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"A Study on Risk Assessment of Pressure Ulcers Among Immobilized Client at Selected Hospital, Bagalkot".

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KEYWORDS
Immobilize clients, Pressure ulcer, Socio-demographic Variable.

ABSTRACT:
Decubitus ulcers, also termed bedsores or pressure ulcers, are skin and soft tissue injuries that form as a result of constant or prolonged pressure exerted on the skin. These ulcers occur at bony areas of the body such as ischium, greater trochanter, sacrum, heel, malleolus (lateral than medial), and occiput. These lesions mostly occur in people with conditions that decrease their mobility making postural change difficult. Jean-Martin Charcot was a French doctor in the 19th century who studied many diseases, including decubitus ulcer. The study was conducted titled "A Cross-section study" for risk assessment of pressure ulcer among immobilized client at selected hospital Bagalkot.

Methods: Study design was cross-section design. 90 hospitalized immobilize patients were selected by convenient sample technique with the immobilize group observation approach. Braden scale was used to assess the risk of development of pressure ulcer among immobilize clients was done using the 't' test and determined using the Chi-square test.

Results: The majority of subjects 38.88% had sever risk to develop pressure ulcer, 37.77% had high risk of develop of pressure, 18.88% had moderate risk of develop pressure, and 4% had mild develop pressure.

Conclusion: In immobilize patients, the majority 38.8% sever risk of development of pressure ulcer. The majority (58.88%) of the subjects were partially immobilize patients.

1. Introduction

Immobility or immobilization is the inability to move freely due to a condition whereby the movement is interrupted or limited (Potter and Perry 2013). Immobilization is an inability to transfer or change position or bed rest for 3 days or more, with the motion of the anatomical body disappearing due to changes in physiological functioning (Setiati et al. 2015). It prevents immobile patients with physical immobilization from meeting their own needs independently. Nurses and family members should assist in the fulfilment of their needs, including the self-care needs (Thistle 2010).[1]

Maintaining functional mobility and desired activity levels is important for both psychological and physiological reasons. Mobility and lack thereof will both affect the various systems of the body. Prolonged immobilization affects almost every organ system. Respiratory complications include decreased ventilation, atelectasis, and pneumonia. Decreased basal metabolic rate, increased dieresis, and nitrogen

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and calcium depletion affect metabolism. Genitourinary problems include renal stones and more frequent urinary tract infections. Glucose intolerance, anorexia, constipation, and pressure sores might develop. Central nervous system changes could affect balance and coordination and lead to increasing dependence on caregivers.[2]

Pressure ulcer are lesions caused by unrelieved pressure that results in damage to the underlying tissue. Generally, these are the result of soft tissue compression between a bony prominence and an external surface for a prolonged period of time.[3]

Warning signs of pressure ulcers are: unusual changes in skin color or texture, swelling, pus-like drainage, tender areas.[4]

Pressure ulcers are a type of injury that breaks down the skin and underlying tissue when an area of skin is placed under constant pressure for certain periods causing tissue is chaemia, cessation of nutrition and oxygen supply to the tissues and eventually tissue necrosis. Constant pressure resulting in distortion or (detmation) damage is probably the most accurate description of pressure ulcer.[5]

Pressure ulcers remain a major health problem affecting approximately 3 million adults.[6] In 1993 pressure ulcer were noted in 280000 hospital stays, and 28years later the number of ulcers A meta-analysis by li et al suggested the global presence of pressure ulcer to be 12.8%, with a hospital-acquired pressure injury (HAPI) incidence of 8.4%.[8]

The program implemented different intervention methods reduce pressure injuryand resulted in a decrease in the prevalence of HAPU at UMH from 11.7% of stage 2nd and 4th ulcers in second quarter, 2009 to 2.1% in the third quarter.[9]

The incidence differs by ward, with orthopedic patients and ICU's/severity in long-term care facilities, the prevalence range between 2.4% &23% fewer than 20% of pressure ulcers occur outside of institutions in home care patients the prevalence ranges between 9% & 20% .[10]

Older age usually involves skin alterations including a thinning of the epidermis, a 20% loss of dermal thickness, and the loss of dermal thickness, and the loss of elastin fibers.[11]

Jean-Martin Charcot was a French doctor in the 19th century who studied many diseases, including decubitus ulcers. He noticed that patients who developed eschar of the buttocks and sacrum died after some time. He named this lesion "decubitus ominous," which meant death was inevitable after developing this lesion.[12]

The National Pressure Ulcer Advisory Panel (NPUAP) defines pressure ulcers as localized damage to the skin and underlying tissue [2,3].

