

BRADEN ALBUMIN SCALE – IDEAL FOR IDENTIFYING PRESSURE ULCER RISK IN COMPLETELY BED-RIDDEN PATIENTS.

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Abstract Pressure ulcers are localized pressure injuries to the skin and/or underlying tissue that occur over a bony prominence area as a result of pressure or pressure in combination with shear and/or friction.A non-experimental descriptive design with survey approach used with an aim to assess the pressure ulcer risk of 150 completely bed-ridden patients by using Braden albumin scale. Modified Braden and Bergstrom (1987) conceptual model was used for this study. The reliability was 0.70. Self-structured questionnaire was used for collecting socio-demographic data by report analysis schedule and standardized Braden albumin scale was used to assess the pressure ulcer risk in completely bed ridden patient by using descriptive and inferential statistics. The study resulted the effective detection of high risk groups for pressure ulcer i.e 43.3% has high risk, 14.7 % moderate risk and 6.7% Severe risk for development of pressure ulcer.

Key words: completely bedridden patients, pressure ulcer, braden albumin scale, ANOVA

Introduction

Completely bedridden patient has decrease in the ability of daily activity due to chronic illness and disability (partially or completely), restricting people to confined only to long-term bed; chair and only indoor life. Therefore, this state leads to many complications such as loss of muscle strength, survival Contractures, osteoporosis, tachycardia, decreased cardiac output, low blood pressure, and thrombo-embolism. Additionally, the bedridden patients are at risk for developing pressure ulcer due to their lack of mobility and no ADL and risks related to fall.¹ To define pressure ulcer any break to the skin and underlying soft tissue, usually over a bony prominence or related to a medical or other device. Bedsores build up if a one spend whole day in bed with no altering site. ² As per a study statistics pressure of 70 mm Hg applied for > 2 hours can produce tissue destruction, friction -rubbing against skin surface, wetness on the skin consequences maceration of the epithelium and healing cannot occur without relieving the pressure ³. Thus in IMS & SUM Hospital, BBSR, Odisha, Braden Albumin scale was introduced for the assessment of the pressure ulcer risk among completely bed ridden patients.

Research questions

1. What is the extent of pressure ulcer risk in completely bed-ridden patient?
2. Is there any association between pressure ulcer risk in completely bed-ridden patients and demographic variable?

Methods & materials-

We have conducted the study at IMS & SUM Hospital, Bhubaneswar, Odisha by using survey research approach (descriptive design) among 150 completely bed ridden patients who are admitted in orthopedic, surgical, medicine ward and ICUs. The patients were selected purposively who are meeting inclusion criteria & Braden Albumin scale was introduced to all the patients for the assessment of the pressure ulcer risk. The study was found reliable with 0.70. Braden and Bergstrom (1987) conceptual Model is used. **(Fig-1)** This model examines the contributing factors of pressure ulcer development such as external factors, patient specific factors and environmental factors. Research problem was approved by ethical committee of Sum Nursing College. Informed consent was obtained from concerned family members of study

participants, there was no interference on the treatment protocol while collecting data, and Confidentiality was ensured. One of the limitation of the study is underpowered but more than 50% of the samples were in risk, so further study is needed in more sample size in different setting.

Analysis & Interpretation

Section I

About 56% of completely bedridden patients were > 61 years of age, 74.7% were male, 39.3 % of patients were under graduate, Few of the (34.7 %) samples had monthly family income of more than Rs 25,000, 76.7% had chronic illness, 73.91% had duration of chronic illness of > 1 year, 58.0 % got admission to the SUM hospital within a week, 84.0 % of them were doing Strengthening Exercises and 53.3% of samples were changing position every two hourly (Table-1). Maximum 43.3% of completely bedridden patients were belonging to High risk and minimum 6.7 % were belongs to Severe risk, 27.3 % belongs to low risk, 14.7 % belongs to moderate risk and 8.0% belongs to no risk category (Table-2). Association between the Risks of pressure ulcer in Completely Bed-Ridden Patients with their selected socio-demographic variables shows significant association with age (df=8, p=0.001), Strengthening Exercise (df=4, p=0.0004) & educational status (df=8, p=0.006) at p < 0.05 (Table-3). ANOVAs showing differences between age of completely bedridden patient with risk of pressure ulcer (Table-4.1) found that the age of completely bedridden patients had significant difference with risk of pressure ulcer were sensory Perception, moisture, nutrition as serum albumin and friction and shear with p value 0.048, .002, .032, .026 respectively with level of significance p < 0.05, no significant difference with activity and mobility with p value 0.142 and 0.147 respectively with level of significance p < 0.05. Differences between chronic illnesses of completely bedridden patient with risk of pressure ulcer (Table- 4.2) found that completely bedridden patients of chronic illness had no significant difference with pressure ulcer risk in sensory perception, moisture, activity, mobility, nutrition as serum albumin and friction & shear with p value more than .611, .509, .210, .079, .599, & .823, compared to level of significance p < .05. Differences between duration of admission to the hospital of completely bedridden patient with risk of pressure ulcer (Table-4.3) showed that duration of admission to the hospital of

