Educational Intervention on Pressure ulcer among Caregivers of Immobilized Patient

Abstract:

**Introduction:** Pressure ulcers is a health problem for people who are physically limited or bedridden, particularly patients with orthopedic and spinal cord injuries. Pressure ulcers remain a major health problem affecting approximately 3-4 million adults worldwide.

**Objectives:** To evaluate the effectiveness of educational intervention on prevention of pressure ulcer among caregivers of immobilized patients.

**Methodology:** Methodology of the present study included a pre experimental hospital based study. 70 caregivers of immobilized patient at Nepal Orthopedic Hospital were selected using non-probability purposive sampling technique. Interview technique was used to identify knowledge on prevention of pressure ulcer among caregivers before and after educational intervention.

**Results:** 31% of caregivers were aware that pressure ulcers are easier to prevent than to treat in pretest and 59% in posttest. Regarding management, pretest and posttest percentage were 32.5% and 60% respectively. 37.1% of caregivers knew the importance of nutrient in prevention of pressure ulcer in pretest and 75% in posttest. Likewise pretest and posttest score regarding prolonged rest and sleep as a cause of bedsore were 55.2% and 90% respectively. Nearly half of the caregivers were aware about repositioning 2 hourly for prevention of pressure ulcer in pretest and 90% in posttest.

**Conclusion:** Among 70 respondents 12.9% of the caregivers had adequate knowledge, 42.9% had moderate knowledge and 44.3% had inadequate knowledge in pre-test. Whereas, in post-test majority (82.9%) of the respondents had adequate knowledge on prevention of pressure ulcer.

**Key Words:** Effectiveness, Educational intervention, Pressure ulcer, Knowledge, Caregiver of immobilized patient.
produce a significant burden on patients, relatives and caregivers. On average, 60,000 people die each year worldwide due to pressure ulcer related causes. The incidence of pressure ulcer is estimated to be (11%) skilled care and nursing homes, (10%) in acute care and (4.4%) in home care. The National Pressure Ulcer Advisory Panel (NPUAP) estimates that prevalence of pressure ulcer in acute care is (15%) and incidence is (7%). The prevalence of pressure ulcers in European hospitals ranges from 1% to 11% in medical wards and 4.7% to 66% in surgical wards. The incidence of pressure ulcer in Asian countries was considered high ranging from 2.1% to 31.3% in critical care unit.

About 57–60% of all pressure ulcers occur within hospitals, and pressure ulcers recognized worldwide as one of the five most common causes of harm to patients, as well as a largely preventable patient safety problem and increasingly described as an indicator of the quality of care provided by health care organizations. Pressure ulcers have been described as one of the most costly and physically debilitating complications since the 20th century. In addition, reported that pressure ulcers are the third most expensive disorder after cancer and cardiovascular diseases.

The prevention of pressure ulcers is of prime importance, as most of them are preventable by means of a high level of awareness and by implementing preventive measures. The preventive interventions that were reviewed include devices to relieve pressure, repositioning, exercise to assist bladder control, and nutritional supplementation.

Involvement of family caregivers is essential for optimal treatment of patients in ensuring treatment compliance, continuity of care, and social support. Family caregivers play a central role in managing all aspects of the patient’s care. They are the one who will be with the patient every time than physicians and nurses. Hence the caregivers’ knowledge regarding general measures such as positioning, exercise, skin care, nutrition and support will improves the quality of outcome and prevent complications of immobility.

From the conclusion of the study done in Chitwan, there is a need to develop and strengthen the knowledge of care takers regarding the prevention of pressure sore of immobilized patients. Educating the care givers of orthopedic immobilized patients regarding various aspects of health care management helps them improving, recovery and thereby they can prevent the complications. One of the studies done in Saudi Arabia among 62 care givers showed that there was significant increase in knowledge on prevention of pressure ulcer after intervention.

Based on the above studies present study was conducted to assess the knowledge on prevention of pressure ulcer among caregivers of immobilized patients before providing educational intervention and to provide educational intervention on pressure ulcer and lastly to assess effectiveness of educational intervention.

**Conceptual Framework**

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**Figure 1: Conceptual Framework based on General System Theory approach by Ludwing Von Bertalanfy**

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**Methodology**

Pre-experimental (one group pre test post test design) study was conducted to assess the effectiveness of educational intervention on knowledge regarding prevention of bedsore...
among caregivers of immobilized patients admitted at Nepal Orthopedic Hospital. The study population was collected using a non-probability purposive sampling technique which consisted of 70 caregivers. Data collection was started on 2016/10/2 and completed on 2016/10/25 which consisted of three phases. First phase is preparation phase in which formal approval were taken from related authorities. Second phase is intervention phase in which pre-test was done by face to face interview using pre-structured questionnaire to assess the level of knowledge on prevention of bedsore among caregivers before the educational intervention. After pretest, education was provided on the basis of structured educational package which included the information on several aspects on pressure ulcers; meaning, causes, causative factors, risk factors, common sites of developing pressure ulcers, sign and symptoms, management and prevention of pressure ulcers. Five education session was conducted on different date and in each session 10 to 15 participants were involved. Illustrative and interactive lecture method and audio visual aids like power point, posters, meta cards and flip chart were used for explaining the content of educational package.

