

Pattern and Risk Assessment of Bed sore in Hospitalized Patients

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Abstract

Objective: This descriptive type of cross sectional study was conducted to assess pattern and risk factors of bed sore in hospital admitted patients in Dhaka city with a sample size of 114. **Methods:** A pretested, modified, questionnaire was used to collect the data. All the data were entered and analyzed by using Statistical Package of Social Science 16.0 versions. **Results:** Study found that 17.5%, 41.2%, 27.2% and 14% of the respondents belonged to age group of 1-20 years, 21-40 years, 41-60 years and 61-80 years respectively with mean age 37.97 ± 16.909 years. Responsible diseases for bed sore were spinal cord injury (41.2%), fracture (30%), stroke (24%), unconsciousness (7.2%) and GBS (2.8%) respectively. Study revealed that common area of bed sore were back of the sacrum (57%), back of the scapula (34.2%), medial aspect of knee joint (22.8%), malleoli (21.1%), greater trochanter of femur (15.8%), external occipital protuberance (14%), olecranon process of ulna (9.6%), above the coccyx (9.6%), iliac crest (7%), spine of the scapula (3.5%), posterior superior iliac joint (2.6%) and sacro-iliac joint (1.8%) respectively. Study also found that superficial and deep type of bed sore were 58.8% and 41.2% consecutively. Besides study revealed that 26.3% of the respondents were diabetic, 31.6% obese, 28.1% suffering from malnutrition, 61.4% did not use pneumatic bed and 7.2% patients did not maintain proper positioning 2 hourly and these were the risk factors of this study. Significant association was found between type of bed sore and use of pneumatic bed ($P=0.000<0.05$) as well as nutritional status ($P=0.004<0.05$). **Conclusions:** Changing position and use of pneumatic bed was best methods of prevention of bed sore.

Key words: Pneumatic bed; risk factors; spinal cord injury; stroke.

BACKGROUND

Bedsore is a significant health burden, but little is known of the impact on the quality of life of the sufferer. They mainly affect older people. Pressure ulcers produce endless pain; pressure ulcers produce a restricted life; coping with a pressure ulcer. Several patients also reported that pain was exacerbated by their pressure relieving equipment and at dressing change. Patients found that the pressure ulcer restricted their activities and had an impact on their families. In addition, for some, the restrictions delayed their rehabilitation¹. Pressure ulcers are a common and painful health condition, particularly among people who are elderly or physically impaired. Despite our knowledge of how to prevent pressure ulcers, and improvements in treatment, pressure ulcers remain prevalent and impose a significant burden on financial and labor resources in the healthcare industry. Under nutrition is a risk factor, and nutrition therapy plays a crucial role in pressure ulcer treatment. Micronutrients should be replaced if depleted, but routine supplementation of vitamins and minerals in all pressure ulcer patients is not warranted². Cumulative incidence of Pressure ulcer more in acute hospital admitted patients than bedside in home sitting. The relative rates in rehabilitation and nursing home settings were 1.4 (95% CI 0.8–2.3) and 1.3 (95% CI 0.8–2.1), respectively³.

To estimate the frequency of use of pressure-redistributing support surfaces among hip fracture patients and to determine whether higher pressure ulcer risk is associated with greater pressure-redistributing support surfaces use. Patients ($n = 658$) aged 65 years who had surgery for hip fracture were examined by research nurses at baseline and on alternating days for 21 days⁴. Study was found that the mean age of the study was 44.51. Regarding to sex it was found that the highest percentages of the study samples were male 60.4%. It presented that nurses performance were used bed sheets and observe signs and symptoms of sores sites for most of patients as pressure ulcer prevention constituted 100% and 62.5 %⁵. Although no gold standard for preventing or treating pressure ulcers has been established, data from clinical trials indicate specific efforts are worthwhile. Preventive strategies include recognizing risk, decreasing the effects of pressure, assessing nutritional status, avoiding excessive bed rest, and preserving the integrity of the skin. Treatment principles include assessing the severity of the wound; reducing pressure, friction, and shear forces; optimizing wound care; removing necrotic debris; managing bacterial contamination; and correcting nutritional deficits⁶. Intervention strategies included PU-specific changes in combination with educational strategies. Most studies reported patient outcome measures, while fewer reported nursing process of care measures. For nearly all the studies, the authors concluded that the intervention had a positive effect⁷. Critically ill patients are at high risk for pressure ulcer development due to their high acuity and the invasive nature of the multiple interventions and therapies they receive. With reported incidence rates of bedsore development in the adult critical care population as high as 56%; the identification of patients at high risk of bedsore development is essential. This paper will explore the association between bedsore development and risk factors⁸. Pressure ulcer risk assessment is a component of the assessment process used to identify individuals at risk of developing a pressure ulcer. Use of a risk assessment tool is recommended by many international pressure ulcer prevention guidelines however it is not known whether using a risk assessment tool makes a difference to patient outcomes. A review was conducted to clarify the role of pressure ulcer risk assessment in clinical practice⁹. This generally well-conducted review concluded that commonly used instruments can predict which patients are more likely to develop a pressure ulcer. There were no clear differences in test accuracy between methods. Advanced static support surfaces were more effective than standard mattresses for reducing risk of pressure ulcers. The review conclusions seem appropriate¹⁰. Most of the pressure ulcers were stage 2, and the majority was in the sacral area or on the heels. In multivariable analysis, pressure ulcer incidence was significantly associated with increasing age, male gender, dry skin, urinary and fecal incontinence, difficulty turning in bed, nursing home residence prior to admission, recent hospitalization, and poor nutritional status¹¹. To identify resident, wound, and treatment characteristics associated with pressure ulcer healing in long-term care residents. In this sample of nursing facility residents,

