

**Effectiveness of an Education Program
on Nurse's Knowledge toward
Prevention of Pressure Ulcer**

فاعلية برنامج تعليمي حول معارف الممرضين باتجاه الوقاية من
قرحة الضغط

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المستخلص

الخلفية: تشكل تقرحات الضغط مصدر قلق صحي عالمي كبير بسبب ارتفاع معدلات الإصابة والوفيات، كما أن التأثير الكبير لقرحة الضغط على الصحة النفسية الاجتماعية للمريض يسبب القلق بين الممرضات وغيرهم من العاملين في مجال الرعاية الصحية، وتحتاج الممرضات إلى فرص وتدريب واسع النطاق لاكتساب المعرفة الشاملة حول تقرحات الضغط.

هدف الدراسة: تقييم فعالية برنامج التعليم على معرفة الممرضات تجاه الوقاية من قرحة الضغط. المنهجية: دراسة تجريبية أولية أجريت في قسم العصبية في مدينة الديوانية للفترة من ٢٠٢٣/١١/١٥ إلى ٢٠٢٤/٥/٨. تكونت عينة الدراسة من ٣٠ ممرضة تعرضن للبرنامج التعليمي. تم التحقق من صحة الاستبانة من قبل خبراء وتم التحقق من مصداقيتها من خلال دراسة استطلاعية. بلغ العدد الإجمالي للبند المضمنة في الاستبانة ٢٢ بنداً لتقييم معرفة الممرضات.

النتائج: أظهرت نتائج الدراسة الحالية أن الممرضات لديهن معرفة صحية سلبية فيما يتعلق بالوقاية من قرحة الضغط بناءً على متوسط إجمالي قدره ٠.٥٤ وتحسنت هذه المعرفة بعد تطبيق البرنامج التعليمي. الاستنتاجات: وفقاً لنتائج الدراسة، أظهرت أن البرنامج التعليمي حقق بنجاح أهدافه المقصودة من خلال تزويد الممرضات بالمعرفة والمهارات الأساسية اللازمة للوقاية من تقرحات الضغط. الكلمات المفتاحية: قرحة الضغط، معرفة الممرضات، برنامج تعليمي، الوقاية.

Abstract

Background: Pressure ulcers are a significant global health concern due to their elevated rates of morbidity and mortality, the significant impact of PU on patient's biopsychosocial well-being is causing concern among nurses and other healthcare workers, Nurses require

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ample opportunity and training to acquire comprehensive knowledge about pressure ulcers (PUs).

Aim of the Study: To evaluate effectiveness of education program on nurse's knowledge toward prevention of pressure ulcer.

Methodology: A pre-experimental study conducted at the Neurological department Al_ Diwaniyah city from 15 November, 2023 to 8 May 2024. The study sample consisted of 30 nurses were exposed to the education program. The questionnaire was validated by experts and its reliability was verified by a pilot study. The total number of items included in the questionnaire was 22 items to evaluate nurses' knowledge.

Results: Findings of the current study showed nurses had negative health knowledge regarding pressure ulcer prevention based on a total mean score of 0.54 and this knowledge improved after applying education program.

Conclusions: According to the study findings demonstrate that the educational program successfully achieved its intended objectives by providing nurses with the essential knowledge and skills to prevent pressure ulcers. **Key-wards:** Pressure Ulcer, Nurse's Knowledge, Education program, Prevention

Introduction

Pressure ulcers are a significant global health concern due to their elevated rates of morbidity and mortality, as well as the substantial healthcare costs associated with them. Several studies examining nurses' knowledge and implementation of pressure ulcer avoidance have revealed significant deficiencies in both their understanding and application. Most of the nurses were deficient in the requisite expertise to effectively avoid pressure ulcers. ⁽¹⁾ This issue poses a significant challenge for both patients and the healthcare system. Elderly and malnourished people who are incapable of changing their position are at a greater risk of getting pressure ulcers. ⁽²⁾ Timely identification, proactive measures, and effective medical care are crucial for the successful control of

