

# Prevalence of Pressure Ulcer and Preventive Measures Practiced among Nurses in UCTH Medical Wards

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## **ABSTRACT**

This study is on the prevalence of pressure ulcer and preventive measures practiced among nurses in medical wards, UCTH.. A retrospective design involving 221 patients was used to obtain data on prevalence while a descriptive survey design involving 60 nurses working in medical wards was used to obtain data on preventive measures practiced via questionnaire. Two research questions and one hypothesis were used to guide the study. Instruments for data collection were records on patients and questionnaire on preventive measures practiced by nurses. Frequency distribution and percentages and bar charts were used to analyze the collected data. Results showed pressure ulcer occurrence was higher in adult females than adult males and children and also a high knowledge of preventive measures practiced in relation to highest educational qualification of nurses involved in the study.

## **INTRODUCTION**

Bedsore also called pressure sores or ulcers are injuries to skin and underlying tissues resulting from prolonged pressure on the skin. Bedsore most often develop on skin that cover bony areas of the body such as heels, ankles, hips and tail bone (Mayo clinic staff, 2016).

According to Nuru, Zewdu, Amsalu, Mehrete (2014). Pressure ulcers have been described as one of the most costly and physically debilitating complication since the 20<sup>th</sup> century.

Pressure ulcer development is a nursing sensitive quality indicator (Llesanmi, Abosedo, Adejumo, 2012).

Pressure ulcer are precipitated and perpetrated by both the patient intrinsic factors such as immobility, nutritional status and incontinence and extrinsic factors such as shear stress and moisture (Ikechukwu, Micheal and Ogunbameru, 2012). Other risk factors documented in literature include race and socio economic status (Saunders, Krause, Peters, Reed, 2010).

Pressure ulcers are a frequent complication that occurs in patients with chronic conditions hence the importance of this study in Medical wards in UCTH.

According to Harvard health publications (2014), bed sores also called pressure ulcers or decubitus ulcers are areas of broken skin that can develop in people who:

- Have been confined to bed for extended period of time.
- Are unable to move for short-period of time, especially if they are thin or have blood tissue disease or neurological diseases.
- Use wheel chair or bedside chair (a hospital chair that allows a patient to sit upright next to the bed).

According to Mayo: (2016); predisposing factors to pressure ulcers:

- Age – older adults.
- Lack of sensory perception.
- Weight loss
- Poor nutrition and hydration

- Excess moisture or dryness
- Conditions affecting blood flow
- Smoking
- Limited alertness
- Muscle spasms.

## **OBJECTIVES**

- What is the prevalence of pressure ulcer in patients in UCTH, Calabar?
- What are preventive measures practiced by nurses' in medical wards to prevent pressure ulcer?

## **HYPOTHESIS**

- There is no significant relationship between nurses' educational level and practice of preventive measures on patients at risk for developing pressure ulcer?

## **BACKGROUND CONTEXT**

Pressure ulcers are areas of localized injury to the skin, underlying tissue or both usually over a bony prominence, as a result of pressure or in combination with shear. They are common problem in health care and represent a significant burden on patients, their relatives and care givers. (Mba, Alih, kover, Iola, 2015).

Despite the use of airbeds, airings two hourly turning of patients, treatment of pressure areas, pressure ulcers still threaten the well-being of patients with limited mobility. (Osuala, 2014).

Adegoke, Odole, Akindele, Akinpelu (2013) are of the opinion that pressure ulcer have long been recognized as a major cause of morbidity, mortality and health care burden globally. The lack of knowledge and application of use scales in preventing pressure ulcer in patients at risk is a major contributory factor that hinders preventive care.

This study will help us ascertain the rate of pressure ulcer development in medical wards and enables us highlight the knowledge of preventive care adopted to prevent its development in medical wards in UCTH.

According to the Agency for Health care research and quality (AHRQ), the number of hospital patients who develop pressure sores has increased by 63% since 1996 (Rosenfeld law offices, 2012).

According to Osuala (2014), the first line of management is to identify at risk individuals. To determine who is at risk, the nurse must conduct a risk assessment for each patient upon admittance to your facility or care.

