



The Effect of Overcrowding on Nurses' Work Stress and Patient Satisfaction in The Emergency Group of Hermina Hospital Jatinegara

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ABSTRACT

Background: *overcrowded* Emergency rooms have negative impacts on patients, staff, and the hospital system. These impacts on patients include delays in assessment and receiving necessary care, increased frequency of exposure to errors, and including error treatment, reduce satisfaction patient, improvement long care stay and results Which worsening, as well as increased inpatient mortality. Impacts on ER staff include increased work stress and fatigue, increased exposure to violence, and non-compliance with standard operating procedures during times of *overcrowding*.

Objective: This study aims to determine the effect of overcrowding on nurses' work stress and patient satisfaction in the Emergency Room of Hermina Jatinegara Hospital.

Method: This research uses quantitative research with a cross-sectional approach. sectional. The population of this study are all the nurses who work in the Emergency Room of Hermina Jatinegara Hospital, totaling 28 nurses, the nurse sampling method used a total sampling technique of 28 respondents, and the patient sampling method used a purposive sampling technique of 366 patients. The statistical test used chi-square test. square. Data analysis using SPSS software.

Result: there is an *overcrowded* effect on work stress of nurses in the Emergency Room of Hermina Jatinegara Hospital (p value = 0.04), and there is an influence of *overcrowding* on patient satisfaction at the Emergency Room of Hermina Jatinegara Hospital (p value = 0.000).

Conclusion: *Overcrowded* assessment Using the NEDOCS assessment, it was found that most of the categories were not busy, most of the nurses working in the ER experienced low category work stress, almost all patients who visited the ER were satisfied with the services in the ER, and the influence of *overcrowding* on nurses' work stress and patient satisfaction in the Emergency Room of Hermina Jatinegara Hospital.

Keywords: Patient satisfaction; overcrowded; emergency department nurses; work stress

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INTRODUCTION

American College of Emergency Physicians /ACEP (2019) defines overcrowded ER is when identified needs for service emergency exceed source available power for maintenance patients in the emergency room, hospital sick, or both of them. Besides that, Australasian College for Emergency Medicine /ACEM (2019) also defines Overcrowded Emergency Room is as situation Where function from the emergency room to hampered Because amount patient exceed Good capacity physical and/ or staff from the ER, is it they wait for check, undergo assessment and treatment, or wait departure or move to Room. According to Mataloni et al., (2019), emergency department overcrowding is considered a key factor hindering the delivery of high-quality health services and emergency patient care. Furthermore, emergency department performance is often evaluated using overcrowding metrics (e.g., waiting time, length of visit, or the proportion of patients seen within their target triage timeframe). Overcrowding is also a highly complex issue concerning the balance between demand and availability for emergency services.

In the United States, 131 million emergency room visits resulted in 14.5 million (11%) hospitalizations in 2019, of which 13% were admitted to critical care units. Furthermore, in South Korea, 4,970,000 emergency room visits were recorded in the 2019 National Emergency Department Information System, resulting in 995,326 (20%) hospitalizations in the emergency room, of which 14% were admitted to intensive care units (McKenna et al., 2020). Overcrowding creates demand for care beyond the capacity of doctors and nurses to provide quality care. The high demand for healthcare services in the emergency room leads to a decline in service delivery, resulting in decreased patient satisfaction and an increase in the emergency room mortality rate (Lee et al., 2021). Overcrowding can also increase the risk of mortality for more than 500,000 patients per year in UK hospital emergency departments, as well as reducing the ability of emergency department staff to anticipate surge pressure from adjacent emergency facilities (Geelhoed and de Klerk, 2020).

Based on the results of research conducted by Morley, Unwim, Peterson, Stankovich, and Kinsman, (2018) overcrowded ERs have negative impacts on patients, staff, and the hospital system. Impacts on patients include; delays in assessment and receiving necessary care, increased frequency of exposure to errors, including medication errors, reduced patient satisfaction, increased length of stay and worse outcomes, and increased inpatient mortality. Impacts on ER staff include; increased stress and fatigue, increased exposure to violence, and non-compliance with standard operating procedures during overcrowded periods. Finally, the impact on the hospital system is an increase in length of stay (LOS), both in the ER itself (Emergency Department Length of Stay (EDLOS) and also for patients treated in the hospital (In Patient Length of Stay (IPLOS)).

