

#### **ORIGINAL RESEARCH**

# The Effects of Educational Level, Work Period, and Motivation on Nurse Care Coordinators' Performance in Public Health Centers

Efectos del nivel educativo, duración en el puesto de trabajo y motivación sobre el rendimiento de los coordinadores de enfermería en los centros de salud pública

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#### Abstract

Context. The implementation of public health care services at public health centers cannot be separated from the role of nurse care coordinators who carry out these service functions based on the level of education, work period, and motivation of the nurse care coordinator. Aims: This study aimed to analyze and determine the extent of the relationship between education level, work period, and motivation with the performance of nurse care coordinators in all public health centers in the Indramayu Regency, Indonesia. Settings and Design. This research used a quantitative approach where sampling was carried out through a total sampling of all nurse care coordinators in the public health centers in the Indramayu Regency. Methods and Material. A total sample of 49 nurses were recruited as respondents, and a questionnaire in the form of a Likert scale were disseminated to the respondents. Data were analyzed using descriptive and correlation analyses. Results. There was a significant relationship between the educational level variable and nurse performance (P = 0.001), the work period variable and nurse performance (P = 0.000). Level of education, work period, and motivation variable and nurse performance (P = 0.000). Level of education, work period, and motivation, both individually and simultaneously, have a significant relationship to the performance of nurse care coordinators at public health centers in Indramayu Regency.

Keywords: education level, motivation, nurse care coordinator, work period, public health center.

#### Resumen

Contexto. La implementación de los servicios de atención sanitaria pública en los centros de salud pública no puede separarse del papel de las coordinadoras de cuidados de enfermería que llevan a cabo estas funciones de acuerdo a su nivel de formación, experiencia de trabajo y motivación. Objetivos. Este estudio pretende analizar y determinar el grado de relación entre el nivel educativo, la duración en el puesto de trabajo y la motivación con el rendimiento de las coordinadoras de cuidados d enfermería en los centros de salud pública de la regencia de Indramayu, Indonesia. Entorno y diseño. Esta investigación utilizó un enfoque cuantitativo en el que se llevó a cabo un muestreo total de todas las coordinadoras de enfermería en los centros de salud pública de la Regencia de Indramayu. Material y métodos. Se reclutó una muestra total de 49 enfermeras encuestadas, a las que se distribuyó un cuestionario con el formato de escala de Likert. Los datos se analizaron mediante análisis descriptivos y de correlación. Resultados. Hubo una relación significativa con el rendimiento de las coordinadoras de cuidados de enfermeríaen función de su nivel de estudios (P = 0.001), su duración en el puesto de trabajo (P = 0.000), así como consu motivación (P = 0.000). Estas tres variables independientes influyen simultáneamente sobre su rendimiento. Conclusiones. Nuestros resultados demuestran que el nivel educativo, la duración en el puesto de trabajo y la motivación, tanto individual como colectiva, tienen una relación significativa con el rendimiento de las coordinadoras de enfermería en los centros de salud pública de la regencia de Indramayu.

Palabras clave: nivel educativo, motivación, coordinadora de enfermería, duración laboral, centro de salud pública.

# 1. Introduction

Nurses constitute the majority of health care workers and have indispensable role in the delivery of public health care. Nurse performance is closely related to nursing care services, which determines the quality of health services and drives the image of health institutions in the eye of public eye.<sup>2,3</sup> In order to maintain and improve health of the community, it is necessary to study the performance of health care workers, including the performance of nurse. Performance relates to the behavior of how quantity, quality, and targets are successfully attained in an organization.<sup>4</sup> Studies on performance provide clarity on the factors that influence individual performance. According to Gibson *et al.*, there are three groups of variables that influence performance, which in turn affect personnel performance.<sup>5</sup> These variables include education level, work period, and motivation.6

