

Impact of an Educational Program on Nursing Practices for the Prevention of Pressure Ulcers: A Clinical Assessment

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ABSTRACT

Background: Pressure ulcers, also known as pressure injuries or decubitus ulcers, are localized damage to the skin and underlying soft tissue resulting from prolonged pressure. These injuries can range from mild (Category I) to severe tissue damage (Category IV). Effective nursing practices, including regular assessment and preventive skincare measures, are essential for reducing the incidence of pressure ulcers in hospitalized patients. Educational interventions have been shown to enhance nursing competency and adherence to evidence-based preventive strategies. **Objective:** This study aimed to evaluate the effectiveness of an educational program in improving nurses' practices toward pressure ulcer prevention. **Methods:** A quantitative, pre-experimental study was conducted in the Neurology Department of Al-Diwaniyah Teaching Hospital from November 20, 2023, to May 15, 2024. A non-probability (convenient) sample of 30 nurses participated in the educational program. A validated and reliable questionnaire consisting of 22 items was used to assess nurses' practices before and after the intervention. Data were analyzed using descriptive and inferential statistical methods. **Results:** The study revealed a significant improvement in nurses' post-intervention practice scores (Mean = 2.22) compared to pre-intervention scores (Mean = 0.69). However, no significant correlation was found between nurses' demographic characteristics and their practice scores. **Conclusion:** The findings suggest that the educational program had a positive impact on nursing practices related to pressure ulcer prevention. Implementing structured training programs for nursing staff can enhance patient care outcomes and reduce the risk of pressure ulcers. Further studies with larger sample sizes and long-term follow-up are recommended to assess the sustained impact of educational interventions in clinical settings.

Keywords: Pressure Ulcer, Nurse's Practices, Education Program, Prevention

INTRODUCTION

Despite significant advancements in healthcare and medicine, pressure ulcers (PU) continue to be a significant global health issue [1]. The occurrence of pressure ulcers can lead to a decline in quality of life, infection, pain, and disfigurement. It can also disrupt sleep, impede healing, and result in higher rates of illness and death [2]. Pressure ulcers, also known as pressure injuries, pressure sores, or decubitus ulcers, are specific types of damage that occur to the skin or that underlie soft tissue. These injuries can range from minor redness without broken skin (Category I) to severe skin and tissue loss (Category IV).

Pressure ulcers can inflict significant suffering on patients, including pain, anguish, complications, and extended hospital stays, resulting in substantial financial burdens for healthcare providers. Many governments have implemented targets to reduce the incidence of pressure ulcers and have even imposed sanctions on hospitals where patients incur such injuries due to the severe cost of these preventive health effects [3].

Despite the fact that nurses incorporate prevention into their daily operations, practice and care planning are hindered by insufficient time, inconsistent documentation, personnel shortages, and equipment deficiencies [4]. In every hospital, nurses fulfill the most crucial role among healthcare professionals [5]. Nursing is a profession that focuses on providing care [6]. The nursing process is employed to administer personalized care in a systematic and scientific manner [7]. The principal drivers of hospitals are nurses [8].

The healthcare system will collapse without nurses [9]. Nurses collaborate with the multidisciplinary team, develop the discharge plan, and educate patients and their families regarding the discharge process [10]. Nurses spend considerable time in direct contact with patients [11]. Among these healthcare professionals, nurses are essential and bear a heavy burden in the process. According to reports, the incidence of pressure ulcers can be decreased by up to 50% when evidence-based nursing care is provided. Therefore, when assessing patients who are at-risk, nurses should be aware of the risk factors linked to the development of pressure ulcers, adhere to the guidelines, and incorporate them into their clinical interventions through the prevention and treatment of pressure ulcers [12].

Improved PU preventive strategies and training interventions can only be achieved by a deeper comprehension of nurses' health habits across a variety of healthcare settings through reliable assessment. Additionally, in order to improve prevention practices, it is vital to identify the aspects connected to health behavior prevention through PU preventative interventions [13]. Every year, 2.5 million people in the United States suffer pressure ulcers, and 60,000 of them die as a result of complications like sepsis or osteomyelitis. Pressure ulcers can also have a negative impact on families and healthcare professionals, increase treatment costs for families and medical facilities, and reduce quality of life. In America, the health system spends \$18.5 billion annually to handle them, with \$129,000 spent on treating people whose complete tissue thickness was impacted by the ulcer [14].