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pressure ulcers. Pressure ulcers have a negative impact on rehabilitation, leading to extended illness and longer hospital stays. This results in increased healthcare expenses due to the requirement for greater resources and nursing care. If left untreated, pressure ulcers can also lead to impairment and even death. ⁽³⁾ Interventions aimed at preventing pressure ulcers (PUs) are critical for identifying patients at risk of developing these lesions early on. ⁽⁴⁾ The significant impact of PU on patient's biopsychosocial well-being is causing concern among nurses and

other healthcare workers, prompting them to be vigilant in assessing and mitigating its adverse effects. Consequently, Nurses faced with the care of patients who are susceptible to acquiring pressure ulcers (PU) must possess the requisite knowledge and skills to accurately detect and treat PU. ⁽⁵⁾ A lack of understanding may indicate poor and inadequate nursing care for patients. There are numerous things that enhance knowledge. The most crucial of these is education. ⁽⁶⁾ In every hospital, nurses play the most important function among healthcare workers. ⁽⁷⁾ Nursing is a career dedicated to giving care. ⁽⁸⁾ The nursing process is used to provide customized care in a methodical and scientific way. ⁽⁹⁾ Nurses are the primary drivers of the hospital. ⁽¹⁰⁾ Without nurses, the healthcare system would collapse. ⁽¹¹⁾ Nurses must have the necessary education to play a crucial role in promoting health. ⁽¹²⁾ Nurses work with the multidisciplinary team to establish the discharge plan and educate patients and their families about the discharge process. ⁽¹³⁾ Nurses spend a lot of time in direct touch with patients. ⁽¹⁴⁾ Improving the understanding and application of pressure ulcer preventive measures among nursing staff requires overcoming obstacles, promoting good behavior, and offering enough education. ⁽¹⁵⁾ Nurses require ample opportunity and training to acquire comprehensive knowledge about pressure ulcers (PUs), along with the essential skills to effectively avoid their occurrence. To mitigate the occurrence of pressure ulceration (PUs), nurses are required to participate in interdisciplinary cooperation. This involves collaborating with healthcare providers to ensure the maintenance of patients' skin

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integrity and to prevent any potential problems. Overcoming knowledge gaps is crucial for avoiding challenges in health settings. ⁽¹⁶⁾ The literature indicates that nurses' insufficient understanding regarding the prevention of pressure ulcers hurts the execution of preventive care measures. This highlights that their poor level of knowledge negatively affects their performance. The implementation of nurse-led education regarding preventative care has proven to be successful in decreasing the incidence of pressure ulcers. Hence, it is imperative to provide nurses with the fundamental knowledge required for prevention and treatment. ⁽¹⁷⁾

METHOD AND MATERIAL

Design

A pre experimental design was conducted on nurses in neurological department Al-Diwaniyah Teaching Hospital in Diwaniyah city for the period from November 15, 2023 to May 8, 2024). The study was conducted to evaluate effectiveness of education program on nurse's knowledge toward prevention of pressure ulcer.

Study Instrument

The study comprised 30 nurses from the neurological department who were put through the education program. The preliminary needs assessment results, as well as information gathered from a review of relevant scientific literature and previous studies, were used to create an education program. Expertise in the field reviewed the program form and offered suggestions for changes. The education program was designed to improve nursing staff's understanding the researcher created an observational check list structure in order to achieve the study's objectives. The instruments consist of:

The nurse's knowledge toward prevention of pressure ulcer was employed, consisting A questionnaire for Nursing staff's knowledge of pressure ulcer prevention is used to evaluate their practices, it was adopted from Shariful Islam ⁽¹⁸⁾ who was developed and validated, and it consisted of 22 items. Knowledge components contain factors linked with pressure ulcer formation, PU assessment, nutrition to maintain healthy skin, management of mechanical loads, use an air beds, and stages of PU.

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Statistical Analysis

All collected data were coded numerically and entered into SPSS version 26.0 for analysis. Descriptive statistics, including frequencies and percentages, were calculated

Results

Table (1): The Distribution of the Nurses' knowledge about pressure ulcer

| List | Items | Results | | | |
|------|---|---------|------|----------|------|
| | | Pretest | | Posttest | |
| | | Mean | Ass. | Mean | Ass. |
| 1 | What is the contributing factor for pressure ulcer formation? | .53 | M | .83 | H |
| 2 | Which of the following factor is the most important factor for pressure ulcer..... | .73 | H | .96 | H |
| 3 | What is the favorable environment for bacterial growth in the form of maceration..... | .5 | M | .63 | M |
| 4 | Which factor is the critical determinant for pressure ulcer formation? | .63 | M | .93 | H |
| 5 | What assessment procedure do you select for a patient with spinal cord..... | .4 | M | .8 | H |
| 6 | Which one is the risk assessment scale for pressure ulcer..... | .26 | L | .86 | H |
| 7 | Which answer is an appropriate method for assessing an individual.... | .2 | L | .63 | M |
| 8 | Which of the following is correct answer for the sign of stage II..... | .73 | H | .76 | H |
| 9 | Which one is the first sign for pressure ulcer development?... | .53 | M | .86 | H |
| 10 | Which answer is an appropriate method for skin care..... | .6 | M | .9 | H |
| 11 | Which nursing care is significant activity for protecting skin damage..... | .86 | H | .9 | H |
| 12 | What nursing care activity is appropriate for preventing maceration..... | .76 | H | .83 | H |
| 13 | Which nursing care is a correct practice for maintaining skin..... | .36 | M | .7 | H |
| 14 | What do you do to prevent heel ulcer?..... | .53 | M | .63 | M |
| 15 | What kind of vitamin is important to maintain healthy skin?..... | .73 | H | .83 | H |

