

### ANALYSIS OF FACTORS INFLUENCING NURSE COMPLIANCE IN EARLY WARNING SCORE MONITORING IN PATIENTS IN THE INPATIENTS ROOM OF RSIA DEDARI KUPANG

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#### Abstract

*Early WarningScore* is a guide used by health workers to evaluate patient conditions with the aim of reducing the incidence of Code Blue and improving early treatment for patients. Nurse compliance plays an important role in supporting patient safety with an attitude of having to respond quickly and act. The type of data used in this study is quantitative data using statistics, with the aim of testing the established hypothesis in the form of a questionnaire. The research sample used was all inpatient nurses at RSIA Dedari Kupang totaling 40 people. The data analysis technique in this study used descriptive statistics and inferential statistics in the form of a list of statements arranged based on indicators from each variable tested including nurse compliance, nurse attitudes, nurse knowledge, nurse motivation, nurse age, nurse work experience, and nurse Early Warning Score training. With a research period from August 2023 to January 2024. The research tool uses the SPSS application.

The results of the study showed that the description of nurse compliance, nurse attitudes, nurse age, nurse work experience, and nurse Early Warning Score training showed very good results. While nurse knowledge and nurse motivation showed good results. The results of inferential statistical analysis showed a significant effect between nurse attitudes, nurse knowledge, nurse motivation, nurse age, work experience and nurse Early Warning Score training on nurse compliance. Based on the results of the study, it is recommended that hospitals need to socialize and improve nurse training in conducting EWS monitoring, and conduct periodic evaluations of skills in assessing and following up on EWS values or scores.

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## INTRODUCTION

Hospitals are a vital component of the national health system that helps the health of the Indonesian people as a whole, be it outpatients, inpatients or emergency services (UUD Kesehatan, 2009). There is a possibility that every hospital procedure or action can endanger patient safety. According to the World Health Organization (WHO), misbehavior affects one in ten patients worldwide, making it a global concern (Darma et al., 2021). Hospitals need to have a way to assess patient conditions so that patients can receive the right therapy.

The use of Early Warning Score in hospitalized patients is one strategy. Early Warning Score has been shown to reduce the incidence of Code Blue and improve timely management of patients showing signs of clinical deterioration (Royal College of Physicians, 2017). Nurses can use the Early Warning Score (EWS) as a guide to assessing a patient's condition using clinical parameters or by quickly assessing the patient's actual condition or level of illness (Paulson, 2017). An important part of the use of the EWS system is carried out by health professionals.

Most researchers have found that the frequency of vital sign recording depends on the patient's condition or the doctor's order. If the patient's condition worsens, the nurse must act or react quickly. (Paulson., 2017). Nurses routinely check vital signs such as body temperature, pulse, blood pressure, respiratory rate, along with oxygen saturation, pain, consciousness, urine output. But some studies show that vital signs are not assessed, recorded and interpreted by nurses consistently. The causes are high workload, lack of awareness of the importance of monitoring vital signs and lack of decision-making authority. So in the process a nurse is required to have knowledge related to the early warning system (Mulyana et al., 2021).

RSIA Dedari Kupang started using EWS for patients in the inpatient room in 2018. Based on observations conducted in the inpatient room, researchers found that the implementation of EWS was not optimal because some nurses continued to monitor EWS as part of their routine work, nurses continued to monitor EWS according to the shift, and did not understand EWS assessment and EWS reporting in the inpatient room.

Based on the background above, it shows the important role of EWS in patient safety and the need to implement it when handling patients, therefore, nurses must know the use of EWS as a tool to anticipate patient emergencies. Several factors, such as attitude, knowledge, motivation, age, work experience, and training that has been followed by nurses, can be used to determine compliance with the implementation of this EWS monitoring. Examining nurse compliance in implementing Early Warning Score (EWS) monitoring in the inpatient room of Dedari Kupang Mother and Child Hospital is interesting for researchers, because research on this topic has never been conducted. This

is because of the importance of implementing EWS in patient-focused services and ensuring patient quality and safety.