Extrinsic factors include shearing forces, pressure and friction, while intrinsic factors include age, nutrition, chronic illnesses, skin conditions and oxygen delivery.[13]

While critical illness has a significant impact on the older adult, older people are at high risk for skin breakdown also because of imitations fragile & thin & they have a predisposition to degenerative and other diseases.[14]

The incidence of pressure ulcer in acute respiratory distress syndrome (ARDS) patients was 20.8% and 13.92% in the prone and supine positions, respectively. [15]

Annual cost of pressure ulcer in the United States was estimated at 11billion.[16]

Iran, estimates showed that about 12 USD was spent on 1st degree wound and 66834 and for 4th degree wound and, in general, 519991 USD was spent on pressure ulcer.[17]

The highest incidence of pressure ulcers was observed among inpatients in orthopedic surgery was (18.5%) (95% CI: 11.5-25). [18]

A meta-analysis by li et al suggested the global prevalence of pressure ulcer to 12.8%. With a hospital-acquired pressure injury (HAPI) incidence of 8.4%.[19]

The overall prevalence of pressure ulcers was calculated to be 12.7 %(for stages 1-4), with the overall prevalence decreasing by 6.7% when the patients with stage 1 were excluded. Furthermore, it was found that 48.3% of the pressure ulcers were stage 1, and that the sacra's region (37.3%) was most affected region.[20]

Most pressure ulcers (bedsores) arise from sitting or lying in the same position for a long time without moving.[21]

Each year, more than 2.5million people in the United States develop pressure ulcers. These skin lesion bring pain, associated risk for serious infection, and increased health care utilization.[22]

Pressure injuries of the skin and soft tissues affect an estimated 1 to 3million people in the United States each year incidence differs based on the clinical

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settings. For example, the prevalence of pressure ulcer injuries among hospitalized patients is 5% to 15%, with the percentage considerably higher in some long term care environments and intensive care units.[23]

Multiple studies have attempted to quantity the problem. A meta-analysis by Li et al suggested the global prevalence of pressure ulcers to be 12.8%, with a hospital acquired pressure injury (HAPI) incidence of 8.4%.[24]

Classified by their static or dynamic nature, many advanced low tech and high tech support surfaces and overlays are available for patients bound to lie on bed for long periods of time static surface (such as from filled mattresses, air filled mattresses, fluid-filled mattresses) do not require electrical power, while dynamic surfaces (such as alternating air pressure mattresses or pneumatic ripple beds) require electrical power for shifting and redistributing the pressure within the surface.[25]

Pressure ulcer prevention and treatment guidelines should include guidelines that have nutritional recommendation too like national pressure ulcer advice panel/EPUAR guidelines.[26]

2. Objectives

a) To assess the risk of pressure ulcer among immbolized patient.

b) To findout the association between the risks of development of pressure ulcer with their selected socio demographic variables among immobilized patient.

3. Methods

Study design and participants: The present study is a Cross-sectional study. Data were collected for 13 days from 26/06/23 to 07/07/23 in the admitted wards of HSK hospital Bagalkot, and Kuntoji hospital Bagalkot. The study was conducted among 90 immobilize clients from the selected hospitals of Bagalkot. The sample was chosen by using a convenient sample technique. The researcher approached the risk of bedsore patient of selected hospital, obtained administrative permission and enrolled all the patients approaching IPD services. The study was explained to prospective participants; their consent was obtained and enrolled. The same procedure of enrolment of subjects was carried out until the required number of subjects was enrolled.

INCLUSION CRITERIA: The study includes the immobilized patients who are attending the HSK Hospital, Bagalkot, and Kuntoji Hospital Bagalkot. Available during the period of data collection. Willing to participate in study. Able to speak and understand Kannada and English language.

EXCLUSION CRITERIA: The participants not willing to participate in study and minor disease (headache, fever, cough, nausea and vomiting) on OPD bases, and patients from OBG, Paediatric, emergency ward are excluded.

