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Nurses' Knowledge and Practice on Pressure Ulcer Prevention and Management for Hospitalized Patients at Tertiary Level Hospital

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ABSTRACT

Background: 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. There are common problem in health care and represent a significant burden on patients, their relatives and caregivers.

Materials and Methods: This was a descriptive cross sectional study carried out to assess the level of nurses' knowledge and practice on pressure ulcer prevention and management for hospitalized patients in DMCH & ShSMCH from January to December 2019. A total of 310 respondents (Senior Staff Nurse) were taken conveniently as sample. Relevant data were collected by using pre tested semi-structured questionnaire, an observation checklist was also utilized for physical verification and record keeping.

Results: Findings represent that mean age of the respondents were 34±6.94 years. Among the respondents' 85% were female, 73% of the respondents were Muslim, 72% respondents completed Diploma in Nursing, 54% respondents working experience in hospital is 5 years. About 71% mentioned high loading pressure main factor is responsible for formation of pressure ulcer, highest (60%) mentioned lower back/buttock is the common site, prolonged immobility (46%) main cause of formation of pressure ulcer. Unconscious patients (40%) mostly affected by pressure ulcer, partial skin loss, redness of the skin, blister (66%) are the sign of pressure ulcer, apply talcum powder (52%) appropriate method for skin care of pressure ulcer patients. In-service training on pressure ulcer prevention (86%) enhances competency of staff nurses in preventing pressure ulcer. Performing skin care as a routine work of the unit (90.9%), giving advice to the caregiver regarding pressure ulcer preventive before discharge the patients from a hospital (81.3%). About 55% had satisfactory knowledge, professional education and overall knowledge had strong association. Another also found between working experience and knowledge on common site of pressure ulcer. Highest (77%) had sometimes practice to prevent pressure ulcer. Another association also found between working experience and practice on prevention of pressure ulcer. Here p value is less than .05 that is .024.

Conclusion: It was concluded that in-service training on pressure ulcer and set up pressure ulcer prevention protocol, are some of the important steps to improve nurses' knowledge and practice regarding prevention and management of pressure ulcer.

KEYWORDS: Nurses', Knowledge, Practice, Pressure Ulcer, Prevention, Management, Hospitalized Patients and Bangladesh

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I. INTRODUCTION

Pressure ulcers are the common conditions among the hospitalized patients in acute and chronic care facilities and impose significant burden on patients their relatives and care givers. A pressure ulcer (also known as a decubitus ulcer, pressure sore, bed sore, or pressure

injury) is commonly defined as an area of localized damage to the skin, muscle and/or underlying tissue, caused by shear, friction, or unrelieved pressure, usually over bony prominences for a long period of time. It leads to cell death, tissue necrosis, as capillaries are compressed and the blood flow is very slow. Pressure ulcer have been recognized as a disease entity since ages. Pressure sore have been found in Egyptian mummies, some of which are more than 5,000 years old. Pressure ulcers have been described as one of most costly and physically debilitating complication since 20th century. The pain and discomfort of pressure ulcer delays rehabilitation, prolongs and timing of discharge and also contribute to disability and even death [1]. According to 2007 cross-sectional study, approximately 1.7 million patients per year were reported to develop pressure ulcers in the United States. Furthermore, the report has shown that for every 1,000,000 patients who developed pressure ulcer, 65000 die from complications and 80% increases in the number of patients who are hospitalized due to pressure ulcer from the 1993 to 2006 [2].

World stop pressure ulcer day showed that nearly 700,000 patients were affected by pressure ulcers each year. Around 186,617 patients develop a new pressure ulcer in acute care setting each year [3]. The incidence of pressure ulcers varies between developed and developing countries. Estimated incidence rates of 8.3% to 25.1%werereported in developed countries and 2.1% to 31.3% in developing countries [4]. Cross-sectional survey of spinal cord injury patients is suffering from pressure ulcers, the list of studies reporting pressure ulcer prevalence or incidence in Bangladesh 43% Pre-rehabilitation phase, China incidence 47.1%, India prevalence 36% in chronic phase, Brazil 26.7% [5]. Pressure ulcer was a significant financial burden to any health care system and had adverse effect on achieving goals of care. Previous studies showed that pressure ulcer created several adverse effects, such as increase risk of infection, delayed wound healing, increase mortality, increase use of hospital resources and patients care costs, increased patients' length of hospital stay, pain and suffering, and lower quality of life [6]. Many patients with recurrent pressure ulcers faced expensive dressing changes and time away from the family estimated that the annual treatment cost of pressure ulcer in the UK was $270 to $481.5 million and prevention cost was $270 to $1132.5 million. Pieper (2007) sated that treatment cost of pressure ulcer ranged from US$2.2 to $3.6 billion per year. Pressure ulcer was the third most expensive morbidity due to prolonged hospitalization, and the need for intensive nursing care for pressure ulcer in the Netherlands [7].

