
The Relationship Between Work Stress And Nurse Shift Work With The Implementation Of Patient Safety In The Inpatient Room Of Porsea Hospital During The Covid-19 Pandemic

Dosmaida Nababan^{1*}, Tumpal Manurung²⁾, Tamara Hutahaean³⁾
^{1,2,3)}STIKes Arjuna prodi D3 Keperawatan

*Corresponding Author

Email : dosmaidan@gmail.com

Abstract

Nurses as one of the health workers who handle Covid-19 patients feel the impact of stress because they face unusual situations, The increase in Covid-19 patients can cause nurses to become stressed and at risk of making mistakes. Each hospital has different work shifts, irregularities in work shift schedules in nurses can cause errors in the provision of nursing care and patient application. The purpose of this study was to determine the relationship between work stress and nurse shift work in the Inpatient Room of RSUD Porsea during the Covid-19 pandemic. This research method uses descriptive analytics with a cross-sectional design, which was carried out at Porsea Hospital, Toba Regency, data collection was carried out in February 2022. Sampling is a total sampling of 48 respondents. The results of the chi-square test obtained a p-value of $0.022 < 0.05$, meaning that there is a significant relationship between work stress and patient safety application and p-value $0.011 < 0.05$, This means that there is a significant relationship between work shifts and the application of patient safety. The recommendations of this study for hospital management need to pay attention to the mental state of nurses and manage work shifts effectively during the Covid-19 pandemic.

Keyword : Work Stress, Shift Work, Patient Safety

INTRODUCTION

Since Covid-19 cases have increased, many hospitals have had difficulty providing health services to patients infected with the coronavirus. Problems in hospitals such as ICU rooms, isolation rooms, limited number of beds and respiratory devices such as oxygen and ventilators are limited. Data from the Task Force for the Acceleration of COVID-19 Handling (2020) explains that only 60% of hospitals in Indonesia have ventilators. Research (Yen et al., 2020) in China says that the transmission of viral infections can be through bed curtains or public toilet supplies touched by patients who test positive for Covid-19. Lack of PPE supplies, lack of ways to use and remove PPE, lack of compliance with Covid-19 waste and linen handling, compliance with disinfection, decontamination and sterilization of Covid-19 equipment, rooms and ambulances. This will have an impact on the safety of patients and health workers in handling Covid-19 patients. Coronavirus can have a physical impact and also have an impact on mental health (Huang & Zhao, 2020). One of them is against the mental health of nurses. Nurses can experience stress from work. Work stress is work-related stress (Ekawarna, 2018). Work stress is a condition that can have an impact on physical, psychic, emotional, the way of thinking and the state of a person at work (Rivai Veithzal, 2010). Work stress is a situation in the workplace that can cause several factors that can interfere with the physiological and behavioral conditions of workers (Suwatno & Priansa, 2011). According to Adkins et al., (2002) work stress has many impacts, some are negative and positive, but more negative effects can cause harm. The results of the research of Kawatu et al (2019) explained that the nurses of the inpatient room of Bhayangkara Hospital level III Manado, getting nurses who experienced low work stress totaled 6 people (13%) and moderate work stress amounted to 40 people (87%); There were no nurses with high work stress (0%). The results of the study by Mo et al

(2020) showed that nurses who helped overcome Covid-19 experienced stress with an average score of 39.91%. Work shift is the work time given by the company for workers to do work, the work time is divided into morning, evening and evening (Suma'mur, 2013). According to (International Labour Organization, 2014) shift work is a work method carried out by dividing work time into 24 hours. According to (Eko Nurmianto, 2004), work shifts are different from normal days of work, working time on weekdays is carried out with a predetermined time and is carried out regularly, While shift work is carried out in a 24-hour / day schedule and can be done more than once. Work on weekdays is usually done in companies that are continuous, while shift work is carried out on jobs that require services such as health workers, police, security, hotels and others. The set time to work 1 day is 7 hours, 1 week is 40 hours for 6 working days and the other 1 day is 8 hours or 1 week 40 hours, for 5 days (Law of the Republic of Indonesia No. 13 Year, 2003). Shift work is a way of managing daily work time for workers, where each worker has a different work schedule, each worker works for 8 hours and covers the whole for 24 hours (Agustin, 2012). Patient Safety is in providing care to patients carried out safely with risk assessment, Identification and management of patient risks, reporting and analyzing hazards, ability to learn from incidents and how to implement how to prevent risk, and injuries that can be caused by mistakes in carrying out actions or not taking actions (Regulation of the Minister of Health of the Republic of Indonesia No. 11, 2017). Patient safety is the patient avoiding injury or potential injury that should not have occurred or will occur while performing an action (Hospital Patient Safety Committee, 2015).