STATISTICAL ANALYSIS: The data will be analysed by using descriptive and inferential statistics. Numerical data obtained from the sample will be organized and summarized with the help of descriptive statistics like percentage, mean, median and standard deviation. Karl Pearsons coefficient correlation formula and Z test will be used to find out significant of bystanders of patient.

ETHICAL CLERANCE: Ethical Clearence certificate obtained from the ethical clearance committee of B.V.V.S Sajjalashree Institute of Nursing Science Navanagar Bagalkot, India

4. Results

Socio-demographic profile of pressure ulcer among immobilize clients- The majority of (40%) pressure ulcer patients were above 50yr age group. (53.33%) of pressure ulcer patients were male patients. (73.33%) of pressure ulcer patients were Hindu religion group (84.44%) of pressure ulcer patient were married. (37.77%) of pressure ulcer patients were no have formal education. (63.33%) of pressure ulcer patients were having with income between RS.5000-10000/month. (72.22%) of pressure ulcer patients were below the (>) 30 days of duration of imposed to bed. (71.11%) of pressure ulcer patients were having the no family members in health care profession. (46.66%) of pressure ulcer patients were having nuclear family. (58.88%) of pressure ulcer patient were partially immobilized patients.

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The assessment of level of risk of development of pressure ulcer with their sociodemographic variables among immobilized client. The majority of subjects 35 (38.88%) had sever risk to develop pressure ulcer, 34 (37.77%) had high risk to develop of pressure ulcer sign (indicating pain and redness and swelling at the pressure ulcer), 17(18.88%) had moderate risk of develop of pressure ulcer sign (indicating slight pain and slight redness at the pressure ulcer), 4(4.44%) had develop of pressure ulcer sign (indicating redness at the ulcers).

SI NO	GRADE	FREQUENCY	PERCENTAGE (%)
1	Mild Risk	4	4.4%
2	Moderate Risk	17	18.8%
3	High Risk	34	37.7%
4	Sever Risk	35	38.8%

Table1: Risk of development of pressure ulcer among immobilize patients based on the frequency and percentage distribution score among their severity.

Groups	Total score	Mean	S. D
Immobilize group.	15-18	10.4333	2.504

Table 2: The table represents related to a group of immobilized clients, where their total scores range from 15 to 18, with a mean (average) score of approximately 10.4333 and a standard deviation of 2.504.

SI No	Demographic value	DF	Chi - value	Table value	P-value	Association
1	Age	1	1.86	3.84	0.05	Not Significant
2	Gender	1	0.0389	3.84	0.05	Not Significant
3	Religion	1	0.06	3.84	0.05	Not Significant
4	Marital status	1	1.57	3.84	0.05	Not Significant
5	Education status	1	3.76	3.84	0.05	Not Significant
6	Monthly income of the family....	1	0.003	3.84	0.05	Not Significant
7	Duration of imposed to bed	1	0.331	3.84	0.05	Not Significant
8	Family members in health care profession	1	0.109	3.84	0.05	Not Significant
9	Type of family	1	1.146	3.84	0.05	Not Significant
10	Type of immobilization	1	15.172	3.84	0.05	**Significant**

Table 4: Association of Risk of Development of Pressure Ulcer With Their Socio-demographic Variables Among Immobilized Client**.**

The findings propose that there was no significant association found between risks of development of

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pressure ulcer in immobilize client of age, gender, religion, marital status, education status, monthly income of the family, duration of imposed to bed, family members in health care profession, type of family. And there was significant association found between risks of development of pressure ulcer in immobilize client of type of immobilization.

Therefore, H_1 is rejected for some socio demographic variables like age, gender, religion, marital status, education status, monthly income of the family, duration of imposed to bed, family members in health care profession, type of family, as there was no significant association found between risks of development of pressure ulcer with their socio-demographic variables among immobilized client.

Whereas, H_1 is accepted for some socio demographic variables like type of immobilization as there was significant association found between risks of development of pressure ulcer with their socio-demographic variables among immobilized client.