In Indonesia, public health nursing, here after referred to as *Perkesmas*, is one of the efforts of public health centers that supports public health level improvement by combining nursing science/practice with public health through active community participation. Perkesmas efforts are development programs in which activities are integrated into mandatory health developmental health efforts. It is an integral part of essential health services implemented by public health centers with the aim of increasing community independence in solving public health nursing problems. Perkesmas is focused on promotive and preventive health efforts without ignoring curative and rehabilitative efforts for individual health and public health. These efforts are implemented in an integrated manner in mandatory health efforts at community health centers, which consist of health promotion, environmental health, maternal and child health services, including family planning services, infectious disease control, nutrition and treatment, and health development. By integrating Perkesmas efforts in mandatory and development health efforts, it is expected that the community's health care is of higher quality as it is delivered in a comprehensive, holistic. integrated, sustainable manner. Perkesmas becomes a health development effort at public health centers if there specific health problems that require programmed nursing care. This effort is carried out by conducting an assessment of a specific

problem, for instance, a high incidence of tuberculosis. This will enable nurse to identify nursing problems and their causes as well as plan interventions that will be delivered to the community, special groups, families and individuals in the area.

All nursing functional staff at public health centers are *Perkesmas* implementers. Thev provide nursing services/care to individuals, families, and groups. In detail, their roles are to provide direct nursing care to individuals, families, and special groups to change behavior; provide consultation and solve health problems; provide guidance and mentoring; as a liaison between the community and other health units; carry out community nursing care; foster cross-program and crosssectoral collaboration with related agencies; act as a role model; and participate in research for developing Perkesmas. The implementation of Perkesmas at public health centers cannot be separated from the role of nurse care coordinators, who carry out the service function. They report to Head of public health centers and are responsible for planning, implementation, monitoring, and evaluation of *Perkesmas*. Specifically, the success of Perkesmas practices can be observed and measured from the work result or performance of the nurse care coordinator. The practices are also supported by training for the program managers at the Health Service Agency and *Perkesmas* nurses and coordinators at the public health centers. The training is organized at the province level. 10

Indramayu Regency is a coastal area with topography at an altitude of 0-100 meters above sea level, which is located in West Java, Indonesia. This regency has an area of 2,099.42 km<sup>2</sup> with a population of 1,834,434 people.<sup>11</sup> According to the Indramayu Central Bureau of Statistics in 2020, the Indramayu Subdistrict has the highest population, with 120,439 people and a population density of 2325.98 people/km<sup>2</sup>. In the same year, the Indramayu Central Bureau of Statistics reported that the population in the 0-14 year age group was 419,460 people, and the 15-64 year age group was 1,313,896 people. Meanwhile, the population of the age group of 65 years and over was 101,078 people. 12 With this population composition, the dependency ratio in Indramayu is 40, meaning that for every 100 economically productive residents, they have to support around non-productive residents. The human development index (HDI), which is an indicator of

welfare and development success in a region or country, shows that Indramayu is still far below the HDI of other regencies in West Java. 13

Indramayu has a total of 49 public health centers spread throughout the area. Each public health centers has one nurse care coordinator, making up a total of 49 nurse care coordinators in Indramayu. The nurse care coordinator is responsible for the successful implementation of *Perkesmas* at public health centers. In 2018, the Indramayu Regency Health Service reported that the lack of ability of nurse care coordinators at the public health center level is one of the causes of the nonoptimal efficiency and effectiveness of *Perkesmas* program implementation. <sup>10</sup> In line with this, The Ministry of Health of the Republic Indonesia stated that the indicators set for *Perkesmas* have not been met.<sup>9</sup> For example, efforts related to handling and counseling vulnerable groups only achieved 85% and 70% of the targets set, respectively. In addition, there is a dearth of research regarding the performance of nurse care coordinators in Indramayu. Considering the crucial role of nurse care coordinators at public health centers, research is required to examine the variables that influence the performance of nurse care coordinator, namely education level, work period, and motivation. Therefore, this research aimed to investigate the extent of the relationship between these three variables and the performance of nurse care coordinator using a quantitative method coupled with correlation analysis.

