

# Effectiveness of E - Learning on Knowledge and Competency of Wound Assessment among Nurses

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**Abstract:** ***Aim:** Nurses are at the forefront of wound care delivery and make very salient contributions to improving services rendered to patients. The purpose of this study was to evaluate the effectiveness of E - learning on knowledge and competency of wound assessment among nurses. **Materials and methods:** The quasi - experimental one - group (pre - test - post - test) design was adopted, and 75 nurses were chosen by using convenience sampling. The pre - test and post - test were assessed and provided E - Learning intervention regarding wound assessment. **Results:** The pre - test mean score of knowledge was (7.03), and competency was (1.39), and the post - test mean score of knowledge was (16.48), and competency was (3.23). The 't' value of pre - test and post - test knowledge (29.692) and competency (13.18) indicates that there were significant changes in the knowledge and competency ( $p < 0.05$ ). There was an association between knowledge and gender (8.11) and qualification (28.6) and with competency to age (9.2), sex (.701), qualification (4.9), professional rank (5.1), and year of experience (9.81). **Conclusion:** The results showed that the E - Learning intervention improved the knowledge and competency of wound assessment among nurses, which will help them in a provide quality care to patient with wound in the clinical setting.*

**Keywords:** Assessment, Competency, Effectiveness, E - Learning, Wound, Intervention, Knowledge, Nurses.

## 1. Introduction

A wound develops when the normal structure and function of the skin and soft tissues are disrupted as a result of a number of etiologies and causes.<sup>1</sup> Wounds can also be divided into acute and chronic wounds according to how long it takes for a wound to heal.<sup>2</sup> One of the main and regular responsibilities of nurses that focus on restoring structural and functional skin integrity is wound care. A thorough or in - depth wound examination is necessary for high - quality wound treatment.<sup>3</sup> Complex wound assessments require a wide variety of clinical abilities and expertise. It is essential that wound assessment be thorough, organised, and supported by research. It ought to give healthcare professionals a starting point of knowledge against which they may describe and document the current state of the wound, define reasonable treatment objectives, and track advancement over time with the help of suitable interventions. The major goals of wound evaluation are to determine the cause of the wound, its effects on the person, and how different wounds are treated. Initial evaluation, pain assessment, the location of the wound, its types, aetiology, classification, and measurements; evaluation of the exudates; evaluation of the wound edge; evaluation of the peri - wound; evaluation of the wound infection; evaluation of the wound bed; and additional techniques for wound assessment and documentation are among the components of wound assessment.<sup>4</sup>

Obilor HN, Omolara AB, and Ani OB (2021) set out to evaluate 182 registered nurses' knowledge, attitude, and competence in Nigerian wound evaluation. In terms of general wound evaluation, more than half of the nurses ( $n=96$ , 52.7%) showed a good level of knowledge, with the exception of wound aetiology, wound size measurement, undermining, and wound bed tissues. Additionally, only 51.1% of the nurses ( $n=93$ ) and only 94% ( $n=171$ ) of them were competent in assessing wounds. Most people believed

that doctors should be in charge of performing wound assessments rather than nurses. The fact that many of the nurses showed deficiencies in their knowledge and attitudes as well as a lack of competence in wound assessment suggests the necessity for regular updates to nurses' knowledge, skill, and attitude.<sup>3</sup>

Sahar Dalvand, Reza Ghanei Gheshlagh, and Abbas Ebadi (2018) conducted a systematic review and meta - analysis and found that nurses' knowledge (55.4%) was higher than that of nurses (52.7%) and assistant nurses (42.2%), and that the overall knowledge of nurses on the prevention of pressure injury (PI) was lower than the recommended level (60%). The expertise of nurses, especially assistant nurses and nurses, on PI prevention can be updated by regular training sessions and study of the guidelines.<sup>5</sup>

In a tertiary health facility in Nigeria, Esan DT, Fasoro AA, Ojo FE, and Obialor B. A. (2018) evaluated nurses' knowledge of pressure ulcers and attitudes toward pressure ulcer prevention. Overall, 58 (64.4%) nurses possessed the proper pressure ulcer knowledge, and 67 (74.4%) nurses had a good outlook on pressure ulcer prevention. However, 56 nurses (62.2%) opposed routine rescreening of patients who they felt were not at risk of developing pressure ulcers, and 70 (77.8%) said that nurses and the patients' families should share responsibility for pressure ulcer prevention.<sup>6</sup>

