

A Study to Assess the Risk of Developing Pressure Sore among Critically Ill Patient Admitted in SMCH

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Abstract: Pressure sore is one of the common problems in health care. Pressure sore also known as decubitus ulcer is a serious problem that leads to pain due to longer hospital stay and slow recovery from patients confined to bed, chair, wheelchair who have limited mobility, with poor nutrition and incontinence are likely to develop pressure sores. Centre of Disease Control and Prevention estimated around 2.5 million people dies annually in 2016 due to pressure sore. Objective: to assess the risk of developing pressure sore in critically ill patients and to assess the development of pressure sore between critically ill patients and evaluate their influence on the association between Braden pressures sore risks assessment scale. Methods: An experimental study was conducted with 30 samples who met the inclusion criteria. Braden risk assessment scale was used to assess the risk of development of pressure sore among critically ill patients. Data were analyzed by descriptive and inferential statistics. Result: The present study observed that out of 30 samples, among 8 samples (26.66%) were in the age group of 40 to 50 years among this sample in that 5 samples(16.6%) have high risk for developing pressure sore, 2 samples(6.66%) are moderate risk 1 sample (3.33%) have mild risk, 9 samples (30%) were in the age group of 51-60 years among this sample in that 4 samples (13.3%) is high risk, 3 samples (10%) is moderate risk, 2 sample (6.66%) is mild risk ,6 samples (20%) were in the age group of 61-70 years among the sample in that 2 samples(6.66%) are high risk, 3 samples (10%) are moderate risk, 1 sample(3.33%) is mild risk , 7 samples (23.33%) were in the age group of 71 -80 years among the sample in that 2 sample(6.66%) are high risk ,3 sample are (10%) moderate risk ,no mild risk and 2 samples are normal. The present study significantly associated the developing pressure sore among critically ill patient with the demographic variables such as age, previous hospitalization and period of hospitalization of $P < 0.05$. Conclusion: The study proved that Braden pressure sore risk assessment scale was effective in identifying the risk of development of pressure sore among critically ill patient.

Keywords: Risk, Pressure sore, Critically Ill Patient

1. Introduction

Pressure sore is one of the common problems in health care. Pressure sore also known as decubitus ulcer is a serious problem that leads to pain due to longer hospital stay and slow recovery from health problem patients confined to bed, chair, wheelchair who have limited mobility, with poor nutrition and incontinence are likely to develop pressure sores CDC. Centre of disease control and prevention estimated around 2.5 million people dies annually in 2016 due to pressure sore.

The problem of pressure sore has been a challenge to the nursing professions. Nurse use nursing process in order to plan and carry out nursing interventions. During the phase of planting nurse, prioritizes needs going importance to immediate and life threatening needs patient needs. Safety needs patient priority needs and lastly to nurse priorities. Therefore, as part of a patient safety we are liable to protect the patient from complication resulting from neglected skin. Skin care is a hence primary activity of the nurse.

A study was conducted on pressure sore by using the Braden Scale to assess repeatedly 136 adult patients without pressure ulcers in a Medical intensive care unit, surgical intensive care unit, and a non-invasive respiratory care unit, and the patients skin was inspected routinely for pressure ulcers. A total of 36 pressure ulcers, most commonly on the sacrum or coccyx and the heels, developed in 17 patients (12%), In 14(82%) of the ulcer developed in 72 Hours of admission to the intensive care units. This risk pressure ulcer increased as the mean sensory perception and the mean total

Braden scores decreased. The study concludes that intensive care units the critically ill patients are have an increased risk for pressure ulcers. Carlo son EV, Kemp MG, Shoot S (2014)

The Braden scale assesses a patient risk of developing a pressure ulcer by examining six criteria. Sensory perception this parameter measures the patient ability to detect and respond to discomfort or pain that is related to pressure on parts of their body Moisture excessive and continuous skin moisture can pose a risk to compromise the integrity of the skin by causing the skin tissue to become macerated and therefore be at risk for epidermal erosions.