Preventing pressure ulcer has been a nursing concern for many years. In fact, Florence Nightingale in 1859 wrote, "If he has a pressure ulcer, it's generally not the fault of disease, but of the nursing". Others view pressure ulcer is a "visible mark of care giver sin" associated with poor or nonexistent nursing care. Many clinician believe that pressure ulcer development is not a simply the faulty of nursing care, but rather a failure of the entire health care system, hence, a breakdown in the cooperation and skill of the entire health care team (nurse, physician, physical therapists, dietician etc [8]. Poor or inadequate knowledge and practice of nurses influenced higher prevalence of pressure ulcers. Knowledge and practice increased on nurses' awareness of the problem of pressure ulcer and provided the basis for informed decision making and the framework to develop and maintain competency of delivering high quality of nursing care [9]. Dhaka Medical College Hospital is the oldest largest and one of the best tertiary level hospital in Bangladesh. DMCH serving as a last shelter of treatment and hope for all sort of peoples especially for the poor. Shahid Sahrawardi Medical College Hospital is another tertiary level hospital. Most of the cases patients stay long time here. Nurses working in this hospital spending busy time in duty period. With these background this study was conducted to assess the level of nurses' knowledge and practice on pressure ulcer prevention and management for hospitalized patients in DMCH and ShSMCH. The information collected from this study would help the health professionals, health policy makers, planners also for decision making for better management of pressure ulcer.

1.2 Research question:

What is the level of nurses' knowledge and practice on pressure ulcer prevention and management for hospitalized patients at Tertiary level Hospital?

1.3 Objectives:

1.3.1 General objective-

To assess the level of nurses' knowledge and practice on pressure ulcer prevention and management for hospitalized patients at tertiary level hospital.

1.3.2 Specific objectives

- To assess the level of knowledge on pressure ulcers among nurses'.
- To determine the level of knowledge on pressure ulcers prevention and management among nurses'
- To identify the practice pattern among nurses' about care of patient suffering pressure ulcer.
- To determine the Socio-demographic characteristics of the respondent.

1.4 Limitations of the study:

- The study was conducted only Dhaka Medical College Hospital & Shaheed Sahrawardi Medical College Hospital. Therefore, the findings of the study may not be generalized for all settings.

- The sampling technique used in the study was convenient, which had more chances of bias.

II. MATERIALS AND METHOD

2.1 Type of study: This was a cross-sectional type of descriptive study. The study was approved by the Institutional Review Board of National Institute of Preventive and Social Medicine under Bangabandhu Sheikh Mujib Medical University.

2.2 Place of study:

(i). Dhaka Medical College Hospital (DMCH), Dhaka, Bangladesh.

(ii). Shaheed Suhrawardy Medical College Hospital (SSMCH), Dhaka, Bangladesh.

2.3 Duration of the study: The total period of the study was 1 year from 1st January, 2019 to 31st December, 2019.

2.4 Study population: The target population was nurses those who are working under 8 selected units including 1) Geriatric care unit, 2) Surgical unit, 3) Medicine unit, 4) Orthopedic unit, 5) Neuro-surgical unit, 6) Neuro-medicine unit, 7) Coronary care unit, 8) Intensive Care Unit. It is likely that patients who are at risk for pressure ulcer development have been admitted in these wards. Each of the participant nurses was required to sign a consent form before participating in the study.

2.5 Sample size: The sample size of this study was 310.

2.6 Determination of sample size: To determine the sample size for cross-sectional study use the formula,

Where,

n = estimated sample size

z = level of confidence or level of significance

d = error (degree of freedom)

p = estimated prevalence 43% = 0.43 as the prevalence rate of pressure ulcers in Bangladesh[5].

q = 1 - .43=0.47

At 95% confidence level (z = 1.96) with 0.05 error (d = 0.05) is desired in this study. Hence, the sample size was as follows

Estimated sample size 310

So, according to this formula the sample size was 310.

2.7 Sampling technique: Convenient sampling technique was followed.

2.8 Data collection instruments: Data were collected by Questionnaire and Observation checklist.

2.9 Developing Questionnaire and observation checklist by pre-testing:

Pre-test was done to test the validity and appropriateness of the instrument. In this study 10% from 310 respondents pre-test was done in of Kurmitola General Hospital, Dhaka Cantonment, Dhaka. Then the questionnaire and observation checklist were finalized after necessary correction and modification based on findings of pre-test.

2.10 Data Collection technique:

- Face to face interview
- Direct observation for physical verification

2.11 Inclusion criteria of the respondents:

- Nurses' who were working in the selected units.
- Nurses' who were willing to participate in the study.
- Nurses' who had at least 6 month working experience at the units.

2.12 Exclusion criteria:

- Nurses' who were not available at the time of data collection.
- Nurses' who were in leave.
- Nurses' who were working in administrative side.