An crucial ability and competency for nurses to properly manage patient health is optimal wound management. Because they give the vital observation that guides judgments regarding wound treatments, nurses play a critical role throughout normal patient nursing care. The knowledge and skills of nurses in middle - and low - income countries regarding wound assessment and management, however, are not well defined. Wounds should be evaluated by nurses both at the start of treatment and on a regular basis. The assessment of the client must be thorough, in - depth, and go

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beyond the wound to pinpoint additional aspects including biopsy chosocial problems that obstruct wound healing and the client's compliance with therapy.<sup>3</sup>

The provision of wound care is led by nurses, who also significantly enhance the quality of patient care. A nurse's clinical practise in wound care will be positively affected by adequate knowledge and effectiveness in wound evaluation, which will also increase the confidence of other members of the healthcare team in their judgement and documentation. Therefore, it is essential to educate in order to increase the knowledge and effectiveness of nurses who analyse wounds.

## 2. Materials and Methods

### *Setting of the study and sampling technique*

The study's quasi - experimental (one - group pre - test - post - test) design involved the convenience sampling of 75 nurses from the Jindal Institute of Medical Sciences in Haryana. The dependent variable was the level of knowledge and competency of wound assessment whereas the independent variable was the E - learning on wound assessment. Age, sex, qualification, professional rank, and years of experience were the demographic characteristics. Nurses who expressed interest were included, while those who could not be reached for data collection were excluded.

### *Description of the tool*

Based on the literature review, a self - structured questionnaire was developed in English, consisting of the following: Demographic details like age, sex, qualification, professional rank, attended wound care seminar, and year of experience are included in Part I. Part II (Multiple Choice Questions) consists of 20 self - structured knowledge questionnaires, and to assess the competency, five wound images were included. The questionnaire was taken from the following areas: initial assessment, pain assessment, location of wound, types, etiology, classification, and measures of wound; assess the exudates; assess the wound edge; assess the peri - wound; assess the wound infection; wound bed; and additional techniques for wound assessment and documentation. The correct response score (01) and the incorrect response score (00). The level of knowledge score is converted to a percentage and then separated into three groups: inadequate (50%), moderately adequate (51 - 75%) and adequate (> 76%) and competency score is converted to a percentage and then separated into three groups: poor competency (50%), good competency (51 - 75%) and excellent competency (> 76%).

### *Validity and reliability*

The tool's content validity was examined by experts in light of the changes and recommendations. The pilot study to assess the feasibility and reliability of the instruments included five nurses who met the inclusion criteria. Additionally, the reliability of the knowledge and competency instrument was examined using the Split - Half method. Excellent results ( $r = 0.91$ ) were obtained. No nurses who had participated in the pilot study were part of the main study sample.

### *Ethical consideration*

Before beginning data collecting, the researcher acquired official approval from the institutional ethics committee. The researcher obtained informed consent from all nurses and explained the study's goals and methodology to them. They volunteered to join, aware that leaving at any time would be free from legal ramifications.

### *Description of the intervention*

The first day, the researcher distributed a self - structured questionnaire, instructed the nurses to complete the demographic questions, and then assessed the nurses' pre - test knowledge and competency in an online questionnaire by giving them 20 self - structured knowledge questionnaires, and to assess the competency, five wound images were included to complete over the course of 30 minutes. The researcher reassured them that their answers would remain confidential. Following the pre - test, the following E - Learning materials were distributed via emails and Whats app: initial assessment, pain assessment, location of the wound, types, aetiology, classification, and measurements of the wound; assessment of exudates; assessment of the wound edge; assessment of the peri - wound; assessment of the wound infection; assessment of the wound bed; and additional techniques for wound assessment and documentation. The post - test was collected on the seventh day.