## **Materials and Methods**

## Study design and setting

This cross-sectional study employed a quantitative method to evaluate the degree of association between education level, work period, motivation and the performance of nurse care coordinators. This research took place in all public health centers in the Indramayu Regency, Indonesia, with a total of 49 public health centers. The sample population was the nurse care coordinator at each public health center in Indramayu.

#### **Ethics**

This study was approved by ethical committee (Ethical clearance no. 01/PL42/KEPK-B/EC). All respondents signed consent to participate in this study.

# **Participants**

The inclusion criteria of this study were nurse care coordinators who work in public health centre in Indramayu and willing to participate. Since the population was less than 100, a total sampling technique was used, making up a sample size of 48.<sup>14</sup>

# Study instrument

The data was collected through a Likert scale questionnaire adapted from Due (2017). The questionnaire was divided into four sections. In the current study, one of the sections was replaced, resulting in a questionnaire consisting of education, work period, motivation, performance sections with a total of 26 statements (Table 1). The Likert scale w s simplified into a 4point Likert scale from "Strongly disagree" to "Strongly agree". The demographics of the respondents consisted of age, gender, highest level of education, and length of work were also collected. The questionnaire passed the validity test and had a Cronbach's alpha value of 0.77, demonstrating its reliability.

## Statistical analysis

The data was analyzed using correlation analysis, which can determine the degree of relationship between quantitative data as measured through the correlation coefficient. The correlation analysis performed consisted of univariate, bivariate, and multivariate analyses. Univariate analysis was carried out on categorical data to produce percentages. The length of the class interval (i) obtained using the multilevel measurement type with the Likert Scale was calculated using the following formula: i = (highest score-lowest score)/(number of class interval)

Meanwhile, the normality test was performed to identify whether the independent and dependent variables in the regression model have a normal distribution population. If the population is normally distributed, then bivariate analysis could be performed. Bivariate analysis was used to examine the relationship between independent (education level, work period, motivation) and dependent (performance of nurse care coordinator) variables. Meanwhile, multivariate analysis was conducted through a multiple logistic regression test because the dependent variable was dichotomous categorical data. The SPSS Statistics

25 software (IBM SPSS Statistics, Chicago, IL, USA) was used to perform the statistical analysis. The significance level for all variables was set at P< 0.05.

## Results

Table 2 shows the demographics of the respondents. Most of the respondents were aged 41-50 years (61.2%) and females (65.3%). Seventy-seven point six (77.6%) of the respondents *Ners* and 51% of the respondents had worked for 11-20 years. Meanwhile, the majority of the respondents had worked as nurse care coordinators for either less than 1 year (49.0%) or 2-5 years (46.9%).

The class interval length in this study was 0.75. The weight values were then interpreted using an interval scale. The criteria interval for results measurement in univariate analysis was one; hence, the assessment criteria were: (a) values between 1.00-1.75 were considered as very low criteria; (b) Values between 1.76-2.50 were considered as low criteria; (c) values between 2.51-3.25 were considered as high criteria; and (d) values between 3.26 4.00 were considered as very high criteria. The questionnaire measurement results for each variable were further classified into criteria intervals (Table 3).

