Effect of Teaching Programme regarding Home Care on Knowledge and Practice of Informal Caregivers of CVA Patients in a Selected Hospital in Dehradun (Uttarakhand)

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Abstract
Objectives of the study were to determine the effectiveness of a teaching programme regarding home care of CVA patients on knowledge and practice of informal caregivers, to find association between pre-test knowledge and practice scores of informal caregivers with their selected demographic variables, and to find correlation between post-test knowledge score and post-test practice score of informal caregivers of CVA patients. Quantitative research approach and pre-experimental one group pre-test and post-test design was adopted. Total sample were 45 informal caregivers of CVA patients; purposive sampling technique was used. The findings showed the mean of pre-test knowledge score of 13.24 and mean of post-test knowledge score as 25.96 with calculated ‘t’ value 28.96, which was more than tabulated ‘t’ value at p<0.05 level. Mean of pre-test practice score was 8.82 and mean of post-test practice score was 20.47 with calculated ‘t’ value 34.75, which was more than tabulated ‘t’ value at p<0.05 level. Therefore it was interpreted that the increase in knowledge and practice score was due to the teaching programme provided as an intervention. Thus, the teaching programme regarding home care of CVA patients was found effective in increasing knowledge and practice of informal caregivers.

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Toleration is the greatest gift of the mind; it requires the same effort of the brain that it takes to balance oneself on a bicycle - Helen Keller

Stroke is a leading cause of adult disability and a leading primary diagnosis in long-term care. Among stroke survivors 31 percent require assistance with self-care, 20 percent require assistance with ambulation, 71 percent have some impairment in vocational abilities up to 7 years following the stroke and 16 percent are institutionalised. A stroke can have an effect on many body functions, including motor activity, bladder and bowel elimination, perceptual alterations, personality, affect, sensation, swallowing and communication. The functions affected are directly related to the artery involved and the area of the brain affected.

Strong et al (2007) found that stroke was the second commonest cause of death and fourth leading cause of disability worldwide. Dalal et al (2007) found that approximately 20 million people each year will suffer from stroke and of these 5 million will not survive. Fisher et al (2011) reported that in developed countries, stroke was the first leading cause for disability, second leading cause of dementia and third leading cause of death. Stroke is also a predisposing factor for epilepsy, falls and depression in developed countries. Steinwachs et al (2000) found that it was a leading cause of functional impairments, with 20 percent of survivors requiring institutional care after 3 months and 15 - 30 percent being permanently disabled.

It is estimated that 25-74 percent of stroke survivors require help in activities for daily living from informal care givers, often family members. Advances in stroke rehabilitation have successfully reduced severe disability and institutionalization, which has increased the number of disabled patients living at home and being supported by care givers who feel inadequately trained, poorly informed, and dissatisfied with the extent of support available after discharge.

Review of Literature
Effectiveness of teaching programme: Kim et al (2012) conducted a quasi-experimental study on the effect of home-based individual tele-care intervention for stroke caregivers. The sample size consisted of 73 patients. The result showed that the
score of family caregiver burden decreased by 8.07 (±18.67) in the experimental group and increased by 1.65 (±7.47) in the control group, which was a significant difference (t=2.257, p=0.027) between pre-intervention and post-intervention. The family caregiver burden of experimental group was significantly lower than the control group (F=3.649, p=0.033). They concluded that the home-based individual tele-care intervention, in addition to the hospital-based group programme, was cost-effective and supportive in reducing family caregivers’ burden by providing relevant information for their needs in timely manner.

Choi et al (2006) conducted an experimental study on effect of education on knowledge and practice of caregivers of the stroke patient. A non-equivalent control group non-synchronised design was used. The sample consisted of 40 primary caregivers, 20 each in experimental and control groups. The result showed that knowledge (t=5.87, p=0.00) and practice (t=5.53, p=0.00) of the experimental group were significantly different from the control group. They concluded that the stroke patient care education made a significant promotion in the knowledge and practice of caregivers.

### Methodology

Quantitative approach was used to assess the effectiveness of a teaching programme on home care of CVA patients. Pre-experimental one group pre-test post-test research design was used.

The study design is schematically represented below:

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test O₁</th>
<th>Intervention X</th>
<th>Post-test O₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal caregivers</td>
<td>Day 1</td>
<td>Day 1</td>
<td>Day 7</td>
</tr>
</tbody>
</table>

O₁ = Pre-test knowledge and practice of informal caregivers of CVA patients before providing teaching programme. X = Teaching programme on home care of CVA patients. O₂ = Post-test knowledge and practice of informal caregivers of CVA patients after providing teaching programme.

### Tools used

**Tool 1**, with socio-demographic characteristics of informal caregivers of CVA patients included age of informal caregivers, gender, educational status, occupational status, relationship with patient and total family members.

