

EFFECTS OF BACK WELLNESS THERAPY ON PREVENTION OF HYDROSTATIC PRESSURE ULCER AMONG PATIENTS ADMITTED IN ICU

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ABSTRACT:

Background: The development of hydrostatic pressure ulcers remains a major challenge in critical care, particularly among immobilized patients in Intensive Care Units (ICUs). These ulcers not only increase the length of hospital stay and healthcare costs but also negatively affect patient comfort, recovery, and overall outcomes. Preventive nursing interventions are essential in addressing this issue. **Objectives:** (i) To assess the risk of hydrostatic pressure ulcer among patients admitted in ICU. (ii) To evaluate the effects of back wellness therapy on prevention of hydrostatic pressure ulcer among patients admitted in ICU (iii) To compare the mean differed scores of risk of hydrostatic pressure ulcer among patients admitted in ICU (0,3rd and 7th day) (iv) To find the association between the risk level of hydrostatic pressure ulcer among patients admitted in ICU with their selected demographic variables and clinical variables. **Methodology:** A quasi experimental time series research design was chosen for this study. 50 samples were selected by using non- probability purposive sampling technique. The pre assess and post assess were conducted by using Braden pressure ulcer risk assessment tool, after the pre assess back wellness therapy intervention given by the researcher, Back wellness therapy was administered for a total duration of 20-30 minutes per session, twice daily for 7 consecutive days and position was changed every 2nd hourly as per the ICU protocol. The pre and post assess will be conduct daily, the risk level of pressure ulcers was planned to assess before and after the intervention, and it was compared between days (0, 3rd, and 7th). **Results:** In 0 day mean score 14.64 ± 2.73 , in 3rd day mean score 15.12 ± 2.89 and in 7th day means score was 16.1 ± 2.65 . The repeated ANOVA test F value was 66.78 at $P < 0.001$. The mean risk level of hydrostatic pressure ulcer score difference was statistically significant between 0,3rd and 7th days. **Conclusion:** The finding of the study shows that the Mean difference 1.46 ± 0.14 and t-value 10.61 is highly significant. There was significant difference in 0 and 7th day risk of hydrostatic pressure ulcer among patients. It indicates the back wellness therapy was effective in reducing the risk of hydrostatic pressure ulcer among patients admitted in ICU. It helps to maintain the good skin integrity and promote the health status of patients. Hence the study concluded that back wellness therapy was reducing the risk of hydrostatic pressure ulcer among patients admitted in ICU.

Keywords: Back Wellness Therapy, Hydrostatic Pressure ulcer.

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INTRODUCTION:

Skin integrity reflects a patient's overall health, and it is especially important in critically ill patients who are often bedridden and fully reliant on nursing care. In ICU patients, issues like immobility, poor nutrition, reduced circulation, use of vasoactive drugs, and continuous pressure on bony areas can weaken skin integrity. When pressure persists for a long time, it reduces blood flow, causes lack of oxygen in tissues, and eventually leads to the formation of hydrostatic pressure ulcers.

Pressure ulcers are one of the most frequent adverse events in hospitals, affecting nearly 1 in 20 admitted patients, especially those in critical care or long-term care units. Pressure ulcers not only

increase the risk of infection but also worsen patient morbidity, extend hospital stay, and reduce overall quality of life.¹ A review by Kottner et al. noted that while these systems share many similarities, clinicians should use the classification most common in their practice region. In the U.S., the NPIAP system is the standard. Another important category is Deep Tissue Injury (DTI), which occurs at the bone muscle interface due to sustained pressure and shear. It typically appears as a deep red, maroon, or purple discoloration and is distinct from vascular, traumatic, neuropathic, or dermatological injuries. Such classifications are essential for evaluating the severity of ulcers and planning suitable treatment.²

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OBJECTIVES OF THE STUDY:

1. To assess the risk of hydrostatic pressure ulcer among patients admitted in ICU
2. To evaluate the effects of back wellness therapy on prevention of hydrostatic pressure ulcer among patients admitted in ICU
3. To compare the mean differed score of risk of hydrostatic pressure ulcer among patients admitted in ICU (0,3rd and 7th day)
4. To find association between the risk levels of hydrostatic pressure ulcer among patients admitted in ICU with their selected demographic variables and clinical variables.

HYPOTHESIS:

- **H1:** There is significant difference between pre-assess and post-assess score on the risk of hydrostatic pressure ulcer among the patients admitted in ICU.
- **H2:** There is significant association between the risk level of hydrostatic pressure ulcer among the patients admitted in ICU with their selected demographic variables and clinical variables.