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| | | | | | |
|----|--|-----|---|-----|---|
| 16 | Which nutrient needs to be offered to a 85-year old bedridden patient..... | .3 | L | .7 | H |
| 17 | Which answer is an appropriate lab test for nutritional assessment of | .5 | M | .8 | H |
| 18 | What is an appropriate nursing care for managing mechanical load?..... | .53 | M | .8 | H |
| 19 | What is an appropriate activity to reduce friction for an 80-year old..... | .53 | M | .52 | M |
| 20 | Which nursing care is the activity for reducing shearing force?..... | .23 | L | .73 | H |
| 21 | What educational information is necessary for reducing pressure | .8 | H | .83 | H |
| 22 | Which answer is the best educational activity that enhances | .7 | H | .86 | H |

Ass. = assessment level of mean, cut off point = .33, L = low (0 – 0.33), M = moderate (0.34 – 0.66), H = high (0.67 – 1).

Table 1. presented the distribution of nurses' knowledge about pressure ulcer during two periods of time (pretest and posttest). Results revealed that the level of knowledge at posttest time becomes better than the level at pretest time duration according to shifting the levels from moderate to high at the most items related to pressure ulcer.

Table 2. Differences between pretest and posttest about knowledge related to pressure ulcer.

| score | N | M | SD | t | df | P.value | Sig. |
|--------------------------------|----|------------|------------|------|----|---------|------------------|
| Pretest and Posttest knowledge | 30 | .54 .77 | .17 .21 | 3.97 | 29 | .000 | High significant |

Table 1. presented the differences between two-time intervals (pretest and posttest) about nurses' knowledge of pressure ulcer by using t-test. Results reflected that there were high significant differences between pretest and posttest knowledge level at $p = .000$ for both parameters.

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Discussion

The results suggest that nurses possess a moderate degree of knowledge for most things during the pretest, but have a high level of knowledge for all items during the posttest. During the pretest, most of the nurses in the study group had insufficient knowledge regarding the prevention of pressure ulcers. However, by the posttest, their knowledge had significantly improved. Corroborating evidence for the study's conclusions A study conducted in Sweden found that the nurses' knowledge regarding pressure ulcer prevention showed a considerable increase, rising from 57% during the pre-test to 63% during the post-test. Even though only 60% of the nurses participated in the 1-day course, additional information was still gained in the post-test. Other comprehensive research on schooling has demonstrated minimal improvements in learned knowledge. The study utilized a customized 1-day training program that was designed to address the individual requirements of each unit. The training program also incorporated hands-on practical exercises. The training was enhanced by conducting it alongside

each quality measurement that was carried out. Based on a Cochrane review.⁽¹⁹⁾

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The data analysis of this study demonstrates that implementing the educational course has positive impacts on the staff of nursing neurological wards. This is evident via improvements in their performance on knowledge tests and practical tests after completing the education program. This conclusion is in line with findings that indicate there were substantial variations between the pretest and posttest knowledge and practice levels, with a p-value of .000 for both

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parameters. The study results indicate that the average knowledge scores on the pre-test were highest in the area of knowledge (9.36) and lowest in the area

of application (1.98). The average knowledge scores of the post-tests

reached their highest point in the knowledge domain, with a score of 24.76, and their lowest point in the application domain, with a score of 5.66. The mean discrepancy between potential gain and actual gain is computed and determined to be minimal in the domain of comprehension. The knowledge score of 24.76 indicates that the increase in knowledge in this particular area was the highest when compared to other areas. A notable disparity was observed in the knowledge scores of the staff nurses between the pre-test and post-test.⁽²⁰⁾

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.

Conclusion

The majority of nursing staff in neurological department had poor knowledge regarding pressure ulcer prevention when assessed at the pre-test period. The present study revealed that an education program demonstrated a highly statistically significance of all knowledge parts for the study sample regarding pressure ulcer prevention at the post-test period.

Recommendations

It is advisable to establish ongoing education initiatives and regular training sessions for nurses to ensure a consistently high level of awareness and expertise in pressure ulcer prevention, as well as to stay updated on emerging procedures.

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