

Nurses' Perceived Barriers to The Prevention of Pressure Injury and Related Factors in Indonesia

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ABSTRACT

Background: Incidence of pressure injury (PI) in Indonesia is high. Therefore, Indonesian nurses should take measures to prevent PI from developing. Considering the high incidence of PI in Indonesia, there could be some barriers faced by Indonesian nurses in performing prevention of PI. However, to date, no study has assessed the perceived barriers and factors associated with perceived barrier of prevention of PI in Indonesian nurses.

Objective: This study aimed to assess perceived barriers to prevention of PI and associated factors in Indonesian nurses.

Method: A total of 521 nurses participated in the study. A pressure injury prevention barriers questionnaire was used to assess perceived barriers of prevention of PI. A multivariate logistic regression model was used to analyse factors associated with the perceived barriers.

Results: The two most perceived barriers in nurses were lack of preventive devices such as special mattresses, cushions, and skin care products, and a lack of training courses related to prevention of PI. Associated factors emerging from the results were working experience (AOR =1.74) and working unit (AOR =2.73).

Conclusion: Nurses perceived behaviors control over nursing care documentation were slightly over the mediocre values, Nurses tend to have positive perception on their control over documenting nursing care.

KEYWORDS

Barriers; nurses; prevention; pressure injury

INTRODUCTION

Pressure injury (PI) is injury to the skin and soft tissue that usually occurs over a bony prominence and may be associated with medical devices (European Pressure Ulcer Advisory Panel and Alliance, 2014; Edsberg *et al.*, 2016). It is a serious problem in various clinical settings (Hahnel *et al.*, 2017; Tubaishat *et al.*, 2018; Li *et al.*, 2020), and its significance in Indonesia is indicated by high incidences of PI (28.4%) and high incidences of severe PI (42.3%) in the country (Suriadi *et al.*, 2008). Preventive measures should be conducted by Indonesian nurses since patients with PI commonly suffer from physiological, physical and economic problems, frequently leading to diminished quality of life and even death (Allman, 1997; Spilsbury *et al.*, 2007; Padula and Delarmente, 2019; Song *et al.*, 2019).

Pressure injury is considered as being primarily preventable (Black *et al.*, 2010; Barker *et al.*, 2013;

Amir *et al.*, 2017; Schmitt *et al.*, 2017). Therefore, nurses should take measures to prevent PI from developing or deteriorating. Considering the high PI incidence in Indonesia, barriers to prevention of PI might be faced by Indonesian nurses. It is important to determine what the perceived barriers faced by Indonesian nurses are, so that appropriate programs to reduce these barriers can be conducted. A previous study in the US showed that the barriers faced by nurses in the US are lack of staff and lack of time (Moore and Price, 2004). There is an urgent need for a greater understanding of it, and therefore, the first aim of this study was to investigate Indonesian nurses' perceived barriers to prevention of PI.

To reduce the barriers of prevention of PI, it is needed to investigate the factors associated with perceived barriers of prevention of PI in Indonesia. Therefore, the second aim of our study was to investigate the factors related with Indonesian nurses'

perceived barriers to prevention of PI in hospital settings. Determining the factors related to Indonesian nurses' perceived barriers to prevention of PI is crucial since it can guide nurse administrators to develop specific programs to reduce those barriers.

METHODS

Population and Sample

A cross-sectional study was carried out to assess Indonesian nurses' perceived barriers to PI prevention and related factors. The study was conducted in public hospitals in Central Java Province, Indonesia via convenience sampling. The sample calculation was obtained using the following formula: $n = Z^2P(1-P)/d^2$ (n = sample size, $Z = 1.96$, $P = 0.5$, and $d = 0.05$) (Pourhoseingholi, Vahedi and Rahimzadeh, 2013). Participants were all nurses working in units with cases of PI. The inclusion criteria were those nurses with at least a year's working experience who volunteered to participate. The study was conducted with approval from the Institutional Ethics Committee of the Faculty of Health Sciences, Universitas Jenderal Soedirman, and written informed consent was given by each participant. The head of nurses helped the researcher by distributing questionnaires and checking whether returned questionnaires were complete.

Instrument

The questionnaire used for gathering data contained two parts. The first part collected demographic data consisting of age, gender, marital status, level of education, income, working experience, training history, and working unit, while the second part

consisted of the Pressure Injury Prevention Barriers (PIPB) questionnaire.

The Pressure Injury Prevention Barrier is a questionnaire used to assess nurses' perceptions of barriers to prevention of PI (Lopez-Franco *et al.*, 2020). It contains 25 items related to different factors and situations that could be perceived as barriers to carrying out prevention of PI. Each item was rated with a 4-point scale according to how often respondents perceive that the barrier will occur in their regular practice. The highest possible score was 75 points. To calculate the number of barriers perceived, one point being given for each "frequently" or "always", and no points being given for each "never" or "sometimes". Those scoring less than or equal to the mean value were categorized as perceiving low barriers, while those scoring greater than the mean value were categorized as perceiving high barriers. The questionnaire has a satisfactory Cronbach alpha of 0.90, and the Cronbach alpha of this study was 0.92.