2.13 Data Processing & Analysis: After collection of data these were checked, verified, coded and edited. The data entry was started immediately after completion of data collection. Data was analyzed in computer by using software Statistical Package for Social Science (SPSS) version 24, Microsoft Excel & Microsoft Wards. The association was find out by using Pearson's chi-square ($\chi 2$) test.

2.14 Data Presentation & Interpretation:

- Data were presented by tables, graphs and charts.
- Data interpretation was done by statistical inferences.

2.15 Data quality management:

For maintaining data quality as soon as possible collected data was checked, processed and entry the computer. Analysis was done after completion of entry and checking.

2.16 Ethical consideration:

- Formal approval of the study was obtained from Ethical Review Board of NIPSOM, Dhaka, Bangladesh Permission was taken from the Director of Dhaka Medical College Hospital & Shaheed Suhrawardy Medical College Hospital Dhaka before data collection.
- Written consent was obtained from all of the respondents.
- The right was given to the respondents to participate or to discontinue participation at any time in the study with consideration/without penalty.
- Confidentiality of their responses maintained throughout the study, report will be used for research purpose only.
- Research findings and results of the study was explained to the participants without any distortions.
- Participation was voluntarily.

III. RESULT

The present study entitled "Nurses' Knowledge and Practice on Pressure Ulcer Prevention and Management for Hospitalized Patients at Tertiary Level Hospital". Data were collected during 4 weeks data collection period by pretested semi structured questionnaire. After data entry cleaning done and then in this chapter data are presented as table, graph to represent frequency, mean and percentage.

Table 1: Distribution of respondents according to demographic variables (n=310)

Variable	Characteristics	Frequency (n)	Percentage (%)
Age (in years)	25-34	173	55.8%
	35-44	105	33.8%
	45 & above	32	10.3%
	Mean ± SD (34±6.94 years)		
Sex	Male	47	15%%
	Female	263	85%%
Marital status	Married	265	85.5%
	Unmarried	45	14.5%
Religion	Muslim	226	73%
	Hindu	71	23%
	Christian.	13	4%
Educational qualification	Diploma in Nursing	223	71.9%
	B. Sc. in Nursing	67	21.6%
	MPH/M.Sc. Nursing	20	6.5%
Working experience	05 – 10 years	236	76.1%
	11 – 15 years	26	8.4%
	Above 15 years	48	15.5%
Monthly income	25000-44000/-	266	85.7%
	45000-54000/-	38	12.3%
	Above 54000/-	6	02%

Table 1 shows that mean age of the respondents were 34±6.94 years, highest 55.8% of the respondents belonged to the age group of 25-34 years followed by 33.8% were 35-44 years, and rest of them 10.3% were 45 & above years old. Within the age level minimum age 25 years and maximum age 57 years. Among the respondents 85% were female and only 15% were male, as well as 85.5% were married, 14.5% were unmarried, followed by 73% were Muslim, 23% were Hindu and only 4% were Christian, whether 72% completed Diploma in Nursing, 22% B.Sc. in Nursing and 6% respondents completed MPH/M.Sc. Nursing. Highest 76.1% respondents had working experience in hospital for 5 – 10 years, followed by 8.4% respondents working experience in hospital is 11 - 15 years and 15.5% respondents working experience in hospital above 15 years as well as 85.7% had monthly income 25000-44000 taka, 12.3% had 45000-54000 taka, and rest of them 02% had above 54000 taka income.

Table 2: Distribution of respondents according to knowledge on pressure ulcer (n=310)

Variable	Characteristics	Frequency (n)	Percentage (%)
Main factor for formation of pressure ulcer	Chronic wound	82	26.5%
	High loading pressure	221	71.3%
	Poor nutrition	2	0.6%
	Infection	5	1.6%
Common site of pressure ulcer	Lower back/buttock	186	60.0%
	Upper leg	56	18.1%
	Hand	1	0.3%
	All of them	67	21.6%
Main cause responsible for pressure ulcer	Prolonged immobility	143	46.0%
	Negligence nursing care	112	36.0%
	Low albumin	35	11.0%
	High sodium level	20	6.0%

