research to optimize the implementation and use of Posbindu by the community.

SUBJECTS AND METHOD

1. Study Design

This was an analytic observational study with a cross-sectional design. The study was conducted at 25 Posbindu, Karanganyar, Central Java, from February to April 2020.

2. Population and Sample

The population was all Posbindu cadres in the Karanganyar Regency, Central Java. A sample of 200 cadres was selected by stratified random sampling.

3. Study Variables

This study's variables included the dependent variable and independent variables. The dependent variable was job performance of Posbindu cadres and the independent variables were training, ability, length of employment, motivation, the leadership of the Posbindu chairman, social network support, and rewards.

4. Operational Definition of Variables

Job performance was the work of Posbindu cadres in doing their jobs. Data collection used was a questionnaire. The measurement scale was continuous, but for analysis, the data was converted into a dichotomy.

Training was an activity to improve the knowledge and technical skills of Posbindu cadres. Data collection used a questionnaire. The measurement scale was continuous, but for analysis, the data was converted into a dichotomy.

Ability was the Posbindu cadres' ability to measure NCD risk factors, including measuring height, abdominal circumference, body fat, and checking blood pressure. Data collection used a questionnaire. The measurement scale was continuous, but for analysis, the data was converted into a dichotomy.

Length of employment was a period as a Posbindu cadre, stated in years. Data were collected using a questionnaire. The mea-

surement scale was continuous, but for analysis, the data was converted into a dichotomy.

The motivation was a work motivation that arises in cadres to provide services in Posbindu. Data were collected using a questionnaire. The measurement scale was continuous, but for analysis, the data was converted into a dichotomy.

Appreciation was a reward/remuneration given to cadres for their performance. Data were collected using a questionnaire. The measurement scale was continuous, but for analysis, the data was converted into a dichotomy.

Leadership was the leader (chairman of Posbindu) to regulate and manage cadres (members) to carry out the assigned tasks and responsibilities. Data were collected using a questionnaire. The measurement scale was continuous, but for analysis, the data was converted into a dichotomy.

Social network support provided encouragement, enthusiasm, or attention from community leaders and stakeholders to Posbindu activities. Data were collected using a questionnaire. The measurement scale was continuous, but for analysis, the data was converted into a dichotomy.

5. Data Analysis

Univariate analysis was used to describe each variable. Continuous data were presented with mean, standard deviation, minimum and maximum values, while categorical data were presented as percentages. The bivariate analysis described the effect of one independent variable on one dependent variable. Meanwhile, multivariate analysis explained the effect of more than one independent variable on the dependent variable. The method used was multilevel multiple logistic regression with the STATA 13 program.

6. Research Ethic

This research was conducted with due observance of the basic principles of research ethics and has obtained ethical feasibility from the Health Research Ethics Commission of Dr. Moewardi Surakarta with Number: 326/II/HREC/2020 in February 17, 2020.

RESULTS

1. Sample Characteristics

This study involved 200 cadres from 25 Posbindu in Karanganyar Regency. The study subjects had an average age of 41.69 years, with an average length of employment of 3.01 years. The characteristics of the continuous and categorical data samples are described in Tables 1 and 2.

Variable	(n)	Mean	SD	Minimal	Maximal
Age (year)	200	41.69	10.61	16	67
Length of employment (year)	200	3.01	2.57	0.25	11
Training	200	1.77	0.56	0	2
Motivation	200	13.59	3.22	4	18
Appreciation	200	1.17	1.02	0	4
Posbindu chairman’s leadership	200	17.09	1.46	9	18
Social network support	200	5.53	1.49	3	8
Ability	200	24.14	3.00	13	26
Performance	200	36.66	2.06	30	38

Table 2 shows that as many as 111 cadres (55.50%) were in the age ≥ 40 years, 151 cadres (75.50%) were highly educated (\geq Senior High School), 73 cadres (36.50%) worked outside the home, as many as 168

cadres (84.00%) had attended training Posbindu, 145 cadres (72.50%) had good abilities, 172 cadres (86.00%) with a length of employment ≥ 1 year, 138 cadres (69.00%) had strong motivation, 126 cadres (63.00%)

received good appreciation, 125 cadres (62.50%) with good leadership of Posbindu chairman, 109 cadres (54.50%) thought that

Posbindu had good social network support. As many as 121 cadres (60.50%) had a good performance.

