



# Relationship between the perception of employee rotation and nurse performance during the COVID-19 pandemic

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## ABSTRACT

**Background:** COVID-19 has had an impact on nurse exposure, including in the operating room. Nurse rotation is intended to minimize exposure to COVID-19. However, problems caused by nurse rotation might interfere with nurse performance due to the rapid adaptation required.

**Objective:** This study aims to determine the relationship between employee rotation and the performance of nurses during the COVID-19 pandemic.

**Methods:** An analytical descriptive cross-sectional study involving 45 nurses was conducted using purposive sampling technique. Data were collected using a job rotation questionnaire and a nurse performance questionnaire. The data were analyzed using the Spearman rho test with a significance level of 95%.

**Results:** Out of 45 respondents, 29 (64.4%) had a moderate perception of nurse rotation, and 28 (62.2%) demonstrated good nurse performance. There was no significant relationship found between nurse rotation and nurse performance ( $p > 0.05$ ).

**Conclusions:** It is recommended that nurses comply with the employee rotation policy to minimize contact with COVID-19 patients, reduce work stress, and enhance new competencies.

**Keywords:** nurse; nurse rotation; nurse performance; operating room; COVID-19

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## INTRODUCTION

The COVID-19 outbreak became a global pandemic after it was announced by the World Health Organization (WHO). With its rapid spread, COVID-19 became a major topic around the world. Indonesia is no exception, as the number of people infected with COVID-19 is increasing day by day (Somawati et al., 2020). The increase in COVID-19 cases affects all elements of society, including the economic, social, and health sectors. In the health sector, the effects are not only seen in the continuously increasing number of COVID-19 patients, but also in the impact on health workers and hospital service management (Supriatna, 2020). This has been demonstrated by Wang et al. (2020), who conducted a simulation at a hospital in America and showed an increase in working hours in the operating room, where each case required 10.5 to 11 hours.

## Nursing and Healthcare Practices

- *Nurse work rotation policies minimize COVID-19 exposure and reduce infection risk.*
- *Rotation prevents stress, burnout, and monotony while enhancing competencies.*
- *Pre-rotation socialization sessions prepare nurses mentally and physically for critical areas like operating rooms and emergency rooms.*

The operating room is a special unit in a hospital that functions as a place for performing elective or acute surgeries, requiring sterile conditions and other special considerations (Lundy et al., 2017). The operating room service is one of the key factors influencing the service quality indicators of a hospital. Therefore, the operating room must be designed with a high level of safety, as all actions taken in the operating room directly involve the patient's life (Manurung, 2020). Additionally, special management is required to ensure smooth operations and minimize unwanted events (Prasetyo et al., 2017). To improve the quality of operating room management, good cooperation is needed among the surgical team, which includes surgeons, operating room nurses, anesthesiologists, and other supporting personnel (Kurniawan et al., 2020).

Zheng et al. (2021) stated that nurses in operating rooms also treat patients with confirmed surgical indications for COVID-19. The risk of exposure to COVID-19 during surgical procedures is a significant stressor for nurses. Stress levels increase as the number of COVID-19 cases continues to rise. Nurses experience complex stress due to the increasing workload and concerns about their own health and the health of their families who may be exposed to COVID-19. Research conducted by Uğurlu et al. (2015) reported that 48.6% of operating room nurses experienced severe stress, 43.2% experienced stress, 6.8% experienced mild stress, and 1.4% did not experience stress. Simonetti et al. (2021) stated that healthcare workers are at risk of experiencing psychological disorders while

treating COVID-19 patients. The results showed that 50.4% of respondents had symptoms of depression, and 44.6% had symptoms of anxiety related to feeling depressed. Job rotation can be one way to reduce burnout in hospitals (Pinhatti et al., 2017).

Nurse rotation is a system aimed at nurses, involving internal transfers or rotations within the nursing field according to established procedures. The purpose of rotation is to alleviate nurses' boredom, increase motivation and morale, and fulfill employees' interests and work fields. Apart from benefiting nurses, rotation also provides advantages for hospitals facing labor issues. Implementing a rotation program enables more efficient and flexible management of manpower shortages (Nursalam et al., 2018).

Prior to the COVID-19 pandemic, work rotation was conducted periodically, transferring nurses from the emergency operating room to the central operating room every 4 months. However, since the pandemic, a new incovid operating room unit was established specifically for surgical cases in patients with suspected or confirmed COVID-19. As a result, the rotation coverage expanded to three units, and the rotation period shortened to every two months. Furthermore, treating surgical patients with confirmed COVID-19 requires the use of level 3 personal protective equipment and longer operating times. This situation has led to an increased workload, which poses risks of stress, fatigue, and decreased immunity.

The performance of nurses is greatly influenced by their own efforts. Julianto & Soelarto (2016) stated that the need for achievement is a key motivator and contributor to job satisfaction. Additionally, environmental factors also play a crucial role in determining nurses' performance. These factors include communication of development potential and individual policies (Nursalam et al., 2018). The presence of individual policies, such as employee rotation conducted routinely, leads to changes in the external conditions of the work environment and the social environment of nurses. These changes are suspected to be among the factors related to nurses' performance during the rotation process in the operating room amid the COVID-19 pandemic.