### RESEARCH METHODS

This research is a type of quantitative descriptive research. With the aim of testing the established hypothesis. The data analysis technique uses descriptive statistics and inferential statistics in the form of a list of statements in a questionnaire arranged based on indicators of each variable tested including nurse compliance, attitude, knowledge, motivation, age of nurses, work experience of nurses, and Early Warning Score training for nurses. The sampling technique used is the total sampling of all nurses in the inpatient room of RSIA Dedari Kupang with a total of 40 people. With a research period from August 2023 to January 2024. The data obtained from the results of observations and questionnaires were converted for truth and grouped and then tabulated to be entered into the analysis table, then the data was processed using the SPSS application.

### RESULTS AND DISCUSSION

**Table 1**  
**Respondent Characteristics**

Characteristics	Amount(f)	%
Kelmin Type		
- Man	0	0
- Woman	40	100
Age		
- 26 - 35 years	39	97.5
- 36 - 45 years	1	2.5
Work experience		
- 0 months - 12 months	3	7.5
- 12 months – 36 months	19	47.5
- 36 months – 60 months	18	45
Last education		
- D3 nursing	4	10
- S1 Nursing and NERS	36	90
Profession		
Early Warning Score		
Training		
- Yes	36	90
- No	4	10

- No/Have not received training		
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Source: Primary data from Dedari Hospital, processed in 2023

Based on the data in Table 1, it can be seen that from a total of 40 respondents, the majority of the gender was female (100%), with the largest age being early adulthood, namely 26-35 years with a total of 39 respondents (95.5%), the largest work experience was 12 months-36 months with 19 respondents (47.5%), the last education was a Bachelor's degree in nursing and the NERS profession as many as 36 respondents (90%) and nurses who received Early Warning Score training as many as 36 respondents (90%)

The results of the descriptive statistical analysis with the aim of describing respondents' responses to statements that have been made based on each indicator produced the following results:

**Table 2**  
**Descriptive Statistical Analysis**

Variables	Indicator Score	Category
Nurse Compliance	85.85	Very good
Nurse Attitude	84.78	Very good
Nursing Knowledge	80.37	Good
Nurse Motivation	83	Good
Nurse Age	84.37	Very good
Nursing Work Experience	85.5	Very good
Early Warning Score Training for Nurses	90.87	Very good

Source: Primary data from Dedari Hospital, processed in 2023

In Table 2, it is known that the achievement of indicators from variables based on statements that have been prepared and answered by respondents obtained "Very Good" results for the variables of nurse compliance, nurse attitude, nurse age, nurse work experience, and nurse Early Warning Score training, while "Good" results were for nurse knowledge and nurse motivation.

The results of the inferential statistical analysis test with the aim of knowing the influence of each independent variable on the dependent variable, both simultaneously and individually (partially). Based on the results of the data analysis, the multiple linear regression coefficients are obtained as follows:

**Table 3**  
**Multiple Linear Regression Analysis**

Variables	t	Sig
Nurse Attitude	2,461	0.019
Nurse Knowledge	2.236	0.032



Nurse Motivation	6,705	0,000
Nurse Age	2.272	0.030
Nursing Work Experience	3,557	0.001
Early Warning Score Training for Nurses	-6.091	0,000

Source: Source: Primary data from Dedari Hospital, processed 2023

Table 3 shows the results of multiple linear regression statistical tests on the nurse attitude variable (t 2.461, sig 0.019 <0.05), Nurse knowledge (t 2.236, sig 0.032 <0.05), Nurse motivation (t 6.705, sig 0.000 <0.05), Nurse age (t 2.272, sig 0.030 <0.05), Nurse work experience (t 3.557, sig 0.001 <0.05) and Nurse Early Warning Score training (t -6.091, sig 0.000 <0.05). The significance value is smaller than the alpha level used 5% (0.05) then partially the variables of attitude, knowledge, motivation, age, work experience and nurse Early Warning Score training have a significant effect on the nurse compliance variable.

