

## Oncology Nurses' Beliefs, Attitudes, Perceived Barriers towards Pressure Ulcer Prevention

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### Abstract

**Introduction:** Pressure ulcer incidence rate continuously increase alarming-both community and hospital acquired. Nurses' response may have an important role in pressure ulcer prevention. This study aims to assess the oncology nurses' attitude, knowledge and perceived barriers towards pressure ulcer prevention and identify the type of pressure ulcer training they had attended.

**Method:** The respondents of this study are oncology nurses working in Comprehensive Cancer Center. A cross-sectional descriptive research survey and convenience sampling technique was used. This study involved 118 nurses from cancer center.

**Result:** A positive attitude (mean=51.18%) was reported by oncology nurses concerning pressure ulcer prevention with a high frequency of agreement to the positive statements. The condition of the patient was the leading perceived barrier to a proper assessment of pressure ulcer (76%) and followed by appropriate application of prevention measures (67%). Lack of time, lack of cooperation, lack of staff also was reported as hindrances. In-service and lectures topped the educational training they had attended.

**Conclusion:** Oncology nurses have a positive attitude towards pressure ulcer prevention. Nurses' positive response may be utilized to achieve the overall goal of decreasing incidence and recurrence of pressure ulcer among cancer patients. Though some trends may be deemed inevitable, continuous education and innovative approach may be implemented to help in fulfilling the roles and responsibilities set for each nurse working in a clinical setting.

**Keywords:** Oncology; Pressure; Ulcer; Skin; Prevention

### Introduction

Pressure ulcers are identified as an inevitable problem in hospital institutions. It is considered as a worldwide threat to patient safety and a challenge among health care providers [1]. Most patients are suffering from a relative effect of pressure ulcer with a significant impact on hospital costs related to a prolonged hospital stay [2]. In spite of series of workshops and in-service sessions for pressure ulcer prevention, the alarming issue with the incidences continues. Therefore, effective nursing strategies must be undertaken for desirable outcomes to achieve [3].

Pressure ulcers occur due to applied pressure to soft tissue resulting in full or partial obstruction of blood flow to the underlying muscle. Pressure ulcer develops when capillaries supplying the skin and subcutaneous tissues are compressed enough to impede perfusion, leading ultimately to tissue necrosis. Shear is also a cause as it can pull on blood vessels that feed the skin. Pressure ulcers most commonly develop in individuals who are immobile, like bedbound and patients who use wheelchairs [4]. The incident rates of pressure ulcer vary significantly with healthcare settings. There is remarkable evidence that the majority of pressure ulcers occur relatively early in the admission process. With the increased acuity of elderly patients admitted and decreased lengths of stay in the hospital, new data

suggests that 15 percent of elderly patients will develop pressure ulcers within the first week of hospitalization [1]. Pressure ulcers in cancer patients affect the quality of life and patient experience. The dermatological toxicity of cytotoxic agents, sores due to non-metastatic cancer, infection, and radiotherapy are the most common factors that compromise skin integrity of cancer patients. In 2008 to 2009 international pressure ulcer prevalence, out of 4941 oncology patients surveyed, 540 (11%) of them had pressure ulcers with 1.1% have had acquired stage 3 and higher. Pressure ulcer incidence rate continues to increase alarmingly-both community and hospital acquired. Despite the increasing hospital cost in pressure ulcer prevention, this issue remains a significant healthcare problem.

As patient advocates, nurses have a unique role to restore the patient quality of life and improve patient and family experience. Preventing pressure ulcer requires a complex interaction of intervention. The primary preventive action is pressure redistribution in body surfaces. A two-hour repositioning schedule should be the minimum interval for patients at risk [5,6]. Healed pressure ulcers remain fragile and vulnerable to break down. These areas especially if they involve regions that have body weight applied to it must have progressive mobilization program developed to increase sitting or lying times [7]. The use of assistive devices will take part in redistributing body surface pressure, especially over bony prominences. The role of education for health care providers cannot be underestimated. Reinforcement through staff

knowledge and implementation of current updates may help prevent pressure ulcer occurrence. For the initiative of pressure ulcer prevention, nurses' attitude could have a substantial role in the implementation. However, expenditure on this topic needs to be targeted immediately [8]. The target costs for implementation of applicable devices should be planned systematically by the administration.