### *Data analysis*

Frequency and percentage are two examples of demographic parameters. To describe the degree of knowledge and competency, the mean and standard deviation (SD) were computed. The effectiveness of knowledge and competency on wound assessment was assessed using the "t" value, and Chi - square analysis at ( $p < 0.05$ ) was used to establish the relationship between knowledge and competency with their selected demographic variables.

## 3. Results

Regarding the frequency and distribution of demographic variables by age, 44 (58%) belonged to the age group of 21 - 31 years, 16 (21%) were in the 18-21 year age range, and when it comes to gender, the majority of them, 58 (77%), were female, and 17 (22%) of them were male. Regarding their qualifications, 52 (69.3%) were general nursing midwifery (GNM) and 19 (25.3%) were B. Sc. Regarding professional rank, the majority of them, 72 (96%), were nursing officers. In terms of wound care seminars, the majority of them, and 38 (50%), were attended. Regarding experience, the majority of them 59 (78.6%) were 0 - 5 yrs.

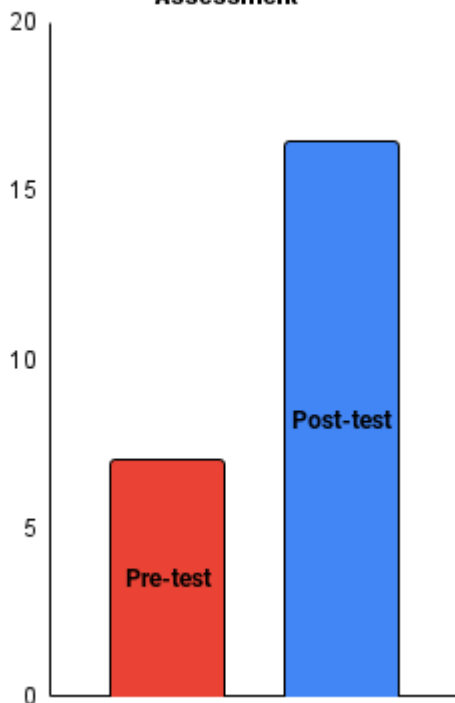
With regards to the level of knowledge, the majority of them, 62 (82%), had inadequate knowledge; 13 (17%) had moderately adequate knowledge; none of them had adequate knowledge in the pre - test and concerning the pre - test score of competency, the majority of the 67 (89%) had poor competency, 7 (9%) had good competency, and 1 (1%) had excellent competency. However, following the E - learning, the majority of them, 72 (96%), had adequate knowledge; 3 (4%) had moderately adequate knowledge; and none had inadequate knowledge; and, in terms of competency, the majority of them, 29 (38%) had excellent competency; 12

(16%) had good competency; and 34 (45%) had poor competency as measured by post - test.

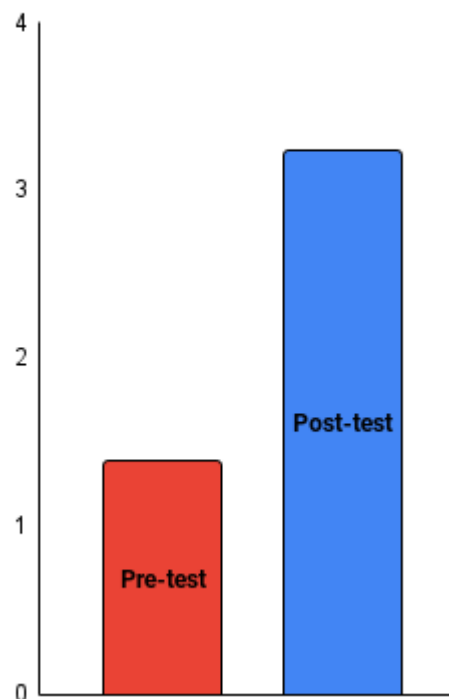
The pre - test mean score of knowledge was (7.03), and competency was (1.39), and the post - test mean score of knowledge was (16.48), and competency was (3.23). The't'

value of pre - test and post - test knowledge (29.692) and competency (13.18) indicates that there were significant changes in the knowledge and competency ( $p < 0.05$ ). Hence, the researcher concluded that E - learning gained knowledge and competency in wound assessment among nurses. (Figures 1 and 2).