Criteria for an overcrowded ED include: inability to offload patients from ambulances and loss of capacity in the local emergency response in the community; inability to place critically ill patients in appropriate treatment rooms when required; patients undergoing clinical management in non-treatment areas, where privacy and access to basic clinical resources are reduced or delayed; patients presenting to the ED with criteria that are less suitable than those they should be admitted to; barriers to access and egress routes from the ED, contrary to occupational health and safety requirements (Australian College for Emergency Medicine, 2019).

The impact that occurred if incident overcrowded left Keep going continuously is increasing mortality at home sick , lower maintenance clinical in patients , increasing medical error, increasing Length Of Stay (LOS), effect negative on the field education and research , disability do evacuation in case of emergency emergency emergency like fire , time Wait long-term patients , as well as decrease level satisfaction patients (Salway et al., 2019). ER density becomes attention in the international world Because associated with impact significant negative including death. In Australia it happened IGD density and make time Wait patient for get a treatment bed stay more from 8 hours, so that the density that occurs donate number mortality by 20% - 30% (ACEM, 2019). Impact of overcrowding is also possible experienced by nurses. Increased patients without balanced with power health or means infrastructure can become problem stress work stress experienced by nurses (Nurazizah, 2020). Stress is interpreted as inability individual for overcome threat from something so that can influence health physique individual (Widodo, 2020). Stress Work defined as response emotional and physical nature negative bother or losses that occur at the time demands task No in accordance with capabilities, resources power, or desire worker. Someone can categorize experience stress work, if stress experienced also involves parties' organization company or the person's location work (Kasmarani, 2020).

The main factors that influence stress Work the emergency room nurse is burden work and fatigue work (Kasmarani, 2020). Stress can cause many kinds of adverse impacts starting from declining health until he suffers something disease. Impact bad that can cause If a nurse experience stress can bother interaction socially, well That with colleague work, doctor and patients. Effectiveness and level of productivity Work can also be disturbed. (Riza, 2019). Stress work as a nurse affects the quality service House sick. If nurse experience stress work and not managed with Good so can eliminate the sense of caring to patients, improve occurrence error in maintenance patients and endanger safety patients (Sharma, 2019). Research conducted on nurses at Prof. Dr. H. Aloei Saboe Regional Hospital, Gorontalo City, showed that that there are 55.1% nurses with level stress weight (Urip, 2020). Based on study conducted by PPNI in 2006, 50.9% of nurses in Indonesia from four province suffer stress Work due to demands high and consuming work Lots Of time, and low income and incentives provided (Widodo, 2020). Nurses in the ER tend to experience heavier stress than nurses in the

ward, namely 51 people (87.9%) in the ER experienced stress currently heavy compared to 36 people (62.1%) in the ward from each of the 58 nurses (Mahastuti, 2019).

Based on results studies introduction at the Emergency Room of Hermina Jatinegara Hospital, the number of the nurse in the emergency room a total of 30 nurses and divided into 3 work shifts that is Morning 07.30 to 14.00 WIB, afternoon 2:00 PM to 8:00 PM WIB, and 8:00 PM to 7:30 AM WIB. The emergency room nurse said the emergency room is at home. Sick the always dense at the time Afternoon Day and early day approaching dawn, patient references Lots coming. Head the emergency room said study about stress work and density of the ER has not Once carried out. The density that occurs cause various problem, start from improvement mortality, stress Work nurses who have consequences increase medical errors and suboptimal services, increasing Length of Stay (LOS) so that that all have a big influence on satisfaction patient (Geelhoed and de Klerk, 2020) . Based on description on researchers interested in do something studies about "The Effect of Overcrowding on Nurses' Work Stress and Patient Satisfaction in the Emergency Room of Hermina Jatinegara Hospital".

RESEARCH METHOD

The research design used in this study is descriptive correlative. with use approach cross sectional. Method descriptive correlative on This research is used for study and analyzing about the effect of overcrowding on nurses' work stress and patient satisfaction in the Emergency Room of Hermina Jatinegara Hospital. The nurse sampling technique used total sampling, with 28 nurses as samples. The patient sampling technique used purposive sampling, with 366 patients as samples.