Table 1. Statement in the study instrument

| Variable         | Statement   |  |  |  |  |  |
|------------------|---|--|--|--|--|--|
| Education (X1)   | Before I work, I need to get training that supports my responsibilities.  |  |  |  |  |  |
|                  | I need to continue my education to increase my performance.   |  |  |  |  |  |
|                  | Promotion opportunities will be wide open if I have a bachelor's degree in nursing or <i>Ners</i> .   |  |  |  |  |  |
|                  | If I am given the opportunity to continue my education outside the city, I am willing to take the opportunities.  |  |  |  |  |  |
|                  | I can carry out nursing care better and according to the standard. operational procedures (SOP) and in accordance with the education I received.  |  |  |  |  |  |
| Work period (X2) | Work duration greatly influences the level of compliance with SOPs for nurses.  |  |  |  |  |  |
|                  | The opportunity to take training is given to nurses who have worked longer.   |  |  |  |  |  |
|                  | What is learned in formal education needs to be applied first in practical experience. As a new nurse, I do not feel the need to learn from nurses who have worked for a longer time and I have enough experience in implementing SOPs. |  |  |  |  |  |
| Motivation (X3)  | I carry out my main duties and functions as a nurse care coordinator.   |  |  |  |  |  |
|                  | I carry out my duties as a nurse at the public health center inside and outside the building.   |  |  |  |  |  |
|                  | I provide timely nursing care according to patient needs.   |  |  |  |  |  |
|                  | I provide nursing care in accordance with the authority given.  |  |  |  |  |  |
|                  | I document the nursing care of each patient I care for.   |  |  |  |  |  |
|                  | I enjoy my main duties and functions as a public health nurse.  |  |  |  |  |  |
|                  | If my work result is good and reaches the target, I am given an award.  |  |  |  |  |  |
|                  | The main duties and functions of nurses in at the public health centers are clearly written in details.   |  |  |  |  |  |
|                  | My supervisor pays attention and supervises my work results.  |  |  |  |  |  |
|                  | Providing incentives can motivate me to perform the nursing process better.   |  |  |  |  |  |
| Performance (Y)  | I have regular meetings with <i>Perkesmas</i> nurse at the public health center every month.  |  |  |  |  |  |
|                  | I create standards/guidelines/SOPs for implementing Perkesmas.  |  |  |  |  |  |
|                  | I make a plan for the <i>Perkesmas</i> program's proposed activities integrated with the public health center monthly activity plan.  |  |  |  |  |  |
|                  | I carry out cross-program coordination in implementing <i>Perkesmas</i> .   |  |  |  |  |  |
|                  | I discuss the results of monitoring and evaluation of the implementation of <i>Perkesmas</i> and propose follow-up plan.  |  |  |  |  |  |
|                  | I carry out field visits to guide the implementing nurses and nurses in charge of the villages/supported areas.   |  |  |  |  |  |
|                  | I create plans to improve nurse education/training continuously.  |  |  |  |  |  |

Table 2. Demographic of the Respondents

| Variable                                | n  | Measure (%) |
|---|----|-------------|
| Age                                     |    |             |
| < 30 years old                          | 2  | 4.1         |
| >50 years old                           | 7  | 14.3        |
| 31-40 years old                         | 10 | 20.4        |
| 41-50 years old                         | 30 | 61.2        |
| Gender                                  | 17 | 34.7        |
| Men                                     | 32 | 65.3        |
| Women                                   | 32 | 05.5        |
| Latest Education                        |    |             |
| 3-year diploma                          | 11 | 22.4        |
| Nurse profession program (Ners)         | 38 | 77.6        |
| Work Period                             |    |             |
| < 10 years                              | 12 | 24.5        |
| 11-20 years                             | 25 | 51.0        |
| > 20 years                              | 12 | 24.5        |
| Work Period as a Nurse Care Coordinator |    |             |
| < 1 years                               | 24 | 49          |
| 2-5 years                               | 23 | 46.9        |
| > 5 years                               | 2  | 4.1         |

**Table 3. Descriptive Variables Classification** 

| Tuble of Descriptive variables classification |       |                |  |  |  |
|---|-------|----------------|--|--|--|
| Variable                                      | Mean  | Classification |  |  |  |
| Education Level (X1)                          | 3.367 | Very high      |  |  |  |
| Work Period (X2)                              | 2.612 | High           |  |  |  |
| Motivation (X3)                               | 3.098 | High           |  |  |  |
| Nurse Performance (Y)                         | 3.070 | High           |  |  |  |