Table 2. Characteristics of categorical data samples

Characteristics	n	%
Age		
a. < 40 years	89	44.50
b. ≥ 40 years	111	55.50
Education		
a. Low (< Senior High School)	49	24.50
b. High (≥ Senior High School)	151	75.50
Occupation		
a. Inside a house	127	63.50
b. Outside a house	73	36.50
Training		
No	32	16.00
Yes	168	84.00
Ability		
Poor	55	27.50
Good	145	72.50
Length of employment		
< 1 year	28	14.00
≥ 1 year	172	86.00
Motivation		
Weak	62	31.00
Strong	138	69.00
Appreciation		
Poor	74	37.00
Good	126	63.00
Posbindu Chairman’s Leadership		
Poor	75	37.50
Good	125	62.50
Social Network Support		
Weak	91	45.50
Strong	109	54.50
Performance		
Weak	79	39.50
Strong	121	60.50

2. The result of bivariate analysis

The bivariate analysis results showed that cadres who had attended Posbindu training had 2.25 times the possibility of performing well compared to cadres who had never attended Posbindu training (OR= 2.25; 95% CI= 0.98 to 5.26; p= 0.034). Cadres with good abilities were 8.25 times more likely to perform well than cadres with less ability (OR= 8.25; 95% CI= 3.85 to 18.09; p

<0.001). Cadres who have worked ≥1 year have a probability of performing well 3.94 times than cadres with a length of employment <1 year (OR= 3.94; 95% CI= 1.57 to 10.46; p= 0.001). Cadres with strong motivation likely to have good performance 5.73 times compared to cadres with weak motivation (OR= 5.73; 95% CI= 2.85 to 11.64; p <0.001). Cadres who get good appreciation have the possibility to perform well 1.83

times compared to cadres with less appreciation (OR= 1.83; 95% CI= 0.98 to 3.42; p= 0.043). Cadres with good leadership from the Posbindu chairman have a probability of performing well 3.32 times than cadres with poor leadership of Posbindu chairman (OR=

3.32; 95% CI= 1.74 to 6.32; p <0.001). Cadres with strong social network support were likely to perform well 3.69 times than cadres with weak social network support (OR= 3.69; 95% CI= 1.95 to 7.01; p <0.001).

Table 3. The results of the bivariate analysis of the determinants of the performance of Posbindu cadres in Karanganyar Regency

Independent Variable	Posbindu cadres job performance				OR	95% CI		P
	Poor		Good			Lower limit	Upper limit	
	n	%	n	%				
Training								
Never	18	56.25	14	43.75	2.25	0.98	5.26	0.034
Ever	61	36.31	107	63.69				
Ability								
Poor	41	74.55	14	25.45	8.25	3.85	18.09	<0.001
Good	38	26.21	107	73.79				
Tenure								
< 1 year	19	67.86	9	32.14	3.94	1.57	10.46	0.001
≥ 1 year	60	34.88	112	65.12				
Motivation								
Weak	42	67.74	20	32.26	5.73	2.85	11.64	<0.001
Strong	37	26.81	101	73.19				
Appreciation								
Poor	36	48.65	38	51.35	1.83	0.98	3.42	0.043
Good	43	34.13	83	65.87				
Leadership								
Poor	43	57.33	32	42.67	3.32	1.74	6.32	<0.001
Good	36	28.80	89	71.20				
Social Support								
Weak	51	56.04	40	43.96	3.69	1.95	7.01	<0.001
Strong	28	25.69	81	74.31				

3. The result of multivariate analysis

The multivariate analysis results showed that cadres who had attended the Posbindu training had a logodd (probability) to perform well 1.75 units higher than cadres who had never attended the training (b= 1.75; 95% CI= 0.28 to 3.22; p= 0.019). Cadres with good abilities had a logodd (probability) to perform well 2.50 units higher than cadres with less ability (b= 2.50; 95% CI= 0.95 to 4.04; p= 0.002). Cadres with length of employment ≥1 year had a logodd (probability) to perform well 1.99 units higher than cadres with length of employment <1 year (b= 1.99; 95% CI= 0.05 to 3.92; p= 0.044). Cadres

with strong motivation had a logodd (probability) to perform well 2.57 units higher than cadres with weak motivation (b= 2.57; 95% CI= 1.25 to 3.89; p <0.001). Cadres with good appreciation have logodd (possibility) to perform well 1.19 units higher than cadres with less appreciation. However, it was not statistically significant (b= 1.19; 95% CI= - 0.35 to 2.73; p= 0.132). Cadres with good leadership of Posbindu chairman have logodd (probability) to perform well 1.73 units higher than cadres with poor leadership of Posbindu chairman (b= 1.73; 95% CI= 0.44 to 3.03; p= 0.009). Cadres with strong social network support had logodd (probability) to

perform well 1.24 units higher than cadres with weak social network support (b= 1.24; 95% CI= 0.14 to 2.34; p= 0.028). Posbindu had a strong contextual effect on cadre per-

formance, with an ICC value of 62.73%. This meant that the cadres' performance variation was 62.73%, determined by the variables at the Posbindu level.