The translation process followed that of a previous study (Brislin, 1970). The English translation into Bahasa Indonesian was conducted by two wound care experts, and then four bilingual experts performed back-translation. The final version was then checked by two wound care experts. A pilot study was carried out on 20 nurses to determine whether it was easy to understand the questions. The content validity was assessed by 10 wound care experts. The item content validity index was 0.9 and the scale content validity index was 0.9, indicating good content validity.

Data Analysis

Descriptive statistics were used to illustrate the frequencies of the study variables. A bivariate analysis was carried out using a Chi-Square test and variables with P-values ≤ 0.25 were fitted into a multivariate logistic regression model. P-values less than 0.05 were considered significant. The statistical analyses were conducted using SPSS, version 25.

RESULTS AND DISCUSSION

Results

A total of 521 nurses participated in this study. The socio demographic characteristics of the participants can be seen in Table 1.

Tabel 1 Demographic data of participants (N= 521)

Variable	N	%
Age		
<40 years old	343	65.83
≥ 40	178	34.17
Gender		
Male	243	46.64
Female	278	53.36
Marital status		
Single	33	6.33
Married	473	90.79
Others	15	2.88
Level of education		
Diploma	287	55.09
Bachelor and higher	234	44.91
Income		
Low income	120	23.42
Middle income	267	51.25
High income	134	25.72
Working experience		
Fewer than 5 years	149	28.60
5 years or more	372	71.40
Training history		
No	404	77.54
Yes	117	22.46
Working unit		
ICU	50	9.60
Non-ICU	471	90.40

The perceived barriers to preventing PI can be seen in table 2. Two barriers are commonly perceived by nurses in Indonesia. These are lack of preventive devices (such as special mattresses, cushions, and skin care products) and lack of specific training courses related to prevention of PI in the workplace. For the first item, 216 (41.5 %) of nurses answered “frequently” and 35 (6.7 %) of nurses answered “always”, indicating that almost half of nurses considered a lack of preventive devices as being a barrier to prevention of PI. For the second item, 205 (39.3 %) of nurses answered “frequently” and 33 (6.3 %) of nurses answered “always”, indicating that almost half of nurses considered lack of training to be a barrier to prevention of PI.

Factors associated with perceived barriers to prevention of PI

The results of the multiple logistic regression analysis are shown in Table 3. The factors associated with perceived barriers to prevention of PI are working experience and working unit. Nurses with five or more years of clinical working experience were almost two times more likely to have higher perceived barriers than those with less clinical experience (AOR =1.74, 95%CI :1.06, 2.85; 0.029), and nurses working in units other than ICU were almost three times more likely to have higher perceived barriers than those nurses working in ICU (AOR =2.73, 95%CI :1.39, 5.35; 0.003).

Tabel 2 Barriers of Pressure injury prevention

No	Item	Never	Sometimes	Frequently	Always
1	Difficulty to understand therecommendations and/or itslevel of evidence, from the guidelines or protocols.	47(9)	373 (71.6)	99 (19)	2 (0.4)
2	Lack of motivation of nursing professionals.	159 (30.5)	309 (59.3)	51 (9.8)	2 (0.4)
3	Difficulty to understand the findings from research.	76 (14.6)	342 (65.6)	97 (18.6)	6 (1.2)
4	Low priority for prevention of pressure injuries by nursing professionals.	105 (20.2)	336 (64.5)	75 (14.4)	4 (0.8)
5	Lack of preventive devices (such as special mattresses, cushions, skin care products).	90 (17.3)	179 (34.4)	216 (41.5)	35 (6.7)
6	Lack of knowledge about pressure injuries prevention.	132 (25.3)	272 (52.2)	113 (21.7)	3 (0.6)
7	Lack of time to carry out preventive care.	95 (18.2)	315 (60.5)	106 (20.3)	5 (1)
8	Incorrect use of equipment and devices due to lack ofstaff training.	106 (20.3)	295 (56.6)	108 (20.7)	12 (2.3)
9	Lack of evaluation by facility management of the preventive interventions provided by the nursing team	83 (15.9)	288 (55.3)	132 (25.3)	18 (3.5)
10	Lack of job satisfaction.	156 (29.9)	258 (49.5)	99 (19)	8 (1.5)
11	Lack of patient cooperationin applying preventive measures.	62 (11.9)	301 (57.8)	148 (28.4)	9 (1.7)
12	Lack of multidisciplinary team for prevention.	97 (18.6)	275 (52.8)	140 (26.9)	7 (1.3)
13	Incomplete recording of the interventions provided to the patients.	141 (27.1)	299 (57.4)	73 (14)	6 (1.2)
14	Difficulty to understand the pressure injury risk assessment scales.	105 (20.2)	302 (58)	111 (21.3)	3 (0.6)
15	Lack of awareness of possible legal responsibility of the professionals when patients develop pressure injuries during the stay at the	163 (31.3)	285 (54.7)	61 (11.7)	12 (2.3)

