

## Research Article

# Public health nursing in Indonesia: difference in roles and functions in rural and urban centers

Raditya Kurniawan Djoar\*

Department of Nursing, Sekolah Tinggi Ilmu Kesehatan Katolik St Vincentius a Paulo, Surabaya, East Java, Indonesia

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### \*Correspondence:

Raditya Kurniawan Djoar, MS, Ners,  
E-mail: [radit\\_stikvinct@yahoo.com](mailto:radit_stikvinct@yahoo.com)

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## ABSTRACT

**Background:** Public health nurses in Indonesia hold important roles and functions in the effort of achieving goals of health development in Indonesia. In general, there are two actors related to roles and functions, personal and contextual factors include setting. Therefore, to identify factors related to difference in roles and function of public health nurses in different location is an important step to build up the specific scope of practice. The purpose of this study is to identify factors related to difference in roles and functions of public health nurses working in rural and urban public health centers.

**Methods:** Cross-sectional study was conducted among nurses who work in public health center in Surabaya and Banyuwangi. A research instrument adapted from Chamber (1994) and Gibson's (2000) has been calibrated with acceptable reliability and validity, and later being used for data collection. A total of 198 PHNs including 50 from rural area and 148 from urban areas were recruited. SPSS 17 was used for data analysis.

**Results:** The results indicate that there was a gap in the importance of roles as perceived and frequency of function as practiced. There was no different in the importance of roles among PHNs in different setting, but when measured about functions there was significant difference ( $t = -2.98$ ,  $p = 0.003$ ). PHNs in urban area have practiced more complex activities than PHNs in rural area. Using the regression approach, sum of job descriptions was the only predicting factor to importance of roles perceived by Indonesian public health nurses. Sum of job descriptions, employment status, total of training and setting were found to be predictors of the functions and settings is the most influential factor related to how PHNs apply their functions.

**Conclusions:** In each setting, PHNs have different priorities in their activity. Through these findings can be referenced for future scope of public health nursing practice in different settings in term of roles and function of public health nursing in Indonesia.

**Keywords:** Roles, Functions, Public health nurses, Rural-urban

## INTRODUCTION

Public health nurses in Indonesia handle important roles and functions to achieve goals of health development in Indonesia including to increase awareness, willingness and ability of healthy life for every person to manifest their optimal health.<sup>1</sup> Just like public health nursing tasks

should be adopted to environmental and societal changes around the world,<sup>2,3</sup> roles and functions of public health nurses in Indonesia will be varied. Especially in Indonesia, the community condition and public health issues are quite different between rural and urban communities. It may also cause the difference in roles and functions of public health nursing practice, and

recently there is no different criteria that government used to evaluate roles and functions between rural and urban areas.

In addition, public health nurses working in public health centers also need to follow public health codes and ordinances and the responsibilities assigned by the government.<sup>4</sup> Since nowadays, the codes and assignments are changing rapidly and even not too specific to different location of public health centers, the roles and functions of public health nurses may also vary depending on type of centers. Therefore, identify factors related to difference in roles and function of public health nurses in different location is important step to build up specific scope of practice.

## METHODS

### *Study design*

A cross-sectional study design was conducted in these study.

### *Sample*

The sample included all of PHNs who work in rural and urban area during data collections (n=198) and the response rate was 94.3%.

### *Instrument*

The research instrument was adopted from the Hamilton-Wentworth Social and Public Health Services Division from Canada developed by Chamber. Some personal and contextual factors developed based on Gibson's study would be added to study research purposes.<sup>5,6</sup> The result from a pilot tested (n = 30,  $\alpha = 0.83 - 0.94$ ) to the PHNs who as a subsample from main study, was integrated into the final instrument. The instrument consisted of three domains: demographic data, functions of public health nurse, and roles of public health nurse. For domains functions of public health nurse and roles of public health nurse, 4 Likert scale questions would be use to measuring how often they apply their functions and how important they felt roles of PHNs. Final instrument when used for 198 respondent, result of Cronbach's alpha are 0.87-0.97.