Table 4. Normality Test Result using One-Sample Kolmogorov-Smirnov Test

|  |                                  | Variable                |                     |                           |                             |  |  |
|--|----------------------------------|-------------------------|---------------------|---------------------------|-----------------------------|--|--|
| Parameter                                |                                  | Education<br>Level (X1) | Work Period<br>(X2) | Motivation (X3)           | Nurse<br>Performance<br>(Y) |  |  |
| N  |                                  | 49                      | 49                  | 49                        | 49                          |  |  |
| Normal Parameters*,†                     | Mean<br>Std. Deviation           | 3.3673<br>.42885        | 2.6367<br>.49147    | 3.0980<br>.23318          | 3.0700<br>.28590            |  |  |
| Most Extreme<br>Differences              | Absolute<br>Positive<br>Negative | .122<br>.082<br>122     | .120<br>.120<br>120 | .116<br>.109<br>116       | .107<br>.107<br>090         |  |  |
| Test Statistic<br>Asymp. Sig. (2-tailed) |                                  | .122<br>.065°           | .120<br>.075°       | .116<br>.099 <sup>c</sup> | .107<br>.200 <sup>‡,§</sup> |  |  |

\*Test distribution was normal; †Calculated from data; ‡Lilliefors significance correction; §lower bound of the true significance Based on the normality test result, the independent variables (education level X1, work period X1, and motivation X1) in this study had probability values of Sig. > 0.05 (Table 4). Thus, the data was further analyzed using bivariate tests by applying the Spearman correlation test for interval data and ratio. As presented in Table 4, there was a significant relationship between the education level variable and nurse performance (P = 0.001); work period variable and nurse performance (P = 0.000); motivation variable and nurse performance (P = 0.000). A higher correlation value (r) indicated that the higher the independent variables (education level, work period, and motivation), the better the dependent variable (nurse performance Y), and vice versa.

**Table 5. Variables Correlation Test Result** 

| Variable                 |                        | Education level (X1) | Work Period<br>(X2) | Motivation (X3)   | Nurse<br>Performance (Y) |
|--------------------------|------------------------|----------------------|---------------------|-------------------|--------------------------|
| Education Level (X1)     | Pearson<br>Correlation | 1                    | .310*               | .237              | .456 <sup>†</sup>        |
|                          | Sig. (2-tailed)        |                      | .030                | .101              | .001                     |
| Work Period (X2)         | Pearson<br>Correlation | .310*                | 1                   | .392 <sup>†</sup> | .511 <sup>†</sup>        |
|                          | Sig. (2-tailed)        | .030                 |                     | .005              | .000                     |
| Motivation (X3)          | Pearson<br>Correlation | .237                 | .392 <sup>†</sup>   | 1                 | .636 <sup>†</sup>        |
|                          | Sig. (2-tailed)        | .101                 | .005                |                   | .000                     |
| Nurse<br>Performance (Y) | Pearson<br>Correlation | .456 <sup>†</sup>    | .511 <sup>†</sup>   | .636 <sup>†</sup> | 1                        |
|                          | Sig. (2-tailed)        | .001                 | .000                | .000              |                          |

<sup>\*</sup>Correlation was significant at the 0.05 level (2-tailed); <sup>†</sup>Correlation was significant at the 0.01 level (2-tailed). Variables that had a significant relationship in the bivariate analysis were then subjected to a multivariate test with multiple regression (Table 6). Next, the coefficient of determination was used to measure how far the model would be able to explain variations in the dependent variable. The coefficient of determination (adjusted R Square) was 0.519, suggesting that 51.9% of variable Y is influenced by variables X1-3 (Table 7). The remaining 48.1% were influenced by other factors.