In third phase, posttest was done after one week of intervention to identify the level of knowledge on prevention of bedsore among caregivers after the educational intervention by using same questionnaire that was used in pretest.

Tool consists of 2 parts: Part I : Questionnaire related to demographic variables. Part II: It consists of structured knowledge questionnaire with 20 multiple choice questions. A scoring system was used where 1 point was given for each correct response to knowledge and 0 for the incorrect response. The cutoff values to determine adequate, moderate, and inadequate levels was taken from previously published studies. The total attainable score was 28. These total score was converted into percentage and the result score was range as follows:

- >76% = Adequate knowledge
- 51-75% = Moderately adequate knowledge or average knowledge
- Below 50% = Inadequate knowledge

Question related to feedback of educational intervention and was asked verbally in post-test only.

Observed values were measured by percentage. Data has been analyzed by checking, editing and coding using SPSS database version 16.0.(1)

### Result

#### Table 1: Frequency and percentage distribution of knowledge on pressure ulcer before and after intervention

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre-test</th>
<th></th>
<th>Post test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correct Responses</td>
<td>%</td>
<td>Correct Responses</td>
<td>%</td>
</tr>
<tr>
<td>Meaning of pressure ulcer</td>
<td>45</td>
<td>64.3</td>
<td>66</td>
<td>94.3</td>
</tr>
<tr>
<td>Causes of pressure ulcer</td>
<td>23</td>
<td>32.9</td>
<td>39</td>
<td>55.7</td>
</tr>
<tr>
<td>Causative factor</td>
<td>51</td>
<td>72.9</td>
<td>69</td>
<td>98.6</td>
</tr>
<tr>
<td>Risk factor</td>
<td>46</td>
<td>65.7</td>
<td>60</td>
<td>85.7</td>
</tr>
<tr>
<td>Signs and symptoms of pressure ulcer</td>
<td>17</td>
<td>24.3</td>
<td>37</td>
<td>52.9</td>
</tr>
<tr>
<td>Sites of development of pressure ulcer</td>
<td>53</td>
<td>75.7</td>
<td>55</td>
<td>78.6</td>
</tr>
<tr>
<td>Complications of pressure ulcer</td>
<td>49</td>
<td>70</td>
<td>61</td>
<td>87.1</td>
</tr>
</tbody>
</table>

Table 1 presents that in pretest, more than two third of the respondents were aware about meaning of bed sore and this is increased to 94% in posttest. Likewise pretest and posttest percentage regarding causes of bedsore were 32.9% and 55.7% respectively. Similarly in pretest only 24.3% of respondents were aware about signs and symptoms while in posttest more than half of them were aware.
Table 2: Frequency and percentage distribution of knowledge on prevention of pressure ulcer before and after intervention  

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre-test</th>
<th></th>
<th>Post test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correct Responses</td>
<td>%</td>
<td>Correct Responses</td>
<td>%</td>
</tr>
<tr>
<td>Nutrients needed for prevention</td>
<td>26</td>
<td>37.1</td>
<td>53</td>
<td>75.7</td>
</tr>
<tr>
<td>Importance of skin care</td>
<td>56</td>
<td>80</td>
<td>68</td>
<td>97.1</td>
</tr>
<tr>
<td>Repositioning 2hously</td>
<td>45</td>
<td>64.3</td>
<td>66</td>
<td>94.6</td>
</tr>
<tr>
<td>Prevention of Prolong rest and sleep</td>
<td>39</td>
<td>55.7</td>
<td>63</td>
<td>90</td>
</tr>
<tr>
<td>Exercise</td>
<td>19</td>
<td>27</td>
<td>62</td>
<td>88.6</td>
</tr>
<tr>
<td>Use of assistive devices</td>
<td>38</td>
<td>54.3</td>
<td>61</td>
<td>87.1</td>
</tr>
</tbody>
</table>

Table 2 shows that only 37.1% of respondents knew about nutrients for prevention of bed sore while in posttest knowledge is significantly increased to 75.7%. Likewise regarding need of exercise, there is significant difference in value of pretest and posttest knowledge, 2.7% and 88.6% respectively.

Figure 2: Bar diagram showing level of knowledge

Figure 2 highlights that 12.9% of the caregivers had inadequate knowledge, 42.9% had moderate knowledge and 44.3% of respondents had adequate knowledge in pre-test. Whereas, in post-test majority (82.9%) of the respondents had adequate knowledge on prevention of pressure ulcer.

