

## Conference Paper

# Perceived Facilitators to Preventing Pressure Ulcer among Intensive Care Unit Nurses

Ristina Mirwanti, Aan Nuraeni, and Ayu Prawesti

Faculty of Nursing Universitas Padjadjaran, Indonesia

## Abstract

**Background:** Pressure ulcer or pressure injury is one of the complications of immobility patients in the intensive care unit. Nurses play an important role in pressure ulcer prevention. Actual factors like facilitators to preventing pressure ulcers can affect nurses' behavior to prevent pressure ulcers. **Objectives:** The objective of this study was to identify nurses' perceived facilitating factors that affected pressure ulcer prevention in the intensive care unit. **Methods:** A cross-sectional and quantitative descriptive study design was used to collect data. This study was conducted among nurses working in the intensive care unit in one hospital in West Java. Seventy nurses participated in this study. The facilitator factors questionnaire and information form were used to identify what factors affected pressure ulcer prevention among intensive nurses. Data were analyzed by a computer program using frequency distributive and cross-tabulation. **Results:** From the total sample size, 68.6% (n=70) were female nurses, while 92.9% (n=70) were civil servant nurses. Only 30% (n=70) were graduated from bachelor degree nursing program, and 77.14%(n=70) said they never attended training about pressure ulcer nor wound care management. All of the respondents claimed that in pressure ulcer prevention, they felt facilitators that made pressure ulcer prevention was easier. Access to pressure ulcer relieving device, equipment, and facilitator (97.14%), good teamwork (75.71%), and knowledge (68.57%) were the most commonly mentioned factors that facilitating pressure ulcer prevention. Otherwise, time and amounts of the staff were perceived facilitators named by 40% and 22.86% respondents, respectively. Only 1.43% of respondents stated that the schedule was a facilitator factor. **Conclusion:** Considering the results of this study, facilitating factors were important for intensive nurses to prevent patients' pressure ulcer, and the most commonly named was access to pressure ulcer relieving device, equipment, and facility. To improve the pressure ulcer prevention, the hospital should provide device, equipment, and facility, like pressure distributor; therapeutic linens; protector the skin; and positioner.

**Keywords:** Facilitator, Pressure Ulcer Prevention, Nurse, Intensive Care Unit

Corresponding Author:

Ristina Mirwanti

ristina.mirwanti@unpad.ac.id

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## 1. Introduction

Pressure ulcer has synonyms, including pressure sores and bedsores. In 2016, NPUAP defined pressure injuries as a pressure injury. Pressure ulcer is localized damage to the

skin and/or underlying tissue, usually in prominent bone areas as a result of pressure or pressure together with tears [1]. Factors that influence the incidence of pressure sores in patients are decreased mobility, decreased activity, decreased sensory perception, humidity, friction, tearing force, nutritional status, age, decreased arteriolar pressure, emotional stress, smoking, and skin temperature [2].

According to Keller, Wille, Ramshorst, and Werken (2002) in Suriadi, Sanada, Sugama, Thigpen, Kitagawa, Kinoshita, et al. (2006), the incidence of pressure sores in the Intensive Care Unit (ICU) varies between one to 56% [3]. Research conducted Bly, Schallon, Sona, and Klinberg (2019) found that risk factors developed pressure ulcer were devices, transport off the ICU, need for a switch to specialty bed, delay of 2 or more days before switch to a specialty bed, and deeper sedation score on the Richmond Agitation-Sedation Scale, longer hospital and ICU lengths of stay,  $Svo_2$  or  $Scvo_2$  less than 60% for 5 minutes, a ratio of  $Pao_2$  to fraction of inspired oxygen ( $FIo_2$ ) less than 200, oxygen saturation by pulse oximetry less than 90%, low mean level of hemoglobin, and administration of inhaled dilators, low systolic, low diastolic, and low mean arterial pressure and administration of more than 1 vasopressor, lowest level of albumin, and blood glucose level greater than 180 mg/dL, and a history of pulmonary disease [4]. They concluded in a model of pressure, oxygenation, and perfusion risk factors for pressure ulcers.