Each category is rated on the scale ratio 1 to 4, excluding the 'friction and shear' category which is rated on a 1-3 scale. This combines for a possible total of 23 points, with a higher score measuring a lower risk of developing a pressure ulcer and vice versa. A score of 23 means there is no risk for developing a pressure ulcer while the lowest possible score of 6 points represents the severe risk for developing a pressure ulcer. The Braden scale assessment score scale: very high risk: Total score less than 9, High risk: Total score 10-12, Moderate risk: Total score 13-14, mild risk: Total score 15-18.

The pressure level that closes the capillaries in healthy people is 25-32mm of hg. When pressure applied to the skin is greater than the pressure in the capillary bed, it can impair cellular metabolism. It decreases the blood supply to the tissue and eventually causes tissue ischemia, this reduction in blood flow causing blanching of the skin. The longer the

Volume 8 Issue 7, July 2019

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pressure lasts, the greater is the risk of skin breakdown and development of pressure ulcer.

The effect of pressure ulcers in this vulnerable population, the purpose of the study was to identify risk factor that contributed to the pressure under development in critically ill patients. The above stated facts indicates the need for study primary nursing responsibility of identification of patients at risk for development of pressure ulcer and implementing pressure ulcer under prevention strategy for those identification at risk.

Prevention remains the best treatment for pressure scores. The pressure nursing responsibility is preventing pressure sores is by implementing pressure sore preventing strategy for those identified being at risk. Devices such as alternating pressure mattresses, foam mattresses with adequate stiffness and thickness, wheel chair cushions, padded commode seats, foam boats and lift sheets are useful in reducing pressure and shearing force.

Pressure ulcers or pressure sores not only cause suffering to the patients but also to increase the work load on health care professionals. Pressure ulcers have been described as one of the most costly and physically debilitating complications in the 20th century. Pressure ulcers are the third most expensive disorder after cancer and cardiovascular disease. In addition, about 57-60% of all pressure ulcers occur within the hospitals. Up to 13% of patients develop pressure sores while being treated in an intensive care unit.

2. Materials and Methods

Experimental study was conducted with 30 samples who met the inclusion criteria by purposive sampling method at Saveetha Medical College and Hospital after obtaining formal permission from authority. Inclusion criteria were patients of both genders aged between 18 and above patients and who are critically ill patients. Exclusion criteria were patients with presence of any pressure ulcer on admission to the ICU Any pressure ulcer that developed within the 48 hour and cardiac patients. Explained the study in detail and obtained informed consent from the samples. Data were collected by interview method on one to one basis. Collected the socio demographic variables and assessed the risk of developing pressure sore using Braden risk assessment scale. The scale consists of six criteria's; they include parameters like sensory perception, moisture, activity, mobility, nutrition, friction and shear. Each category is rated on 1 to 4 scale, excluding the 'friction and shear' category which is rated on 1-3 scale. This combines for a possible total of 23 points, with a higher score meaning a lower risk of developing a pressure ulcer while the lowest possible score is 6 points represents the severest risk for developing a pressure ulcer. Confidentiality was maintained throughout the procedure. Collected data were analyzed by using descriptive and inferential statistics.

3. Result

Table 1: Demographic Variables of Critically Ill Patients (N=30)

S.No	Demographic Variables	Frequency	Percentage
1)	Age		
	a)40-50years	8	26.6%
	b)51-60years	9	30%
	c) 61- 70 years	6	20%
	d) 71-80 years	7	23.33%
2)	Gender		
	a) Male	8	26.66%
	b) Female	9	73.33%
3)	Previous Hospitalization		
	a)Yes	18	60%
	b) No	12	40%
4)	Period of Hospitalization		
	a) 1 week	11	36.66%
	b) 2-3 week	9	30%
	c)4 week	7	23.3%
	d)>4 week	2	6.66%
5)	Safety Measures		
	a) Yes	22	73.33%
	b) No	8	26.66%

The data collected were analyzed inferential statistics and descriptive statistics therefore the results indicates shows that out of 30 samples, among 9 samples (30%) were in the age group of 51-60 years among this sample,, 22 samples (73.33%) were female, 18 samples (60%) was previously hospitalized samples, periods of hospitalization within 1 week were 11 samples (36.66%) safety measures used to prevent pressure ulcer were 22 samples (23.33%) among the sample.