Nurses are accountable for ensuring the secure prevention of pressure ulcers (PUs) in patients at risk. However, it is frequently seen that they exhibit inadequate compliance with pressure ulcer prevention standards, maybe stemming from their limited understanding. Occasionally, nurses may lack a complete understanding of the significance of implementing current pressure ulcer prevention practices or may not have sufficient exposure to current developments. Consequently, rather than employing evidence-based approaches, they opt for preventive measures guided by intuition, experience, or habit [15].

Intensive nursing might be regarded as the means to prevent pressure ulcers. Regular evaluation and efficient skincare measures help to prevent the occurrence of pressure ulcers [16]. Hospitals should allocate additional resources to proactively prevent and effectively manage pressure ulcers. Professionals must consistently educate their workers on pressure ulcers through nursing and medical education [17]. Lack of effective pressure ulcer prevention measures results in a greater frequency and prevalence of issues associated with pressure ulcers in most healthcare settings. The prevention of pressure ulcers has become a major priority for healthcare facilities globally and is a crucial aspect of nursing care [18]. Knowledge serves as the foundation for implementing practices that ensure the provision of high-quality and safe care. The majority of research conducted globally indicates a lack of information. This tendency has remained quite stable over the last 15–20 years [19]. Regularly providing health information and sustainable training to healthcare providers on the prevention of pressure ulcers is considered a crucial component in pressure ulcer prevention approaches. Nurses have the responsibility of delivering a high-quality nursing process for patients who have been admitted to the hospital. The adoption of a sound nursing method ensures the maintenance of high-quality care for individual patients, thereby preventing the occurrence of pressure ulcers [20].

The Study Objectives

1. To evaluate effectiveness of education program on nurse's practices toward prevention of pressure ulcer. 2. To find out the association between effectiveness of education program and nurse's sociodemographic characteristics.

Method and Material

Study Setting and period:

The study was conducted in Al-Diwaniyah Teaching hospital. from the 20 of November 2023 to the 15 of May, 2024, was employed to select 30 nurses from Neurological department Al-Diwaniyah Teaching Hospital in Diwaniyah city, Iraq. Study Design: A quantitative pre-experimental design study. Study Population: All Nurses working in the Al-Diwaniyah Teaching hospital fulfilling the inclusion criteria

Inclusion Criteria

- Nurses who are working at Neurological department.
- Nurses who are willing to participate in the study.
- Nurses who were working at neurological department in the morning, evening, and night shifts.
- Male and female nurses
- All educational level of nurses.

Exclusion Criteria

- Nurses who refused to participate in the study.
- Nurses who do not complete the study

The Sample of the Study and Sampling

A non-probability (Convenience) sample was selected. The study sample was collected from nurse's working neurological department at Al Diwaniyah Teaching hospital. A total of 30 nurse's were included in the data analysis.

The Study Instrument

The study included 30 nurses from the neurological department who were subjected to the education program. The preliminary needs assessment results, as well as information gleaned from a study of the relevant scientific literature and previous studies, were used to develop an interventional program. The interventional program contains the following: Experts with over 10 years of experience in the field examined the program form and provided comments for revisions. The education program aimed to enhance nursing staff's knowledge of skin anatomy and physiology, skin assessment procedures, risk assessment, pressure ulcer definitions, risk factors, cause, and common sites. Preventive strategies for pressure ulcers include skin care, repositioning, support surfaces, and proper diet. To assess the effectiveness of the interventional program, the researcher created an observational check list structure in order to achieve the study's objectives. The instruments consist of two parts: The nurse's practices toward prevention of pressure ulcer was employed, consisting of two parts. The first part comprised a demographic sheet with sixth items the second part collected information about nurses' practices related to prevention pressure ulcer through twenty-two items Responses were ranked as never (1), sometimes (2), and always (3). A questionnaire for Nursing staff's practice on pressure ulcer prevention is used to evaluate their practices, it was adopted from Shaiful Islam [21] who was developed and validated, it consisted 22 items. Practice components contain factors link with pressure ulcer development, skin care risk assessment, nutrition to maintain healthy skin, uses an air beds, and health educational program for staff, patients and their family. All collected data were coded numerically and entered into SPSS version 26.0 for analysis. Descriptive statistics, including frequencies and percentages, were calculated.