The results of the simultaneous test (F test) to determine whether the independent variables (attitude, knowledge, motivation, age, work experience, and training) *Early Warning Score* nurses) have a significant influence or not on the dependent variable, namely nurse compliance in monitoring the Early Warning Score. Based on the results of the data analysis, the following results were obtained:

**Table 4**  
**F Test**

Model	Sum of Squares	F	Sig
Regression	287,578	20,274	0,000
Residual	76,322		
Total	363,900		

Source: Source: Primary data from Dedari Hospital, processed 2023

In table 4, the results of the statistical test based on the Anova calculation show a calculated F value of 363.900 with a significance value of 0.000. This significance value is smaller than the alpha level used, which is 5% or 0.05, so the 6 (six) independent variables in this study simultaneously have a positive and significant effect on nurse compliance. This means that the rise and fall of nurse compliance is determined by the rise and fall of nurse attitudes, nurse knowledge, nurse motivation, nurse age, nurse work experience and nurse Early Warning Score training.

### Discussion

#### **The Influence of Nurses' Attitudes on Nurse Compliance in the Implementation of Early Warning Score (EWS) Monitoring on Patients in the Inpatient Room of Dedari Kupang Mother and Child Hospital**

Attitude is a tendency to approach or avoid, or do something either positive or negative towards an institution, idea or concept (Azwar., 2011).

The results of this study found that nurses' attitudes have a significant effect on nurse compliance in implementing Early Warning Score (EWS) Monitoring on patients in the inpatient room of Dedari Kupang Mother and Child Hospital. In the nursing profession, there is already a caring nature towards others so that it is easy to create a positive attitude towards nursing service providers to patients so that the attitude of implementing EWS monitoring is part of a caring attitude. With a positive attitude, it is expected to support the implementation of EWS and patient safety targets properly and correctly as a form of nursing intervention.

The results of this study are in line with the findings of research conducted by Wiratmo PA et al (2021) (p attitude 0.001 <0.005) and in line with the findings of research conducted by Rajagukguk CR (2020) (p attitude 0.000 <0.005) and research conducted by Pagala I et al (2017) (p attitude 0.035 <0.005).

However, the results of this study are not in line with the results of the study by Passa et al (2021) which stated that there was no relationship between attitudes and the implementation of the Early Warning Score (p 0.110>0.05) and the findings of another study by Abdu S et al (2020) which showed that there was no relationship between attitudes and nurse compliance in carrying out wound care according to standard operating procedures (p 0.344>0.005).

### **The Influence of Nurses' Knowledge on Nurses' Compliance in Implementing Early Warning Score (EWS) Monitoring on Patients in the Inpatient Room of Dedari Kupang Mother and Child Hospital**

Knowledge according to Notoatmodjo in Kholid (2012) is obtained from education, personal experience and the experience of others. Experience that functions to develop work skills and quality.

The results of this study indicate that nurses' knowledge has a significant effect on nurse compliance in implementing Early Warning Score Monitoring in patients in the inpatient room of Dedari Kupang Mother and Child Hospital. This is because each nurse has been taught basic knowledge about patient safety targets including elements of the Early Warning Score System such as observing vital signs and patient consciousness levels plus training on patient safety targets. This is evident from the results of the respondent questionnaire that they are already knowledgeable in basic knowledge about Early Warning Score monitoring.

The results of this study are supported by the research findings of Handayani N et al (2022) which stated that there was a relationship between knowledge and the implementation of EWS in critical patients at Sulianti Saroso Hospital (p 0.000 <0.05) this study is in line with Wiratmo PA et al (2021) that good knowledge will affect nurse compliance (p 0.002 <0.05). In other research findings conducted by Rajagukguk (2020) it was found that nurse knowledge had a significant effect on the level of nurse compliance (p 0.001 <0.05).

However, the results of this study are not in line with the results of the study conducted by Ratag AC and Kartika (2021) which found no relationship between knowledge and implementation of EWS ( $p\ 0.161 > 0.005$ ) and the findings of another study conducted by Eliwarti (2021) with the results that there was no relationship between knowledge and nurse compliance in implementing patient identification in the internal medicine inpatient ward of Dr. M. Djamil Padang Hospital ( $p\ 0.595 > 0.005$ ).

### **The Influence of Nurse Motivation on nurse compliance in implementing Early Warning Score (EWS) Monitoring in patients in the inpatient ward of Dedari Kupang Mother and Child Hospital**

Motivation is something that provides the strength to encourage individuals to behave in achieving goals (Pieter and Lubis, 2010). With high motivation in each nurse, it will encourage a nurse to increase their productivity in carrying out their duties, including in implementing EWS Monitoring in accordance with applicable SOPs.