RESEARCH METHODS

The design of this study uses an analytical descriptive research design to find out the picture of each variable and find out if there is a relationship between the variables. Research method using cross-sectional design. In the independent variables of the researcher are work stress and work shifts of nurses while the dependent variables are the application of patient safety. The place where this research was conducted at Porsea Regional Hospital, which is located at Jl. Sipakko, Parparean, Porsea District, Toba Regency, North Sumatra. This research was carried out at Porsea Hospital from January 2022 to March 2022.

RESULTS AND DISCUSSION

Description of Nurse Gender in the Inpatient Room of Porsea Hospital in 2022 (n=48)

| Gender | Frequency | Percentage |
|--------------|-----------|-------------|
| Man | 12 | 25% |
| Woman | 36 | 75% |
| Total | 48 | 100% |

Based on table 8 above, it shows that of the 48 nurses, most of the sex is female with 36 nurses (75%), while the male sex is 12 nurses (25%).

Description of the Age of Nurses in the Inpatient Room of Porsea Hospital in 2022 (n=48)

| Age | Frequency | Percentage |
|-----------|-----------|------------|
| ≤ 30 year | 28 | 58,3% |

| | | |
|---------------------|----|-------|
| > 30 Year | 20 | 41,7% |
| Total | 48 | 100% |

Based on the table above, it shows that of the 48 nurses, some nurses aged ≤ 30 years, namely 28 nurses (58.3%) and nurses aged > 30 years, namely 20 nurses (41.7%)

Overview of Nurse Education Level in the Inpatient Room of Porsea Hospital in 2022(n=48)

| Education | Frequency | Percentage |
|------------------|------------------|-------------------|
| Diploma 3 | 27 | 56,3% |
| S1.Ners | 21 | 46,8% |
| Total | 48 | 100% |

Based on table 10, it shows the results that out of 48 nurses, 27 nurses graduated from D3 (56.3%) while nurses graduated from S1. Ners were 21 nurses (46.8%).

Overview of Nurses' Work Stress in the Inpatient Room of Porsea Hospital in 2022 (n=48)

| Work Stress | Frequency | Percentage |
|-------------------------|------------------|-------------------|
| High Work Stress | 25 | 52,1% |
| Low Work Stress | 23 | 47,9% |
| Total | 48 | 100% |

Based on table 12 shows that of the 48 nurses most experienced high work stress a total of 25 nurses (52.1%), while nurses who experienced low work stress amounted to 23 nurses.

Overview of Nurse Work Shifts in the Inpatient Room of Porsea Hospital in 2022 (n=48)

| Shift Work | Frequency | Percentage |
|------------------------------|------------------|-------------------|
| Irregular Work Shifts | 26 | 54,2% |
| Regular Work Shifts | 22 | 45,8% |
| Total | 48 | 100% |

Based on table 13, the results of 48 nurses were obtained, most of the categories of irregular work shifts were 26 nurses (54.2%), Meanwhile, the regular work shift category was 22 nurses (45.8%). Because Covid-19 patients are increasing and there is a change in the room so that there is a shift change as well.

Overview of the Implementation of Patient Safety in the Inpatient Room of Porsea Hospital in 2022 (n=48)

| Application of Patient Safety | Frequency | Percentage |
|--|------------------|-------------------|
| Application of Patient Safety Not Good Enough | 28 | 58,3% |
| Application of Patient Safety Good | 20 | 41,7% |
| Total | 48 | 100% |

Based on table 12 shows that out of 48 nurses most nurses performed poor patient safety implementation of 28 nurses (58.3%), Meanwhile, the nurses who implemented good patient safety were 20 nurses (41.7%).