Ethical Considerations

After the approval of the College of Nursing Council / the University of Baghdad and the Ethical Research Committee on the study the researcher presented a description of the study including the objectives and methodology of the study to the Ministry of Planning (the Central Statistical Organization) and the Diwaniyah Health Directorate for Obtaining official permission to conduct the study Subsequently, permission was sent to Diwaniyah Teaching Hospital to ensure agreement and cooperation.

Ethical consideration is an important issue in nursing research, and its primary goal is to secure the rights of the researcher and study participants. Participants were assured that the data that will be collected from the questionnaire will remain confidential and no one will be allowed to identify it. After that, written permission was obtained from the nurses to participate in the study

Results

Table 1: The Distribution of the Study Samples according to their Demographic characteristics.

Variable		Results	
		Freq.	%
Age	20 – 29	25	83.3
	30 – 39	2	6.7
	40 – 49 and over	3	10
	Minimum	Mean ± SD	22 - 43
Sex	Maximum		27.56 ± 5.7
	Female	19	63.3
	Male	11	36.7
Marital Status	Single	17	56.7
	Married	11	36.7
	Divorced	2	6.7
Level Of Education	School of nursing	4	13.3
	Diploma in Nursing	17	56.7
	Bachelors in nursing	9	30
	Receiving Training on Pressure Ulcer	2	6.7
If yes. . . .	Yes	28	93.3
	No		
	Year	18 and 23	
Place	Inside	Mean ± SD	1
	Outside		3.3
	Duration/ day/s		1 – 4
	Minimum	Mean ± SD	1
Years Of Being a Permanent Nurse	Maximum		5.2 ± 5.7

Freq. = frequency, % = percentages

Results in table 1. presented that mean age of the study sample was 27.56 years old according to normal distribution with minimum age about 22 years and maximum age about 43 years old. In addition, 83.3 percent of the study sample were within age group 20 – 29 years old. Moreover, 63.3 percent of the study sample were female as the highest percent of the total sample. Also, results reflected that more than half of the study sample were single whom accounted for 56.7 percent, and about the same percent of the study sample have diploma degree in nursing. The greatest percent of the study sample were not sharing in training sessions related to pressure ulcer and they

accounted for 93.3 percent. Just two participants shared in training sessions related to pressure ulcer and one of them inside Iraq and the another one outside Iraq. The final significant result in this table reflected that the minimum year that the nurse need to become a permanent nurse was one year and the maximum year was 21 with mean about 5.2 years. Table 2. presented the differences between two-time intervals (pretest and posttest) about nurses' practices of pressure ulcer by using t-test. Results reflected that there were high significant differences between pretest and posttest practices level at $p = .000$ for both parameters.

Table 2: Differences Between Study and Control Groups about their Practice

Score	N	M	SD	T	Df	P-Value	Sig.
Pretest and Posttest Practice	30	.69	.25	29.7	29	.000	High significant
		2.22	.22				

Table 3: Differences in Correlation Between Demographic Characteristics of the Study Sample with Their Practice Level at Pretest and Posttest Time Interval