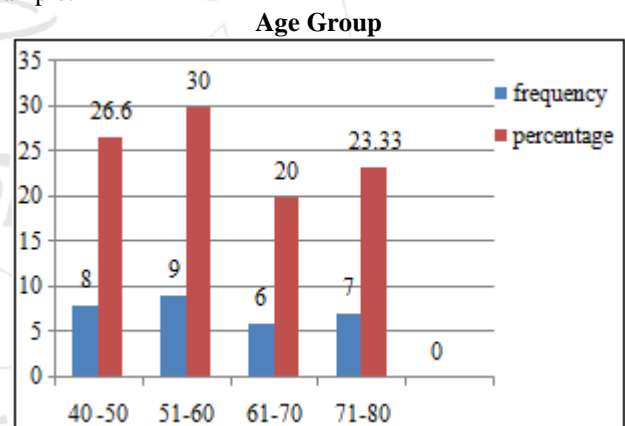


Figure 1: Frequency and Percentage Distribution of Age in Year of Critically Ill Patients in Study Group

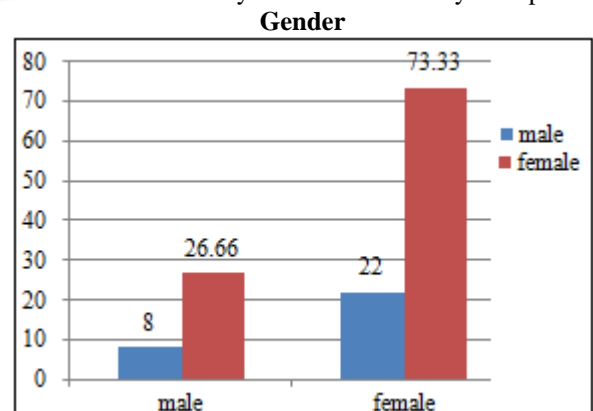


Figure 2: Frequency and Percentage of Gender among Critically Ill Patients in the Study Group

Figure 2: It reveals that 8 samples (26.66%) were male and 22 samples (73.33%) were female

Section B- Association Between The Demographic Variables and Braden Risk Assessment Scale Among Critically Ill Patient

S.No	Demographic variables	No. of sample	High risk		Moderate risk		Mild risk		Chi Square
			N.o	%	N.o	%	N.o	%	
1)	Age	8							X ² =0.728 F=6 p=12.59 Significant
	a) 40-50 years		5	16.6%	2	6.66%	1	3.33%	
	b) 51-60 years		4	13.3%	3	10%	2	6.66%	
	c) 61-70 years		2	6.66%	3	10%	1	3.33%	
	d) 71-80 years		2	6.66%	3	10%	0	0	
2)	Gender	8						X ² =6.432 F= 2, p= 5.99 NS	
	a) Male		3	10%	4	13.3%	1		3.33%
	b) Female	22	13	43.3%	8	26.6%	1	3.33%	
3)	Previous Hospitalization	18						X ² =0.201 F=2, p= 5.99 Significant	
	a) Yes		8	26.6%	6	20%	4		13.3%
	b) No	12	6	20%	4	13.3%	2	6.66%	
4)	Period of Hospitalization	11						X ² =1.135 F= 6, p= 12.59 Significant	
	a) 1 week		3	10%	5	16.6%	3		10%
	b) 2-3 week		4	13.3%	3	10%	2		16.6%
	c) 4 week		3	10%	4	13.3%	0		0
	d) >4 week		2	6.66%	0	0	0		0
5)	Safety Measures	22						X ² =8.61 F=2, p= 5.99 NS	
	a) Yes		7	23.3%	9	30%	14		46.6%
	b) No	8	5	16.6%	2	6.66%	1	3.33%	