Favorable environment for bacterial growth	Malnutrition	1	0.3%
	Anemia	2	0.6%
	Dirty cloth and environment	233	75.2%
	Open injury	74	23.9%
Type of patients mostly affected by pressure ulcer	Unconscious patients	124	40.0%
	Bed ridden	50	16.0%
	Head injury	12	4.0%
	Above all	124	40.0%
Sign of pressure ulcer	Open wound	8	2.6%
	Partial skin loss, redness skin, blister, abrasion	204	65.8%
	Full thickness skin loss with tissue necrosis	97	31.3%
	Bluish colour of the skin	1	0.3%
Appropriate method for skin care	Application of talcum powder, ,	161	52.0%
	Application of antibiotic ointment	65	21.0%
	Massage at the bony prominent area	56	18.0%
	Maintain adequate nutrition.	28	9.0%
Significant nursing care for protecting pressure ulcer	Sit up every 2 hour	9	2.9%
	Turn position every 2 hour	269	86.8%
	Elevated head of bed greater than 30 degree	15	4.8%
	Dressing of the wound	17	5.5%
Prevention of pressure ulcer on heel	Use pillow under the leg,	121	39.0%
	raise the foot-end of bed,	19	6.0%
	used cotton pad	9	3.0%
	Above all	161	52%
Important vitamins need to maintain healthy skin	Vitamin B & D	22	7.1%
	Vitamin C & E	268	86.5%
	Vitamin K	6	1.9%
	Vitamin A	14	4.5%
Type of nutrients need for bed ridden patients	Fat containing food	7	2.3%
	Protein rich food	160	51.6%
	Fruits & vegetable	142	45.8%
	Carbohydrate	1	0.3%
probable lab test for assessment of pressure ulcer	Serum electrolytes	161	52.0%
	serum albumin	81	26.0%
	serum creatinine	56	18.0%
	platelet count	12	4.0%
Nursing care that reduce shearing force	Elevated head of bed less than 30 degree	127	41.0%
	Elevated head of bed at 60 degree	123	39.7%
	Elevated head of bed at 90 degree	30	9.7%
	Normal position of bed	30	9.7%
Best educational activity	In-service training	268	86.5%
	Set pressure ulcer prevention protocol	23	7.4%
	Conducting seminar	1	0.3%
	None of them	18	5.8%

Table 2 shows the respondents knowledge about pressure ulcer. Maximum 71.0% mentioned high loading pressure, 26.0% stated chronic wound, 2.0% mentioned infection and lowest 0.6% said poor nutrition is responsible for pressure ulcer formation. Highest 60.0% respondents stated lower back/buttock is the common site of pressure ulcer formation, 18.0% stated upper leg, 0.3% stated hand and 22.0% respondents opinion above all 3 factors are the common site of pressure ulcer formation. Highest 46.0% respondents opinion was prolonged immobility, 36.0% opinion was negligence nursing care, 11.0% opinion was low albumin and lowest 6.0% respondents opinion was high sodium level is the main cause of pressure ulcer formation. Favorable environment for bacterial growth,

75.0% opinion was dirty cloth and dirty environment 24.0% said open wound, 0.6% said anemia and only 0.3% opinion was malnutrition. Among the respondents highest 40.0% opinion unconscious patients, 16.0% bed ridden, 4.0% said head injury and 40.0% mentioned above all 3 types like head injury, unconscious and bed ridden. The respondents 66.0% opinion was partial skin loss, redness of the skin, blister and abrasion followed by 31.0% said full thickness skin loss with tissue necrosis, 3.0% opinion was open wound and only 0.3% opinion was bluish coloration of the skin are the sign of pressure ulcer. Half of the respondents 52.0% opinion was application of talcum powder, 21.0% opinion was application of antibiotic ointment, 18.0% mentioned massage at the bony prominent area and lowest 5.0% mentioned maintain adequate nutrition. Almost 87.0% opinion was turn position every 2 hour, 5.5% answered dressing of the wound, 4.8% answered elevated head of bed greater than 30 degree and lowest 3.0% mentioned sit up every 2 hour can protect pressure ulcer. Among the respondents 39.0% opinion was use pillow under the leg, 6.0% said the raise the foot-end of bed, 3.0% used cotton pad and 52.0% mentioned all 3 steps used pillow under the leg, raise the foot-end of bed and use cotton pad can prevent pressure ulcer on heel. Among them 86.0% mentioned vitamin C & E, 7.0% mentioned vitamin B & D, 4.0% said vitamin A and 2.0% mentioned vitamin K are important for maintain healthy skin. Half of the respondents 52.0% mentioned protein rich food, 46.0% opinion was fruits & vegetable, 2.0% said fat containing food and lowest 0.3% opinion was carbohydrate rich diet need for bed ridden patients. highest 52.0% opinion was need to test serum electrolytes, 26.0% mentioned need to test serum albumin, 18.0% said serum creatinine and 4.0% said platelet count need for assessment of pressure ulcer patient. Half of the respondents 52.0% mentioned elevated head of bed less than 30 degree, 40.0% opinion was elevation head of bed at 60 degree and 10.0% respondents mentioned elevation head of bed at 90 degree and normal position of bed. Almost 86.0% opinion was in-service training, 7.0% mentioned set up pressure ulcer prevention protocol and lowest 0.3% said conducting seminar enhances competency of staff nurses in preventing pressure ulcer.

Table 3: Distribution of respondents according to the observation regarding pressure ulcer prevention and management (n=310).

