

ASSESS THE EFFECTIVENESS OF EDUCATIONAL INTERVENTION ON KNOWLEDGE TOWARDS USE OF BRADEN SCALE AMONG NURSING STUDENTS IN SELECTED COLLEGES OF DISTRICT LUDHIANA, PUNJAB

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Abstract

Pressure injuries are among the common preventable complications encountered in healthcare settings and may result in increased morbidity, prolonged hospitalization, increased healthcare expenditure and reduced quality of life. Early identification of individuals at risk is an important component of pressure injury prevention. The Braden Scale is a standardized risk assessment tool used to identify patients who are at risk of developing pressure injuries. Adequate knowledge regarding the purpose, components, scoring and clinical application of the Braden Scale is important for nursing students because they are future healthcare professionals who will participate in patient assessment and preventive nursing care. The present study was conducted to assess the effectiveness of an educational intervention on knowledge towards the use of the Braden Scale among nursing students in selected colleges of District Ludhiana, Punjab.

A quantitative research approach was adopted for the study. The study included 500 nursing students from selected nursing colleges of District Ludhiana, Punjab. Data were collected using a structured socio-demographic proforma and a structured knowledge questionnaire consisting of 20 multiple-choice questions related to the use of the Braden Scale. A pre-test was conducted to assess the baseline knowledge of the participants, followed by administration of the educational intervention. The educational intervention included lectures, demonstrations, audiovisual presentations and interactive discussion related to pressure injuries, components of the Braden Scale, scoring, interpretation and clinical application. A post-test was subsequently conducted using the same knowledge questionnaire. Frequency, percentage, mean, standard deviation, paired t-test and Chi-square test were used for analysis.

The findings revealed that before the educational intervention, 84.2% of nursing students had moderate knowledge, 12.8% had inadequate knowledge and only 3.0% had adequate knowledge regarding the use of the Braden Scale. Following the educational intervention, 80.6% demonstrated adequate knowledge, 17.4% had moderate knowledge and only 2.0% had inadequate knowledge. The mean pre-test knowledge score was 10.09 ± 2.331 (50.40%), whereas the mean post-test knowledge score increased to 16.22 ± 2.637 (81.10%). The mean difference was 6.130 and the calculated paired t-value was 48.168, which was statistically significant at $p < 0.001$. The findings indicate a significant improvement in knowledge following the educational intervention. The study supports the use of structured educational programmes to strengthen nursing students' knowledge regarding the use of the Braden Scale for pressure injury risk assessment.

Keywords: Braden Scale, Knowledge, Educational Intervention, Nursing Students, Pressure Injury, Risk Assessment.

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Introduction

Pressure injuries are a significant concern in healthcare settings because they can lead to pain, infection, prolonged hospitalization, increased treatment costs and deterioration in the quality of life of patients. Individuals who have limited mobility, impaired sensory perception, poor nutritional status, moisture exposure or other risk factors are particularly vulnerable to the development of pressure injuries. Early identification of patients who are at risk is therefore an important aspect of nursing care.

The Braden Scale was developed by Barbara Braden and Nancy Bergstrom as a standardized tool for assessing the risk of pressure injury development. The scale consists of six major areas of assessment, namely sensory perception, moisture, activity, mobility, nutrition, and friction and shear. Each component contributes to the overall score, and a lower total score indicates greater risk for pressure injury development. Knowledge regarding these components, their scoring and interpretation is essential for the appropriate application of the scale in clinical practice.

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Nursing students receive theoretical and clinical education related to patient assessment and prevention of complications. Since they are involved in direct patient care during clinical postings, they need adequate knowledge about standardized assessment instruments. Appropriate understanding of the Braden Scale can assist nursing students in recognizing patients at risk and supporting timely preventive measures.

Educational interventions can provide organized learning experiences through lectures, demonstrations, audiovisual materials and interactive discussion. Such interventions may help students understand the purpose and components of standardized assessment tools and improve their ability to apply theoretical knowledge in clinical situations. Therefore, the present study was undertaken to assess the effectiveness of an educational intervention on knowledge towards the use of the Braden Scale among nursing students in selected colleges of District Ludhiana, Punjab.

Methodology

A quantitative research approach was adopted for the present study. The study was conducted among nursing students studying in selected nursing colleges of District Ludhiana, Punjab. The selected settings included Swami Vivekanand College of Nursing, Faizgarh and Kular College of Nursing, Bija, District Ludhiana, Punjab.