Table of Nurse Age Analysis with the Application of Patient Safety in the Inpatient Room of RSUDPorsea in 2022 (n=48).

| Age | Application of Patient Safety | | | | Total | | OR (95% CI) | P Value |
|--------------|-------------------------------|------|------|------|-------|-----|-----------------------|---------|
| | Not Enough | Good | Good | | | | | |
| | N | % | N | % | N | % | | |
| ≤ 30 year | 17 | 60,7 | 11 | 39,3 | 28 | 100 | 1,264 (0,395– 4,043). | 0,921 |
| > 30 Year | 11 | 55 | 9 | 45 | 20 | 100 | | |
| Total | 28 | 58,3 | 20 | 41,7 | 48 | 100 | | |

Based on table 16 which shows the relationship between age and the application of safety patients, the majority of ≤ 30 years old A total of 28 nurses, of which 17 nurses (60.7%) had poor patient safety and 11 nurses (39.3%) have a good application of patient safety. Meanwhile, 20 nurses aged > 30 years old include 11 nurses (55%) Had poor patient safety and 9 nurses (45%) had good patient safety implementation. The results obtained show a p-value greater than 0.05, p value = 0.921 which means Ho accepted Ha is rejected, This means that there is no significant relationship between age and patient safety. OR value obtained OR = 1.264 (CI 95% = 0.395 – 4.043). The OR value of > 1 stated that the group of respondents aged ≤ 30 years had a 1,264 times greater risk to implement poor patient safety compared to the group of respondents aged > 30 years. Table of Analysis of Nurse Education Level with the Application of Safety Patients in Inpatient Porsea Hospital in 2022 (n=48)

| Education Level | Application of Patient Safety | | | | Total | | OR (95% CI) | P Value |
|-----------------|-------------------------------|------|------|------|-------|-----|----------------------|---------|
| | Not Enough | Good | Good | | | | | |
| | N | % | N | % | N | % | | |
| D3 | 17 | 63 | 10 | 37 | 27 | 100 | 1,545 (0,485– 4,925) | 0,658 |
| S1.Ners | 11 | 52,4 | 10 | 47,6 | 21 | 100 | | |
| Total | 28 | 58,3 | 20 | 41,7 | 48 | 100 | | |

Based on which shows the relationship between education level and patient safety, the majority of D3 education levels are obtained with a total of 27 Nurses include 17 nurses (63%) who have poor patient safety and 10 nurses (37%) who have good patient safety implementation. While 21 nurses with S1 education level. Among them, 11 nurses (52.4%) had poor patient safety and 10 nurses (47.6%) had good patient safety

The results obtained showed a greater p-value of 0.05, p value = 0.658 then Ho was accepted and Ha was rejected so it can be concluded there is no significant relationship between education levels with the application of patient safety. The OR value is obtained OR = 1.545 (CI 95% = 0.485 – 4.925). An OR score of > 1 means that the group of respondents with the D3 level has a 1,545 times chance of having poor patient application.

Table of Analysis of Nurse Service Period with the Application of Patient Safety in the Inpatient Room of Porsea Hospital in 2022

| Service Life | Application of Patient Safety | | | | Total | | OR (95% CI) | P Value |
|--------------|-------------------------------|-------------|-----------|-------------|-----------|------------|---------------|---------|
| | Not Good | | Good | | | | | |
| | N | % | N | % | N | % | | |
| ≤ 5 tahun | 22 | 59,5 | 15 | 40,5 | 37 | 100 | 1,222 | 1,000 |
| > 5 tahun | 6 | 54,5 | 5 | 45,5 | 11 | 100 | (0,315 | – |
| Total | 28 | 58,3 | 20 | 41,7 | 48 | 100 | 4,744) | |

Based on table which shows the relationship between tenure and patient safety application, the majority of nurses with a service period of ≤ 5 years are 37 nurses of which 22 nurses (59.5%) have poor patient safety implementation and 15 nurses (40.5%) have good patient safety application. While 11 nurses with a working period of > 5 years, of which there are 6 nurses (54.5%) have poor patient safety and 5 nurses (45.5%) have good patient safety practices.

