



Analysis of Infection Prevention Control Nurse performance: A descriptive study[☆]



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KEYWORDS

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Abstract

Objective: To analyze the performance and influencing factors of Infection Prevention Control Nurses (IPCN).

Method: This research used a descriptive cross-sectional design. A total of 32 IPCN working in several hospitals in Indonesia were recruited. All nurses are members of the Nurses Association of Infection Prevention Control. The participants completed an online questionnaire, which was created by using Google Form and the link was distributed through a WhatsApp Group.

Results: The performance criteria score of IPCN was 50% poor and 50% well. Moreover, the reward is the most factors related to IPCN performance. Odds Ratio (OR) of the reward variable was 27.5, which means that a good reward had 28 a good chance to improve the performance compared to IPCN which received fewer rewards after controlling of other variables.

Conclusions: The performance of IPCN must be further improved to encourage the better quality of services, especially in controlling infection.

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Introduction

The quality of patient safety related to infections is strongly influenced by the performance of nurses, especially nurses in an Infection Prevention Control Nurse (IPCN) role. IPCN

performance is one of the indicators of work safety service, which includes monitor changes in a patient condition, achieve working goals, and fulfill organizational standards and objectives.¹ Performance improvement refers to increasing intellectual and physical abilities of individuals.² IPCN performance is expected to have an average nurse competency of 72%.³ A study showed that IPCN has not complied with the required competency-based training yet.⁴ If the knowledge update and attitude toward infection prevention and control are not following the clinical skill and practice, this can lead to the increase of patient exposure to infections associated with disease.^{5,6}

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The existence of an IPCN in every hospital is a global standard. IPCN is required to have competencies to supervise all infection prevention and control activities.^{7,8} Elements of standard infection prevention and control assessment also highlight that there must be evidence that IPCN carries out supervision of all infection prevention and control activities.⁹ The quality of IPCN in conducting job descriptions must be evaluated in the form of performance assessment. The absence of a formal performance appraisal system and poor working conditions influence nurses' performance professionally.¹⁰ The job evaluation can create a safe working environment for IPCN.¹¹

Research related to the performance of an IPCN is necessary because of the importance of the IPCN role to improve the quality of infection prevention and control. For example, IPCN report that 56% of their time is used to monitor intensive rooms, with a higher risk of exposure to infection, as compared to other wards.¹² The existence of the IPCN is not only to fulfill the accreditation and managerial standard but also to improve the quality of health and nursing services in a hospital. This study aims to analyze the performance of IPCN. The description of IPCN performance, as a result of the study, can be used for future practice improvement.

Method

This study used a descriptive cross-sectional design of the IPCN performance in several hospitals in Jakarta, Indonesia.

Search strategy

The researchers asked potential participants consent to participate in the research through an online questionnaire, which created by Google Form. The questioner link was distributed through a WhatsApp Group. The researcher provided a seven-day time-framed for participants to complete the questionnaire, then monitored the online questionnaire daily. If the expected number of participants had not filled out the questionnaire, the researcher distributed it to other different WhatsApp groups. When the researcher obtained the required number of participants, the research questionnaire link was closed.

Population and study settings

The population in this study was IPCN, all of whom were members of Indonesian Infection and Prevention Control Nurses Association or Himpunan Perawat Pencegah dan Pengendali Infeksi Indonesia (HIPPII) and working in different hospitals in Indonesia. The sample of this study ($n = 32$) was IPCN who met the inclusion criteria, which are assigned as an IPCN and had a basic IPCN training. Exclusion criteria included IPCN who decided to withdraw their participation in the middle of the data collection. Random sampling was used as the data retrieval technique.

Variables

The dependent variable of this study was the performance of IPCN, and the independent variables were the determinants

of IPCN performance. This study is a descriptive-quantitative research. An online questionnaire was used for data collection. The questionnaire consisted of two parts: questionnaire A and B. Questionnaire A consists of demographic characteristics including age, gender, educational background, position, career level, a term of employment as IPCN, employment status, and completed IPCN training. Questionnaire B related to dependent and independent variables of IPCN performance using a Likert scale (e.g., 1 = Never, 2 = Rarely, 3 = Frequent, and 4 = Always).

The validity and reliability of the instrument were tested across participants ($n = 32$). The test was conducted by evaluating the correlation between scores of each statement item with the total score, using the Pearson Product-Moment Correlation. The result of the validity was only 88 items valid from 120 items of statement about IPCN performance. The reliability of the questionnaire was high (Cronbach alpha = 0.98).