Variables	Always n (%)	Sometimes n (%)	Never n (%)
Observing how other nurses assess risk factors for pressure ulcer development	100 (32.3%)	196 (63.2%)	14 (4.5%)
Identifying common contributing factors for pressure ulcer development by periodical assessment of patients skin	165 (53.2%)	145 (46.8%)	0 (0.0%)
Doing skin assessment that guided by a standard nursing care available in my ward or in my hospital.	248 (80.0%)	59 (19.0%)	3 (1.0%)
Documenting all data related to pressure ulcer assessment.	95 (30.6%)	207 (66.8%)	8 (2.6%)
Assessing and provide management of pain in the patients who experience pain from any causes.	154 (49.7%)	152 (49.0%)	4 (1.3%)
Performing skin care as a routine work of my unit.	282 (90.9%)	25 (8.1%)	3 (1.0%)
Placing the pillow under the patient's leg to prevent heel ulcer.	232 (74.8%)	77 (24.8%)	1 (0.4%)
Performing lab test for assessing nutritional status followed by physician instruction.	35 (11.3%)	244 (78.7%)	31 (10.0%)
Providing vitamin and food for patients who are malnourish	273 (88.1%)	26 (8.4%)	11 (3.5%)
Monitoring a protein and calorie diet in patients who are in bedridden.	181 (58.3%)	122 (39.3%)	7 (2.4%)
Avoiding dragging the patients during reposition	147 (47.4%)	147 (47.4%)	16 (5.6%)
Using special mattress to prevent pressure loadings, such as foam, Air.	39 (12.7%)	131 (42.2%)	140 (45.1%)
Avoiding massage over patient's bony prominences to prevent pressure ulcer formation	192 (61.9%)	93 (30.0%)	25 (8.1%)
Turning a patient's position every two hour.	292	16	2

	(94.1%)	(5.2%)	(0.7%)
Using cream or ointment for skin moisture	131 (42.2%)	175 (56.4%)	4 (1.4%)
Putting pillow under patients leg from mid-calf to ankle in order to keep heels off the bed	83 (26.8%)	212 (68.4%)	15 (4.8%)
Attending seminars for pressure ulcer prevention.	31 (10.0%)	106 (34.2%)	173 (55.8%)
Giving advice to the patients or caregiver regarding pressure ulcer preventive care before discharge the patients from a hospital	252 (81.3%)	54 (17.4%)	4 (1.2%)

Table 3 represents the practice of respondents on prevention and management of pressure ulcer. Highest 63.2% sometimes,32.3% always and 4.5% never do the assess risk factors for pressure ulcer development, 53.2% always, 46.8% sometimes identifying common contributing factors for pressure ulcer development by periodical assessment of patients' skin and 80.0% always, 19.0% sometime and 1.0% never do skin assessment. Highest 66.8% sometimes, 30.6% sometimes and 2.6% never document all data related to pressure ulcer assessment, 49.7.0% always, 49.0% sometimes and 1.3% never assess and provide management of pain and 90.9% always, 8.1% sometimes and 1.0% never perform skin care as a routine work of my unit. Highest 74.8% always, 24.8% sometimes and 0.4% never place the pillow under the patient's leg to prevent heel ulcer, 78.7% sometimes, 11.3% sometimes and 10.0% never perform lab test for assessing nutritional status followed by physician instruction and 88.1% always, 8.4% sometimes and 3.5% never providing vitamin and food for patients who are malnourish. Highest 58.3% always, 39.3% sometimes and 2.4% never monitoring a protein and calorie diet in patients who are in bedridden, 47.4% always/sometimes and 5.6 % never avoid dragging the patients during reposition and 45.1% never, 42.2% sometimes and 12.7% always use special mattress to prevent pressure loadings, such as foam, air. Highest 61.9% always, 30.0% sometimes and 8.1% never avoid massage over patient's bony prominences to prevent pressure ulcer formation, 94.1% always, 5.2% sometimes and 0.7% never turning a patient's position every two hour and 56.4% sometimes, 42.2% always and 1.4% never use cream or ointment for skin moisture. Highest 68.4% sometimes, 26.8% always and 4.8% never putting pillow under patients' leg from mid-calf to ankle in order to keep heels off the bed, 55.8% never, 34.2% sometimes and 10.0% always attend seminars for pressure ulcer prevention and 81.3% always, 17.4% sometimes and 1.2% never give advice to the patients or caregiver regarding pressure ulcer preventive care.

Figure 1 represents the overall knowledge of respondents. Highest 54.5% had satisfactory knowledge, 38.4% had poor knowledge and 7.1% respondents had good knowledge on prevention & management pressure ulcer.