Table 4. The results of multilevel logistic regression analysis of the performance of Posbindu cadres determinants in Karanganyar Regency

Independent Variables	b	95% CI		p
		Lower limit	Upper limit	
Fixed effect				
Training (have attended)	1.75	0.28	3.22	0.019
Ability (good)	2.50	0.95	4.04	0.002
Length of Employment (≥ 1 year)	1.99	0.05	3.92	0.044
Motivation (strong)	2.57	1.25	3.89	<0.001
Appreciation (good)	1.19	-0.35	2.73	0.132
Posbindu chairman leadership (good)	1.73	0.44	3.03	0.009
Social network support (strong)	1.24	0.14	2.34	0.028
Random effect				
Posbindu				
Var (Constanta)	5.54	1.83	16.75	
n observation = 200				
n Posbindu group= 25				
Log likelihood = -75.19				
LR test vs. logistic regression, p <0.001				
ICC = 62.73%				

DISCUSSION

1. The effect of training on the job performance

Cadres who had attended Posbindu training had a logodd (probability) to perform well 1.75 units higher than cadres who had never attended the training (b= 1.75; 95% CI= 0.28 to 3.22; p= 0.019).

This is in accordance with a study conducted by Pangestuti et al. (2020), which stated that training has a significant effect on performance. Training is an organized activity to provide information or instructions to improve performance or increase knowledge and ability to achieve organizational goals. The training aims to increase motivation and self-confidence to do a job. With high motivation and self-confidence as well as good knowledge and abilities, performance will be even better (Walters and Rodriguez, 2017). The same thing was stated by Musoke et al. (2019). After participating in training, cadres

have high motivation to do work and cadres experience increased competence and performance.

Training is a "software" that can affect motivation and performance. Training affects cadre performance by affecting self-confidence and attitudes. Having a high sense of self-confidence and a good attitude will encourage someone to have a good performance, too (Kok et al., 2017). Chung et al. (2017) highlighted the importance of the effect of training on cadre performance. Training should be carried out regularly, based on competence, and developed specifically according to the community's conditions. Routine training can help cadres apply knowledge in action to improve their performance as a cadre within a certain time.

2. The effect of ability on performance

The statistical tests results showed cadres with good abilities had a logodd (probability) to perform well 2.50 units higher than cadres

with less ability ($b= 2.50$; 95% CI= 0.95 to 4.04; $p= 0.002$).

Hidayati et al. (2020) stated that ability is one factor that significantly affects cadre performance. Hastuti (2018) stated that cadres with good abilities would do a good job, not wait for leadership orders. The greater the ability you have, the greater the chance to complete the job correctly according to what has been determined (Kasmir, 2016).

Ability is a major factor that will affect work behavior and individual performance. Human resources play an important role in an organization. The quality of human resources is a key point that must be considered to achieve organizational goals. Cadre performance can be improved if it is accompanied by an increase in hard skills and soft skills. By paying attention to this, cadres can maximize performance according to the responsibilities given.

3. The effect of tenure on performance

Cadres with tenure ≥ 1 year had a logodds (probability) to perform well 1.99 units higher than cadres with less than one year of employment ($b= 1.99$; 95% CI= 0.05 to 3.92; $p= 0.044$).

Yuliani et al. (2019) stated a significant effect between the length of employment and cadre performance. The length of employment is identical to a person's experience and skills. Length of employment can affect knowledge. A long length of employment, coupled with continuous practice, will increase and improve one's skills. The work will be of higher quality and will be completed faster. A longer employment length as a cadre can improve cadres' abilities and skills (Afifa, 2019).

Kambarami et al. (2016) stated that the longer a person works, the more experience will be gained. Experience is knowledge or skills controlled by someone, which results from an act or job within a certain period. As

experience increases, the ability to work will increase. Cadres with more work experience tend to have a more creative and innovative mindset in implementing various strategies to improve health services (Coatsworth et al., 2017). A longer tenure allows a person to have more opportunities to take part in training so that they can increase their knowledge and skills at work (Kawakatsu et al., 2015).

4. The effect of motivation on performance

Cadres with strong motivation had logodds (probability) to perform well 2.57 units higher than cadres with weak motivation ($b= 2.57$; 95% CI= 1.25 to 3.89; $p < 0.001$).

Afifa (2019) stated that motivation is one of the dominant factors that affect cadre performance. The higher the motivation of the cadres, the better the performance. Based on Maslow's theory, individuals need self-actualization to become a better person. Cadres with high motivation need to fill their lives with positive things so that their lives are more meaningful. Motivation shapes the personality of the cadres to be more enthusiastic in carrying out their duties. High social enthusiasm motivates cadres to inspire, stimulate, mobilize and motivate people to participate in health programs. The altruistic spirit in cadres to empower themselves to be of benefit to many people is an encouragement to work optimally.