Data analysis

This study used univariate, bivariate and multivariate data analysis. The univariate analysis aimed to describe the characteristics of each variable under the study. Frequency distribution tables and the percentage of independent variables of performance factors (motivation, supervision, training, rewards, career development), and dependent variables (performance) were evaluated. Bivariate analysis was carried out to obtain the significance value of the correlation between the independent variables and the dependent variable. If the p -value, generated in the bivariate test, is greater than a pre-defined standard ($p > 0.05$), then it means there is no significant correlation between the two variables. Conversely the correlation between the two variables is defined as significant if the p -value is less than a pre-defined standard ($p < 0.05$).¹³ Bivariate analysis between each independent variable with the dependent variable was then conducted. Furthermore, all variables that have a value of $p < 0.25$ were inserted into the multivariate model. Data were analyzed using a computer according to the research objectives. Pearson's chi-square test was used to analyze the correlation between IPCN performance and determinants of the performance.

Ethical considerations

This research was carried out after received the ethical approval from the Faculty of Nursing, the University of Indonesia (Number 193/UN2.F12.D/HKP.02.04/2018) and permission from the president of the Indonesian Infection and Prevention Control Nurses Association. Ethical consideration of this study was based on the principle of beneficence or the principle of respecting human dignity and the principle of obtaining justice. Research ethics is a system of values or norms that should be followed cautiously by all researchers when conducting a study.¹⁴

The relationship between researchers and participants can be characterized as a relationship between people who need information and people who provide information. Researchers, who need the information, should comply with the ethical consideration of respondents who provide

information.¹⁵ Therefore, the rights of participants, as the information provider, must take precedence. The potential participant is first asked to fill out the informed concern by clicking on the statement of consent to agree to participate before the data collection or interview is conducted.

Results

Demographics

The results revealed the 32 IPCN respondents had an average age of 33 years, with the youngest age 25 years and the oldest age 42 years. IPCN respondents were predominantly female (68.8%), and demonstrated a high level of training, including an educational background of bachelor (53.1%), involvement in clinical career ladder of level III (71.9%), and employment status as government employees (62.5%). The length of work as an IPCN was ranged from 3 to 4 years, with the majority of nurses working full-time (96.9%). The demographic characteristics of this study are reported in Table 1.

The results of data analysis on IPCN performance showed that from a total of 32 respondents 50% IPCN performed well while 50% others performed poorly. Performance determination was based on the mean criteria, and if the mean was less than 256, then it was categorized as a poor performance. These details can be seen in Table 2.

The relationship between each determinant of the individual performance and IPCN performance are reported in Table 3.

As shown in Table 3, Pearson's chi-squared analysis revealed a significant relationship between motivation

Table 1 Characteristics of the participants ($n = 32$).

Characteristics	<i>n</i>	%
<i>Gender</i>		
Male	10	31.3
Female	22	68.8
<i>Age</i>		
≤35 years old	17	53.1
>35 years old	15	49.8
<i>Educational background</i>		
Diploma	5	15.6
BSN	7	21.9
BSN with one-year clinical placement	17	53.1
Master/specialist	3	9.4
<i>Career level</i>		
Level II	7	21.9
Level III	23	71.9
Level IV	2	6.3
<i>Government employee</i>		
Yes	20	62.5
No	12	37.5
<i>Full-time employment</i>		
Yes	31	96.9
No	1	3.1

Table 2 IPCN performance based on criteria ($n = 32$).

No.	Criteria	Performance	
		<i>n</i>	%
1	Poor	16	50
2	Well	16	50

and IPCN performance ($p = 0.03$). Reward factor showed that IPCN is satisfied with the reward given with good performance and revealed a significant relationship between reward factor and IPCN performance ($p = 0.04$). Training factor showed significant relationship toward IPCN performance ($p = 0.01$).

Variables that have a p -value (< 0.25), which are the reward (0.01) and training (0.01), were included in the multivariate analysis. The results showed that rewards are the most related factor toward IPCN performance. Odds Ratio (OR) of the reward variable was 27.5, which means that good rewards have a 27.5 good chance to improve performance compared to IPCN which received fewer rewards after controlling other variables. These details can be explained in Table 4.