Pressure ulcers in patients can cause problems for patients, namely reducing the quality of life due to discomfort, loss of ability to mobilize and independence, and cause social isolation, even in some cases can cause death. Patients who experience pressure sores have a higher risk of morbidity and mortality. A pressure ulcer is considered a financial burden on the health system. These chronic wounds could make the increased length of stay and death, and patients are at greater risk of complications such as cellulitis, osteomyelitis, and sepsis. Increased length of stay will have an impact on increasing patient care costs. In 2000, the National Health Service in the UK estimated the direct costs associated with treating pressure sores to be between 1.4 billion Euros to 2.1 billion Euros. For nursing staff, the presence of pressure ulcers means an increase in workload because they require a different treatment approach [5]. So that continuous prevention is needed to prevent the occurrence of pressure ulcers. Nurses have an important role in the prevention of pressure ulcers [6].

Prevention of pressure ulcers in patients at risk should be carried out on an ongoing basis as long as they are at risk of experiencing pressure ulcers [7]. Prevention of adequate pressure ulcer is an important thing that needs to be done because pressure ulcer can be avoided if effective prevention is done. Reducing the duration and/or

amount of pressure and tears that are affected by effective or inadequate equipment, and the methods used is the objective of pressure ulcer prevention.

Prevention of pressure ulcers can be conducted by regularly assessing patient risk, using mattresses that distribute pressure, ensuring compliance with patient nutrition, minimizing friction and tears when moving patients, mobilizing patients, and performing skincare [8, 9]. In prevent pressure ulcers, many things affect nurses in implementing them. One of them is the perceived facilitators. Research conducted by Kallman and Suserud (2009), the perceived facilitators by nurses in the prevention of pressure ulcer that is easy access of getting facilities to reduce pressure (61%), knowledge (57%), preventive routines (35%), good teamwork (33%), sufficient staff (18%), dressing (16%), proper documentation (15%), time (14%), nutritional assessment (8%), and delegated staff (5%) [5]. Otherwise, research conducted by Strand and Lindgren (2010) on nurses in four intensive care rooms (ICU) in Swedish hospitals shows the results that the perceived facilitators of nurses in preventing pressure ulcer include time (24.8%), patient status (4.1%), sufficient staff (23.9%), knowledge (38%), easy access to equipment to reduce pressure (35.5%), involvement on patient care (14.9%), interested staff (4.1%), cooperative patients (2.5%), skin assessments (14.0%), habits (5.8%), proper reports (5.8%), risk assessment (4.1%), and ignorance (2.5%) [6]. This study was aimed to identify nurses' perceived facilitating factors that affected pressure ulcer prevention in the intensive care unit in one of the hospitals in West Java.

## 2. Methods

### 2.1. Study design

A cross-sectional quantitative descriptive study was carried out using a paper-based questionnaire on active nurses in a hospital in West Java, and data collection was carried out in June 2013.

### 2.2. Sample/participant

This research was conducted on nurses in the intensive care room, amounting to 70 nurses. Nurses who become participants were nurses who provide care directly to patients.

### 2.3. Instrument

A paper-based questionnaire was used in collecting data in this study to identify what factors affected pressure ulcer prevention among intensive nurses. The questionnaire consisted of a demographic data section and question section related to factors that made it easier to implement the prevention of pressure ulcer. This questionnaire was prepared by researchers based on a literature review.

### 2.4. Data collection procedure

This study has received ethical clearance from the Ethics and Research Committee with letter number 153/UN6.C2.1.2/KEPK/PN/2013. The researcher provided explanations to prospective respondents related to research objectives and how to collect data. If the respondent agrees to be a research respondent, the researcher has given the consent form to be signed. The researcher provides opportunities for prospective respondents to decide whether or not they will participate in this study. Respondents who agree to be participants will be given an assessment questionnaire. The time used to complete the instrument was 10 minutes.

### 2.5. Data analysis

The data that has been collected was entered into the computer program. Each respondent would choose maybe more than one answer item. Data were analyzed using univariate analysis to determine the frequency distribution. Data were presented as a percentage, mean, and median.