## METHODS

### Design

**Table 1.** Respondents Characteristics (n=45).

Characteristics	n	%
Age		
Early Adult (26-35 Years)	30	66.7
Late Adults (36-45 Years)	15	33.3
Gender		
Man	23	51.1
Woman	22	48.9
Education		
DIII Nursing	31	68.9
Professional Nursing (Ners)	14	31.1
Operation Room		
Central Operating Room	42	93.3
Emergency Operating Room	3	6.7
Length of work		
1-3 Years	3	6.7
> 3 Years	42	93.3
Employee Status		
BLUD contract	33	73.3
Civil Servant	12	26.7
Employee Rotation Perception		
Less	12	26.7
Moderate	29	64.4
Good	4	8.9
Nurse Performance		
Less	0	0
Moderate	17	37.8
Good	28	62.2

**Table 2.** The correlation of employee rotation perception with nurse performance.

Employee Rotation Perception	Nausea Vomiting Incident			Total	p
	Less n(%)	Moderate n(%)	Good n(%)		
Less	0 (0)	5 (11.1)	7 (15.6)	12 (26.7)	0.296
Moderate	0 (0)	12 (26.7)	17 (37.8)	29 (64.4)	
Good	0 (0)	0 (0)	4 (8.9)	4 (8.9)	
Total	0 (0)	17 (37.8)	28 (62.2)	45 (100)	

The research design employed in this study was descriptive analytic correlation with a cross-sectional approach.

### Sample and Setting

The population for this study comprised all operating room nurses at Dr. Saiful Anwar Malang Hospital. The population size

consisted of 85 nurses, including 24 nurses in the emergency operating room, 45 nurses in the central operating room, and 16 nurses in the Incovid operating room. The sampling technique used was purposive sampling. The sample size consisted of 45 respondents selected based on specific criteria. The inclusion criteria were as follows: (1) nurses working in

the operating room, (2) with more than 1 year of work experience, (3) willing to participate as respondents, (4) not currently sick, on leave, or engaged in studying assignments, (5) non-comorbid, and (6) underwent work rotation during the period of January-June 2021. The exclusion criteria were: (1) nurses with comorbidities or contraindications preventing them from being rotated to the COVID-19 operating room, (2) unwillingness to participate as respondents, and (3) on leave or sick.

## Instruments

The employee rotation perception questionnaire was adapted from a previous study by Munawaroh (2016). The calculation of the  $r$  value for the 10 question items yielded a value greater than 0.05, indicating that all items were considered valid. The Cronbach's alpha value was also greater than 0.60, indicating reliability for measurement. The nurse performance questionnaire was adopted from a previous questionnaire by Ayatulloh et al. (2021). The calculation of the  $r$  value for the 14 question items yielded a value greater than 0.05, indicating that all items were considered valid. The Cronbach's alpha value was also greater than 0.84, indicating reliability for measurement.

## Data Collection

The research was conducted over a period of four weeks in September 2021. The researchers selected respondents who met the inclusion and exclusion criteria. The data collection process did not involve enumerators, and respondents who met the research criteria were asked to sign a research informed consent form as a form of consent. The researchers distributed the job rotation and nurse performance questionnaires to the prepared respondents. After the data had been collected, data analysis was conducted.

## Data Analysis

The statistical test used in this research was the Pearson Product Moment correlation test. The level of significance was set at 95% or  $\alpha = 0.05$ . Additionally, the strength of the relationship was assessed by examining the  $r$  value obtained from the statistical analysis.

## Ethical Consideration

This research underwent an ethical review at Dr. Saiful Anwar Hospital, Malang. Information that passed the ethical review received

an ethical approval letter with the number 400/206/K.3/302/2021.

## RESULTS

Based on table 1, it is evident that out of the 45 respondents, the majority of them fall into the early adult category (66.7%), are male (51.1%), have completed their last education at the DIII Nursing level (68.9%), work in IBS (93.3%), have a length of service exceeding 3 years (93.3%), and have the status of a BLUD contract employee (73.3%). More than half of participants, specifically 29 respondents or 64.4%, have a perception of employee rotation in the moderate category. Additionally, regarding nurse performance level, more than half of the respondents, namely 28 respondents or 62.2%, demonstrated a good level of nurse performance.

Based on table 2, it is evident that out of 45 respondents, the majority of them, specifically 17 respondents or 37.8%, had a moderate perception of employee rotation and indicated that the nurse's performance in the Operating Room was good. The Spearman Rho statistical test yielded a  $p$ -value of 0.296, which is greater than 0.05. Consequently,  $H_1$  is rejected, suggesting that there is no significant relationship between perceptions of employee rotation and nurse performance in the Operating Room.

## DISCUSSION

More than half of the nurses perceive employee rotation in the moderate category. The researchers believe that many operating room nurses find job rotation beneficial, which aligns with the results of the research questionnaires filled out by the respondents. The majority of respondents agree that the current job rotation implemented by the hospital can reduce work-related stress and improve workloads and tasks. This aligns with Nursalam et al. (2018), who suggest that rotation enhances employee expertise, provides an overview of job satisfaction diversity, eliminates task-related stressors, and fosters employee development and confidence in management's attention to self-development.