completely bedridden patients had significant difference with mobility where p value is 0.009 less than level of significance $p < 0.05$ and others were not significant. Differences between intervals between position changes of completely bedridden patient with risk of pressure ulcer (Table-4.4) showed that interval between position changes of completely bedridden patients was only significant difference with mobility of p value 0.036 less than level of significance $p < 0.05$ and others were not significant. Differences between educational statuses of completely bedridden patient with risk of pressure ulcer (Table- 4.5) found that educational status of completely bedridden patients shows only significant difference with activity and mobility with p value .001 and .009 that is less than level of significance $p < 0.05$ and others were not significant. Difference between family monthly of completely bedridden patient with risk of pressure ulcer (Table-4.6) showed that family monthly income of completely bedridden patient had no significant difference with pressure ulcer risk that is sensory perception, moisture, activity, mobility, nutrition serum albumin and friction & shear with p value .885, .252, .553, .485, .102 and .562. respectively compared to level of significance $p < 0.05$.

Discussion

In our study maximum 56% of completely bedridden patients were > 61 years. The finding of present study was supported by Ladan AM, Garba SN, Sani DK, Sani HM, Muhammed AF (2014) showed that bed-ridden patients who had pressure ulcer were the age of patients more than 65 years (37.5%) and those in the age vary of 51-57 years was (25%).⁴

The study analyzed that maximum 73.91 % belongs to chronic illness of more than 1 year, which is supported by Nicastrì et al (2004) found that higher rate of bed sore in infected with HIV-1 patients. When compared with no infected patients, they found that the duration of admission raises the risk of getting bed sore.⁵

The study found that maximum 53.3% of samples were changing their position every two hourly is supported by Lyder et al (2001) estimated that in their study they use regular skin assessment 94%; use of pressure-dropping device 7.5%; records of being at risk 22.6%, move for a least amount of 2

hours, 66.2%; food consultation 34.3%, stage 1 pressure ulcer staged 20.2% and grade 2 or greater ulcer staged 30.9%.⁶

The study found that maximum 43.3% of completely bedridden patients were belongs to high risk and minimum 6.7 % were belongs to severe risk, 27.3 % belongs to low risk, 14.7 % belongs to moderate risk and 8.0% belongs to no risk. Which is supported by Cidral S, Silva WF, Visentin A, Borghi AC, Mantovani MD and Hey AP (2016) found that 2 numbers of patients were classified as 'very high risk', 6 numbers of patients as 'high risk', 3 numbers of patients as 'low risk', and the rest as 'no risk'.⁷

The study found that the age of completely bedridden patients had significant difference with risk of pressure ulcer in sensory Perception, moisture, nutrition as serum albumin and friction and shear with p value 0.48, .002, .032, .026 respectively with level of significance $p < 0.05$, no significant difference with activity and mobility with p value 0.142 and 0.147 respectively with level of significance $p < 0.05$. The study supported by Pinchcofsky-Devin GD and Kaminski MV June 1986 on Correlation of Pressure Sores and Nutritional Status. They found that rate of some amount of underfeeding was 59%, of all the Seventeen were pressure sores and were all malnourished. There was a major variation involving the relating to diet status of pressure sore and the underfed patients the findings suggested a need for more nutritional support in the aged with pressure sores.⁸

Conclusion

Pressure ulcer, as per the recent statistics is a common problem in both developed & developing countries which increases the morbidity, length of stay in hospital, delayed recovery etc. The Braden albumin scale was found to be effective in assessing the pressure ulcer risk in completely bedridden patient prior hand. This is an easy to teach method which can be easily used by the first contact care giver that is the nurses and thus preventing the long term complications due to pressure ulcer.