Table 3. Factors Associated with Perceived Barriers of Pressure Injury Prevention (n=521)

Variables	Level of Barrier		COR	P-Value	AOR	P-Value
	Low	High				
Age						
<40	202	141	Reference			
≥40	80	98	1.76 (1.21-2.53)	0.003	1.31 (0.87-1.98)	0.194
Educational level						
Diploma	165	122	Reference			
Bachelor or higher	117	117	1.35 (0.95-1.91)	0.088	1.39 (2.02-1.39)	0.08
Income Level						
Low	77	46	Reference			
High	205	193	1.58 (1.04-2.39)	0.032	1.39 (0.89-2.17)	0.145
History of PI prevention training						
No	213	191	Refence			
Yes	69	48	1.78 (0.51-1.18)	0.233	0.77 (0.44-1.05)	0.079
Working Duration						
Fewer than 5 years	92	57	Reference			
5 years or more	190	182	1.95 (1.24-3.07)	0.004	1.74 (1.06-2.85)	0.029*
Unit of Work						
ICU	37	11	Reference			
Non-ICU	245	226	2.62 (1.36-5.06)	0.004	2.73 (1.39-5.35)	0.003**

*P<0.05, ** p<0.01

Discussion

This study was the first to investigate nurses' perceived barriers to prevention of PI and related factors in Indonesia. Our findings showed there are two main perceived barriers. These are the lack of preventive devices such as special mattresses, cushions, and skin care products and the lack of available courses for specific training on prevention of PI. We also found working experience and working unit to be factors related to perceived barriers of prevention of PI.

According to our findings, one of the barriers is the lack of preventive devices such as special mattresses, cushions, and skin care products. Special mattresses or cushions can be used to relieve or redistribute pressure beneath a patient's body, thereby increasing blood flow to tissues and helping prevent PI from developing (International, 2010; Panel, 2019; Shi *et al.*, 2020).

The second most perceived barrier to prevention of PI is a lack of training courses related to prevention of PI. In Indonesia, although some trainings related to wound care are frequently given by hospitals, these trainings tend to focus on treating wounds rather than preventing PI. Nursing administrators in hospitals should therefore design training sessions for nurses that focus on the prevention of PI. This is paramount for nurses in Indonesia, since training significantly improves levels of knowledge, attitude, and practice related to prevention of PI (Bai *et al.*, 2020; Hu, Sae-Sia and Kitrungrote, 2021). Because of a lack of training, many

nurses in Indonesia have not had the opportunity to update their knowledge relating to prevention of PI. As described in a previous study, many nurses in Indonesia still believe the use of a donut can prevent PI, despite the most recent guidelines recommending against it (European Pressure Ulcer Advisory Panel and Alliance, 2014; Amir *et al.*, 2017).

We found that one of factors related with barriers of PI prevention is the working experience. Surprisingly, nurses with five or more years of clinical experience perceived almost two times more barriers than those with less experience. This might be because those with more working experience have more awareness than those with less working experience about best practice or standard practice in the prevention of PI and are therefore more likely to understand that prevention of PI in their workplace is still far from standard practice. The higher awareness in those nurses with more working clinical experience might be due to them having significantly higher knowledge regarding prevention of PI than those with less clinical experience, as suggested in the previous studies (Pancorbo-Hidalgo *et al.*, 2007; Aydin and Karadağ, 2010; Ebi, Hirko and Mijena, 2019). Further research is needed to confirm this finding.

Our study found that nurses working in non-ICU areas experienced more perceived barriers compared to those working in ICU. This unexpected result might be due to hospitals in Indonesia being more concerned about prevention of PI in ICU settings than other working units, considering that most patients in ICU are at high risk of developing PI (Black *et al.*, 2010; Zuo and

Meng, 2015; He *et al.*, 2016; Coyer and Tayyib, 2017; Coyer *et al.*, 2017; de Azevedo Macena *et al.*, 2017; Masyitha *et al.*, 2020; de Assis *et al.*, 2021; Jacq *et al.*, 2021; Labeau *et al.*, 2021). This could lead hospitals to overlook PI occurrences in other working units and focus more on providing devices, such as mattresses, and training courses to prevent pressure injury in ICU settings. It could also mean that nurses working in ICU are more likely to be trained in PI prevention than nurses working in other working units.

LIMITATION

There are some limitations of the study. The design of this study, which is cross-sectional, might make it impossible to conclude the cause-and-effect relationship between variables. Despite the limitations, this is the first study in Indonesia to investigate nurses' perceived barriers to prevention of PI and related factors. Our results can be used as evidence for hospital administrators to design programs to help nurses improve the quality of prevention of PI in Indonesia. Future studies investigating other factors associated with perceived barriers to prevention of PI are needed.

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