Strategies need to be undertaken to help improve wound healing and provide a better quality of life [9]. Wound care in palliative patient needs special attention and care as they are at the end of life stage. Increasing immobility is anticipated as the patient becomes ill, yet it is essential to keep the skin intact for as long as possible [10]. Many patients receiving palliative care may prefer comfort rather than position due to pain. Usage of upscale devices such as low air loss mattress and positioning devices will help reduce the interventions. Skin assessment requires a range of various strategies for evaluation. Patients must classify for risks, and preventive actions need to apply upon the initial admission in the hospital. Some nurses may consider this as an added workload which may be a hindrance to proper care and prevention [11]. However, wound care needs continuous management to prevent more worsening of skin breakdown during hospitalization. A regular skin assessment and pressure risk checking must conduct as some patients may tend to develop pressure ulcers even when the pressure ulcer risk assessment scale does not say so [12].

Healthcare professional including nurses and physicians need to identify perception level on pressure ulcer prevention so that area for improvement can be addressed. Nurses' perception of pressure ulcer may have the tendencies to be unrealistic [13]. Knowledge and skills are essential factors to be taken for the improvement of care for pressure ulcer prevention and management [14]. In fact, there may be gaps in the knowledge about recommendations for pressure ulcer care and deficiencies in their implementation. Therefore, the nurses need to undergo a survey about general knowledge of pressure ulcer prevention, staging, description, and treatment versus their self-perceived need.

Studies have shown that inappropriate or inadequate documentation of pressure ulcer risk assessments and interventions may hinder the delivery of effective measures of prevention [15]. Documentation deficiencies may have consequences for the quality and safety care. Often lacking in the documentation data may lead to the false direction in the continuity of patient care [14].

Pressure ulcers are identified as a quality indicator in nursing care. It commonly occurs among long stayed patients. It may be associated with patient's current condition and may aggravate by existing comorbidities. However, it could be avoided through regular care and initiation of evidence-based strategies [16,17]. This study aims to know the oncology nurses' attitude, knowledge and perceived barriers towards pressure ulcer prevention and identifies the type of pressure ulcer training they had attended.

## Methods

### Study design and settings

A cross-sectional descriptive research designed was used in this study. This study was conducted in the Comprehensive Cancer Center of King Fahad Medical City.

### Sample population and sampling procedure

This study involved 118 oncology nurses through convenience sampling process. Nurses who worked in various cancer care specialties are eligible to participate. However, nurses who were on leave, nurses outside cancer center performing cancer care management, and nurses who refused to cooperate were all excluded from the study.

### Instrument

The tool was evaluated by experts in the field of oncology, so the nurses in cancer center were aware with the survey. Thereafter, a pilot test was conducted to assess the clarity of the questions. The instrument for data collection is composed of five sections.

**Section 1:** The study population was asked to answer socio-demographic information.

**Section 2:** The questionnaire statements used to assess nurses' attitude towards pressure ulcer prevention [7]. The tool grading system was adopted from a recent study in Nigeria [13]. The original English language version of 11 item questionnaire was carefully assessed through content validity discussions and screened for cultural/religious sensitivity issues by the expert panels. A Pilot study commenced into a small group. The respondents were asked to rate the five-level attitudes measurement ranging from 1 to 5, 5=strongly agree, 4=agree, 3=Neutral, 2=disagree and 1=strongly disagree. The questionnaire includes positive (1, 6, 7, 11) and negative (2, 3, 4, 5, 8, 9, 10) statements. The mean percentage of positive statements could be a parameter of a positive attitude.

**Sections 3 and 4:** Tools used to identify barriers to proper assessment and risk, and implementation of pressure ulcer preventive measures based on the previous studies [18,19]. The tool score grade used was a 5-point Likert scale that measures 5=strongly agree, 4=agree, 3=Neutral, 2=disagree, and 1=strongly disagree respectively.