The researcher argues that the positive response to the work rotation system may be influenced by the rotational basis used in the Operating Room. Further research reveals that the basic work rotation in the Operating Room is based on a merit system, taking into account



scientific, objective, and work performance results. This rotation system recognizes and appreciates nurses' achievements, including work productivity, morale, discipline, and the rate of work accidents. The existence of a competency assessment/credentialing process further supports the mapping of nurses' expertise levels on a regular basis.

A significant number of respondents (28 out of 45) in the study demonstrate good nurse performance in the operating room. The researcher attributes this high performance to the respondents' educational background and years of service. All respondents have completed formal education, with a minimum of a DIII Nursing degree, and a considerable portion of them (14 out of 45) have completed professional education in nursing. This indicates that the respondents' cognitive abilities in providing nursing knowledge contribute to their strong performance in their daily practice in hospitals.

This finding is in line with research conducted by Kirkpatrick et al. (2019), suggesting a relationship between the level of education and nurses' performance. Additionally, a majority of respondents in the study have more than three years of work experience, with 42 respondents (93.3%) falling into this category. This number is significantly higher compared to the average private hospital, which typically has a lower number of nurses with a tenure of more than three years. Nurses with extensive work experience bring valuable skills and expertise to their performance, thus positively contributing to their overall performance in the field.

The researcher argues that tenure can affect the performance of nurses, as longer tenure provides more experience in completing work, ultimately improving performance. This aligns with the theory put forward by Mangkuprawira, which suggests that work experience allows individuals to learn and behave better, utilizing past experience as feedback to enhance the quality of their work. It is also consistent with the theory of Ivancevich, J, M, which states that an employee's past work experience in the same job serves as a good indicator of future performance (Ivancevich et al., 2018).

The absence of a significant relationship between job rotation and nurse performance indicates that nurse performance during the COVID-19 pandemic has reached an adequate level of skill. Direct job rotation does not negatively impact nurse performance.

Work rotation in the operating room follows a temporary rotation approach, specifically designed for short-term rotation needs (Pinhatti et al., 2017). This does not greatly affect employee performance during the periodic rotation process. Considering the COVID-19 pandemic, it is important to calculate the possible need for a "covering shift" due to sick or absent workers and ensure adequate staff. Maximizing rest opportunities during work shifts (e.g., breaks every 1-2 hours) is recommended, especially in high-risk environments where medical personnel must wear coveralls throughout the shift. Reducing the shift duration to 6 hours (4 shifts per day) is also suggested (Fischer et al., 2017). Given the significant impact on health workers during the COVID-19 pandemic, changes in rotation and work duration should be considered to reduce exposure to the virus and maintain the physical and mental health of medical personnel. This includes monitoring the health status of medical personnel. Currently, there are no specific working hour guidelines for health workers treating COVID-19 patients (Walton et al., 2020).

The absence of a significant relationship indicates that job rotation does not have a significant effect on the effectiveness and productivity of nurses, and the performance of the nurses in this study has not changed significantly. The researcher further argues that based on the questionnaire results, some respondents perceive that nurse rotation does not greatly reduce feelings of boredom and anxiety, primarily due to a lack of communication between nursing fields and implementing nurses. Insufficient communication regarding employee rotation policies, socialization, and reasons for measuring the performance of rotated nurses contributes to this perception (Friday et al., 2015). Clear communication regarding the expected skills from the rotation process should be conveyed, and the nursing field should pay attention to nurses' wishes based on their abilities. The researcher assumes that rotation is not conducted for employees in the late stages of their careers, which hinders their development in new positions. Nurses feel that rotation does not present new challenges or variations in their work and responsibilities compared to their previous roles, limiting opportunities for personal development (Pinhatti et al., 2017).

The researchers' opinion is that nurse rotation can benefit performance if it is

balanced with guidance, especially for nurses transitioning to different tasks, such as moving from the operating room to the COVID-19 operating room. Continual adjustment to a new environment requires appropriate training to ensure nurses perceive rotation as beneficial rather than increasing their workload (Munawaroh, 2016). Increased workload can lead to stress and have a negative impact on optimal performance (Nursalam et al., 2018).

## Limitations

This study has limitations regarding the minimum duration for collecting research data related to reducing COVID-19 exposure. It is possible that there are statements in the questionnaire that were not well understood by respondents. However, due to time constraints, this was not properly addressed during the data collection process.

## CONCLUSION

Based on the results of the study, it is recommended for nurses to adhere to the work rotation policy due to its benefits in minimizing contact with COVID-19 patients, reducing work stress, and enhancing new competencies. Hospitals, through their human resource management (HR), are encouraged to conduct planned socialization sessions prior to rotating nurses in the central operating room and the emergency room. This will help prepare nurses mentally and physically before they begin working in a new operating area.

## Declaration of Interest

None

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None

## Data Availability

*The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.*

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