## 3. Results

Seventy nurses agreed to be participants in this study and completed the questionnaire. Of all respondents, 68.6% (n=70) were female nurses, and the mean age of respondents was 33 years old, and the range 25 – 55 years old. Otherwise, the median length of work was ten years, and the range was 2 – 30 years. It was reported that 92.9% (n=70) were civil servant nurses. In this study, only 30% (n=70) were graduated from bachelor degree nursing program, and 77.14%(n=70) said they never attended training about pressure ulcer nor wound care management.

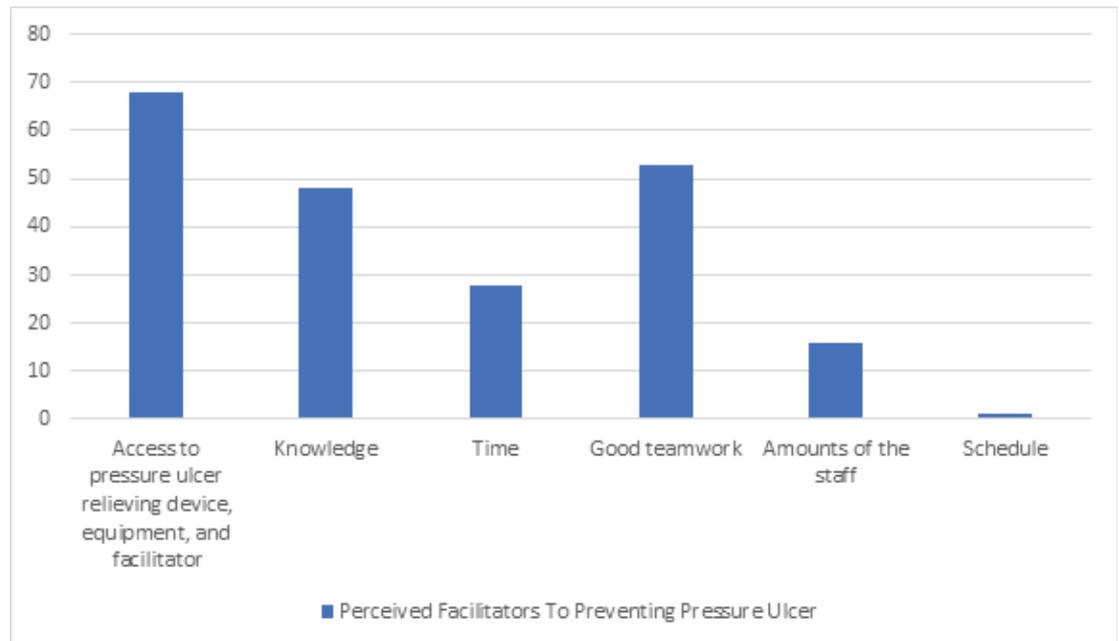
TABLE 1: Characteristics of nurses working in the intensive care unit (n=70).

Characteristics	n (%)
Sex	
Female	48 (68.6)
Male	22 (31.4)
Education	
Diploma degree	49(70)
Bachelor degree	21 (30)
Employment status	
Civil servant	65(92.9)
Not civil servant	<i>f</i> (%): 5(7.1)
Wound care Training	
Yes	15(21.43)
No	55 (78.57)
Age	Mean (SD): 33.86 (6.0) Median (range): 33(25-55)
Length of work	Mean (SD): 10.67 (6.5) Median (range): 10(2-30)

In this study, 97.14% participants reported that access to pressure ulcer relieving devices and equipment was the facilitating factor to prevent a pressure ulcer. Not only equipment but also nurses' factors were also important. Good teamwork and knowledge toward pressure ulcer prevention were also perceived as facilitating factors for implementing pressure ulcer prevention. Participants stated those factors were 75.71% and 68.57%, respectively. Otherwise, time and amounts of the staff were perceived facilitators named by 40% and 22.86% respondents, respectively. But only 1.43% of respondents stated that the schedule was a facilitator factor for preventing a pressure ulcer.