The results obtained show that the p-value is greater than 0.05, the value of p = 1.000 which means that Ho is accepted and Ha is rejected, meaning that there is no significant relationship between years of service and the implementation of patient safety. OR value = 1.222 (95% CI = 0.315 – 4.744). OR value > 1 means the group of respondents with years of service ≤ 5 years has a chance of 1.222 times to implement poor patient safety compared to the group of respondents with > 5 years of service. Statistical test results show that nurses with a working period of ≤ 5 years have poor patient safety practices.

Analysis of Nurse Work Stress with the Implementation of Patient Safety in Inpatient Rooms at Porsea Hospital in 2022 (n=48)

| Work Stress | Application of Patient Safety | | | | Total | | OR (95% CI) | P Value |
|------------------|-------------------------------|-------------|-----------|-------------|-----------|------------|----------------|---------|
| | Not good | | Good | | | | | |
| | N | % | N | % | N | % | | |
| High Work Stress | 19 | 76 | 6 | 24 | 25 | 100 | 4,926 | 0,022 |
| Low Work Stress | 9 | 39,1 | 14 | 60,9 | 23 | 100 | (1,422 | – |
| Total | 28 | 58,3 | 20 | 41,7 | 48 | 100 | 17,064) | |

Based on table which shows the relationship between work stress for nurses and the implementation of patient safety, it is found that the majority of nurses have high work stress as many as 25 nurses including 19 nurses (76%) had poor patient safety practices and 6 nurses (24%) had good patient safety practices. Whereas 23 nurses with low work stress including 14 nurses (60.9%) had good patient safety practices and 9 nurses (39.1%) had poor patient safety practices.

The results obtained show that the p-value is smaller than 0.05, the value of p = 0.022 means that Ha is accepted, Ho is rejected, meaning that there is a significant relationship between work stress of nurses with the application of patient safety. OR value = 4.926 (95% CI = 1.422 – 17,064). The OR value > 1 means that the group of respondents with high work stress has a risk of 4.926

times greater for implementing poor patient safety compared to the group of respondents with low work stress.

Table of Analysis of Nurse Work Shifts with the Implementation of Patient Safety in Inpatient Rooms at Porsea Hospital in 2022

| shift work | Application of Patient Safety | | | | Total | | OR (95% CI) | P Value |
|-----------------------|-------------------------------|-------------|-----------|-------------|-----------|------------|------------------------|---------|
| | Not good | | Good | | N | % | | |
| | N | % | N | % | | | | |
| Irregular Work Shifts | 20 | 76,9 | 6 | 23,1 | 26 | 100 | 5,833 (1,655 – 20,559) | 0,011 |
| Regular Work Shifts | 8 | 36,4 | 14 | 63,6 | 22 | 100 | | |
| Total | 28 | 58,3 | 20 | 41,7 | 48 | 100 | | |

Based on table which shows the relationship between work shifts and the implementation of patient safety, it was found that the majority of nurses with irregular work shifts were 26 nurses including 20 nurses (76.9%) had poor patient safety practices and 6 nurses (23.1%) had good patient safety practices. Whereas 22 nurses with regular work shifts including 8 nurses (36.4%) had poor patient safety practices and 14 nurses (63.6%) had good patient safety practices.

The results obtained show that the p-value is smaller than 0.05, the value of $p = 0.011$ means that H_a is accepted and H_o is rejected. meaning that there is a significant relationship between work shifts and the implementation of patient safety. $OR = 5.833$ (95% $CI = 1.655 - 20.559$). The OR value > 1 means that the group of nurses with irregular work shifts is at risk 5.833 times greater for implementing poor patient safety than the group of nurses with regular work shifts.

CONCLUSION

Based on the results of the research and data analysis that has been conducted on the Relationship between Work Stress and Nurse Work Shifts with the Implementation of Patient Safety at Porsea Hospital during the Covid-19 Pandemic, conclusions are drawn according to the research objectives as follows:

- The characteristics of the 48 respondents showed that the majority of the sexes were female, namely 36 nurses (75%), the majority of nurses aged ≤ 30 years, namely 28 nurses (58.3%), Most of the nurses with D3 education level were 27 nurses (56.3%), most of the nurses had working experience of ≤ 5 years, namely 37 nurses (77.1%).
- The description of work stress for nurses shows that out of 48 respondents, the majority experienced high work stress, 25 nurses (52.1%).
- The description of the nurse's work shift shows that of the 48 respondents, the majority of the irregular work shift categories were 26 nurses (54.2%).
- The description of the implementation of patient safety shows that out of 48 nurses, the majority of nurses implemented poor patient safety, with a total of 28 nurses (58.3%)
- Analysis of the relationship between the characteristics of the respondents and the application of patient safety is as follows :