### *Procedure*

These study approved by ethical clearance from the Ministry of Health, Indonesia. PHNs who meet the inclusion criteria was recruited and sign inform consent. Respondent was get one package envelope containing letter permit from head of health department in their city also the instrument, they was send feedback on three day on the close envelope and collect by nurse coordinator in each public health center.

## *Data analysis*

SPSS version 17.0 was used for data analysis. Both descriptive and inferential analyses were carried out. All the social-demographic variables was described in distribution frequency. Then, depends on types of hypothesis, various statistical analysis would be used accordingly with  $\alpha$  level of 0.05, and if p value < 0.05,  $H_0$  is rejected. Independent t-test were carried out to identify the differences of roles and functions between rural and urban areas, Pearson correlation, Spearman rank test, independent t-test and Mann Whitney U-test were used to identify correlation between personal and contextual factors and role and functions. Multiple linear regression test were apply to identify predictor factors for roles and functions.

## RESULTS

This study was conducted from August to September 2013 and based on result of G 3.1 analysis for 198 subjects, the power is between 0.8 – 0.98.

### *Demographics*

The data collected from public health centers in Surabaya represented nurses working in urban areas while those in Banyuwangi represented nurses working in rural area. Most of the respondents (77.3%) were of ages ranging from 23 to 39. There was more female (70.2%) than male working in public health centers and the percentage of males in rural area was higher (46%) than that in urban area (24.3%). Meanwhile 63.6% of respondents were civil servant and majority of them (98%) worked as a staff nurse in PHCs. Distinguishing the level of education of the nurses, Diploma III in nursing was ranked first in both rural and urban PHCs. However, there was a difference in the second order of educational level. 20% of respondents in Banyuwangi were bachelor of nursing and 14.2% of that in Surabaya were bachelor of nursing and nursing associated.

Among 198 respondents, 79.8% of them have been working at public health nursing with a mean of 10.6 years (SD = 8.27). More than 83% of them have obtained their highest degree since 1 to 17 years ago. The respondents have practiced 3.35 kinds of job in average. Most of them (77.8%) focused on out-patients and inpatient treatment and services. In the second rank (62.1%), they focused on prevention and treatment of communicable disease. In the last rank (16.7%), they focused on pharmacy. Surabaya's and Banyuwangi's PHNs received 2.72 and 2.16 types of training, respectively. The respondents received the training about any new program from Department of Health (47.5%) and report systems (39.4%), while management in public health center (11.1%) was the least frequent type of the

training. The respondents' satisfaction was also measured. They felt satisfied with promotion opportunities (42.4%), guidance from nurse coordinator (41.9%), and guidance from the head of PHC (45.5%).

### Roles

The most important roles for PHNs was a service provider (mean = 3.16, SD= 0.71). Policy formulator (mean = 2.75, SD = 0.63) was perceived as the least important role. Among eleven roles, only policy formulator had statistically significant different ( $U = -2.04$ ,  $p = 0.04$ ) between PHNs working in rural and urban areas. PHN working in urban areas perceived that the importance of policy formulator was higher than that of rural areas.

### Functions

Generally the most frequently performed tasks were as care giver and service provider (mean = 2.79 SD =0.51) and as an educator and consultant (mean = 2.55, SD=0.51). However, the least performed task was as a resource manager/ planner/ coordinator. Both areas had a significant difference about the frequency rank of PHNs roles ( $t = -2.98$ ,  $p = 0.003$ ).

### Comparative ranking of the roles and functions

Although the role as a care giver and service provider also appear to be in the top rank in the functions, gaps in importance of PHNs' roles and frequency of performing each function corresponding to that role were observed.).