#### 4. Discussion

Nurse's perception of the ability to prevent pressure ulcer is influenced by the perceived facilitator and barrier that is felt in preventing a pressure ulcer. This study showed that almost all of the participants stated access to get tools and equipment to reduce the pressure could facilitate pressure ulcer prevention. National Clinical Guideline Centre (2014) explained many devices could reduce and redistribute pressure, friction, and shearing forces include mattresses, overlays, cushions, and seating [10]. How to select the devices, depends on the risk factors like the mobility of the patient, skin condition,



**Figure 1:** Nurses' perceived facilitators to preventing pressure ulcer (n=70).

**TABLE 2:** Nurses' perceived facilitators to preventing pressure ulcer based (n=70).

Characteristic	Access to pressure ulcer relieving device, equipment, and facilitator n (%)	Knowledge n (%)	Time n (%)	Good teamwork n (%)	Amounts of the staff n (%)	Schedule n (%)
Sex						
Male	21(30)	14(20)	9(12.86)	17(24.28)	6(8.57)	0
Female	47(67.14)	34(48.57)	19(27.14)	36(51.42)	10(14.28)	1(1.43)
Education						
Diploma degree	48(68.57)	31(44.28)	21(30)	36(51.42)	10(14.28)	1(1.43)
Bachelor degree	20(28.57)	17(24.28)	7(10)	17(24.28)	6(8.57)	0
Training						
Yes	54(77.14)	35(50)	25(35.71)	41(58.57)	13(18.57)	0
No	14(20)	13(18.57)	3(4.28)	12(17.14)	3(4.28)	1(1.43)

the level of and site at risk, patient's weight, skill and availability of the nurses, also the patient's condition. Kalman and Suserud (2009) found the same thing. 61% of nurses said that easy access to getting facilities to reduce pressure facilitated the pressure ulcer prevention meanwhile, Strand and Lindgren (2010) found only 35.5% of nurses stated easy access to equipment to reduce pressure was facilitating factor to preventing a pressure ulcer [5, 6]. The result of this study was the highest. It can be caused nurses felt that tools and equipment were really important. In the hospital which this study

conducted, equipment which available was air mattresses. Nurses should consider using therapeutic linen. Therapeutic linen could be used to reduce the shear.

Good teamwork was the second perceived facilitator in this study that was 75.71%. It was different if it is compared to Kalman and Suserud's (2009) study, in which the factor was perceived as a facilitator by 33% nurses [5]. Good teamwork is important, but, there was a lack of evidence concerning whether wound-care teams which make a difference to the presence or healing of pressure ulcers [11]. In the hospital, nurses usually are expected to understand and able how to prevent and manage pressure ulcers. But in reality, they depend on the advice and support of other health professionals on how to maintain their patients' skin integrity. Otherwise, the level of support for nurses from other health professionals in the multidisciplinary was varied. So, nurses in a clinical setting should be proactive in seeking input from other health professionals, because many members of the multidisciplinary team could give them the advice and support that they need in prevention and management of pressure ulcer [12].

The nurses in this study named that knowledge in pressure ulcer prevention was a facilitator to preventing a pressure ulcer. But, many pieces of evidences showed that nurses had inadequate knowledge. The newest evidence of Meyer, Verhaeghe, Hecke, and Beeckman's (2019) study highlights an important knowledge deficit about pressure ulcer prevention [13]. This study surveyed in 16 Belgian hospitals conducted among nurses and nursing assistants. Seeing that knowledge was important for nurses, the hospital should assess nurses' knowledge regularly and improve the knowledge because knowledge can affect attitude and behavior on pressure ulcer prevention. For improving knowledge, the hospital should conduct training about pressure ulcer prevention and management.

## 5. Conclusion

Considering the results of this study, facilitating factors were important for intensive nurses to prevent patients' pressure ulcer, and the most commonly named was access to pressure ulcer relieving device, equipment, and facility. To improve the pressure ulcer prevention, the hospital should provide device, equipment, and facility, like pressure distributor; therapeutic linens; protector the skin; and positioner.

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## Conflict of Interest

The authors of this article have no conflicts of interest to declare.

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