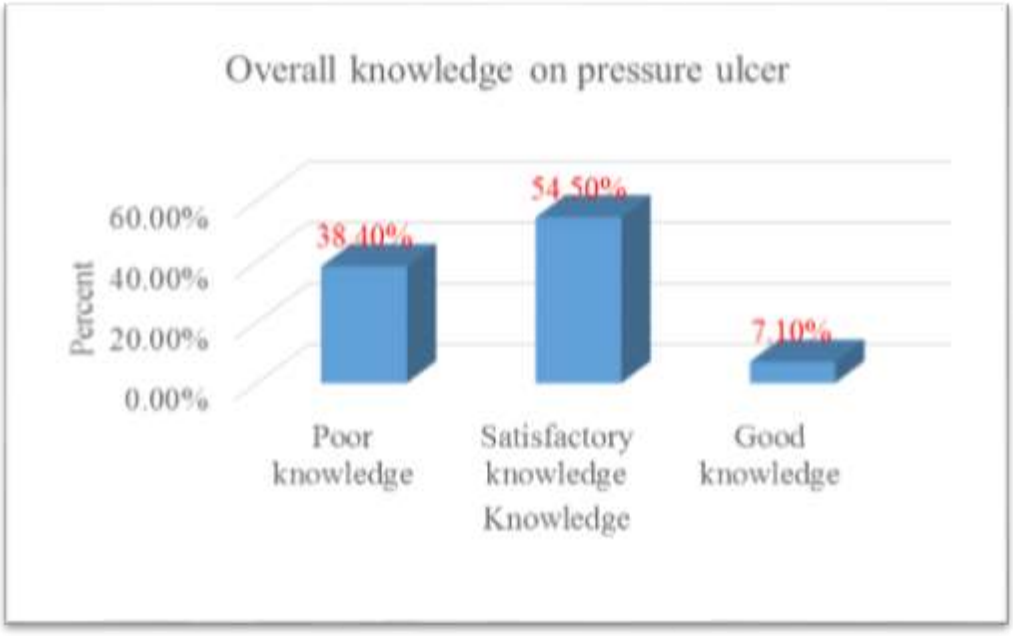

Figure 1: Distribution of respondents according to overall knowledge on prevention and management of pressure ulcers (n=310).

Table 4: Relation of knowledge on prevention and management of pressure ulcers with Professional education variables (n=310).

Professional education	Knowledge on prevention and management of pressure ulcers			Total	Statistics (χ^2 test)
	Poor n (%)	Satisfactory n (%)	Good n (%)		
Diploma in Nursing	102 (32.9%)	114 (36.8%)	7 (2.3%)	**223 (71.9%)**	$\chi^{2=35.561}$ P=.000 df=6
Bachelor in Nursing	16 (5.2%)	39 (12.6%)	12 (3.9%)	**67 (21.6%)**	
MPH/MSc in Nursing	1 (0.3%)	16 (5.2%)	3 (1.0%)	**20 (6.5%)**	
Total	**119 (38.4%)**	**169 (54.5%)**	**22 (7.1%)**	**310 (100%)**	

Table 4 represents the association between professional qualification and prevention and management of pressure ulcers. Professional qualification and prevention and management of pressure ulcers are a significant relationship because here p value is less than .05 that is .000 with degree of freedom 6.

Table 5: Distribution of respondents according to association between Working experience and knowledge on common site of pressure ulcer (n=310).

Working experience	Knowledge on common site of pressure ulcer				Total	Statistics (χ^2 test)
	Buttock n (%)	**Upper leg** n (%)	**Hand** n (%)	**All of them** n (%)		
1-5 years	93 (30%)	23 (7.4%)	1 (0.1%)	52 (16.8%)	169 (54.50%)	$\chi^{2=21.24}$ P =.012 df=9
6-10 years	44 (14.2%)	15 (4.8%)	0	8 (2.6%)	67 (21.60%)	
11-15 years	17 (5.5%)	7 (2.3%)	0	2 (0.6)	26 (8.40%)	
16-20 years	32 (10.3%)	11 (3.5%)	0	5 (1.6%)	48 (15.50%)	
Total	186 (60.0%)	56 (18.1%)	1 (.3%)	67 (21.6%)	310 (100%)	

Table 5 represents the statistical association between working experience and knowledge on common site of pressure ulcer. Working experience and knowledge on common site of pressure ulcer are a significant relationship because here p value is less than .05 that is .012 with degree of freedom 9.

Figure 2: Distribution of respondents according to overall practice on pressure ulcer (n=310).

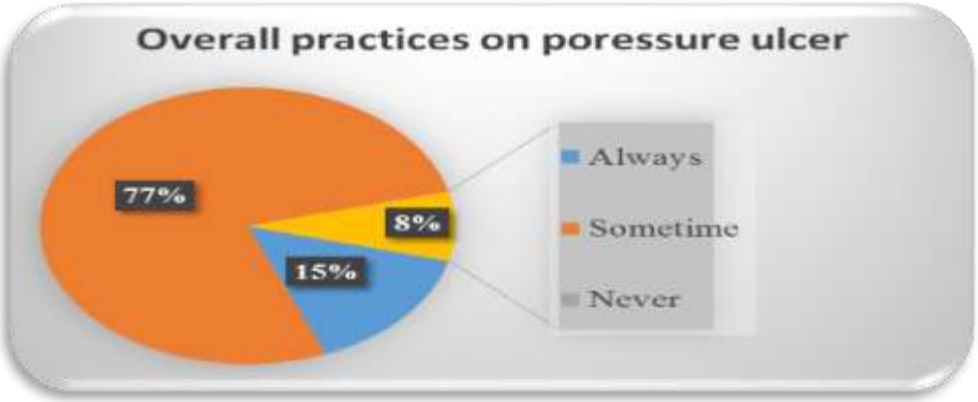

Figure 2 represents the overall practice of respondents. Highest 77% had sometimes practice, 15% had always practice and 8% respondents had never practice on prevention & management pressure ulcer.