MATERIALS AND METHODS

Quantitative research approach and quasi-experimental time series research design was adopted for this study. 50 patients were selected by using non-probability Purposive sampling technique, Based on the sample selection criteria. Written informed consent was obtained from each patient or their designated attendant. Subsequent to a general orientation session, baseline measurements were obtained using: Demographic variables, Clinical variables and Braden's pressure ulcer risk assessment tool. Following the pre-assessment, participants received Back wellness therapy, which aimed to promote skin integrity, enhance blood circulation, and prevent or reduce the risk of hydrostatic pressure ulcers. It includes techniques such as regular repositioning, therapeutic back massage, use of pressure-relieving devices, and maintenance of hygiene and moisture balance on the back. After the intervention, the same tools were used for post-assess to evaluate risk level of hydrostatic pressure ulcer. The pre and post assess were conducted daily, and it was compared between the days (0, 3rd, and 7th) day. Descriptive and Inferential statistical methods were employed to analyze the data.

RESULTS

SECTION-I: Risk level of hydrostatic pressure ulcer among patients admitted in ICU

Table - 1: Frequency and the percentage distribution of risk level of hydrostatic pressure ulcer among patients admitted in ICU.

N =50

Risk	0 Day		3rd Day		7th Day	
	Fre que ncy	perc enta ge	Fre que ncy	perc enta ge	Fre que ncy	perc enta ge
	N	%	N	%	N	%
No risk	5	10	9	18	11	22
Mild risk	15	30	18	36	26	52
Moderate risk	18	36	12	24	8	16
High risk	12	24	11	22	5	10
Very high risk	0	0	0	0	0	0

Table - 1 Shows that the risk level of hydrostatic pressure ulcer among patients admitted in ICU were in 0 day 5(10%) were in no risk, 15(30%) were in mild risk, 18(36%) were in moderate risk, 12(24%) were in high risk and none of them in very high risk. On 3rd day 9(18%) were in no risk, 18(36%) were in mild risk, 12(24%) were in moderate risk, 11(22%) were in high risk and none of them in very high risk. On 7th day 11 (22%) were in no risk, 26(52%) were in mild risk, 8(16%) were in moderate risk, 5(10%) were in high risk and none of them in very high risk.

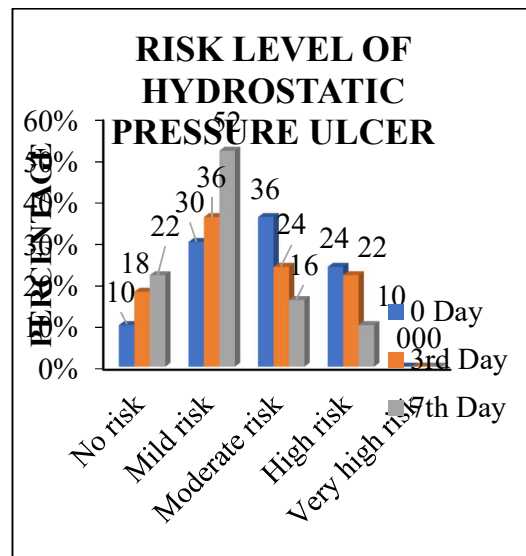


Figure - 1: Shows the percentage distribution risk of hydrostatic pressure ulcer among patients admitted in ICU at 0,3rd and 7th day.

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Section – II: Evaluate the effects of back wellness therapy on prevention of hydrostatic pressure ulcer among patients admitted in ICU

Table - 2 Effects of back wellness therapy on prevention of hydrostatic pressure ulcer among patients admitted in ICU.

N = 50

0 day		7 day		Mean difference	Standard error	T Value
Mean	Standard deviation	Mean	Standard deviation			
14.64	2.73	16.1	2.65	1.46	0.14	10.61*

* p<0.05 significant

Table - 2 : shows the 0 day mean was 14.64 with the standard deviation of 2.73 and 7th day mean was 16.1 with the standard deviation of 2.65 and the Mean difference was 1.46 with standard error 0.14 and the t-value of 10.61 was significant. There was a significant difference between 0 and 7 day of hydrostatic pressure ulcer among patients admitted in ICU.

Section – IV: Compare the mean differed risk level scores of hydrostatic pressure ulcer among patients admitted in ICU (0,3rd and 7th day)

Table - 3: Comparison of mean differed scores of risk level of hydrostatic pressure ulcer among patients admitted in ICU (0,3rd and 7th day).