RESULTS OF STUDY

Table 4.1.1
Distribution of Respondents Based on Respondent Characteristics (age, gender, education, and length of service) at the Emergency Department of Hermina Jatinegara Hospital 2025 (n=28)

| No | Variables | Frequency | Percentage |
|----|-----------------------------------|-----------|------------|
| 1 | Age | | |
| | a. Early adulthood (20-30 years) | 9 | 32.1 |
| | b. Middle adulthood (31-40 years) | 13 | 46.4 |
| | c. Late adulthood (41-50 years) | 6 | 21.4 |
| 2 | Gender | | |
| | a. Male | 6 | 21.4 |
| | b. Female | 22 | 78.6 |
| 3 | Education | | |
| | a. D3 Nursing | 14 | 50.0 |
| | b. S1 Nursing | 14 | 50.0 |
| | c. Master of Nursing/Health | 0 | 0.0 |
| 4 | Length of working | | |
| | a. PK 1 (1-3 years) | 2 | 7.1 |
| | b. PK 2 (4-5 years) | 12 | 42.9 |
| | c. PK 3 (> 6 years) | 14 | 50.0 |

Based on table 4.1.1 above , the majority of respondents were in the middle adult category (31-40 years), namely 13 respondents (46.4%). The largest number of respondents were female, namely 22 respondents (78.6%). The number of respondents with a D3 nursing education and a S1 Nursing education was equal. namely 14 respondents (50.0%) each. In general, respondents have a work experience of category PK 3 (> 6 years), namely 14 respondents (50.0%).

Table 4.1.2
Distribution of Respondents Based on Nurses' Work Stress in the Emergency Room of Hermina Jatinegara Hospital in 2025 (n=28)

| Nurses' Work Stress | Frequency | Percentage |
|---------------------|-----------|--------------|
| a. Low stress | 19 | 67.9 |
| b. Moderate stress | 9 | 32.1 |
| c. High stress | 0 | 0.0 |
| Total | 28 | 100.0 |

Based on table 4.1.2 above, show that part big Nurses working in the emergency room experience work stress category low that is as many as 19 respondents (67.9%).

Table 4.1.3
Distribution of Respondents Based on Patient Satisfaction at the Emergency Room of Hermina Jatinegara Hospital in 2025 (n=366)

| Patient Satisfaction | Frequency | Percentage |
|----------------------|------------|--------------|
| a. Satisfied | 349 | 95.4 |
| b. Less satisfied | 17 | 4.6 |
| Total | 366 | 100.0 |

Based on table 4.1.3 above, show that almost all visiting patients to the ER category satisfied with services at the Emergency Room of Hermina Jatinegara Hospital that is as many as 349 respondents (95.4%).

Table 4.1.4
Distribution of Respondents Based on *Overcrowding* in Emergency Rooms Hermina Jatinegara Hospital 2025 (n=366)

| <i>Overcrowded</i> | Frequency | Percentage |
|------------------------------|-----------|--------------|
| a. Not busy | 266 | 72.7 |
| b. Busy | 79 | 21.6 |
| c. Very busy but not crowded | 21 | 5.7 |
| d. Crowded | 0 | 0.0 |
| e. Very crowded | 0 | 0.0 |
| f. Dangerous | 0 | 0.0 |
| Total | 28 | 100.0 |

Based on table 4.1.4 above, show that from results evaluation *Overcrowded* use NEDOCS assessment at Hermina Jatinegara Hospital part big category No Busy that is by 72.7%

Table 4.1.5
The Effect of *Overcrowding* on Nurses' Work Stress in the Emergency Room of Hermina Jatinegara Hospital in 2025 (n=28)

| <i>Overcrowded</i> | Nurses' Work Stress | | | | | | Total | <i>P value</i> | |
|---------------------------|---------------------|-------------|-----------------|-------------|-------------|------------|-----------|----------------|------|
| | Low stress | | Moderate stress | | High stress | | | | |
| | n | % | n | % | n | % | | | |
| Not busy | 13 | 86.7 | 2 | 13.3 | 0 | 0.0 | 15 | 100 | 0.04 |
| Busy | 5 | 55.6 | 4 | 44.4 | 0 | 0.0 | 9 | 100 | |
| Very busy but not crowded | 1 | 25.0 | 3 | 75.0 | 0 | 0.0 | 4 | 100 | |
| Crowded | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |
| Very crowded | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |
| Dangerous | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |
| Amount | 19 | 67.9 | 9 | 32.1 | 0 | 0.0 | 28 | 100 | |

Table 4.1.5 shows that from a total of 15 respondents who overcrowded category not busy most of the respondents experienced low category work stress as many as 13 respondents (86.7%). Of the total of 9 respondents who were overcrowded in the busy category most of the respondents experienced low category work stress as many as 5 respondents (55.6%). Of the total of 4 respondents who were overcrowded in the very busy but not crowded category most of the nurses experienced moderate stress as many as 3 respondents (75.0%). The results of the statistical test obtained a P value = 0.04 ($\alpha < 0.05$) so it can be concluded that there is an effect of overcrowding on nurses' work stress in the Emergency Room of Hermina Jatinegara Hospital.