Socio-Demographic Variables		Practice of The Participant (N=30)								
		Pretest					Posttest			
		Sum. of Square	df	F	P Value	Sig.	Sum. of Square	df	F	P Value
Age	Between Group	.393	11	.452	.91	N.S	.435	11	.693	.72
	Within Group	1.422	18				1.027	18		
	Total	1.815	29				1.463	29		
Marital Status	Between Group	.073	2	.56	.57	N.S	.015	2	.141	.87
	Within Group	1.742	27				1.44	27		
	Total	1.815	29				1.463	29		
Education Level	Between Group	.137	2	1.1	.34	N.S	.019	2	.17	.84
	Within Group	1.678	27				1.444	27		
	Total	1.815	29				1.463	29		
Years Of Experience	Between Group	.606	10	.95	.511	N.S	.72	10	1.84	.12
	Within Group	1.208	19				.742	19		
	Total	1.815	29				1.46	29		
Variables			Df	t-test	P value	Sig.		df	t-test	P value
Sex			1	2.58	.11	N.S		1	.009	.92
Sharing In Training Sessions			1	.457	.63	N.S		1	.73	.48

Table 3. presented the differences in relation between nurses' practices about pressure ulcer with their demographic characteristics at two-time intervals (pretest and posttest). Results reflected that there was no significant difference between variables (p higher than .05) for all variables.

Discussion

The data analysis of demographic variables in this study shows that 83.3% of the participants were nurses aged between 20 and 29 years old. The average age of the nurses in the study sample was 27.56 years, as indicated in Table 1. This suggests that the majority of nurses fall into the youth category. This finding is substantiated by a study. The average ages of the participants ranged from 22 to 45 years, with a mean age of 29. However, a significant majority of them (69.7%) were between the age range of 20-29 years [21]. Of the total, 63.3% were female and 56.7% possessed a diploma in nursing; the standard deviation was 27 ± 4.45 . This finding is supported by a study in which females made up a larger proportion (68.3%) of the participants [22]. The study findings reveal that the majority of the nurses in the sample were female, comprising the highest percentage. The study sample consists of 63.3 percent females and 36.7 percent males [23]. In Table1, the results of the present study indicated that the maximum percentage of nurses (56%) had a diploma in nursing pertaining to the level of education of the sample. This result is consistent with a study, which indicated that the majority of the participants were female (60, 66.7%) and that 75 (83.3%) had a diploma in nursing [24]. With regard to marital status, results reflected that more than half of the study sample were single whom accounted for 56.7 percent, this result is consistent with the findings of a study. Twenty-nine studies included a total of 6501 nurses. Out of all the participants, 55.64% were unmarried [25]. In relation to engagement in training sessions, the greatest percent of the study sample were not sharing in training sessions related to pressure ulcer and they accounted for 93.3%. It aligns with a study that was published regarding A group of 471 nurses It was determined that 69.4% of the nurses had not received in-service training relating to PUs, 55.6% did not attend lectures/conferences or read articles on the prevention of PUs, and 59.7% rated themselves as "adequate" in interventions used to prevent PUs [26].

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Results reflected that there were highly significant differences between pretest and posttest practice levels at $p = .000$ for both parameters. The study's findings demonstrate that the educational program successfully achieved its intended objectives by providing nurses with the essential knowledge and skills to prevent pressure ulcers. The obtained outcome confirmed the conclusions made in the study, revealing a positive correlation between the implementation of a pressure ulcer training protocol and the improvement of nurses' knowledge and practice in preventing pressure ulcers. The pretest results revealed a low level of knowledge and practice among nurses. However, the mean percentage of all post-test results demonstrated a considerable improvement in both nurses' knowledge and practice. The findings of the present study indicate that there are no statistically significant differences between the practices of nursing staff and their demographic features at both the pretest and post-test stages when assessed using a one-way analysis. This research validates the results of a prior study, which showed that the average scores of nurses in the practice of preventing pressure ulcers were 62.1 out of 100. The associations between nurses' practice, age, gender, job place, and courses in handling wounds were not statistically significant ($P > 0.05$).

Conclusions

During the pre-test period, the majority of neurological department nursing personnel demonstrated poor pressure ulcer avoidance techniques. The study found that an education program had a strong statistical significance across all practice components. The study found no significant correlation between nursing staff's pressure ulcer prevention methods and selected socio-demographic factors in the post-test interval.

Recommendations

Neurological nurses need up-to-date knowledge on pressure ulcer prevention. The importance of doing further research in various situations with a diverse sample to ensure representativeness; Nurses should receive specialized training to strengthen their abilities and experience in prevention Pressure ulcers.

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