Table 6: Distribution of respondents according to association between overall knowledge and overall practice on pressure ulcer prevention and management (n=310).

Overall Knowledge	Overall Practices			Total	Statistics (χ^2 test)
	Always	Sometime	Never		
Poor knowledge	13 4.2%	97 31.3%	9 2.9%	119 38.4%	χ^2=4.792
Satisfactory knowledge	27 8.8%	127 40.9%	15 4.8%	169 54.5%	P=.309
Good knowledge	6 1.9%	15 4.8%	1 0.3%	22 7.0%	df=4
Total	46 14.8%	239 77.0%	25 8.0%	310 100%	

Table 6 shows the statistical association between overall knowledge and practice on pressure ulcers prevention and management. Overall knowledge and practice on pressure ulcers has no significant relationship because here p value is more than .05 that is .309 with degree of freedom 4.

IV. DISCUSSION

Pressure ulcer (PU) development remains a significant complication among at-risk patients. It is considered "never events" because they are preventable and should "never" happen. It has been associated with increased morbidity, mortality, hospital cost and length of stay in the hospital. This cross-sectional study was carried out to assess the level of nurses' knowledge and practice on pressure ulcer prevention and management for hospitalized patients at Dhaka Medical College Hospital (DMCH) and Shaheed Suhrawardy Medical College Hospital (ShSMCH).

Findings shows that mean age of the respondents were 34±6.94 years, highest (34%) of the respondents belonged to the age group of 25-29 years and lowest (2%) was more than 49 years old. Within the age level minimum age 25 years and maximum age 57 years. Among them (85%) were female and only (15%) were male. Within the respondents (73%) of them were Muslim in the contest of that only (23%) of them were Hindu. Study represents that (72%) completed Diploma in Nursing, 6% respondents completed MPH/M.Sc. Nursing. Highest (54%) respondents working experience in hospital is 5 years. Similarly a study done by Shrestha N, Shrestha P in 2016 to assess the knowledge of pressure ulcer management among nurses & to determine the level of knowledge of pressure ulcer management among nurses. Results revealed that significant association was not found between age, working ward, experience, education, training, duration and knowledge of pressure ulcer management among Nurses [10].

Knowledge level of respondents regarding best educational activity that enhances competency of staff nurses in preventing pressure ulcer. Within the respondents highest (86%) opinion in-service training on pressure ulcer prevention, (7%) mentioned set up pressure ulcer prevention protocol can enhances competency of staff nurses in preventing pressure ulcer. We know prevention is better than cure. A related study done by Ilesanmi RE et al in 2012 to describe nurses' level of knowledge of PU preventive interventions and to test the reliability of the Pressure Ulcer Knowledge Test (PUKT) among Nigerian nurses. Result showed that no significant differences in PU prevention intervention knowledge scores were observed between nurses with different educational backgrounds (P = 0.317) or years of working experience (P= >0.005). The Cronbach's alpha coefficient for reliability was 0.861. The results of this study confirm that many PU prevention interventions in Nigeria are based on tradition and that a structured educational approach is needed to enable Nigerian nurses to provide evidence-based PU prevention interventions [11].

Regarding overall knowledge of the respondents highest (55%) had satisfactory knowledge, (38%) had poor knowledge and (7%) respondents had good knowledge on pressure ulcer prevention & management. Similarly a study done by Nuru N et al., in 2015 to assess knowledge, practice and factors associated with pressure ulcer prevention among nurses in Gondar University Hospital, North-west Ethiopia. Result showed that nearly half (54.4 %) of the nurses had good knowledge; similarly (48.4 %) of them had good practice on prevention of pressure ulcer. Educational status (AOR) =2.4, 95 % CI (1.39-4.15), work experience AOR=4.8, 95 % CI (1.31-10.62) and having formal training AOR=4.1, 95 % CI (1.29-9.92) were significantly associated with knowledge on prevention of pressure ulcer[1]. Similarly another study done by Nasreen S et al in 2017 to check the association between nurses' job experience and their knowledge and practices towards pressure ulcer prevention

at Lahore General Hospital. Results showed that Nurses overall knowledge was only (8.3%) have good knowledge, (11.1%) have fair knowledge and (80.6%) have poor knowledge about pressure ulcer prevention [12].