Discussion:

A prospective cohort study setting was conducted on pressure ulcer development in trauma patients with suspected spinal injury. The aim of the study is to explore the influence of risk factors present at Emergency Department admission on pressure ulcer development in trauma patients with suspected spinal injury, admitted to the hospital for evaluation and treatment of acute traumatic injuries and the 254 patients were involved in the setting of Netherland with survey method was used and the Braden Risk Assessment Scale was used in this study. The result shows that pressure ulcer development during admission was associated with a higher age (p 0.00, OR 1.05) and a lower Glasgow Coma Scale score (p 0.00, OR 1.21) and higher Injury Severity Scores (p 0.03, OR 1.05). Extra nutrition decreases the probability of PU development during admission (p 0.04, OR 0.20). Pressure ulcer development within the first 48h of admission was positively associated with a higher age (p 0.01, OR 1.03) and a lower Glasgow Coma Scale score (p 0.01, OR 1.16). The proportion of patients admitted to the Intensive Care Unit and Medium Care Unit was higher in patients with pressure ulcers and the study concludes that the pressure ulcer risk during admission is high in patients with an increased age, lower Glasgow Coma Scale and higher Injury Severity Score in the Emergency Department. Pressure ulcer risk should be assessed in the Emergency Department to apply preventive interventions in time.[27]

A prospective cohort study was conducted on incidence and risk factors associated with the development of pressure ulcers in an intensive care unit and the aim of the study was to determinate the incidence, incidence rate and risk factors of pressure ulcers in critical care patients 335 patient were include in this study with the help of Kaplan-Meier method and multivariate Cox regression model was adjusted to identify the main risk factors for pressure ulcers: demographic, clinical, prognostic and therapeutic variables in the setting of Seville, Spain. And the results shows that the incidence of pressure ulcers in critical patients was 8.1%, and the incidence rate was 11.72 pressure ulcers for 1,000 days of intensive care units stay; 40.6% of pressure ulcers were of stage I and 59.4% of stage II, mainly in the sacrum. According to the Cox model, the main risk factors for pressure ulcers were in-hospital complications, prognostic scoring system (SAPS III) and length of immobilization and the study concludes that incidence of pressure ulcers is lower than that shown in recent studies. Complications on the unit and the prognosis score were risk factors associated with pressure ulcers but, surprisingly, length of immobilization was a protective factor.[28]

The present study was conducted to evaluate the risk of development of pressure ulcer among immobilize client. In order to achieve the objectives of the present study, post-test only design was adopted. The setting of the study was HSK hospital and research canter, Bagalkot and kuntooji hospital Bagalkot. The sample size consists of 90 patients.

Conclusion:

In immobilize patients, the majority 38.8% sever risk of development of pressure ulcer. The majority (58.88%) of the subjects were partially immobilize patients .

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Refrences

1. Novia Shintia Dewie,Eka Mishabahatal Mh, et al, Self-Care Needs in Patients with Physical Immobilization, October 2017 Jurnal NERS 12(2):286

2. Fathia Ahmed Mersal, Nahed Ahmed Mersal, and Hoda Ahmed Hussein et al, Effect of Educational Guidelines for Prevention of Immobilization Complications on Caregivers' Performance and Patients' Functional Condition March 21, 2017, American Journal of Nursing Research. **2017**, 5(2), 32-41

3. Nasira Hassan, Muhammad Afzal, et al, Effects of Body Repositioning in Immobilized Patients to Prevent Pressure Ulcer in Intensive Care Units at Public Hospital, Pakistan, February 2020, volume 2- issue 4, 2020

4. Sunita Poudyal, Milon lopchan, et al, Knowledge on prevention of complications related to immobility among caregivers of orthopedic patients at selected hospitals of Chitwan district, January 2015, Journal of chitawan medical college, 4(3).

5. Gebhardt KS, et al, pressure ulcer prevention at St George's Healthcare NHS Trust, London, 14 MARCH, 2002, VOL: 98, ISSUE: 11, PAGE NO: 41,

6. Eckman KL, The prevalence of dermal ulcers among persons in the U.S. who have died, 1989 May;2(2):36-40,

7. C Allison Russo, Anne Elixhauser, et al, Hospitalizations Related to Pressure Sores, 2003, Agency for Healthcare Research and Quality, Rockville, April 2006,

8. Zhaoyu Li, Frances Lin, Lukman Thalib, et al, Global prevalence and incidence of pressure injuries in hospitalised adult patients: A systematic review and meta-analysis,International Journal Of Nursing Studies, volume 105,May 2020,