The motivation of cadres is driven by the desire to help the community through education about health, opportunities to gain knowledge and experience, and social responsibility for their role as cadres (Winn et al., 2018). In their study, Shipton et al. (2017) stated that one of the things that motivate cadres is pride in contributing to public health and moral responsibility to serve the community. With the strong motivation of cadres, it will encourage the sustainability of health programs in the community.

5. The effect of appreciation on performance

Cadres with good appreciation have logodds (probability) to perform well 1.19 units higher than cadres with less appreciation. However, this was not statistically significant ($b = 1.19$; 95% CI = -0.35 to 2.73; $p = 0.132$).

The results showed that the appreciation did not significantly affect the cadres' performance. Appreciation is not the main factor that motivates cadres to work. Giving appreciation is not the only element in cadre job satisfaction, but giving motivation from the leadership to cadres has a more important role (Nugraheni and Hartono, 2018).

Some cadres understand that their roles and duties as cadres are voluntary. Not all cadres work only hoping for an appreciation (Wirapusita, 2013). The absence of a meaningful correlation between the giving appreciation and the cadres' performance was probably because the appreciation was given to all cadres, regardless of their performance. So, cadres with good or poor performance get the same thing.

6. The effect of the leadership of the Posbindu chairman on performance

Cadres with good Posbindu chairman leadership have logodds (probability) to perform well 1.73 higher than cadres with poor Posbindu chairman leadership ($b = 1.73$; 95% CI = 0.44 to 3.03; $p = 0.009$).

Leadership is defined as the power to use and influence, inspire a person or group to achieve certain goals/objectives. Leaders play a very strategic role in deciding other organizations, groups or communities to achieve certain predetermined goals (Mulyadi, 2018). A good leader's behavior will make someone follow the orders given, and vice versa (Kashmir, 2016). Purba and Ginting (2019) stated that there is a leadership influence on cadre performance. Leadership has an important role in developing strategies to improve the performance of Pos-

bindu cadres. The success of community-based health programs needs to be supported by leadership empowerment. The role of leadership in community empowerment in the health sector is disseminating information, providing examples, raising awareness, motivating, guiding, mobilizing communities, facilitating and allocating resources (Sulaeman et al., 2015).

A leader must provide support and motivation to the cadres under him by assigning tasks that are always monitored, informing cadres of right and wrong things, always considering the cadres' abilities before giving assignments, giving appreciation and paying attention to the welfare of cadres (Sulaeman et al., 2016). Supriyatno (2017) stated that leadership has a significant influence on cadre performance. Leaders must be able to provide direction, solve problems, coordinate internally and externally, accept subordinates' opinions, and discuss and make breakthroughs in carrying out tasks. The relevant leadership applied in the cadre environment is democratic because problemsolving and decision making involves all cadres. Good leadership, which is motivational and open, is a factor that can provide satisfaction and, in the end, can affect the performance of Posbindu cadres.

7. The effect of social network support on performance

Cadres with strong social network support had logodds (probability) to perform well 1.24 units higher than cadres with weak social network support ($b = 1.24$; 95% CI = 0.14 to 2.34; $p = 0.028$).

One of the important keys to community-based health programs' success is building networks (Nugraheni and Hartono, 2018). Kurniavie et al. (2020) stated that the support of social networks, especially the community and village government, greatly affects cadres' performance. Cadres with longer tenure are likely to be more able to

improve social networks, have broader relationships, are more authoritative, and are more able to influence the community to be involved in health programs (Sulaeman et al., 2016). The longer the working period, the more familiar the cadres will be and build a strong social network to get community support. Cadres is the driving force for social support through community leaders. These community leaders can bridge the health sector as implementers of health programs and the community. Social support from community leaders is basically to socialize health programs so that people are willing to accept and participate in activities in Posbindu.

Support from the community will increase the cadres' motivation and enthusiasm so that performance will increase (Profita, 2018). Social network support is important for the continuity of Posbindu activities. Support from a strong social network will enhance partnerships to support innovations in Posbindu activities. Support from the government, especially the village government, is closely related to implementing activities, providing infrastructure, financial support, and so on, which greatly affects the performance of cadres.

AUTHOR CONTRIBUTION

Eka Siti Chasanah, as the main researcher, collected data, and conducted data analysis. Endang Sutisna Sulaeman provided input on the conceptual framework and material suggestions about cadres. Setyo Sri Rahardjo advised on study materials and writing techniques.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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