Table 4.1.6 shows that from a total of 266 respondents who were overcrowded in the not busy category, most of the patient satisfaction was in the satisfied category, as many as 261 respondents (98.1%). From a total of 79 respondents who were overcrowded in the busy category, most of the patient satisfaction was in the less satisfied category, as many as 67 respondents (84.8%). From a total of 21 respondents who were overcrowded in the very busy but not crowded category, the majority of patient satisfaction was in the satisfied category, as many as 21 respondents (100.0%). The results of the statistical test obtained a P value = 0.000 ($\alpha < 0.05$) so it can be concluded that there is an effect of overcrowding on patient satisfaction in the Emergency Room of Hermina Jatinegara Hospital.

Table 4.1.6
The Effect of *Overcrowding* on Patient Satisfaction in the Emergency Room of Hermina Jatinegara Hospital in 2025 (n=366)

| Overcrowded | Patient Satisfaction | | | | Total | <i>P value</i> | |
|---------------------------|----------------------|-------------|----------------|------------|------------|----------------|-------|
| | Satisfied | | Less satisfied | | | | |
| | n | % | n | % | | | |
| Not busy | 261 | 98.1 | 5 | 1.9 | 266 | 100 | 0,000 |
| Busy | 67 | 84.8 | 12 | 15.2 | 79 | 100 | |
| Very busy but not crowded | 21 | 100.0 | 0 | 0.0 | 21 | 100 | |
| Crowded | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |
| Very crowded | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |
| Dangerous | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |
| Amount | 349 | 95.4 | 17 | 4.6 | 366 | 100 | |

DISCUSSION

Influence of Overcrowding on Work Stress in the Emergency Room at Hermina Jatinegara Hospital

The results of this study found that overcrowding significantly influenced work stress ($p = 0.040$). Previous research by Naufal (2020) and Kundiman et al. (2019) also showed that overcrowding in the ER was caused by an increase in the number of patients and delays in patient transfers. Other contributing factors include a shortage of medical staff and limited patient beds, as mentioned by Crawford et al. (2014) and Man et al. (2014). Research by Savioli et al. (2022) stated that an imbalance between the number of ER visits and the availability of beds results in overcrowding. The longer the process of booking an inpatient room, the greater the likelihood of overcrowding. Inpatient admission also extends the patient’s waiting time after the hospitalization decision is made in the yellow zone. Conversely, the faster the patient is transferred to an inpatient room, the shorter the waiting time in the yellow zone ER (Ahsan et al., 2017).

Nurses with less than five years of work experience are more susceptible to stress because they are still in the stage of adapting to the environment and work pressure in the ER. This aligns with the theory of Burston & Tuckett (2019), which states that age, gender, education, and length of service influence stress among nurses. Previous research by Nurcahtani (2022) showed that 43.9% of respondents experienced mild stress, while 56.1% indicated that overcrowding in the ER reached level IV (overcrowded), confirming the relationship between patient density and nurse work stress. Overcrowding in the emergency room occurs due to the disproportionate ratio of patients to nurses, increased patient visits, and delays in transferring patients to inpatient rooms. A shortage of beds also contributes to high Bed Occupancy Rates (BOR). In addition, the dense population around the hospital increases the number of patient visits.

The impacts of overcrowding include delayed treatment, longer length of stay (LOS), medical errors, and increased mortality. Previous studies have also shown that factors such as long waiting times, ineffective triage systems, and shortages of medical staff exacerbate overcrowding. When the ER is fully congested, service efficiency declines, and the risk of sentinel events increases, negatively affecting service quality and patient safety. Research by Omma et al. (2020), titled “Overcrowding in the Emergency Department: An International Issue”, found that 50% of sentinel events occurred in the emergency department, one-third of which were caused by overcrowding. Overcrowding prolongs hospital LOS and increases the intensity of ER care. According to the researchers’ analysis, overcrowding in the emergency room must be considered a critical issue because it affects patient health, causes fatigue among health workers, and increases work stress. Therefore, it is necessary to develop strategies to manage or reduce overcrowding in the ER.