The results of this study found that nurse motivation has a significant effect on nurse compliance in implementing Early Warning Score Monitoring in patients in the inpatient room of Dedari Kupang Mother and Child Hospital. This is due to the satisfaction factor that has been felt by some nurses when working such as having responsibility for work, appreciation for performance and self-development by providing opportunities for nurses to always learn.

The results of this study are supported by research findings from Rajagukguk et al (2020) which stated that there was a relationship between motivation and nurse compliance in EWS Monitoring ( $p\ 0.000 < 0.05$ ).

On the other hand, the results of this study are not in line with the research findings of Ratag AC and Kartika (2021) with the results of the study showing no relationship between motivation and the implementation of EWS ( $p\ 0.101 > 0.005$ ) and the findings of other studies conducted by Eliwarti (2021) with the results that there was no relationship between motivation and nurse compliance in implementing patient identification in the internal medicine inpatient ward of Dr. M. Djamil Padang Hospital ( $p\ 0.659 > 0.005$ ).

### **The Influence of Nurse Age on nurse compliance in implementing Early Warning Score (EWS) Monitoring in patients in the inpatient ward of Dedari Kupang Mother and Child Hospital**

Age reflects a person's experience so that there is a diversity of actions based on work patterns and age (Sujarwo., 2013).

The results of this study concluded that the age of nurses has a significant effect on nurse compliance in implementing Early Warning Score Monitoring in patients in the inpatient room of Dedari Kupang Mother and Child Hospital. This shows that age can affect a person's ability to understand and think. As age increases, the ability to understand and think in working also develops so that the knowledge gained will be more. New nurses who are still young or young adults tend to have high spirits and are easy to accept



change.

The results of this study are supported by the research findings conducted by Widjayanti TB (2023) (p 0.000 <0.05), and Abdu S., et al (2020) (p 0.006 <0.05) the research findings stated that age has a significant effect on nurse compliance.

The results of this study are not in line with the research findings of Pagal et al (2017) entitled "Nurses' compliance behavior in implementing SOPs for patient safety incidents at Hospital X Kendari" with the results of the study showing no relationship between age and nurses' compliance behavior in implementing SOPs for patient fall risks at Hospital X Kendari (p 0.802 > 0.005) and the findings of other studies conducted by Ratnawati (2018) with the results that there was no relationship between age and nurses' compliance in implementing hand hygiene before nursing actions at BLU RS Konawe Utara (p 0.524 > 0.005).

### **The Influence of Nurses' Work Experience on nurse compliance in implementing Early Warning Score (EWS) Monitoring in patients in the inpatient ward of Dedari Kupang Mother and Child Hospital**

Work experience can be measured by the time span that has been used for a job, tasks and skills that one has (Hasibuan., 2004),

The results of this study concluded that nurses' work experience has a significant effect on nurse compliance in implementing Early Warning Score Monitoring in patients in the inpatient room of Dedari Kupang Mother and Child Hospital. Work experience is very important for health workers to work, so that they can handle patients well, and patients will be satisfied with the services provided. But on the other hand, sometimes the workload also makes nurses seem disobedient in implementing Early Warning Score monitoring. In addition, nurses with a work period of less than 3 years still need guidance regarding EWS. Work period can describe experience in mastering their field of work. This shows that work experience can be measured by the time span that has been used for a job and task.

The results of this study are supported by the findings of research conducted by Widjayanti TB (2023) entitled "Determinants of Nurse Compliance with Hospital Medical Waste Management during the Covid-19 Pandemic" (p 0.000 <0.05), and Abdu S., et al (2020) entitled "Analysis of Determinant Factors of Nurse Compliance in Implementing Wound Care According to Standard Operating Procedures (SOP) (p 0.004 <0.005). The study stated that there is a relationship between work experience and nurse compliance.