9. Amparo cano, Debbie anglade, Hope stamp, et al, Improving Outcomes by Implementing a Pressure Ulcer Prevention Program, International Journal Of Molecular Science, July 2015, *3*(3), 574-585,

10. L W Gerson, et al, The incidence of pressure sores in active treatment hospitals, International Journal Of Nursing Studies, 1975;12(4):201-4 ,

11. Baranoski, Sharon RN, et al, Guard against this enemy of frail skin, Nursing Management (Springhouse) 32(8):p 25-32, August 2001,

12. Syed Rafay H. Zaidi , Sandeep Sharma , Pressure Ulcer In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan.2022 Aug 9,

13. Shuk-Fan, Joanne Yip, et al, Effects of different heel angles in sleep mode on heel interface pressure in the elderly Journal of Biomechanics, 2016 Feb:32:229-35,

14. Mary Finch,et al, Assessment of skin in older people, journal of evidence-based nursing, 2003 Apr;15(2):29-30.

15. R. Girard, L. Baboi, L. Ayzac, J. Richard,C. Guérin, F. T. F. Group, The impact of patient positioning on pressure ulcers in patients with severe ARDS, 2014;40(3); 397-403,

16. Padula WV, Makic MBF, Ward HL, Unintended consequences of quality improvement programs on the prevention of hospital-acquired conditions, Journal of patient safety and risk management, June 28, 2018, Volume 23, issue 3,

17.Mahin Amini, Feizollah Mansouri, Kamran Vafaee, et al, Factors affecting the incidence and prevalence of pressure ulcers in COVID-19 patients admitted with a Braden scale below 14 in the intensive care unit. International Wound Journal, 2022 Dec; 19(8): 2039–2054.

18. Lotfolah Afzali Borojeny, Ahmed N Albatineh , Ali Hasanpour Dehkordi , Reza Ghanei Gheshlagh, The Incidence of Pressure Ulcers and its Associations in Different Wards of the Hospital, International Journal of Preventive Medicine, 2020 Oct 5:11:171,

Journal of Chemical Health Risks

www.jchr.org

JCHR (2024) 14(3), 397-403 | ISSN:2251-6727

19. Zhaoyu Li, Frances Lin, Lukman Thalib, et al, Global prevalence and incidence of pressure injuries in hospitalised adult patients, International Journal Of Nursing Studies, 2020 May:105,

20. Ricardo Galvan, Roberto Narro, et al, Point prevalence of pressure ulcers in three second-level hospitals in Mexico, International wound journal, December 2012, 11(6),

21. Preventing pressure ulcers, Cologne, Germany: Institute for Quality and Efficiency in Health Care (IQWiG); 2006,

22. Dan Berlowitz, Carol VanDeusen Lukas, et al, Preventing Pressure Ulcers in Hospitals, journal for Agency healthcare research and Quality, September 2012, RRP 09-112

23. Joshua S Mervis , Tania J Phillips, et al, Pressure ulcers: Pathophysiology, epidemiology, risk factors, and presentation, Journal of the American academy of dermatology, 2019 Oct;81(4):881-890,

24. Zhaoyu Li , Frances Lin , Lukman Thalib , Wendy Chaboyer, Global prevalence and incidence of pressure injuries in hospitalised adult patients, International Journal Of Nursing Studies, 2020 May:105,

25. Mona Baharestan, Joyce Black, et al, PRESSURE ULCER PREVENTION pressure, shear, friction and microclimate in context, Journal Of International Review, 2010,

26. Surajit Bhattacharya, R. K. Mishra, et al, Pressure ulcers: Current understanding and newer modalities of treatment, Indian Journal of Plastic Surgery, 2015 Jan-Apr; 48(1): 4–16,

27. H W Wietske Ham, L Lisette Schoonhoven, M Marieke J Schuurmans, et al, Pressure ulcer development in trauma patients with suspected spinal injury; the influence of risk factors present in the Emergency Department, International Emergency Nursing, 2017 Jan:30:13-19.

28.María Isabel González-Méndez , Marta Lima-Serrano , Catalina Martín-Castaño, Incidence and risk factors associated with the development of pressure ulcers in an intensive care unit, Journal of Clinical Nursing, 018 Mar;27(5-6):1028-1037.