A total of 500 nursing students participated in the study. The participants were selected according to the specified inclusion criteria and were available and willing to participate during the period of data collection. The study focused on knowledge regarding the use of the Braden Scale.

Data were collected using a structured socio-demographic proforma and a structured knowledge questionnaire. The knowledge questionnaire consisted of 20 multiple-choice questions covering pressure injuries, the purpose of the Braden Scale, its components, scoring system, interpretation and clinical application. Each correct response was awarded one mark, with a maximum possible knowledge score of 20. The knowledge scores were categorized as inadequate knowledge for scores of 0–7, moderate knowledge for scores of 8–14 and adequate knowledge for scores of 15–20.

A pre-test was conducted to determine the baseline knowledge of nursing students regarding the use of the Braden Scale. Following the pre-test, the educational intervention was administered. The intervention consisted of structured teaching using lectures, demonstrations, audiovisual presentations and interactive discussion. The content included pressure injuries, risk assessment, components of the Braden Scale, scoring, interpretation and clinical application of the scale.

After completion of the educational intervention, a post-test was conducted using the same structured knowledge questionnaire. The collected data were

organized and analyzed using descriptive and inferential statistics. Frequency and percentage were used to describe categorical variables. Mean and standard deviation were used to summarize knowledge scores. A paired t-test was used to compare pre-test and post-test knowledge scores. Chi-square test was used to determine the association between knowledge scores and selected socio-demographic variables. The level of significance was considered at 0.05.

Findings of the Study

Findings Related to Sample Characteristics

The study included 500 nursing students from selected nursing colleges of District Ludhiana, Punjab. The majority of participants belonged to the 19–20 years age group, accounting for 33.0% of the sample. Female students constituted the majority of participants, representing 84.2% of the study population. With regard to course of study, B.Sc. Nursing students constituted the largest group, accounting for 47.0% of participants. Students from different years of nursing education and with varying durations of clinical experience were included in the study. The diversity of academic and clinical exposure provided an opportunity to examine the association between selected socio-demographic characteristics and knowledge regarding the Braden Scale.

Findings Related to Pre-Test Knowledge

The pre-test findings demonstrated that the majority of nursing students had moderate knowledge regarding the use of the Braden Scale. Among the 500 participants, 421 students (84.2%) had moderate knowledge, 64 students (12.8%) had inadequate knowledge and only 15 students (3.0%) had adequate knowledge.

The mean pre-test knowledge score was 10.09 ± 2.331 . The median score was 10, with scores ranging from 2 to 17. The mean percentage score was 50.40%. These findings indicate that before the educational intervention, most nursing students had only moderate knowledge regarding the use of the Braden Scale and that a relatively small proportion had adequate knowledge.

Findings Related to Post-Test Knowledge

Following the educational intervention, a marked improvement in knowledge was observed. Among the 500 nursing students, 403 students (80.6%) demonstrated adequate knowledge, 87 students (17.4%) demonstrated moderate knowledge and only 10 students (2.0%) had inadequate knowledge. The mean post-test knowledge score was 16.22 ± 2.637 . The median score was 17, with scores ranging from 7 to 20. The mean percentage score was 81.10%. The findings demonstrate that after the educational intervention, the majority of nursing students achieved an adequate level of knowledge regarding the use of the Braden Scale.

Findings Related to Effectiveness of the Educational Intervention

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The comparison of pre-test and post-test knowledge scores demonstrated a substantial improvement following the educational intervention. The mean knowledge score increased from 10.09 ± 2.331 in the pre-test to 16.22 ± 2.637 in the post-test. The mean difference was 6.130.

The calculated paired t-value was 48.168, which was statistically significant at $p < 0.001$. The obtained value was greater than the table value at the 0.05 level of significance. Therefore, there was a statistically significant difference between the pre-test and post-test knowledge scores. The findings indicate that the educational intervention was effective in improving nursing students' knowledge regarding the use of the Braden Scale.

The individual mean score gain was approximately 6.14, with the mean percentage score increasing from approximately 50.44% in the pre-test to 81.12% in the post-test, representing an overall percentage improvement of 30.68%.

Findings Related to Association Between Knowledge and Selected Socio-Demographic Variables

The association between pre-test knowledge scores and selected socio-demographic variables was assessed using the Chi-square test. The findings showed that year of course and duration of clinical experience had a statistically significant association with pre-test knowledge scores. The association between year of course and pre-test knowledge was statistically significant ($\chi^2 = 14.63$, $p = 0.02$), while duration of clinical experience was also significantly associated with pre-test knowledge ($\chi^2 = 13.87$, $p = 0.03$).