N=50

	Mean	Standard Deviation	Repeated ANOVA F-test score	
			F value	P value
0 day	14.64	2.73	F= 66.78	P<0.001**
3 day	15.12	2.89		
7 day	16.1	2.65		

* p<0.001 significant

Table - 3: Shows that 0 day mean score was 14.64, with the standard deviation of 2.73, in 3rd day the mean score 15.12, with the standard deviation of 2.89 and in 7th day means score was 16.1, with the standard deviation of 2.65. The F value was 66.78. The mean risk level of hydrostatic pressure ulcer score difference was statistically significant between 0,3rd and 7th days. The F value 66.78 was significant at P<0.001.

DISCUSSION:

The first objective of the study was “to assess the risk of hydrostatic pressure ulcer among patients admitted in ICU”.

The risk level of hydrostatic pressure ulcer among patients admitted in ICU were in 0 day 5(10%) were in no risk, 15(30%) were in mild risk, 18(36%) were in moderate risk, 12(24%) were in high risk and none of them in very high risk. On 3rd day 9(18%) were in no risk, 18(36%) were in mild risk, 12(24%) were in moderate risk, 11(22%) were in high risk and none of them in very high risk. On 7th day 11 (22%) were in no risk, 26(52%) were in mild risk, 8(16%) were in moderate risk, 5(10%) were in high risk and none of them in very high risk. **The second objective of the study was “to evaluate the effects of back wellness therapy on prevention of hydrostatic pressure ulcer among patients admitted in ICU”.**

The 0 day mean was 14.64 with the standard deviation of 2.73 and 7th day mean was 16.1 with the standard deviation of 2.65 and the Mean difference was 1.46 with standard error 0.14 and the t-value of 10.61 was highly significant. There was a significant difference between 0 and 7 day of hydrostatic pressure ulcer among patients admitted in ICU.

Hence the stated hypothesis H1 was accepted.

The study findings were supported by **Ozge Uzu et al. (2020)** revealed a significant reduction in the incidence of Stage II pressure ulcers following the intervention. While 37% (34 out of 93) of patients in the comparison group developed pressure ulcers, only 17% (16 out of 93) of patients in the intervention group developed them. The most frequently affected site was the sacrococcygeal area (46%), and the difference between the groups was statistically significant ($\chi^2 = 8.86$, df = 1, p < 0.01). This study concludes that educational programs focused on preventive care and regular risk assessment are highly effective in reducing pressure ulcer incidence in ICU settings. The results highlight the importance of continuous nurse training and adherence to standardized care protocols to ensure early detection and intervention in high-risk patients.

The third objectives of the study, “To compare the mean differed scores of risk of hydrostatic pressure ulcer among patients admitted in ICU (0,3rd and 7th day)”.

In 0 day mean score was 14.64, with the standard deviation of 2.73, in 3rd day mean score 15.12, with the standard deviation of 2.89 and in 7th day means score was 16.1, with the standard deviation of 2.65. The F value was 66.78. The mean risk level of hydrostatic pressure ulcer score difference was statistically significant between 0,3rd and 7th days. The F value 66.78 was significant at P<0.001.

The fourth objective of the study, “To find the association between the risk of hydrostatic pressure ulcer among patients admitted in ICU with their selected demographic variables and clinical variables”.

The findings of the study revealed that there was no significant association between the day 0 risk level of hydrostatic pressure ulcers among patients admitted to the ICU and their selected demographic variables. However, a significant association was found between the risk level of hydrostatic pressure ulcers and clinical variables such as the use of ventilators (invasive or non-invasive) at $p < 0.05$.

On the 7th day, a significant association was observed between the risk level of hydrostatic pressure ulcers and clinical variables, including type of admission, level of consciousness, and use of ventilators (invasive or non-invasive) at $p < 0.05$. **Hence H2 Hypothesis was accepted.**

The findings of the present study are supported by Gladies (2024). The findings were assessed by comparing an experimental group that received nursing interventions with a control group that did not. The experimental group outcomes demonstrated that most patients benefited from nursing interventions, with only two patients developing Stage I pressure ulcers due to pre-existing bone and muscle disorders, which hindered mobility and reduced intervention effectiveness. In contrast, the control group demonstrated a progressive increase in pressure ulcer severity, with patients developing Stage I, II, or III ulcers, indicating a higher risk of ulcer progression in the absence of therapeutic interventions. The study concluded that therapeutic massage combined with nursing interventions was effective in preventing pressure ulcers among bedridden patients.

CONCLUSION:

The finding of the study shows that there was significant difference in 0 and 7th day risk of hydrostatic pressure ulcer among patients. It indicates the back wellness therapy was effective in reducing the risk of hydrostatic pressure ulcer among patients admitted in ICU. It helps to maintain the good skin integrity and promote the health status of patients. Hence the study concluded that back wellness therapy was reducing the risk of hydrostatic pressure ulcer among patients admitted in ICU.

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