Osuala (2014), further states that Braden scale for predicting pressure sore risks is a widely used validated tool for assessing patient risk.

The braden scale assess a patient's risk of developing a pressure ulcer by examining the following six criteria:

- Sensory perception: Responding to discomfort or pain
- Moisture: Degree of moisture the skin is exposed to:
- Activity: Level of physical activity
- Mobility: Capability to adjust body position independently.
- Nutrition: Normal patterns of daily nutrition.
- Friction and Shear: Amount of assistance a client need to move and the degree of sliding on bed or chairs that they experience.

- Each category is rated on a scale of 1 to 4, excluding the “Friction and shear” category which is rated on a 1-3 scale.

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

No risk – Total score 19-23.

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## **METHODOLOGY**

### **RESEARCH DESIGN:**

Two types of research design were used.

Retrospective design was used to obtain the prevalence of patients who have had pressure ulcer through the records department.

Descriptive survey design was used to obtain data on preventive measures practiced by nurses in the medical wards in UCTH through questionnaires.

## **SAMPLE SIZE:**

76 patients who developed pressure ulcer between the months of January to May 2016 and 60 nurses working in the medical units in UCTH were used for the study.

## **SETTING**

Male medical ward, female medical ward and pediatric medical ward of UCTH were used.

## **INSTRUMENTS FOR DATA COLLECTION**

A 14 item questionnaire made up of close ended questions was used to collect data pertaining to assessing preventive measures practiced while record of patients in the medical wards was used to obtain data on prevalence.

## **METHOD OF DATA COLLECTION:**

Inpatient admission register and head count of patients who had pressure ulcer were used to gather needed information for prevalence and questionnaire was used to access preventive care among patients.

## **METHOD OF DATA ANALYSIS:**

Descriptive statistics which include frequency distribution, tables, percentages, bar charts were used to present data.

## **LIMITATION**

This study was limited to only medical wards in University of Calabar Teaching Hospital, Calabar, Cross River state.

## RESULT /ANALYSIS

This focuses on the findings of the study. The result is presented based on the research objectives and hypotheses of the study.

### 4.1 Socio-demographic data of the respondents

**Table 1: Socio-Demographic data of respondents (n= 60)**

Variable	Frequency	Percentage
<b>Age</b>		
20-30years	21	35.0
31-40years	24	40.0
41-50years	15	25.0
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Highest educational level</b>		
RN	5	8.3
RN and RM	35	58.3
B.N.Sc.	18	30.0
Diploma	2	3.4
<b>Total</b>	<b>60</b>	<b>100</b>
<b>Years of working experience</b>		
1-10years	38	63.3
11-20years	15	25.0
21-30years	7	11.7
<b>Total</b>	<b>60</b>	<b>100</b>

The results on Table 1 revealed;

**Age:** Out of the 60 respondents, 21(35.0%) were between 20-30years of age while 24(40.0%) were between 31-40years and 15(25.0%) were between 41-50years of age.

**Highest educational level:** Most of the respondents, 35(58.3%) had RN and RM as their highest educational level while 18(30.0%) had B.N.Sc., 5(8.3%) had RN and 2(3.4%) had diploma as their highest educational level.

**Years of working experience:** Majority of the respondents, 38(63.3%) had between 1-10years working experience while 15(25.0%) had between 11-20years and 7(11.7%) had between 21-30years of working experience.

## 4.2 Results of Objectives

### 4.2.1 Research objective one

What is the prevalence of pressure ulcer in patients in UCTH, Calabar?

**Table 2: Prevalence of pressure ulcer in patients in UCTH, Calabar**

Wards	No of admitted patients		Patients diagnosed with pressure ulcer	
	No.	%	No	%
Male Medical	221	27.8	35	4.4
Female Medical	252	31.7	40	5.1
Paediatric	321	40.5	1	0.1
<b>Total</b>	<b>794</b>	<b>100</b>	<b>76</b>	<b>9.6</b>

Results in Table 2 revealed that the total number of patients admit into UCTH was 794, of which 221(27.8%) were admitted into Male Medical Ward, 252 (31.7%) into Female Medical Ward and 321(40.5%) into Paediatric Ward. The result also showed that, 35(4.4%) out of the 221 patients in Male Medical Ward suffered from pressure ulcer; 40(5.1%) out 252 patients in Female Medical Ward suffered from



pressure ulcer and only 1(0.1%) out of 321 patient in Paediatric Ward suffered from pressure ulcer. This is represented in the bar chart below.