Table 6. Multiple Regression Coefficient Test Result with Nurse Performance as a Dependent Variable

| Model | Variable            | <b>Unstandardized Coefficients</b> |            | Standardized<br>Coefficients |       |      |
|-------|---------------------|------------------------------------|------------|------------------------------|-------|------|
|       |                     | В                                  | Std. Error | Beta                         | t     | Sig. |
| 1     | (Constant)          | .282                               | .407       |                              | .693  | .492 |
|       | Education Level(X1) | .179                               | .071       | .268                         | 2.524 | .015 |
|       | Work Period (X2)    | .140                               | .065       | .240                         | 2.144 | .038 |
|       | Motivation (X3)     | .587                               | .135       | .479                         | 4.362 | .000 |

**Table 7. Determinant Coefficient Test Result** 

| Model | R     | R Square | Adjusted R<br>Square | Std. Error of the<br>Estimate |
|-------|-------|----------|----------------------|-------------------------------|
| 1     | .741* | .549     | .519                 | .19820                        |

<sup>\*</sup>Predictors: Constant, *i.e.*, education level (X1), work period (X2), motivation (X3) Ultimately, the F test was used to identify whether the variables X1-3 simultaneously influence Y. Table 8shows the significance of the F value (P = 0.000), suggesting that variables X1-3 simultaneously influence Y. In other words, education level, work period, and motivation simultaneously influence nurse care coordinators performance of public health centers across Indramayu.

**Table 8. F Test Result using ANOVA** 

| Model        | Sum of Squares | df | Mean Square | F      | Sig.  |
|--------------|----------------|----|-------------|--------|-------|
| 1 Regression | 2.156          | 3  | .719        | 18.291 | .000* |
| Residual     | 1.768          | 45 | .039        |        |       |
| Total        | 3.923          | 48 |             |        |       |

<sup>\*</sup>Predictors: Constant, i.e., education level (X1), work period (X2), motivation (X3)

# Discussion

Education is an indicator that reflects a person's ability to complete their work, where an employee's level of education can increase the organization's competitiveness and improve its performance.<sup>6</sup> Working period is the period or length of time a person works in an agency, institution, office, organization, or company. Meanwhile. motivation is the internal. psychological, and mental condition of a human being, which is the basis for the initiative that drives a person's behavior, including at work. In an organizational context, motivation is a strong will to strive to a better level to achieve organizational goals.8

This research was conducted to investigate the relationship between education level, work period, and motivation on the performance of nurse care coordinator of public health centers in the Indramayu Regency. Our results demonstrated significant relationships between independent variables consisting of education level, work period and motivation with the dependent variable, namely nurse care coordinator performance. Individually, education level, work period, and motivation had a significant relationship with coordinator performance. nurse care Simultaneously, these three independent variables were also significantly related to nurse care coordinator performance.

The research results showed that the majority of respondents were female. These results suggested the marginalization of women's roles in the public sphere as a result of the power relations that are built and developed in the nursing profession, forming a stereotype that the nursing profession is deemed to be more suitable for women than men.<sup>16</sup> From the perspective of nursing profession as a health care worker, there is no difference in gender roles. There are no duties as stated in the law or the nursing code of ethics that differentiate nurses' duties based on gender. However, in practice, health service tasks are carried out in a flexible manner where differences in gender roles are still visible. This happens because of the cultural values and moral beliefs in Indonesia. In terms of service, some patients still think that women are more adept in carrying out nursing duties.<sup>17</sup>

The significance between education level and the performance of nurses has also been documented elsewhere. Previous studies showed a significant relationship between education and performance of nurses in the inpatient wards at Cideres Regional Hospital, Majalengka Regency and the performance of nurse care coordinators at the Bajawa District Health Center, Ngada Regency. 15,18 In contrast, Tafwidhah et al. 19 reported that the relationship between education and the level of implementation of *Perkesmas* was not proven. This difference is likely to occur since there are many factors that affect the implementation of Perkesmas in public health centers.<sup>20</sup> Siagian<sup>21</sup> stated that the higher a person's education, the greater their desire to utilize their knowledge and skills. A person's education level reflects the extent of their cognitive abilities to complete their work. Someone with a high education generally can think logically, critically, and systematically. Education does not have to be obtained from formal institutions: all forms of obtaining additional knowledge and competencies can be considered as educational development. Thus, increasing the education level of nurse care coordinators remains a critical aspect in improving Perkesmas.