Age, gender, course of study, mother's occupation and father's occupation did not show a statistically significant association with pre-test knowledge scores. The findings indicate that academic progression and clinical exposure were associated with baseline knowledge regarding the Braden Scale, whereas the other selected characteristics were not significantly associated.

In the post-test, course of study was reported to have a significant association with knowledge scores, whereas age, gender, year of course, duration of clinical experience, mother's occupation and father's occupation were not significantly associated with post-test knowledge scores. Thus, after the educational intervention, differences in knowledge according to most selected socio-demographic characteristics were not statistically significant.

Discussion

The present study was conducted to assess the effectiveness of an educational intervention on knowledge regarding the use of the Braden Scale among nursing students in selected colleges of District Ludhiana, Punjab. The findings demonstrated a clear improvement in knowledge following the educational intervention.

The pre-test findings showed that 84.2% of nursing students had moderate knowledge, 12.8% had inadequate knowledge and only 3.0% had adequate knowledge. The mean pre-test knowledge score was 10.09 ± 2.331 , corresponding to a mean percentage score of 50.40%. These findings indicate that although most participants possessed some knowledge regarding the Braden Scale, their baseline knowledge was not adequate for a large proportion of students.

The findings may be related to differences in students' academic exposure and clinical experience. The study found that year of course and duration of clinical experience were significantly associated with pre-test knowledge. Students in different academic years have different levels of exposure to theoretical instruction and clinical practice, while clinical experience provides opportunities to observe and participate in patient assessment and nursing care. The present study findings are consistent with the source study cited in the thesis, which reported an association between year of education and knowledge regarding the Braden Scale among nursing students. The thesis also cites findings indicating a relationship between clinical experience and knowledge of pressure injury prevention.

Following the educational intervention, a considerable improvement in knowledge was observed. The proportion of students with adequate knowledge increased from 3.0% in the pre-test to 80.6% in the post-test. At the same time, the proportion with moderate knowledge decreased from 84.2% to 17.4%, while inadequate knowledge decreased from 12.8% to 2.0%. The mean knowledge score also increased from 10.09 ± 2.331 to 16.22 ± 2.637 .

The paired t-test further demonstrated that the difference between pre-test and post-test knowledge scores was statistically significant, with a calculated t-value of 48.168 and $p < 0.001$. The mean difference of 6.130 indicates a considerable increase in knowledge after the educational intervention.

The improvement may be related to the structured nature of the educational intervention. The teaching programme addressed the important aspects of the Braden Scale, including its purpose, components, scoring, interpretation and clinical application. The use of lectures, demonstrations, audiovisual presentations and interactive discussion provided students with organized learning experiences and opportunities to clarify their understanding.

The findings of the present study are also supported by studies discussed in the thesis. Sumathi Sasikala G. (2023) reported significant improvement in knowledge following a planned teaching programme among nursing students. The thesis also cites studies by Nikee Minz et al. (2024), Iyabode Adetoro Gbadamosi et al. (2023), Mohamad Karimian et al. (2020), and other researchers

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reporting improvement in knowledge following structured educational interventions related to pressure injury prevention and risk assessment. The present findings therefore indicate that structured educational intervention can improve nursing students' knowledge regarding the use of the Braden Scale. The findings also highlight the importance of providing systematic education regarding standardized pressure injury risk assessment tools during nursing education.

Conclusion

The present study was conducted to assess the effectiveness of an educational intervention on knowledge regarding the use of the Braden Scale among nursing students in selected colleges of District Ludhiana, Punjab. The findings revealed that before the educational intervention, the majority of nursing students had moderate knowledge, while only a small proportion demonstrated adequate knowledge.

Following the educational intervention, a substantial improvement in knowledge was observed. The majority of students achieved an adequate level of knowledge in the post-test. The mean knowledge score increased from 10.09 ± 2.331 in the pre-test to 16.22 ± 2.637 in the post-test. The paired t-test showed a statistically significant difference between the pre-test and post-test scores ($t = 48.168$, $p < 0.001$).

The findings demonstrate that the educational intervention was effective in improving nursing students' knowledge regarding the use of the Braden Scale. Regular structured teaching, demonstrations and competency-based learning related to pressure injury risk assessment may therefore be incorporated into nursing education to strengthen students' knowledge and preparation for clinical practice.

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