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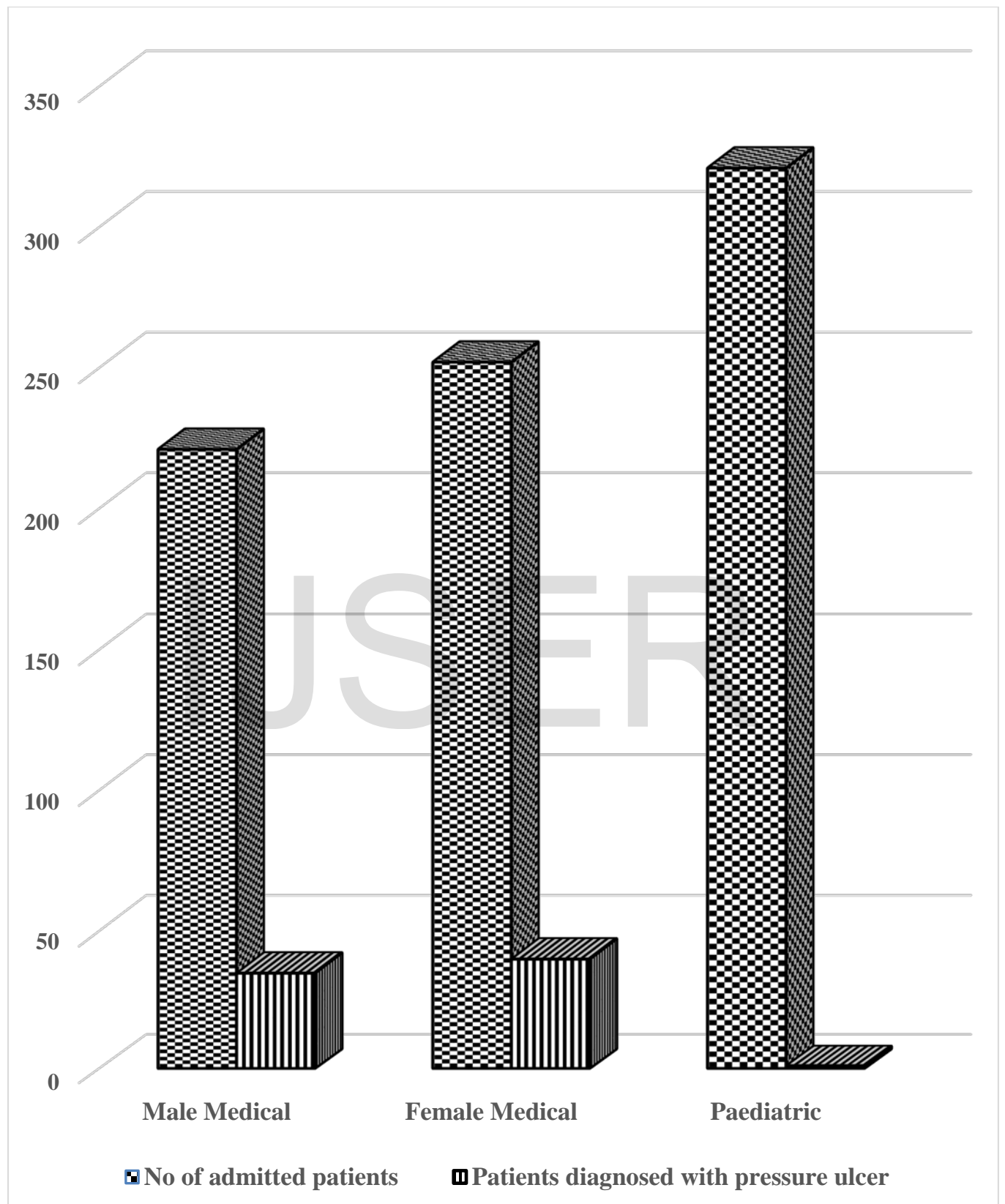




Fig. 1:  prevalence of pressure ulcer  JCTH, Calabar (2017)

### 4.2.2 Research objective two

What are the preventive measures practiced by nurses in medical wards to prevent pressure ulcer?