Table 3: Association between pretest and posttest knowledge score  

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre-test</th>
<th>Post test</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>SD</td>
</tr>
<tr>
<td>Knowledge</td>
<td>10.19</td>
<td>11</td>
<td>3.49</td>
</tr>
</tbody>
</table>

Wilcoxon sign rank test  
*Significance at p<0.05

Table 3 illustrates that the median difference between pre-test and post-test score is 5.5. The difference between respondents’ pre-test and post-test knowledge on prevention of pressure ulcer was calculated by Wilcoxon sign rank test and the calculated p-value was highly significant (p<0.05).

Discussion

The present study regarding baseline knowledge on causes of pressure ulcer revealed that only 32.9% of the respondents were aware about causes of bed sore during pre-test in contrast more than 90% of respondents had knowledge about causes in one of the studies done in Uganda. In relation to causative factor of pressure ulcer, findings depicts that 73% of the respondents were aware about causative factor of pressure ulcer before the educational intervention. The findings of this study was supported by same study done in Uganda which reported that 83.9% of respondents’ had knowledge on causative factor which was unrelieved pressure leading to the development of pressure ulcer.

Concerning risk factors of pressure ulcer, findings illustrates that 65.7% of respondents knew about risk factors of pressure ulcer in pre-test. The findings of this study was supported by the study done in Bangladesh.

Moreover, caregiver’s knowledge regarding nutrition is required for prevention of pressure ulcer; the current study concluded that 75.7% of caregiver had good knowledge after attending educational programme in comparing to pre educational programme that is 37.1%. One study also showed that knowledge on nutrition was improved to 83% after the training programme for family caregivers of bedridden patients.

In relation to knowledge on pressure ulcer preventive aspects of skin care, the current study results revealed that 80% caregivers had moderate knowledge before attending the program, while the majority (97%) of caregivers had good knowledge about skin care after implementation of the program. This finding is congruent with a study in Egypt which concluded that majority...
(95%) of the family care givers had knowledge on skin care after implementation of the preventive educational program.\(^1\) Also, Lalan emphasized on maintaining skin integrity because client populations are thought to be at greater risk of developing pressure sores because of immobility like orthopedics clients with fracture and impaired skin integrity.\(^1\)

In relation to caregivers' knowledge regarding preventable exercises to pressure ulcers for bedridden patients, findings revealed that only 27% of respondents had knowledge in pre-test whereas 88.6% of respondents had knowledge on preventable exercises in post-test. This finding congruent with the study done in hospital in Saudi Arabia.\(^2\) Regarding the prevention from developing bedsore, present findings which revealed 64.3% respondents had knowledge about frequent position change whereas only 27.1% of the respondents had knowledge that use of supportive measures for prevention of pressure ulcer. This finding is consistent with the study done in Chitwan where 75.6% of respondents had knowledge about frequent position change and only 10.9% of the respondents had knowledge about the use of supportive measures for prevention of pressure ulcer.\(^7\) In contrast, finding oppose to the study reported by Islam that majority (100%) of respondents' had knowledge about frequent position change whereas 85.7% of respondents' had knowledge about supportive measures for prevention of pressure ulcer.\(^9\)

The present study showed that majority (44.3%) of care givers had inadequate knowledge regarding overall knowledge level of pressure ulcer in pre-test whereas the level of knowledge was improved to 82.9% after the educational intervention. In contrast a study done in Egypt showed 77.5% had unsatisfactory knowledge regarding pressure ulcer in pretest, and 87.5% after application of the program.\(^11\)

While another study in India showed that more than one third of respondents had knowledge regarding prevention and care of pressure sore before the intervention test whereas all the respondents gave correct response after intervention.\(^12\)

Similarly, regarding with statistical significance on overall knowledge on prevention of pressure ulcer between pre-test and post-test illustrated that a high statistical significant difference between pre-test and post-test of total average knowledge scores with a high statistical difference of total median knowledge score (wilcoxon sign rank test) with p-value 0.001 was seen. The present finding supported by the study which depicts that there was a highly statistical significant difference between pre-test and post-test of total average knowledge scores (t-test 17.9) with (p-value .0001).\(^2\)

**Conclusion**

There was significant increase in the level of knowledge on prevention of pressure ulcer after the educational intervention. Therefore, it can be concluded that education plays an important role in increasing awareness level of care givers. So, present study suggests that information, education and communication (IEC) programme should be planned in a regular basis to update the awareness and knowledge on prevention of pressure ulcer among caregivers of immobilized patient.

**Recommendation**

- A similar study can be replicated on a large sample there by to generalize the findings to a large population.
- Pressure ulcer related campaigns can be conducted to raise the awareness of caregivers regarding the disease, its causes, risk groups, complications, treatment and most importantly preventive measures.

**Acknowledgement**

My special thanks and appreciation goes to the Nepal Orthopedic Hospital and the participants for their cooperation and willingness to participate in the research.

**Ethical Consideration**

Formal permission was taken from the concerned hospital. The purpose of the study was explained to the respondents. Verbal
and written consents were taken from all respondents before data collection. The privacy and confidentiality of the subject was maintained throughout the study and thereafter.

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**References**


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