**Table 1: Comparative ranking of the roles and functions.**

Ran- king	Importance of roles	Frequency of performing the role (Functions)
1	Care giver and services provider	Care giver and services provider
2	-	-
3	Educator	Educator and Consultant
4	Consultant	-
5	Facilitator/communicator	Social marketer
6	Collaborator	Facilitator/communicator and collaborator
7	Community developer	-
8	Researcher/evaluator	Community developer
9	Social marketer	Policy formulator
10	Resource manager/planner/coordinator	Researcher/evaluator
11	Policy formulator	Resource manager/planner/coordinator

### Correlations between roles and functions of PHNs with social demographics

Sum of job description ( $r = 0.346$ ,  $p = 0.000$ ), sum of training ( $r = 0.155$ ,  $p = 0.03$ ), guiding from the head of public health center ( $r = 0.217$ ,  $p = 0.002$ ), and guiding from nurse coordinator ( $r = 0.283$ ,  $p = 0.000$ ) had a significant positive correlation to importance of roles PHNs perceived.

Years of experience ( $r = -0.158$ ,  $p = 0.026$ ) had a significant negative correlation with functions as well as employment status ( $t = -2.85$ ,  $p = 0.005$ ). The employment status means that for non-civil servant (mean = 2.46 SD =0.52) practiced more frequent than the civil servant (mean = 2.25 SD =0.49). Sum of job description ( $r = 0.328$ ,  $p = 0.000$ ), sum of training ( $r = 0.308$ ,  $p = 0.000$ ), guiding from the head of PHC ( $r = 0.174$ ,  $p = 0.014$ ), and guiding from nurse coordinator ( $r = 0.246$ ,  $p = 0.000$ ) had a positive correlation with functions. Finally, the setting had a significant negative correlation with functions ( $t = -2.98$ ,  $p = 0.003$ ). It means that the PHNs' functions in urban area (mean = 2.39 SD =0.49) were higher than that of rural areas (mean = 2.15 SD =0.55) such that PHNs in urban area PHNs tasks more frequently practiced than those from rural one.

### Predictor factors for roles and functions

It was observed that job descriptions were positively and significantly related to roles at 0.000 levels. This indicated that job description was an important factor for explaining the roles of PHNs.

**Table 2: Regression analyses (Roles).**

Variable	B	T	R <sup>2</sup>
Model 1 (constant)	2.277	15.834	0.161
Job	0.093	4.33***	
Training	0.020	0.790	
Guide from Head of PHC	0.025	0.373	
Guide from nurse coordinator	0.114	1.785	

\*\*\*  $p < 0.001$

Model 1 explained that settings were positively and significantly related to functions at level .003. Considering together (Model 2), the relationship between settings and functions were higher predictor than job description, employment status, and training. It means that settings were the most important predictor in this study.

This result was also consistent with the observation in which the adjusted R-squares in model 1 were relatively low, compared to model 2. The result indicated that in control of social demographic, settings was still important.

**Table 3: Regression analyses (Functions).**

Variable	Model 1			Model 2		
	B	T	R <sup>2</sup>	B	T	R <sup>2</sup>
Constant	1.905	12.869	0.043	1.051	4.516	0.26
Settings	0.245	2.984**		0.232	3.081**	
Experience				-0.004	-0.883	
Job				0.064	3.214**	
Employ				0.159	1.987*	
Training				0.077	3.233**	
Guide from Head of PHC				0.042	0.690	
Guide from nurse coordinator				0.075	1.270	
Job				0.064	3.214**	

\* p<0.05, \*\*p<0.01

## DISCUSSION

PHNs felt roles and functions as a care giver and service provider are the most important roles and functions in Indonesia and this roles give emphasis to health promotion and illness prevention.<sup>7</sup> These findings are suitable with core public health functions which was developed by centers for disease control and preventions.<sup>8</sup> The core functions project is to provide clinical preventive services included disease prevention, health promotion and protections, and in primary, secondary, and tertiary health care services. These results also further support the government policy which points out that public health centers as a first-level health services in the community that prioritizes on preventive and promotive services.<sup>1,9</sup>

Although the findings showed that roles as a care giver and service provider appear in the top rank and in the functions also, but when compared in general there were some differences. This finding indicated that PHNs' lack an understanding when they do their jobs, in some situations PHNs' cannot identify what roles which they have already done when they applied their functions or their job.