**Table 3: Preventive measures practiced by nurses in medical wards to prevent pressure Ulcer**

Preventive measures	Response				Total	
	Yes No.	%	No No.	%	No.	%
Identification of contributing factors to pressure ulcer development	57	95.0	3	5.0	60	100
Skin assessment	57	95.0	3	5.0	60	100
Use of risk assessment scale	27	45.0	33	55.0	60	100
Documentation of data related to pressure ulcer development	34	56.7	26	43.3	60	100
Placement of gloved water under patient's heel	51	85.0	9	15.0	60	100
Counseling patient's relative on use of oil on patient's skin	43	71.7	17	27.3	60	100
Counseling on vitamins nourishing diets for patients	55	91.7	5	8.3	60	100
Monitoring of protein and calorie intake	27	45.0	33	55.0	60	100
Use of special mattress	44	73.3	16	26.7	60	100
Use of airings for cushioning of bony prominences	42	70.0	18	30.0	60	100
Changing of patient's position every 2hours	57	95.0	3	5.0	60	100
Use of pillow under patient's leg (mid-calf to ankle).	51	85.0	9	15.0	60	100
Attending seminars for pressure ulcer prevention	18	30.0	42	70.0	60	100
Advising patient/caregivers on pressure ulcer prevention before discharge of patient	55	91.7	5	8.3	60	100

Results in Table 3 revealed that the preventive measures of pressure ulcer mostly used by the respondents were; identification of contributing factors to pressure ulcer development (95.0%), skin assessment (95.0%), changing of patient's position every 2hours (95.0%), advising patient/caregivers on pressure ulcer prevention before discharge of patient (91.7%), counseling on vitamins nourishing

diets for patients (91.7%), placement of gloved water under patient’s heel (85.0%), use of pillow under patient’s leg (mid-calf to ankle) (85.0%), use of special mattress (73.3%), counseling patient’s relative on use of oil on patient’s skin (71.7%) and use of airings for cushioning of bony prominences (70.0%). Other preventive measures that were not often used were; documentation of data related to pressure ulcer development (56.7%), use of risk assessment scale (45.0%), monitoring of protein and calorie intake (45.0%) and attending seminars for pressure ulcer prevention (30.0%).

#### 4.2.3 Test of hypothesis

There is no significant relationship between nurses’ educational level and practice of preventive measures of patients at risk of developing pressure ulcer. To test this hypothesis Chi-Square test statistics was used. By application of Chi-Square test, Table 5 below was obtained.

**Table 4: Pearson product moment correlation on the relationship between nurses’**

**Educational level and practice of preventive measures of patients at risk  
 Of developing pressure ulcer (n = 60)**

Variable	N	Mean	Standard deviation	r <sub>calculated</sub>	r <sub>critical</sub>	p-value
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Nurses educational level	60	70.4	63.1	<b>0.4896*</b>	<b>0.1354</b>
					<b>0.05</b>
Practice of preventive measures	60	71.8	69.3		

*Tested at 0.05 level of significance*

### Decision rule

If  $r_{cal} > r_{crit}$ , *reject*  $H_0$ , Otherwise, accept  $H_{0s}$

The result shows the relationship between nurses' educational level and the practice of preventive measures on patients at risk of developing pressure ulcer.

Since the *r-calculated value (0.49)* is greater than the *r-critical value (0.14)*, the null hypothesis which stated that there is no significant relationship between nurses' educational level and practice of preventive measures of patients at risk of developing pressure ulcer is rejected. This implies that nurses' educational level has a very strong positive and significant relation with the practice of preventive measures of patients at risk of developing pressure ulcer. Thus, the higher educational level attained by nurses, the greater the chances of them practicing preventive measures of pressure ulcer for their patients at risk of developing it.