**Section 5:** Also, the type and frequency of pressure ulcer training were assessed using a self-developed and validated questionnaire.

### Data analysis

Descriptive analysis using frequency and percentage distribution presented in frequency and percentage. Meanwhile, a mean percentage was utilized to conclude a positive or negative attitude through statistical package SPSS version 22.

### Ethical consideration

A full explanation of study presented before taking consent for participation. Maintaining confidentiality throughout the research has been reassured, and the participation remained voluntary. Ethical approval was obtained from Institutional Review Board.

## Results

### Demographic data

118 nurses were taken as a study sample with a response rate of 78% from total of 150 survey questionnaire distributed. Descriptive analysis is presented in Table 1. Overall, ninety-four percent (94%) of the respondents are females. Dominant age group ranges 25-35 years (72%). Majority acquired five to ten years of total experience in a

clinical setting (41%), and with the same number of years spent in Cancer Center (38%). 75% of the sampled group are holding a bachelor's degree in Nursing and majority are in a staff nurse position (91%). Finally, 44% of them have read pressure ulcer articles within the last 1-6 months (Table 1).

Variables	Frequency (%)
<b>Gender</b>	
Male	7 (6)
Female	111 (94)
<b>Age</b>	
Less than 25 years	2 (2)
≥ 25 and < 35	85 (72)
≥ 35 and < 45	25 (21)
≥ 45 years	6 (5)
<b>Total Years of Experience</b>	
Less than 2 years	10 (8)
≥ 2 and <5	31 (26)
≥ 5 and <10	48 (41)
≥ 10 years	29 (25)
<b>Years of Experience in Cancer Center</b>	
Less than 2 years	26 (22)
≥ 2 and <5	38 (32)
≥ 5 and <10	45 (38)
≥ 10 years	9 (8)
<b>Level of Education</b>	
Diploma	28 (24)
Bachelor	89 (75)
Master's and above	1 (1)
<b>Occupational Category</b>	
Staff Nurse	107 (91)
Supervisor/Charge	8 (7)
Head nurse/Manager	3 (3)
<b>Last time staff have read an article about Pressure Ulcer</b>	
less than a month	42 (36)
1-6 months ago	52 (44)
>6 months	20 (17)
Never	4 (3)

**Table 1:** Demographic Characteristics (N= 118).

### Nurses attitude towards pressure ulcer prevention

The result shows that the staff nurses proved a positive attitude towards pressure ulcer prevention (Mean percentage=51. 18%). Majority of respondents disagreed that pressure ulcer prevention is a low priority (91%), and 88% reported no need to concern them with pressure ulcer prevention, 82% have less interest in pressure ulcer prevention, and 77% agreed that pressure ulcer prevention is essential

than pressure ulcer treatment. However, 71% believed that nowadays, patients tend not to get as many pressure ulcers which need to address through education and staff reinforcement (Table 2).

On the other hand, 97% reported that pressure ulcer risk assessment should be regularly performed to all patients, 95% declared that continuous assessment is necessary for accurately pressure ulcer risk, and 91% believe that pressure ulcers can be avoided (Table 2).

Questionnaire Item	Agreed (Positive) f %	Disagreed (Negative) f %
1. All patients are at potential risk of developing pressure ulcers	93 (79)	25 (21)
2. Pressure ulcer prevention is time-consuming for me to carry out	37 (31)	81 (69)
3. In my opinion, patients tend not to get as many pressure ulcers nowadays	84 (71)	34 (29)
4. I do not need to concern myself with pressure ulcer prevention in my practice	14 (12)	104 (88)
5. Pressure ulcer treatment is a greater priority than pressure ulcer prevention	27 (23)	91 (77)
6. Continuous assessment of patients will give an accurate account of their pressure ulcer risk	112 (95)	6 (5)
7. Most pressure ulcers can be avoided	107 (91)	11 (9)
8. I am less interested in pressure ulcer prevention than other aspects of care	21 (18)	90 (82)
9. My clinical judgment is better than any pressure ulcer risk assessment tool available to me	44 (37)	74 (63)
10. In comparison with other areas of care, pressure ulcer prevention is a low priority for me	11 (9)	107 (91)
11. Pressure ulcer risk assessment should be regularly carried out on all patients during their stay in a hospital	115 (97)	3 (3)