On the other hand, the results of this study are not in line with the findings of the study conducted by Pagal et al (2017) entitled "Nurses' compliance behavior in implementing SOPs for patient safety incidents at X Kendari Hospital" with the results of the study showing no relationship between work experience and nurses' compliance behavior in implementing SOPs for patient fall risks at X Kendari Hospital (p



0.130>0.005) and the findings of another study conducted by Ratnawati (2018) entitled "Factors related to nurses' compliance in implementing hand hygiene before nursing actions at BLU RS Konawe Utara" with the results of no relationship between work experience and nurses' compliance in implementing hand hygiene before nursing actions at BLU RS Konawe Utara ( $p\ 0.518 > 0.005$ ).

### **The Impact of Early Warning Score Training on Nurses on nurse compliance in implementing Early Warning Score (EWS) Monitoring in patients in the inpatient ward of Dedari Kupang Mother and Child Hospital**

Training can be interpreted as a planned process to modify attitudes or behavior, knowledge, skills through learning experiences. With training, employees will be prepared to be given tasks according to what is expected by the institution or company (MSC., 1981).

The findings of this study are that nurse training has a significant effect on nurse compliance in implementing Early Warning Score Monitoring in patients in the inpatient room of Dedari Kupang Mother and Child Hospital. This shows that training is an effort to improve the quality of human resources in the world of work. Nurses, both new and long-time workers, need to receive training because of changing job demands due to changes in the work environment and strategies. Therefore, training is often considered as an activity that can improve the knowledge and skills of nurses so that hospital leaders always support training because through training nurses will become skilled and more productive in providing nursing care. The training obtained can develop existing basic knowledge and can improve the quality of patient safety.

The findings of this study are supported by the findings of a study by Liaw et al (2016) who found a relationship between training in recognizing and responding to patient deterioration with increased knowledge and motivation of nurses in implementing EWS Monitoring ( $p\ 0.001 < 0.05$ ). Likewise, the findings of a study by Saab et al (2017) found a relationship between training in calculating EWS scores and responding to patient deterioration with nurse performance ( $p\ 0.001 < 0.05$ ).

On the other hand, the results of this study are not in line with the findings of the study conducted by Kustriyani M et al (2017) entitled "The relationship between nurse characteristics and the implementation of standard operating procedures for preventing patients at risk of falling in inpatient care at Dr. H. Soewondo Kendal Regional Hospital" with the results of the study showing that there was no relationship between training and the implementation of standard operating procedures for preventing patients at risk of falling in inpatient care at Dr. H. Soewondo Kendal Regional Hospital ( $P\ 0.072 > 0.005$ ).

### **CONCLUSION AND SUGGESTIONS**

Based on the results of the analysis that have been discussed, several conclusions

can be drawn from the results of this study. Descriptive statistical analysis shows that the description of nurse compliance, nurse age, work experience and nurse Early Warning Score training shows "Very Good" results. Meanwhile, the description of nurse knowledge and nurse motivation shows "Good" results. The results of inferential statistical analysis (t-test) show that partially nurse attitudes (Sig 0.010 <0.05), nurse knowledge (Sig 0.032 <0.05), nurse motivation (Sig 0.000 <0.05), nurse age (Sig 0.030 <0.05), nurse work experience (Sig 0.001 <0.05), and nurse Early Warning Score training (Sig 0.000 <0.05) have a significant effect on nurse compliance in Monitoring Early Warning Score in patients in the inpatient room of Dedari Kupang Mother and Child Hospital. The results of the inferential statistical analysis (f test) show that the independent variables simultaneously have a significant effect on the dependent variable, namely nurse compliance in monitoring the Early Warning Score in patients in the inpatient ward of the Dedari Kupang Mother and Child Hospital, which will be very good.

### **Suggestion**

Hospitals need to socialize and remind nurses in conducting EWS monitoring, and conduct periodic evaluations of skills in assessing and following up on EWS values or scores, Hospitals also need to evaluate the implementation of EWS on Code blue incidents and the success of handling them, and further researchers need to consider a longer time span and expand the research object, so that the samples used in the study are more and can obtain more detailed and accurate results, and also as a consideration can add independent variables, both internal and external that will affect nurse compliance, which have not been studied in this study. Given that there are still many more factors that can be related to nurse compliance in EWS Monitoring.

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