use of moist dressings and adequate nutritional support are strong predictors of pressure ulcer healing¹². The overall prevalence of pressure ulcers was 27%. Multivariate analysis showed a statistically significant positive association between high-risk condition of pressure ulcer and previous stroke, previous trauma, cardiovascular diseases. The risk of pressure ulcers according to number of full-time nurses and auxiliary staff per 10 beds lower than five was marginally statistically significant¹³. There is no decrease in pressure ulcer incidence was found which might be attributed to use of an assessment scale. However, the use of scales increases the intensity and effectiveness of prevention interventions. The Braden Scale shows optimal validation and the best sensitivity/specificity balance¹⁴. Absence of pressure ulcers is increasingly being used as an indicator of quality nursing care, based on the premise that pressure ulcers are preventable. Pressure ulcer incidents were recorded in groups of patients who underwent surgery with use of a standard foam bed mattress; use of a fluid, pressure-reducing bed mattress; after a comprehensive educational program on pressure ulcer prevention was presented¹⁵.

MATERIAL & METHODS

Descriptive type cross-sectional study was conducted to determine the pattern and risk factors of bedsore with 114 samples. The study site was Dhaka Medical College Hospital, National Institute of Traumatology and Orthopedic Rehabilitation situated in Shamolly and Metropolitan Medical Centre, Mohakhali, of Dhaka city. The study period was conducted for six months started from June 2013 to December 2013. Non randomized purposive sampling method was applied for data collection. A pre tested modified semi-structured questionnaire which were prepared on the basis of objectives and different variables of this study. The collected data was edited by checking rechecking analyzed by using the software SPSS 16.0 version (Chicago). Then analyzed data were presented according to the variables of the study.

RESULTS

Analysis of socio-demographic variables and table 1 showed that 17.5%, 41.2%, 27.2% and 14% of the respondents belonged to age group of 1-20 years, 21-40 years, 41-60 years and 61-80 years respectively with mean age 37.97 \pm 16.909 years.

Table 1: Distribution of the respondents by age ($n=114$)

Age	Frequency	Percent
1-20	20	17.5
21-40	47	41.2
41-60	31	27.2
61-80	16	14.0
Total	114	100.0

Table 2 showed that most of the respondents 77.2% are Male and rest of them 22.8% are Female of them of the respondents are primary 39.5%, followed by Secondary 20.2%, Higher Secondary 12.3%, Graduate 18.4% and Post Graduate and above 9.6% respectively. Among the respondents Married 72.8%, unmarried 21.9%, Widow/ Widowed 3.5% and only are Divorced/ Separate 1.8% respectively. It is reveals that occupation of the respondents is student 21.9%, service holder 22.8%, employer 15.8%, worker 31.6% and rest of them are retired person 7.9% respectively.

Table 2: Distribution of the respondents by sex (n=114)

Sex	Frequency	Percent
Male	88	77.2
Female	26	22.8
Total	114	100.0

Table 3 revealed that common area of bed sore of the respondents were followed by back of the sacrum 57%, back of the scapula 34.2%, medial aspect of knee joint 22.8%, malleoli 21.1%, greater trochanter of femur 15.8%, external occipital protuberance 14%, above the coccyx and olecranon process of ulna 9.6%, iliac crest 7%, spine of the scapula 3.5%, posterior superior iliac joint 2.6%, sacro-iliac joint 1.8%, and respectively.

Table 3: Distribution of the respondents by common area of bed sore (Multiple Responses)

Variables	Frequency	Percent
External occipital protuberance	16	14.0
Spine of the scapula	4	3.5
Back of the scapula	39	34.2
Olecranon process of ulna	11	9.6
Iliac crest	8	7.0
Posterior superior iliac joint	3	2.6
Sacro-iliac joint	2	1.8
Back of the sacrum	65	57.0
Above the coccyx	11	9.6
Greater trochanter of femur	18	15.8
Medial aspect of knee joint	26	22.8
Malleoli	24	21.1

Figure 1 found that superficial and deep type of bed sore were 58.8% and 41.2% respectively.