1. The results of the sex relationship test with the application of patient safety show a p-value = 0.735 (p-value > 0.05) which means that H_0 is accepted and H_a is rejected. meaning that there is no significant relationship between gender and the implementation of patient safety. OR value obtained OR = 1.600 (95% CI = 0.407 – 6.287). The OR value > 1 indicates that the female respondent group has a 1,600 times greater risk to implement patient safety is not good compared to the group of male respondents.
2. The results of the age relationship test with the application of patient safety show a p-value = 0.921 (p-value > 0.05) which means that H_0 is accepted, H_a is rejected, meaning that there is no significant relationship between age and the implementation of patient safety. OR value obtained OR = 1.264 (95% CI = 0.395 – 4.043). The value of OR > 1 stated that the group of respondents aged ≤ 30 years had a 1.264 times greater risk of implementing poor patient safety compared to the group of respondents aged > 30 years.
3. The test results for the relationship between the level of education and the application of patient safety show that the p-value is greater than 0.05, the value of p = 0.276, then H_0 is accepted and H_a is rejected so that it can be concluded that there is no significant relationship between the level of education and the application of patient safety. OR value obtained OR = 0.429 (95% CI = 0.128 – 1.437). The OR value < 1 means that the group of respondents with the S1.Ners level has a 0.429 chance of having poor patient implementation.
4. The results of the test for the relationship between tenure and the application of patient safety showed that the p-value was greater than 0.05, p = 1.000, which means that H_0 was accepted and H_a was rejected, meaning that there was no significant relationship between tenure and the application of patient safety. OR value = 1.222 (95% CI = 0.315 – 4.744). The value of OR = 1 means that the group of respondents with years of service ≤ 5 years has no relationship of 1.222 times with the group of respondents with years of service > 5 years.
- f. Analysis of work stress with the application of patient safety shows a smaller p-value of 0.05, p value = 0.022 means that H_a is rejected H_0 is accepted, so that means there is a significant relationship between work stress of nurses and the application of patient safety. OR value = 4.926 (95% CI = 1.422 – 17.064). The OR value > 1 means that the group of respondents with high work stress has a 4.926 times greater risk of implementing patient safety properly compared to the group of respondents with low work stress.
- g. Analysis of work shifts with the application of patient safety shows that the p-value is greater than 0.05, the value of p = 0.011 means that H_0 is rejected and H_a is accepted, so it means that there is a significant relationship between work shifts and the application of patient safety. OR value = 5.833 (95% CI 1.655 – 20.559). The OR value > 1 means that the group of respondents with irregular work shifts has a risk of 5.833 times greater than the group of respondents with regular work shifts.