**Fig. 1: Diagram Showing Pre & Post test mean score of Knowledge on Wound Assessment**



**Fig. 2: Diagram Showing Pre & Post test mean score of Competency on Wound Assessment**



There was an association between knowledge and gender (8.11) qualification (28.6) and with competency to age (9.2), sex (.701), qualification (4.9), professional rank (5.1), and year of experience (9.81) at  $p < 0.05$ .

#### 4. Discussion

The study's objectives were to evaluate nurses' pre - test and post - test knowledge and competency in wound assessment; the effectiveness of E - learning educational interventions on the wound assessment; and the significance of associations between pre - test knowledge and competency with specific demographic variables like age, sex, qualification, professional rank, and year of experience.

It was noted by Marcia Beatriz Berzoti Goncalves, Soraia Assad Nasbine Rabeh, and Cesar Augusto Sangaletti Tercario (2015) that a refresher course on the assessment of chronic wounds, provided using the Moodle virtual learning environment (VLE) had a positive impact. In the pre - test on their knowledge, 26 individuals provided 55.5% of the right answers, and in the post - test, 73.4%. The amount of experience teaching had and how well they did on the knowledge test had a negative link. An online refresher course helped the lecturers do better on the knowledge test about the guidelines for evaluating chronic wounds based on scientific data.<sup>7</sup>

#### 5. Conclusion

The results of this study suggest that the hospital - based in - service education programme should stress the value of wound assessment and routinely update nurses' knowledge and expertise in this area. In order to ensure that nurses are trained in wound assessment and resources, such as wound assessment documentation tools, are made available, efforts must be coordinated at all levels of nursing administration. A comprehensive wound assessment should be added to the general nurses' pre - service education curriculum, which also needs to be reviewed. Nurses who are skilled in wound assessment may also provide evidence - based, patient - centered, and cost - efficient wound treatment. Future research should develop programmes for teaching wound treatment and assess their effects on nurses' clinical practise and patient outcomes.

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#### Conflicts of interest

Regarding potential conflicts of interest, nothing needs to be disclosed.

## References

- [1] Mohamed H, Al Lenjawi B. Triangle of wound assessment made easy: Revisited. *Dermatol Open J.*2016; 1 (3): 51 - 55. doi: 10.17140/DRMTOJ - 1 - 114.
- [2] H Parkar, AD Cromarty., Wounds: an overlooked burden (Part 1) – effective wound management starts with proper wound assessment. *South African General Practitioner.*2020; 1 (5): 196 - 198. <https://doi.org/10.36303/SAGP.2020.1.5.0045>
- [3] Obilor HN, Omolara AB and Ani OB. A survey of nurses' wound assessment knowledge, attitude and competence in Nigeria.2021; 29 (3): 140 - 147. DOI [https://doi.org/10.33235/wpr.29.3.140 - 147](https://doi.org/10.33235/wpr.29.3.140-147).
- [4] Greatrex - White S, Moxey H. Wound assessment tools and nurses' needs: an evaluation study. *Int Wound J* 2015; 12: 293–301. doi: 10.1111/iwj.12100.
- [5] Sahar Dalvand., abbas ebadi., reza ghanei gheslgh., Tool nurses' knowledge on pressure injury prevention: a systematic review and meta - analysis based on the Pressure Ulcer Knowledge assessment Tool. *Clinical, Cosmetic and Investigational Dermatology* 2018: 11 613–620.
- [6] Esan DT, Fasoro AA, Ojo FE, Obialor B. A descriptive, cross sectional study to assess pressure ulcer knowledge and pressure ulcer prevention attitudes of nurses in a tertiary health institution in Nigeria. *Ostomy Wound Manag.*2018; 64 (6): 24 - 28.
- [7] Marcia Beatriz Berzoti Gonçalves., Soraia Assad Nasbine Rabeh., Cesar Augusto Sangaletti Tercariol., The Contribution of Distance Learning to the Knowledge of Nursing Lecturers regarding Assessment of Chronic. *Rev. Latino - Am. Enfermagem.*2015; 23 (1): 122 - 9. DOI: 10.1590/0104 - 1169.3606.2533.