Work period also have a significant relationship to the performance of nurse care coordinator, where the correlation value indicates that the higher the work period, the better the nurse's performance. A significant relationship between these two variables has also been reported by Due<sup>15</sup> and Maryam.<sup>22</sup> The long working experience has an impact on the performance of nurses, where the longer the nurse's working period, the more experience the nurse will have in providing nursing care that meets care standards, thereby improving the nurse's performance. 23,24 However, several studies suggested that the length of work at a public health center and the length of work as a nurse care coordinator were not variables related to *Perkesmas* practices. <sup>19,25</sup> Other variables were used in these studies, which might contribute to different findings than ours.

Motivation has a significant relationship with the performance of nurses managing *Perkesmas*, where the correlation value shows that the better

the motivation, the better the nurse's performance. This finding is in line with the opinion of Gibson et al., who explained that unsatisfactory personnel performance was often due to low motivation. A significant relationship between self-motivation and the performance of nurses and nurse care coordinator has also been reported previously. 50-27 In organizational behavior, motivation is a strong will to strive to a higher or better level to achieve organizational goals without ignoring the ability to obtain satisfaction in fulfilling personal needs.<sup>28</sup> Nevertheless, several research studies showed the absence of a significant relationship between motivation and nursing care performance as well as the performance of Tuberculosis program management officers. <sup>29,30</sup> Motivation is closely related to goals. The motivation process is usually more directed towards achieving the desired goals while also being able to meet the needs of the organization. In an organizational environment, goals can be positive, such as praise, appreciation, wage increase, and promotion, or negative, for example, not given the opportunity for promotion and warnings. The process of generating a person's motivation combines the concepts of need, encouragement, goals, and rewards. If someone has carried out their responsibilities well, they will gain satisfaction from the results achieved and the challenges during the implementation process. Satisfaction can be established through promoting motivation and reward strategy, whether in physical or psychological forms.<sup>21</sup>

Overall, the findings in this study indicate that the higher the education, the longer the work period, and the higher the motivation of nurse care coordinators, the better their performance will be, and vice versa. Even though these three variables are the dominant independent variables that influence the performance of nurse care coordinators, as shown by the results of the determinant coefficients, there are other variables that influence their performance. These variables may include work satisfaction, organizational commitment, leadership, and discipline.<sup>31</sup> Furthermore, to the best of our knowledge, this is the first report that documented the simultaneous influence of education level, work period, and motivation towards the performance of nurse care coordinators, which underlines another novelty in this study.

The research result highlights the importance of the level of education, work period, and motivation of the nurse care coordinators to ensure the level of public health services at the public health centers. The nurse care coordinators should continuously increase their education level via formal and non-formal education. **Formal** education can be done by taking higher studies, for instance, from a 3-year nursing diploma to a 4year nursing diploma. The managers of public health center should also take serious efforts to plan and implement non-formal education for the health workers, including nurse care coordinators. Since the work period influences the performance of nurse care coordinators, it is recommended that new nurse coordinators or those with less work experience learn more from the more experienced nurses to obtain more effective results. They are also expected to ask questions to actively gain new knowledge and skills. Additionally, it is necessary to ensure that the nurse care coordinator is assigned for a sufficient period of time or is not quickly rotated to another location to improve the nurse's performance. In terms of motivation, public health centre managers need to effectively increase nurses' motivation to enhance their performance. This can be done by providing promotions or incentives for nurses who perform well.

This research has been carefully designed, and yet it still has several limitations. This study used a quantitative method. As a result, this study could not gain an in-depth explanation as to how these three variables affect nurse performance. While education level, work period, and motivation comprise more than 50% of variables influencing nurse performance, this study did not cover the remaining variables. More research needs to be done to explore these other variables.

## Conclusion

This study demonstrates that the level of period, and education, work motivation, individually and simultaneously, predominantly performance influence the of nurse care coordinators public health centers. at Consequently, these three factors must be considered in the development of management policy to improve the public health care services.

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