### DISCUSSION

Table 1, which is the demographic data shows that 24 nurses (40.0%) being the majority in number are between 31-40 years while the least is 41-50 years with 25% (15).

A greater number of the correspondents have RN, RM as their highest educational qualification with the percentage of 58.3, and the least attained educational level is diploma with 3.4%.

The number of nurses who have worked for 1-10 years were the highest with 63.3 % ( 38) and the least were nurses who have worked for 21-30 years being 11.7 % ( 7).

In table 3, 11 out of 15 preventive measures had above average positive response for practice in relation with the highest educational qualification of 58.3% and highest number of working years (1-10) of 63.3%, there is adequate knowledge and practice of preventive measures by nurses in UCTH medical ward.

This is contrary to the opinion of Nurhusen, Fissela, Senafikish, Yohannes (2015) whose studies showed that knowledge and practice of the nurses regarding prevention of pressure ulcer was found to be inadequate despite having higher educational status of 48.4% and good knowledge on pressure ulcer of 54.4%.

Findings from this study revealed that out of 221 patients with chronic conditions in male medical ward, 33 (4.4%) developed pressure ulcer. Out of 252 in female medical ward, 40 (5.1%) and out of 321 patients in pediatric medical ward, 1 (0.1%) developed pressure ulcer. From the statistics, occurrence of pressure ulcer is higher in adults than in children. This supports the study by Romanelli, Clark, Cherry, Colin and Defloor (2006), who opined that increasing age was noted to heighten the livelihood of pressure ulcer development and this was found to be statically significant ( $P < 0.001$ ).

According to Collier and Moore (1999), the older population appear to be at greater risk of pressure ulcer development due to the likelihood of underlying neurological and cardiovascular problems. Furthermore, as a consequence of aging, the skin undergoes a number of pathological changes.

Romanelli *et al*, (2006) opined that a relationship between age and pressure ulcer development was also found in an incidence study conducted in 116 acute care facilities in the USA. In this study, the incidence of pressure ulcers was noted to be 7%. 73% of ulcers developed in those over 65 years of age.

Table 4 shows that there is a significant relationship between nurses' educational level and the practice of pressure ulcer preventive measures in UCTH. This is contrary to the opinion of Uba et al (2015) whose study findings revealed low level knowledge among nurses, positive attitudes towards pressure ulcer prevention practices and low level practice of pressure ulcer prevention in UMTH.

Nuru et al (2015) study is also for the null hypothesis, findings of the study stated that nearly half (54.4%) of nurses had good knowledge, similarly 48.4% of them had good practice on prevention of pressure ulcer. Knowledge and practice of the nurses regarding prevention of pressure ulcer was found to be inadequate.

## CONCLUSION

As nurses, we should note that even though management of pressure ulcers involve multidisciplinary approach, its development is an index of poor nursing care. Nursing remains at the forefront of protecting and safe guarding the patient from pressure ulcers. The above statement highlight the importance of reminding nurses of the preventive measures adopted to prevent pressure ulcers. (Osuala, 2014).

## RECOMMENDATIONS

- Further studies should be conducted to identify why adult females are at greater risk to pressure ulcer.
- Risk assessment scale (Braden) should be introduced to assess all patients from point of admission (A&E or directly to the wards from clinic).
- Workshops and seminars should be organized for nurses to update knowledge on pressure ulcer and its prevention.
- Dietary aspect of pressure ulcer prevention should be studied and awareness on this increased.



- On development of pressure ulcer importance of ulcer care should include noting of 1<sup>st</sup> date ulcer was noticed, measure ulcer daily or on alternate rate days to note improvement or deterioration.
- Studies should be done to determine the effectiveness of the use of air beds, water beds, air rings and gloved water in the prevention of pressure ulcer.
- Finances should be allocated for conducting studies to be used for incentives and aid smooth progression of the studies.

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