In case of statistical calculation between professional qualification and knowledge on prevention and management of pressure ulcers there was a significant relationship because them here p value is less than .05 that is .000 with degree of freedom 6. Another association between working experience and knowledge on common site of pressure ulcer are a significant relationship because here p value is less than .05 that is .012 with degree of freedom 9. Similarly a study done by Nasreen S et al in 2017 to check the association between nurses' job experience and their knowledge and practices towards pressure ulcer prevention at Lahore General Hospital. Results showed that nurse's job experience has a significant association with their practices and knowledge toward pressure ulcer prevention [12]. Similarly another study done by Ingwu JA in 2019 to determine the knowledge and practice of caregivers towards pressure ulcer prevention for hospitalized patients in National Orthopedic Hospital, Enugu. Results represented the test of hypothesis showed that there is a significant relationship between years of service of caregivers and knowledge of pressure ulcer $P = 0.000$ [13].

Findings showed the practice of respondents on prevention and management of pressure ulcer. Highest (63%) sometimes assess risk factors for pressure ulcer development, (53%) always identifying common contributing factors for pressure ulcer development by periodical assessment of patients' skin and 80% always do skin assessment. Highest (67%) sometimes document all data related to pressure ulcer assessment, (50%) always assess and provide management of pain and (91%) always perform skin care as a routine work of my unit. Similarly another study done by Nasreen S et al in 2017 to check the association between nurses' job experience and their knowledge and practices towards pressure ulcer prevention at Lahore General Hospital. Results showed that Nurses overall knowledge was only (8.3%) have good knowledge, (11.1%) have fair knowledge and (80.6%) have poor knowledge about pressure ulcer prevention (82.6%) have poor practices, (7.1%) have fair practices and (10.3%) have good practices of pressure ulcer prevention [12].

Research showed the practice of respondents on prevention and management of pressure ulcer. Highest (75%) always place the pillow under the patient's leg to prevent heel ulcer, (79%) sometimes perform lab test for assessing nutritional status followed by physician instruction and (88%) always providing vitamin and food for patients who are malnourish. Highest (58%) always monitoring a protein and calorie diet in patients who are in bedridden, (47%) always/sometimes avoid dragging the patients during reposition and (45%) never use special mattress to prevent pressure loadings, such as foam, Air. Similarly a study done by Nuru N et al., in 2015 to assess knowledge, practice and factors associated with pressure ulcer prevention among nurses in Gondar University Hospital, North-west Ethiopia. Result showed that nearly half (54.4 %) of the nurses had good knowledge; similarly (48.4 %) of them had good practice on prevention of pressure ulcer. Educational status (AOR) =2.4, 95 % CI (1.39-4.15), work experience AOR=4.8, 95 % CI (1.31-10.62) and having formal training AOR=4.1, 95 % CI (1.29-9.92) were significantly associated with knowledge on prevention of pressure ulcer [1].

Findings represents that regarding overall practice of respondents most of the respondents (77%) sometimes practice their activities for prevention & management pressure ulcer. Research also showed the statistical association between working experience and practice on prevention of pressure ulcer. Working experience and practice on pressure ulcer has a significant relationship because here p value is less than .05 that is .024 with degree of freedom 6. A related study done by Pancorbo-Hidalgo et al in 2007 to explored nurse's knowledge regarding pressure ulcer prevention, and the application of this knowledge to clinical practice. The results showed significant differences between knowing what is suitable according to knowledge, and actually putting it into practice. For example, (49.9%) reported repositioning as a suitable preventive measure, while only 17.4% reported using this is always used in practice [14].

V. CONCLUSION

Globally, nurses are known to care for hospitalized patients and the presence or absence of pressure ulcers is being regarded as a performance measure of quality nursing care. This cross sectional descriptive type of study was concluded that mean age of the respondents were 34±6.94 years, most of them were female, Muslim and completed Diploma in Nursing. High loading pressure is the main factor of pressure ulcer, common site of pressure ulcer is lower back/buttock and main cause of formation of pressure ulcer was prolonged immobility & negligence nursing care. Dirty cloth and dirty environment is favorable environment that need for bacterial growth, unconscious patients and bed ridden patients were mostly affected by pressure ulcer. Partial skin loss, redness of the skin, blister and abrasion are the sign of pressure ulcer, application of talcum powder and massage at the bony prominent area will be appropriate method for skin care of pressure ulcer patients. High protein rich food, fruits and vegetable need for bed ridden patients. In overall knowledge highest respondents had satisfactory knowledge and in overall practice level most of the respondents had sometimes perform their activities for prevention and management of pressure ulcers. Overall

practice and working experience has a significant relationship and also knowledge, professional qualification and working experience are strongly associated for the improvement of prevention and management of pressure ulcer.

Recommendations:

The following recommendations are put forward to improve the nurses' knowledge and practice on prevention and management of pressure ulcer

- In-service training and refresher courses about PU prevention & management should be designed for all nurses. This should provide them with up-dated knowledge to understand PU prevention which can be translated into practice.
- Hospital policies and guideline are needed to promote and maintain nurses' attitude in relation to PU prevention.
- Health education should be focus on personal hygiene and improvement of nutrition that are very essential to prevent pressure ulcer.

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