

Original Research**Early Warning Score (EWS) And Shock Index (SI) Patients With Physical Restraints (Hand Fixation) In Patients Receiving Intensive Care****Heru Suwardianto^{1*}, Sandy Kurniajati²**¹Department of Critical Care Nursing, STIKES RS Baptis Kediri, East Java, Indonesia²Department of Community Nursing, STIKES RS Baptis Kediri, East Java, Indonesia**ABSTRACT**

Background: Patients with critical conditions may experience agitation and also require immobilization. The patient needs a fixation on the hand (physical restraint) so that medical and nursing interventions can be carried out.

Methods: The research method uses a quasi-experimental posttest design. Patients who received physical fixation intervention or physical restraint in an inpatient room at Baptist Hospital Kediri comprised the population. The study was conducted from June to July 2022. The sample size of the study was 57 patients, using a purposive sampling technique with inclusion criteria, namely total care patients, patients receiving restraints and having Richmond Agitation Sedation Scale (RASS) values $> +1$, and patient exclusion, i.e., patients receiving treatment less than twice a day at 24 o'clock. The independent variables are EWS and SI, and the dependent variables are. Statistical test using Mann Whitney with < 0.05 .

Results: The results showed that the Early Warning Score (EWS) variable obtained a value of $Z = -1.787$ with a p value of 0.238, which means that there was no difference in the EWS value in the control group and the experimental group. The results of the study on the EWS variable obtained a value of $Z = -1.81$ with a p value of 0.074, which means there is no difference in the EWS value in the control group and the experimental group.

Conclusion: EWS and SI did not have a significant difference in the two groups, it is necessary to conduct a study on the physical condition or physical and psychological symptoms of the restraint measures given.

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early warning score, hand fixation, shock index physical restraint;

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INTRODUCTION

A physical restraint or fixation device on the extremity can be defined as a device, material, or physical equipment that has a mechanism to immobilize or hinder a person's ability to move freely, whether through will or not. Physical restraints can be applied to the four extremities, namely the hands or the feet. There are several modified tools that

can be used to perform waist or chest restraints, as well as gloves (Darmawan & Sudiro, 2020).

Physical restraint in the intensive care unit (ICU) varies greatly across the globe, especially for patients on mechanical ventilation. A survey of 121 ICUs in France reported that more than 80% of patients were using mechanical ventilation, and more than 50% were subjected to physical restraint. While collecting survey data in Canada, it was found that more than 50% of patients were restrained, with an average length of restraint of 4 days.

The differences in survey data, as well as the variation in data on restraint measures, necessitate a more in-depth examination of the characteristics of restrained patients. Several studies have shown that the mortality rate of critically ill patients in Asia is higher than 19%. This could be due to the patient being transferred to the recovery room too quickly or to the inaccuracy of the timing of the patient's condition, which should be discharged.

Physical restraints (fixation of the extremities) are more commonly used for safety and to ensure that therapy is administered as planned and to avoid disrupting the treatment process, such as self-extubation, in patients who are considered to be at risk of self-harm due to restlessness, agitation, or anxiety delirium. The goal that can be seen to justify this is that physical restraint is a potential hazard for self-harm. But this needs to be clarified through research results because, if we identify it more deeply, physical restraint is nothing less than the deprivation of freedom.

The treatment of fixation of the extremities or the use of restraint is the same as using handcuffs on someone who has lost their freedom, and the action should obtain informed consent from the family before carrying out the action (Cheng, Yang, Inder, & Chan, 2020). Patients who receive nursing care in intensive care units are places of care for patients who experience a physiological crisis with a poor prognosis of a disease that has the potential to be reversible, threatening one or more body systems and even life, so that the treatment focuses on supporting the failure of one or more systems that can fail. This can be identified through the Early Warning Score (EWS) (Angkasa, 2022; Budiari et al., 2021).

EWS is a specific parameter that contains measurement variables that can be used to detect patients who may be at risk of experiencing poor conditions (Anggraeni & Pangestika, 2020) (Hidayat et al., 2020). The shock index (SI) is a non-invasive parameter that can be used in monitoring the hemodynamic status of patients to assess clinical outcomes and predict mortality in emergency patients, so that it can assist in timely management. SI is a good indicator of blood pressure and pulse measurements. SI can identify outcomes that occur in patients with shock. An increase in SI indicates a decreased left ventricular output, if this occurs continuously, it can cause mortality.

MATERIALS AND METHOD

This study used a quasi-experimental posttest design. Patients who received physical fixation intervention or physical restraint in an inpatient room at Baptist Hospital Kediri comprised the population. The study was conducted from June to July 2022.

The sample size of the study was 57 patients, using purposive sampling technique with inclusion criteria, namely total care patients, patients receiving restraints and having a RASS value $> +1$, patient exclusion, i.e. patients receiving treatment less than twice 24 o'clock. Respondents were divided into two groups, namely the experimental

group and the control group. The experimental group had 27 respondents, and the control group had 27 respondents.