**Tool 2** contained the illness profile of CVA patients. Items included were age of CVA patients, gender, occupation, final diagnosis, duration of illness of patient, any other illness, food habits, history of smoking, history of alcohol drinking, and family history of CVA.

**Tool 3** was the structured knowledge questionnaire regarding home care of CVA patients including 28 multiple choice questions. Tools content were: Introduction of CVA (4 questions); Prevention of bed sores (7 questions); Prevention of muscular contractures (8 questions); Nasogastric feeding and oral feeding (6 questions); and Prevention of recurrence of CVA in future (3 questions).

**Tool 4** was the observation practice checklist regarding home care of CVA patients. It was developed to assess the skills of informal caregivers. The tool content included 22 items that are: steps of performing back care (9 steps), steps of performing passive exercises (4 steps), Steps of giving oral feeding (2 steps), and Steps of giving nasogastric feeding (7 steps).

Validity and reliability was done by experts in the field of Medical surgical Nursing, the reliability coefficient of whole test was estimated using Spearman Brown Prophecy formula and it was found to be 0.9. The reliability for observation practice checklist was estimated by interrater reliability and it was found to be 0.9. Administrative permission was obtained from ethical committee. Pilot study did not show any problem. The research tools were found to be feasible, practicable and acceptable.

### Data Collection & Analysis

After permission to conduct the study, purposive sampling technique was used to select 45 informal caregivers of CVA patients, admitted in neurology and intermediate care wards of selected hospital of Dehradun (Uttarakhand). Informal caregivers who fulfilled the inclusion criteria were included in the study and written consent was taken. On day 1, the socio-demographic data of informal caregivers and illness profile of CVA patients was conducted. Same day pre-test (assessed the knowledge scores and practice scores before intervention) and teaching programme was conducted by using audio visual aids and lecture-cum-discussion and demonstration method. Teaching sessions and demonstration on back care, passive exercises, nasogastric feeding and oral feeding was given to informal caregivers individually at the bed side. After seven days post-test (assessed knowledge and practice scores after intervention) and teaching programme was conducted. The time taken for teaching programme was one hour.

The data was analysed based on objectives by using descriptive and inferential statistics. Descriptive statistics such as mean, mean percentage, standard deviation were used to describe knowledge of infor-
mal caregivers of CVA patients, frequencies and percentage to describe sample characteristics. Paired ‘t’ test determined effectiveness of teaching programme by comparing pre-test, post-test knowledge and practice score. Frequency and percentage measures to describe the practice of informal caregivers of CVA patients, independent ‘t’ test to analyse the significance of association between pre-test knowledge and practice scores with socio-demographic variables like gender, educational status, occupational status of informal caregivers, and duration of illness of CVA patients were used. Correlation between post-test knowledge and post-test practice scores with the help of Karl-Pearson’s correlation coefficient was studied.

Results and Discussion
Socio-demographic characteristics of the informal caregivers of CVA patients and illness profile of CVA patients
The mean age of the informal caregivers was 37.27 years with standard deviation of 0.91 years. Majority (60%) of the informal caregivers were aged between 21 and 38 years, 51.1 percent were female. One-third (33.3%) were graduate, 44.4 percent of informal caregivers were housewives, most (51.1%) were having one to five family members in their family, 44.4 percent of informal caregivers were son.

The mean age of CVA patients was 61.69 years with standard deviation of 1.17 years. Most (51.1%) of the CVA patients were aged between 52 and 65 years, 73.3 percent were male, one-third were retired from government job (33.3%) and 51.1 percent had haemorrhagic stroke, 44.4 percent had duration of illness less than one month, majority were having hypertension and were non-vegetarian (97.8% and 84.4%) respectively. Two-third (68.9%) were smokers, 57.8 percent had history of drinking alcohol, 71.1 percent were not having family history of CVA.

Effectiveness of a teaching programme regarding home care of CVA patients on knowledge of informal caregivers
Hypothesis stated was:

\[ H_0 - \text{There will be no significant difference between mean pre-test knowledge score and mean post-test knowledge score as measured at p}<0.05 \text{ level of significance.} \]

\[ H_1 - \text{The mean post-test knowledge score of informal caregivers regarding home care of CVA patients will be significantly higher than their mean pre-test knowledge score as measured at p}<0.05 \text{ level of significance.} \]

Table 1 shows that the mean knowledge score of study participants improved from 13.24 (± 3.37) in pre-test to 25.96 (± 2.87) in post-test. The mean increase in knowledge score was 12.72 (± 2.94). The paired sample ‘t’ test was performed to find the significant difference between mean pre-test knowledge and post-test knowledge scores. The calculated ‘t’ value was 28.96, which is more than the tabulated ‘t’ value of 2.02 (at p = 0.05 and df = 44). So the null hypothesis was rejected and research hypothesis was accepted. Therefore it was inferred that the increase in knowledge score was attributed to the teaching programme provided as an intervention.