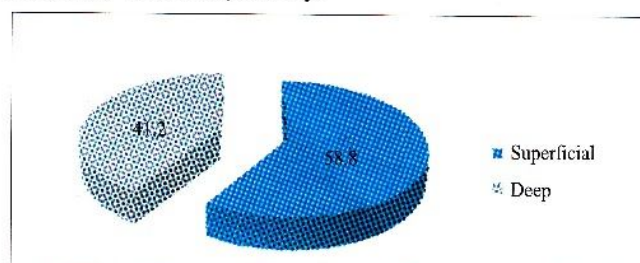


Figure 1: Distribution of the respondents by type of bed sore (n=114)

Table 4 revealed that several risk factors influenced the develop and severity of bed sore that were 61.4% did not use pneumatic bed (air mattress), 31.6% obese, 28.1% malnourished, 26.3% the respondents were diabetic and 7.2% patient did not maintain proper positioning 2 hourly.

Table 4: Distribution of the respondents by risk factors (n=114)

Risk factors	Frequency	Percent
Diabetic	30	26.3
Obese	36	31.6
Malnutrition	32	28.1
Do not use pneumatic bed	70	61.4
Lack of positioning 2 hourly	9	7.2

Figure 2 revealed that responsible disease for bed sore were spinal cord injury 41.2%, fracture 30%, stroke 24%, unconsciousness 7.2%, GBS 2.8%.

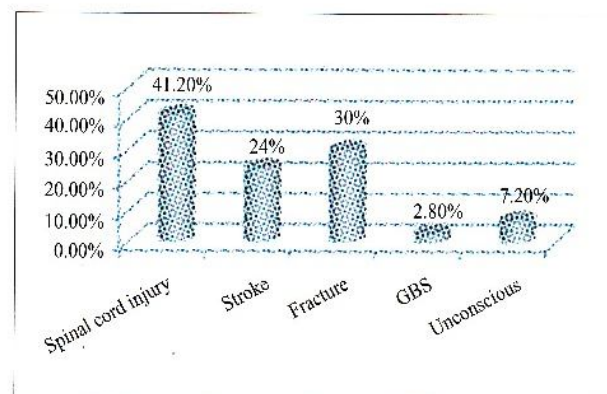


Figure 2: Distribution of the respondents by responsible disease for bed sore (Multiple Responses)

Table 5 revealed that a highly significant association was found between types of bed sore and use pneumatic bed ($P=0.000<0.05$).

Table 5: Distribution of respondents by association between type of bed sore and use pneumatic bed (n=114)

Types of bed sore	Use Pneumatic bed		Total	P-Value
	Yes	No		
Superficial	12	55	67	0.000
Deep	32	15	47	
Total	44	70	114	

Table 6 revealed that a significant association was found between type of bed sore and nutritional status of patients ($P=0.004<0.05$).

Table 6: Distribution of respondents by association between type of bedsore and nutritional status of patients (n=114)

Type of bed sore	Nutritional status of patients		Total	P-Value
	Yes	No		
Superficial	55	12	67	0.004
Deep	27	20	47	
Total	82	32	114	

DISCUSSION

Study revealed that common area of bedsore were back of the sacrum 57%, back of the scapula 34.2%, medial aspect of knee joint 22.8%, malleoli 21.1%, greater trochanter of femur 15.8% this findings was similar to the study carried out by the Mona Baumgarten, David Margolis, et al editors⁴. Responsible diseases for bedsore were spinal cord injury 41.2%, fracture 30%, stroke 24%, unconscious 7.2% and GBS 2.8% respectively which was also similar to the study of A Capon, N Pavoni, et al editors¹³. The present study found that 58.8% superficial type of bedsore and 41.2% was deep.

Study revealed that 26.3% of the respondents were diabetic, 31.6% obese, 28.1% suffered from malnutrition, 61.4% did not use pneumatic bed and 7.2% patients did not maintain proper positioning 2 hourly this findings was supported by the study of Sewchuk D, Padula C, Osborne E¹⁵. There were statistically significant association between type of bad sore with nutritional status of patient and use pneumatic bed ($P=0.004<0.05$ and $0.000<0.05$) and this findings was similar to the study carried out by the M Baumgarten, DJ Margolis, Localio, et al editors¹¹.

CONCLUSION

The present study found pattern and risk factor bedsore, such as obesity, diabetic, malnutrition, did not use pneumatic bed and not maintain proper positioning, bony prominent area of the body in different position especially supine. Above all we concluded that minimizing risk factors and proper physiotherapy care may reduce incidence of bedsore in hospital admitted patients.

DISCLOSURE

All the authors declared no competing interest.

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