Conflict of interest-None

Funding: None

Ethical issues: Nil

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Figure-1

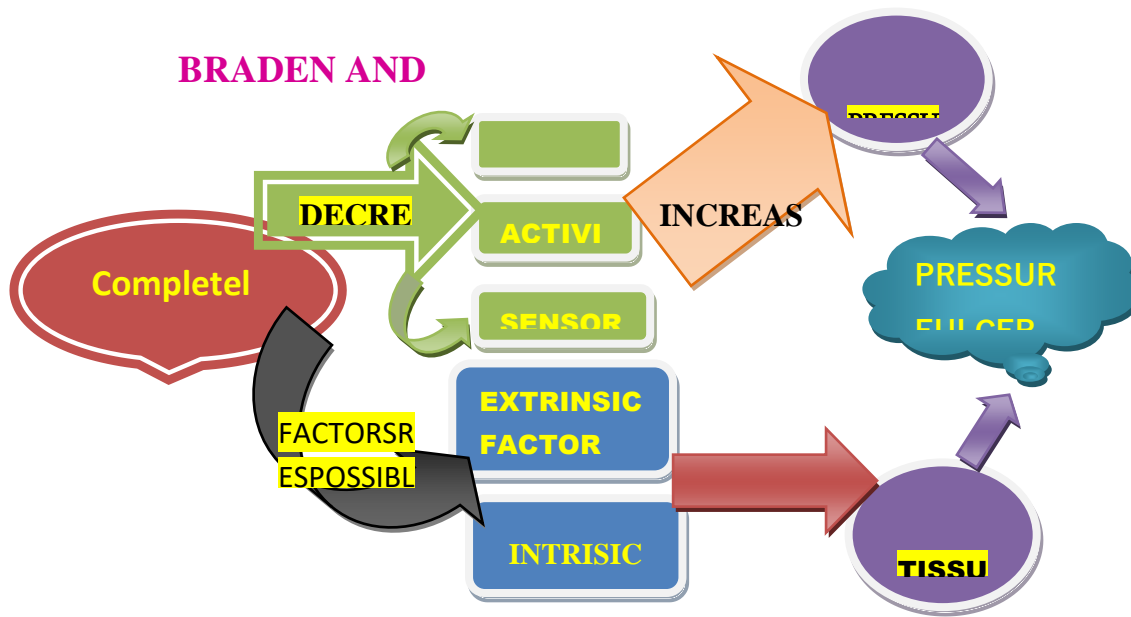


Table- 1

N=150

Socio-Demographic variables	Frequency (f)	percentage (%)
Age(in Years)		
41-60	31	20.7
>61	84	56
Sex		
Male	112	74.7
Female	38	25.3
Diagnosis		
Acute	35	23.3
Chronic	115	76.7
Chronic. Illness		
< 6 month	10	8.69
6 months—1 year	20	17.39
> 1year.	85	73.91
Duration of Admission to Hospital		
Within a week	87	58.0
> a weak	34	22.7
> two week	29	19.3
Any Strengthening Exercise done currently		
Yes	126	84.0
No	24	16.0
Interval between position changes		
Every one hourly	4	2.7
Every Two hourly	80	53.3
Every Four hourly	54	36.0
As per wish of sample	12	8.0
Educational status		
Under matriculation	21	14.0
Matriculation	39	26.0
Under graduate	59	39.3
Graduate	31	20.7
Family monthlyincome		
Rs. 10,000-15,000	7	4.7
Rs. 15,000-20,000	42	28.00
Rs. 20,000-25,000	49	32.4
Rs. >25000	52	34.7

Table-2

N=150

Grades of pressure ulcer risk Frequency (f) Percentage (%)

Severe Risk	10	6.7
High Risk	65	43.3
Moderate Risk	22	14.7
Low Risk	41	27.3
No Risk	12	8.0

Table-3

N=150

Socio-Demographic Variables	Chi-Square Value	x2df	p-value
AGE	26.034*	8	0.001
Sex	3.258	4	0.516
Diagnosis	3.530	4	0.473
Chronic Illness	4.819	8	0.777
Strengthening Exercise Interval	20.592**	4	0.0004
Educational Status	27.659*	12	.006
Family monthly income	8.781	12	.722

Table-4.1

N=150

Pressure ulcer risk factors	df	F value	P-value
Sensory perception	2 ,147	3.092*	.048
Moisture		6.743*	.002
Activity		1.977	.142
Mobility		1.941	.147
Serum albumin		3.517*	.032
Friction & Shear		3.724*	.026

Table-4.2

N=150

Pressure ulcer risk	df	F value	P-value
Sensory perception	(2 ,108)	.495	.611
Moisture		.680	.509
Activity		1.586	.210
Mobility		2.593	.079
Serum albumin		.515	.599
Friction & Shear		.195	.823

Table-4.3

N=150

Pressure ulcer risk	df	F-value	P-value
Sensory perception	(2 ,147)	.850	.430
Moisture		2.644	.074
Activity		1.347	.263
Mobility		4.925*	.009
Serum albumin		.208	.813
Friction & Shear		.303	.739

Table-4.4

N=150

Pressure ulcer risk	df	F	P-value
Sensory perception	(3 ,146)	1.023	.384
Moisture		.093	.964
Activity		1.038	.378
Mobility		2.926*	.036
Serum albumin		2.406	.070
Friction & Shear		6.565*	.0001

Table-4.5

N=150

Pressure ulcer risk	df	F-value	P-value
Sensory perception	(3 ,146)	.981	.404
Moisture		1.151	.204
Activity		3.985*	.009
Mobility		6.199*	.001
Serum albumin		2.209	.089
Friction & Shear		1.784	.153

Table-4.6

N=150

Pressure ulcer risk	df	F	P-value
Sensory perception	3 ,146	.217	.885
Moisture		1.376	.252
Activity		.701	.553
Mobility		.820	.485
Serum albumin		2.018	.102
Friction & Shear		.686	.562