Influence of Overcrowding on Patient Satisfaction in the Emergency Room at Hermina Jatinegara Hospital

The results of this study indicate that overcrowding significantly affects patient satisfaction ($p = 0.000$). Overcrowding in the Emergency Department (ED) shows a negative relationship with patient satisfaction. Overcrowded conditions lead to longer waiting times, decreased quality of service, and increased stress among medical staff, which ultimately influence patients’ experiences and reduce their level of satisfaction.

Overcrowding is defined as a situation where there is a surge in the number of patient visits within a certain period. An increase in patient numbers in the ED can result in delays in treatment and care, postponed access to critical care, reduced inpatient bed availability, increased mortality rates, and decreased patient satisfaction. Generally, overcrowding is caused by an imbalance between service availability and demand in the ED. This includes a shortage of hospital beds, which leads to a high Bed Occupancy Ratio (BOR). Overcrowding has become an international health issue, with multiple impacts, including reduced patient satisfaction with healthcare services and a higher risk of medical errors in patient care and rescue efforts (Dwi, 2022).

Research conducted by Morley, Unwin, Peterson, Stankovich, and Kinsman (2018) confirmed that overcrowding in the ED has negative impacts on patients, staff, and the hospital system. For patients, these impacts include delays in assessment and treatment, increased exposure to errors such as medication errors, reduced satisfaction, longer hospital

stays, poorer clinical outcomes, and increased mortality. For ED staff, overcrowding contributes to higher stress and fatigue, increased exposure to violence, and non-compliance with standard operating procedures. For the hospital system, the impacts include extended Length of Stay (LOS), both within the ED itself (Emergency Department Length of Stay/EDLOS) and in inpatient wards (Inpatient Length of Stay/IPLOS).

Previous studies show that no single factor dominates in causing ED overcrowding. Instead, it is influenced by multiple complex internal and external factors, many of which are beyond the ED's control. This issue affects healthcare systems worldwide, but the causes of this phenomenon remain debated (Pascasica & Mtshali, 2014). According to the present study's analysis, overcrowding was not observed in the Hermina Jatinegara Emergency Room during the research period, as the number of patient visits was not excessively high. Therefore, overcrowding did not significantly impact patient satisfaction at that time. However, it is crucial to continuously maintain and improve the quality of services so that patient expectations are met. The accuracy and speed of service delivery must be optimized to enhance patient satisfaction. Ensuring professional and responsive healthcare services will help achieve higher levels of patient trust and satisfaction.

CONCLUSION

1. Most of the respondents aged mature middle (31-40 years), namely as many as 13 respondents (46.4%). Respondents most is respondents of various types of sex Woman that is as many as 22 respondents (78.6%). Total respondents who have D3 nursing education and a S1 nursing education are the same Lots that is 14 respondents (50.0%) each. In general respondents have a long working experience PK category 3 (> 6 years), namely as many as 14 respondents (50.0%).
2. Assessment results *Overcrowded* use NEDOCS assessment at Hermina Jatinegara Hospital in part big category No Busy that is by 72.7%.
3. Most of the Nurses working in the emergency room experience work stress category low that is as many as 19 respondents (67.9%).
4. Almost all visiting patients to the ER category satisfied with services at the Emergency Room of Hermina Jatinegara Hospital that is as many as 349 respondents (95.4%).
5. The results of the statistical test obtained a $P\ value = 0.04$ ($\alpha < 0.05$), so it can be concluded that there is an effect of *overcrowding* on nurses' work stress in the Emergency Room of Hermina Jatinegara Hospital.
6. The results of the statistical test obtained a $P\ value = 0.000$ ($\alpha < 0.05$), so it can be concluded that there is an effect of *overcrowding* on patient satisfaction in the Emergency Room of Hermina Jatinegara Hospital.

Suggestion

1. For Education

It is expected can used as reference or references in the library institution education health about condition *overcrowding* with quality service health in the emergency room at home Sick.

2. For other researchers

Do study more carry on with amount sample more many and deep evaluate condition *overcrowding* can carried out on every shift and every one hour so more effective.

3. For Hospitals

It is expected with existence study This can made into as material evaluation as effort increase quality service health and overcome condition *overcrowding* in the emergency room.

4. For Nurses

It is expected with existence study This can made into guidelines in increase quality service health and overcome condition *overcrowding* in the emergency room.

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