It shows that out of 30 samples, among 8 samples (26.66%) were in the age group of 40 to 50 years among this sample in that 5 samples (16.6%) have high risk for developing pressure sore, 2 samples (6.66%) are moderate risk 1 sample (3.33%) have mild risk, 9 samples (30%) were in the age group of 51-60 years among this sample in that 4 samples (13.3%) is high risk, 3 samples (10%) is moderate risk, 2 sample (6.66%) is mild risk, 6 samples (20%) were in the age group of 61-70 years among the sample in that 2 samples (6.66%) are high risk, 3 samples (10%) are moderate risk, 1 sample (3.33%) is mild risk, 7 samples (23.33%) were in the age group of 71-80 years among the sample in that 2 sample (6.66%) are high risk, 3 sample are (10%) moderate risk, 0 have mild risk $\chi^2 = 0.728$, $p = 12.59$ age group is significant in this study group. 8 samples (26.66%) were male in that 3 samples (10%) are high risk 4 samples are (13.3%) are moderate risk, 1 sample (3.33%) are mild risk and 22 samples (73.33%) were female in that 13 samples (43.3%) are high risk 8 samples (26.6%) are moderate risk 1 sample (3.33%) are mild risk $\chi^2 = 6.432$, $p = 5.99$ gender is non significant in this study group, 18 samples (60%) was previously hospitalized samples in that 8 samples (26.6%) are high risk, 6 samples (20%) are moderate risk 4 samples (13.3%) are mild risk, 12 samples (40%) were not previously hospitalized in that 6 samples (20%) are high risk, 4 samples (13.3%) are moderate risk, 2 samples (6.66%) are mild risk $\chi^2 = 0.201$, $p = 5.99$ previous hospitalization is significant in this study group. periods of hospitalization within 1 week were 11 samples (36.66%) in that 3 samples (10%) are high risk 5 samples (16.6%) are moderate risk, 3 samples (10%) are mild risk, 2-3 week were 9 samples (30%) in that 4 samples (13.3%) are high risk, 3 samples (10%) are moderate risk, 2 sample (6.66%) are mild risk, 4 week were 7 samples (23.33%) in that 3 samples (10%) are high risk, 4 samples are (13.3%) are moderate risk 0 samples are mild risk >4 week were 2 samples (6.66%) in that 2 samples (6.66%) are high risk, 0 samples are moderate risk 0 samples are mild risk $\chi^2 = 1.135$, $p = 12.59$ period of hospitalization is significant in this study group. Safety measures used to prevent pressure ulcer were 22 samples (23.33%) in that 7 samples (23.3%) are high risk, 9 samples (30%) are moderate risk, 14 samples (46.6%) are mild risk, among them 8 sample did not use safety measures

in that 5 samples (16.6%) are high risk, 2 samples (6.66%) are moderate risk 1 sample (3.33%) are mild risk $\chi^2 = 8.61$, $p = 5.99$ safety measures are non-significant in this study group.

4. Discussion

The main focus of the study is to assess the risk of developing pressure sore among critically ill patients. The study was conducted in critical care unit in Saveetha Medical College and Hospital.

The first objective of the study is to assess the demographic variables of critically ill patients

Table-1: shows that out of 30 samples, among 9 samples (30%) were in the age group of 51-60 years among this sample, 22 samples (73.33%) were female, 18 samples (60%) was previously hospitalized samples, periods of hospitalization within 1 week were 11 samples (36.66%) safety measures used to prevent pressure ulcer were 22 samples (23.33%) among the sample.

The second objective of the study was to find out the association.

The age, previous hospitalization, period of hospitalization significant and gender, safety measures are not significant

5. Recommendations

- A similar study can be conducted with large number of samples.
- The risk of development of pressure sore among bed ridden patients by using Braden scale can be educated to care givers and other health professionals.
- The risk for developing pressure ulcer can be assessed by using other scales like Water low scale, Norton scale according to the defined demographic variables.

6. Conclusion

The following conclusions were drawn from the study. The study proved that Braden pressure sore risk assessment scale was effective in identifying the risk of development of pressure sore among critically ill patient.

7. Conflict of Interest

Authors declare no conflict of Interest

8. Acknowledgement

The author was thankful to institution

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