**Table 2:** Nurses' attitude toward pressure ulcer prevention (N=118).

### Perceived barriers to proper assessment of pressure ulcer risk

Basing on the results, three-fourths mentioned that patient condition is the leading barrier to pressure ulcer risk assessment followed by lack of time (67%). Moreover, respondents have also reported that some patients are uncooperative or unstable (61%) which becomes a hindrance for them to do their regular pressure ulcer risk

assessment. Also, lack of staff (56%), lack of equipment (45%), and lack of legal accountability regarding some patient's safety hazards (45%) are perceived as additional barriers. On the other hand, the different categories provided by the tool shown a more significant percentage of disagreements as shown in Table 3.

Item	Frequency (%)
Total number of respondents	118 (100)
Patient condition (e.g., sick patient, in pain, catheters/ device, etc.)	89 (75)
Lack of time	79 (67)
Patient uncooperative or unstable	72 (61)
Lack of staff	66 (56)
Lack of equipment	53 (45)
Lack of legal accountability regarding some patient's safety hazards (e.g., Pressure ulcer development)	53 (45)
Lack of cooperation with other health professionals	31 (26)
Lack of job satisfaction	29 (24)
Research findings are not user-friendly	26 (22)
Lack of training and education about pressure ulcer prevention	23 (19)

Lack of policies and guidelines for Pressure ulcer prevention	18 (15)
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**Table 3:** Nurses views about the barriers to the proper assessment of pressure ulcer risk (N=118).

### Perceived barriers to apply pressure ulcer preventive measures

Sixty-eight percent of the staff reported that the patient condition is the first barrier in pressure ulcer prevention such as sick patients, patients who are in pain, patients who have catheters/external devices, etc. The uncooperative or unstable patient follows second highest

frequently mentioned barriers with a rate of 60%. Meanwhile, 58% of all respondents stated that lack of time is also a contributing factor to hinder the implementation of nurses to conduct pressure ulcer prevention activities. In addition to this, lack of staff (52%), lack of legal accountability regarding some patient's safety hazards (51%), and lack of equipment (45%) had been reported as barriers (Table 4).

Item	Frequency (%)
Total number of respondents	118 (100)
Patient condition (e.g., sick patient, in pain, catheters/device, etc.)	80 (68)
Patient uncooperative or unstable	71 (60)
Lack of time	68 (58)
Lack of staff	62 (52)
Lack of legal accountability regarding some patient's safety hazards (e.g., Pressure ulcer development)	60 (51)
Lack of equipment	53 (45)
Lack of cooperation with other health professionals	33 (28)
Lack of job satisfaction	31 (26)
Research findings are not user-friendly	25 (21)
Lack of training and education about pressure ulcer prevention	25 (21)
Lack of policies and guidelines for Pressure ulcer prevention	17 (14)

**Table 4:** Perceived barriers to applying pressure ulcer preventive measures (N=118).

### Type of pressure ulcer training

The list of pressure ulcer training is outlined in Table 5. Ninety-five percent have attended the in-service and lecture about pressure ulcer prevention. Among all the participants, 74% have joined the course and workshop related to pressure ulcer in general.

Some were able to participate in hands-on training (65%) while only a few have been invited to hear a talk from commercial companies (35%). With a note that respondent can choose more than one answer.

Item	Frequency (%)
In-services about pressure ulcer prevention	112 (95)
Lecture	112 (95)
Course and workshop	87 (74)
Hands-on training	77 (65)
Training on equipment	70 (59)
Talk from commercial companies	41 (35)
None (I didn't receive any training about PU)	0 (0)

**Table 5:** Type of education received by oncology nurses (N=118).

### Discussion

Pressure ulcer has been one of the most common challenges to all hospitals worldwide. Increasing expenditure on pressure ulcer management is a lifelong challenged for most of the healthcare facilities. As the management and hospital cost remains high with increase patient length of stay, most long-term care facilities have taken the initiative to combat the occurrence of pressure ulcer. In a long way run, sustaining pressure ulcer preventive strategies could improve patient and family experience and decrease healthcare costs. Increasing awareness of nurses in the prevention of pressure ulcer could positively impact the balance between quality of patients' outcome and cost management.