The independent variables are EWS and SI, and the dependent variables are Patients were screened first and then divided into a control group and an experimental group. Restraint instruments were made and modified for this study. This research has obtained ethical clearance with No. 047/13/EC/KEPK-3/STIKES RSBK/2022 from the Health Research Ethics Commission of STIKES Baptist Hospital Kediri on June 13, 2022.

RESULTS

Based on Table 1, it shows that in the sex frequency distribution, the experimental group and the control group obtained a Z value of -0.282 with a p value of 0.778, which means that the sexes of the control group and the experimental group have no significant difference. The results showed that $Z = -0.263$ with a p value of 0.792 on the age variable meant that there was no significant difference in the ages of the control group and the experimental group. The results showed that the value of $Z = -1.966$ with a p value of 0.049 on the job variable means that there is a significant difference in work between the control group and the experimental group.

Table 1. Distribution of Frequency and Research Statistics Test

Variable	Frequency	percent	Z value*	P Value*
Gender				
Male	19	35.2	-0.282	0.778
Female	35	64.8		
Age				
41-50 years old	10	18.5	-0.263	0.792
51-60 years old	18	33.3		
>60 years old	26	48.1		
Occupation				
Civil servant	6	11.1	-1.966	0.049
Employee	15	27.8		
Self	13	24.1		
Not Working	20	37.0		
EWS				
Normal	8	14.8	-1.787	0.238
Low	19	35.2		
Medium	27	50.0		
Shock Index				
<0.7 (Normal)	38	70.4	-1.181	0.074
>0.7 (Shock)	16	29.6		

Based on the results of research on the EWS variable, the value of $Z = -1.787$ with a p value of 0.238 means that there is no difference in the EWS value between the control group and the experimental group. The results of the study on the EWS variable obtained a value of $Z = -1.181$ with a p value of 0.074, which means there is no difference in the EWS value between the control group and the experimental group.

DISCUSSION

The results showed that there was no significant difference in EWS conditions between the experimental group and the control group, with a Z value of -1.787 and a p-value of 0.238. This proves that there is no effect of physical restraint on the condition of EWS in patients who are put on physical restraints in the control group or the experimental group. Restraints are usually done, although some guidelines have not been well explained regarding the patient's condition.

Conventional restraints have no significant difference from the restraints that have been made, which are much better and more comfortable for the patient. Physical restraints have a greater impact on several physical conditions as well as psychosocial and ethical patient care. These factors had no significant impact or difference when it came to mortality and patient condition.

The act of physical restraint on the patient has a physical and psychological impact, but also because there are no studies demonstrating that physical restraint has an impact on EWS scores Anderson & Langi, (2022); Hutabarat et al., (2020); Pujiastuti et al., (2021), or certain mortality conditions, but more importantly so that medical and nursing actions can be carried out as well as possible. Restraint measures also have the aim of preventing falls, but it is necessary to develop the design of a much better physical restraint device so that it can be used more humanely.

The results showed that there was no significant difference in the shock index between the experimental group and the control group, with a Z value of -1.181 and a p-value of 0.074. Based on the research, it was shown that physical restraint in the control group and the experimental group did not have a significant difference in the patient's shock condition. This proves that patients who were given physical restraint in the control group (conventional restraints) had no difference from the experimental group (modified physical restraints).

The act of restraint has no relationship and is related to changes in shock conditions, but physical restraint is more important so that medical and nursing actions can be carried out properly when the patient is agitated (Burry et al., 2018b); (Chieze et al., 2019); (Pomalango, 2020). There needs to be something important to do in the care of patients with agitation so that these actions can be carried out. Physical restraint is carried out and needs to be evaluated, including the response to physical restraint in the area where the binding is carried out, such as the hand or foot.

Evaluation is necessary because some patients experience redness, edema, irritation, and others (Burry et al., 2018a); (Hammervold et al., 2019); (Raveesh et al., 2019). Psychosocially, it is necessary to study whether this is in accordance with the values and norms believed by the patient and family or the values that have developed, because the act of binding will be inhumane without the informed consent of the family, because it would violate the autonomy of a human being, namely freedom (Anasulfalah et al., 2020); (Douglas et al., 2022); (Nielson et al., 2021); (Perers et al., 2021). However, if you look at the principle of not causing harm to the patient, some figures show that physical restraint is more beneficial because it can be done to increase the effectiveness of treatment and therapy.

The need for an explanation to the family regarding restraint and also family consent. SI is used in predicting the severity of hypovolemic shock. The benefits of using SI in assessing clinical outcome and predicting mortality in trauma patients, predicting mortality in pneumonia, predicting ruptured ectopic pregnancy, categorizing pulmonary embolism patients, and predicting prognosis in acute myocardial infarction.

CONCLUSION

Based on the results of the study, it was found that there was no difference between EWS and SI in the two groups, namely the experimental group and the control group, who were given physical restraint (hand fixation). Future studies need to identify physical and psychological responses related to physical restraint given, such as signs of redness, irritation, and the value and ethics of giving physical restraint to patients.

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