Discussion

Nurse managers must have a strong influence in directing nursing staff to work creatively to accomplish the goals for the organizational. The goal of the nursing organization is to ensure that the services provided are effective and efficient. Nurse managers need to provide promotion for competent nursing staff to maintain service quality. Motivation is direct enforcement of the work quality and a fundamental factor in performance improvement.^{16,17} If the nurses are not motivated, then they will not perform their jobs adequately. This study showed that motivation has a relation toward the IPCN performance. Studies have shown that motivation can be a significant factor for nurse performance.^{18,19}

Performance improvement must receive management support in the form of evaluation through supervision. Unfortunately, there is still a limited review of the infection program evaluation in hospitals, which can have an impact on IPCN performance. The lack of management and supervisor support in programs such as nosocomial surveillance program has been a factor in reducing nurse's performance.^{20,21} Researches related to supervision and its relation to nursing performance highlighted that the more often of managerial supervision, the more increase of nurse's performance as much as 0.195 times; supervision appears to be the dominant factor in nurse's performance.^{22,23} The study also reported that poor supervision might lead to Healthcare Associated Infections (HAIs). However, in this study, there was no significant correlation between supervisors and IPCN performance.

The responsibility to support IPCN with supervision must be balanced with the support to provide the necessary training. In a survey, only 59.6% of IPCN received infection control training. IPCN must receive required training, considered the importance of their service.^{4,24} Through training, an IPCN is expected to develop knowledge in the area of

Table 3 The relationship between performance determinants and IPCN performance ($n = 32$).

Variable	Performance				Total		OR(95% CI)	p-value
	Poor		Well		n	%		
	n	%	n	%				
Gender								
Male	5	50	5	50	10	100	1 (0.22–4.46)	1.00
Female	11	50	11	50	22	100		
Education							1.711 (0.40–7.27)	1.00
High	9	45	11	55	20	100		
Low	7	58.3	5	41.7	12	100		
Age							3.667 (0.849–15.84)	0.15
≤35 years old	11	64.7	6	35.3	17	100		
>35 years old	5	33.3	10	66.7	15	100		
Motivation							7.22 (1.44–36.22)	0.03*
Low	13	68.4	6	31.6	19	100		
High	3	23.1	10	76.9	13	100		
Reward							6.82 (0.68–66.90)	0.04*
No	5	83.3	1	16.7	6	100		
Yes	11	42.3	15	57.7	26	100		
Supervision							2.60 (0.52–13.04)	0.43
No	6	66.7	3	33.3	9	100		
Yes	10	43.5	13	56.5	23	100		
Training							3.85 (0.86–17.32)	0.01*
No	9	69.2	4	30.8	13	100		
Yes	7	36.8	12	63.2	19	100		
Career development							5.44 (0.92–32.31)	0.12
No	14	60.9	9	39.1	23	100		
Yes	2	22.2	7	77.8	9	100		

* Significant if $\alpha \leq 0.05$.

Table 4 The result of Multivariate Logistic Regression IPCN performance.

No.	Variables	p-value	OR
1	Reward	0.01	27.5
2	Training	0.01	12.4

infection prevention and control. However, many nurses feel there is no opportunity to attend training to improve their skills and abilities.²⁵ The present study shows there was a meaningful relationship between training and IPCN performance.

Performance is also linked to career development. Assessment and career planning programs can help early-career nurses focus on their career goals, leading to greater continuing education and improved performance.^{26,27} Other studies have shown an increase of job satisfaction for nurses with $p < 0.01$ for components including career development, appreciation for nurses, and opportunities to complete challenging work assignments.²⁸ Clear career development can have a positive effect on improving nurse performance. However, in this study career development does

not have a meaningful relationship with IPCN performance. Sub-optimal IPCN can be caused by unsatisfactory career development.^{4,29}

This study shows that from several performance factors, rewards are the most influencing factor in IPCN performance. This finding is consistent with a study by Umbroh that said that there was a significant correlation between reward and performance. A manager can direct his employees to organizational goals through rewards.¹⁸

Rewards, compensation, and salary are not the main factors toward job satisfaction, but they can motivate IPCN to improve their ability to work. According to Robbins and Judge,² rewards are given based on skill (e.g., skill-based pay), and salary can be offered based on nurses' expertise or workload. Rewards can increase competitiveness, which is influenced by experience and responsibility.^{10,12}

Performance appraisal of IPCN, based on function and role assignments, is still low. The results showed that only 50% of IPCN performed well. Many studies evaluate nurse performance, but research related to IPCN performance is still limited. IPCN must fully understand their duties and roles to maintain service quality in infection prevention and

control area. This study can be used as basic data for further studies of IPCN and their ability to complete their duties to prevent and control infections in a hospital.

Conflict of interests

The authors declare no conflict of interest.

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