The mortality rate is correlated with pressure ulcers. Many studies revealed that mortality rates as high as 60% for aged patients with pressure ulcers within one year of hospital discharge [20,21]. Most often, pressure ulcers is not a direct cause of death, but it develops after the deterioration of health status. Therefore, the occurrence of pressure ulcers can be a strong predictor and indicator of mortality.

There are many morbidities associated with pressure ulcer like pain, depression, local infection, osteomyelitis, anemia, sepsis, gas gangrene, necrotizing fasciitis (rare) and death [22,23]. About 50% of stage II, and 95% of stage III and IV pressure ulcers do not heal within eight weeks [24].

Patient suffering from pressure ulcers usually requires more hospitalization period and extended the length of stay in the hospital by an average of 10.8 days [25]. These extended lengths of stay will result in higher costs of treatment and increased incidence of nosocomial infection and other complications [19].

Around \$48,000 per pressure ulcer patient is the average hospital cost or charge as reported in 2006 [26]. This represents a minimum annual expenditure of 11 billion dollars to the United States health care system [27].

In a retrospective chart analysis of patients with stage IV pressure ulcers charts, the hospital archives and treatment outcomes of these patients were tracked for a maximum of 29 months and analyzed. Costs directly linked to the treatment of pressure injuries and their associated complications were calculated. Nineteen patients with stage IV pressure ulcer (11 hospital-acquired and 8 community-acquired) were identified and their charts reviewed. The average hospital treatment cost related to stage IV pressure ulcers and related complications was \$129,248 for hospital-acquired pressure ulcers during one admission and \$124,327 for community-acquired pressure ulcers over an average of 4 hospital admissions [28]. The estimated cost of treatment in the United Kingdom by pressure ulcer severity: stage 1 £1214 (\$1,912) per patient, stage 2 £ 5241 (\$8,255) per patient, stage 3 £ 9041 (\$14,240) per patient and stage 4 £ 14,108 (\$22,222) per patient admission [29].

Nurses' attitude towards pressure ulcer plays a big role in achieving positive goals for the prevention of pressure ulcer incidences in hospitals. Nurses are the frontlines and initiators of patient skin assessment and do timely referral as part of pressure ulcers preventive actions [30]. There is a correlation between what individual knows and how the individual responds to pressure ulcer prevention. In cancer care setting, this study concluded 51.18% had possessed a positive attitude though most of the study derived a positive attitude in pressure ulcer prevention [7,16,31] with more than 60%, still, this factor is not enough to ensure the change in the culture of practice.

A study showed that the nurse working in a surgical ward has a positive attitude towards prevention of pressure injury. Moreover, a comparison between the nurses who had education about pressure ulcer had a higher positive attitude than those who had no education at all. Pressure ulcer education had a significant positive effect on the nurse's perception and attitude toward prevention with 80.5% mean attitude score [32].

This study had shown positive attitude of nurses in pressure ulcer prevention. Perhaps few viewpoints need to address like awareness sessions, in-service meetings, and periodic training to be conducted to enhance nurse's knowledge, skills, and attitude.

## Conclusions

Oncology nurses have a positive attitude towards pressure ulcer prevention. This may be considered as a major leap in promoting the overall goal to implement strategies in decreasing incidences of pressure ulcer occurrence. Though some trends may be deemed inevitable as per patients' current condition, and some other perceived

barriers such as lack of time and cooperation among patients and watchers, continuous education may be provided to help fulfill the roles and responsibilities set for each nurse working in a clinical setting. Constant patient/watcher and nurse engagement must be considered as one of the core target initiatives to have better implementation outcome in pressure ulcer plan of care. This study can be applied to an interdisciplinary team to a streamline the interventions of pressure ulcer prevention.

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