REFERENCES

- Adkins, J. A., Nelson, D. L., Quick, J. C., Quick, J. D., & Wright, T. A. (2002). Preventive Stress Management in Organizations (Second Edi). APA Order Department.
- Agustin, D. (2012). Factors Affecting Sleep Quality in Shift Workers at PT Krakatau Tirta. Faculty of Nursing, 1–81. <http://lib.ui.ac.id/file?file=digital/20313608-S43780>
- Ahsan, Ida Sukes, & Setyawati Soeharto. (2015). ANALYSIS OF FACTORS RELATED TO NURSE PERFORMANCE IMPLEMENTING PATIENT SAFETY.
- Ali, R. F., Akili, R. H., & Joseph, W. B. S. (2017). The Relationship Between Work Shifts And Work Fatigue With Work Productivity Of Nurses In The Inpatient Room Of Monompia General Hospital Kotamobagu.
- Anderson, S. G., Blaikey, J. F., Durrington, H. J., Maidstone, R., Ray, D. W., & Rutter, M. K. (2021). Shift work is associated with positive COVID-19 status in hospitalized patients. *BMJ Publishing Group Ltd*, 76(6), 601–606.
- Asrifuddin, A., Warouw, F., & Winly Yuliana Assa. (2021). RELATIONSHIP BETWEEN SHIFT WORK AND JOB SATISFACTION WITH WORK STRESS IN NURSES ATGMIM KALOORAN AMUANG HOSPITAL. 10(1), 129–137.
- Bea, I. F., Noor, N. B., & Syahrir A Pasinringi. (2013). DESCRIPTION OF PATIENT SAFETY CULTURE AT HASANUDDIN UNIVERSITY HOSPITAL IN 2013 DESCRIPTION OF PATIENT SAFETY CULTURE AT HASANUDDIN UNIVERSITY HOSPITAL IN 2013 Hospital Management Section, Faculty of Public Health, UNHAS, Makassar Hospital. 1–14.
- Cary Cooper, R. L. P. (1988). Causes, Coping and Consequences of Stress at Work. John Wiley & Sons.
- Chalik, I., Ichwansyah, F., & Ismail, N. (2019). Analysis of the Application of Patient Safety to Nurses at the Teuku Umar General Hospital, Aceh Jaya District.
- Chen, H. Y., Lu, L., Ko, Y. M., Chueh, J. W., Hsiao, S. Y., Wang, P. C., & Cooper, C. L. (2021). Post-pandemic patient safety culture: A case from a large metropolitan hospitalgroup in Taiwan. *International Journal of Environmental Research and Public Health*, 18(9). <https://doi.org/10.3390/ijerph18094537>
- Cooper, C., & Straw, A. (2002). Successful Stress Management in a Week (Revised). Kesaint Blanc.
- Danielle M. Oldsa, & Clarke, S. P. (2010). The Effect of Work Hours on Adverse Events and Errors in Health Care. *J Safety Res*. <https://doi.org/10.1016/j.jsr.2010.02.002.The>

Republic of Indonesia Ministry of Health. (2008). National Guidelines for Hospital Patient Safety: Prioritize patient safety.

Desima, R. (2015). Nurse Work Stress Levels With Nurses Caring Nurses. *Nursing Science*, 4, 43–55. <http://ejournal.umm.ac.id>

Donsu, Jenita D. T. (2016). *Nursing Research Methodology*. New Press Library.

Ekawarna, H. (2018). *Conflict and Stress Management*. Script Earth.

Eko Nurmianto. (2004). *Ergonomics Basic Concepts and Applications (Second)*. Use Widya.

Elfering, A., Semmer, N. K., & Grebner, S. (2006). Work stress and patient safety: Observer-rated work stressors as predictors of characteristics of safety-related events reported by young nurses. *Ergonomics*, 49(5–6), 457–469. <https://doi.org/10.1080/00140130600568451>

Fanani, E., Martiana, T., Qomarudin, B., Health, F., Airlangga University, M. /, & Surabaya, J.

M. (2020). Relationship between Job Stress and Hospital Nurse Burnout. *Preventia: Indonesian Journal of Public Health*, 5(2), 86–89. <http://journal2.um.ac.id/index.php/preventia/article/view/15771>

Faridah, I., Ispahani, R., & Badriah, E. L. (2019). Factors Influencing the Implementation of Patient Safety Culture in Nurses in Inpatient RSUD Tangerang Regency. *Scientific Journal of Health*, VIII(1), 21–40.

Farquharson, B., Bell, C., Johnston, D., Jones, M., Schofield, P., Allan, J., Ricketts, I., Morrison, K., & Johnston, M. (2013). Nursing stress and patient care: Real-time investigation of the effects of nursing tasks and demands on psychological stress, physiological stress, and job performance: Study protocol. *Journal of Advanced Nursing*, 69(10), 2327–2335. <https://doi.org/10.1111/jan.12090>

Fatmawati, D., & Retnaningsih, D. (2016). NURSE WORKLOAD ON THE IMPLEMENTATION OF PATIENT SAFETY IN INPATIENT ROOMS. *Journal of Nursing Soedirman (The Soedirman Journal of Nursing)*, 11.

Task Force for the Acceleration of Handling COVID-19. (2020). Need and Availability of Ventilators in Indonesia (as of March 2020). <https://databoks.katadata.co.id/datapublish/2020/04/14/berapa-quantum-keteravailabledan-perlu-ventilator-di-indonesia>

Hadi, I. (2017). *Textbook of Patient Safety Management*. Deepublish.