PHNs' identified there was no different perception of the importance roles of PHNs', but when measured about functions there was significant difference when PHNs' applied functions in rural and urban areas. Courtney explained that nurse employed in different locations had many similar perceptions about roles, but in these two settings have each demographic characteristic of the community therefore PHNs' in different locations has different activity.<sup>10,11</sup>

Years of experience from respondents have significant positive correlation with functions. According to Sakei study, amount of experiences as a nurses in public health field was identified to be factored with ability of nurse apply their function.<sup>12,13</sup>

Sum of job descriptions or daily task has significantly positive correlations with both roles and functions These findings should not be used as an excuse to assign more task to PHNs in order to enhance their roles and functions. Philibin said different job descriptions related to how they can carry out their roles and functions.<sup>14</sup>

Received training practice during PHNs work in public health centers have positive correlations with roles and functions. Cordova, reinforces this finding, in her study also explain that public health nurses have to get training at the further level to support their job.<sup>15</sup>

Guidance from the head of public health centers and nurse coordinator have positive correlations with roles and functions. The purpose of the guidance is to ensure the implementation of the various activities that have planned to run well. This finding was in line with previous that guidance has significant correlations with roles and functions.<sup>16,17</sup>

Employment status of PHNs has positive correlations with functions. The result in this study equal with previous study which conducted by the department of health, evaluating of the level of employee in executing their functions or performance, non-civil servants are less discipline than civil servants.<sup>18</sup>

Rural and urban settings also have significant correlations to functions. This finding was similar to a previous result study by Courtney, functions of PHNs' was different, depend on locations, but it is different in the conclusion where Courtney study explains that nurse's responsibility will be increasing related to the distance from a metropolitan area, in this study based on mean results showed that PHNs in urban or metropolitan has more functions.<sup>10,19,20</sup> Many factors can influence this situation such as PHNs in urban areas deal with heterogeneous populations, many types of diseases, and also community

high demand because the government already supports enough facilities for PHNs to give better health services.<sup>21</sup>

Using regression approach, the results indicated that roles were significantly related to the sum of job descriptions. This result might just reflect the fact that only job descriptions could get mostly offered by roles of PHNs.

The result of the functions using regression approach suggested a significant relationship between settings, job descriptions, employment status, and training, when considered together, the relationship between settings and functions is subsumed by the number of job description, employment status, and total of training. Unlike the high adjusted R-squares for the relationship between settings and functions in model 1, R-squares in model- 2 were better. Means that setting is the most factors related to how PHNs apply their functions. But, when considering the result of R-square it is still relative low ( $R^2 = 0.26$ ). These could be happen because the questionnaire not to specify identify another factors regarding culture sensitive which related to functions.

#### **Limitation and suggestions**

This study conducted in Indonesia but researcher adopted all of items from foreign study as far as might not be suitable. Therefore, it is better if in the future study researcher can develop a new questionnaire corresponding with situations and conditions of Indonesia.

#### **CONCLUSION**

PHNs in rural and urban area have same perspective about the importance of roles, but they were different to make priority when applying the functions. The most predictor for roles is sum of job descriptions and the most predictor factor for functions are settings.

Government which represents by the department of health has to develop specific policy to improve the ability and skill of public health nurses based on their locations and also develop different guideline between rural and urban areas to monitor and evaluate ability PHNs in different settings.

These findings could be used as a material to evaluate curriculum especially for school of nurses and develop appropriate content of teaching to deliver for students. By current curriculum there is no content to explain what the difference roles and functions of PHNs base on settings in Indonesia

For the future research, this study is still able to continue and developed by improving some technique such as using direct observations to identify the roles of functions PHNs and also using qualitative methods to get deepen

result related with PHNs perceptions about their roles and functions.

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