The knowledge score was further divided to five domains (introduction of CVA - 4 questions, prevention of bed sores - 7 questions, prevention of muscular contractures - 8 questions, nasogastric and oral feeding - 6 questions and prevention of recurrence of CVA in future - 3 questions) to analyse the effectiveness in different areas of knowledge score. It has revealed that knowledge scores in all the five domains were significantly higher in post-test scores (p<0.001). Hence it was interpreted that all five domains knowledge score was significantly improved due to intervention.

Effectiveness of a teaching programme regarding home care of CVA patients on practice of informal caregivers
The hypothesis stated was:

\[ H_0 - \text{There will be no significant difference between mean pre-test practice score and mean post-test practice score as measured at p}<0.05 \text{ level of significance.} \]

\[ H_1 - \text{The mean post-test practice score of informal caregivers regarding home care of} \]

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Practice Score</th>
<th>Range</th>
<th>Mean ± SD</th>
<th>Mean difference ± SD</th>
<th>t'</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre-test</td>
<td>08-14</td>
<td>0.02 ± 2.44</td>
<td>11.65 ± 2.26</td>
<td>34.75</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>2</td>
<td>Post-test</td>
<td>15-22</td>
<td>0.47 ± 2.05</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Maximum Score 22, Minimum Score 0." Paired Sample T test. T = 2.02 at df = 44 and p < 0.001.
CVA patients will be significantly higher than their mean pre-test practice score as measured at p<0.05 level of significance.

Table 2 shows that the mean pre-test and post-test practice score of study participants. The mean practice score was improved from 8.82 (± 2.44) in pre-test to 20.47 (± 2.05) in post-test. The mean increase in practice score was 11.65 (± 2.25). The paired sample 't' test was performed to find the significant difference between mean pre-test practice and post-test practice scores. The calculated 't' value was 34.75, which is more than the tabulated 't' value of 2.02 (at p = 0.05 and df = 44). So the null hypothesis was rejected and research hypothesis was accepted. Thus the increase in practice score was attributed to the teaching programme provided as an intervention.

The practice score was further divided to four domains (performing back care, performing passive exercises, performing oral feeding technique, performing nasogastric feeding technique) to analyse the effectiveness in different areas of practice score. The practice scores in all the four domains were significantly higher in post-test (p<0.001). Hence, it was interpreted that the all domains of practice scores were significantly improved due to intervention.

**Association between pre-test knowledge score with selected socio-demographic variables of informal caregivers**

Knowledge score had no association with gender and educational status. The mean knowledge score of informal caregivers of patient having illness for more than three months was significantly higher (p = 0.04) than informal caregivers of patients having illness for less than three months. Hence it could be interpreted that the longer the duration of illness better the knowledge of informal caregivers.

**Association between pre-test practice score with selected socio-demographic variables of informal caregivers**

There was no significant difference in practice score between male and female (p = 0.59), below high school educated and above high school educated (p =0.22) and informal caregivers of patients having illness beyond three months and less than three months was also not associated with mean pre-test practice score.

**Correlation between post-test knowledge score with post-test practice score of informal caregivers**

There was moderate positive correlation between post-test knowledge score with post-test practice score as r =0.547, which was significant at 0.001 level.

This suggests that knowledge score and practice score was moderately correlated with each other.

**Discussion**

Majority (60%) of the informal caregivers were aged 21-38 years, mean age of informal caregivers was 37.2 years, most (51%) of informal caregivers were female. Regarding occupation, 44.4 percent of informal caregivers were house wives, 15.5 percent were govt. employees, 20 percent private employees, 4.4 percent retired from job. Regarding educational status, one-third (33.3%) of them were graduate. 51 percent of informal care givers were having one to five family members, 44.4 percent of informal caregivers were son.

These findings were supported by prospective population study of Bhattacharjee et al (2012) at Mumbai on factors affecting burden on caregivers of stroke survivors at Mumbai. The findings revealed that mean age of caregiver was 45.6 years, about 22 years younger than that of the patients 67.5 years. Most (80%) of the caregivers were females and only 20 percent were males. As for relationship to the patient, 37 percent were spouse, 25.2 percent were children, 25.2 percent were daughters-in-law and only 0.9 percent were sons-in-law, 10.8 percent were relatives (sibling, aunt, uncle and extended family members) and 0.9 percent was a maid.

**Illness profile of CVA patients**

Majority (51.1%) of the CVA patients were aged 52-65 years; mean age of patient was 61.69 years, 73.3 percent of patients were male. One-third (33.3%) were retired from govt. job, 51.1 percent diagnosed with haemorrhagic CVA and 48.9 percent diagnosed with ischaemic CVA, 44.4 percent had duration of illness less than one month. Majority (97.8%) were having hypertension and diabetes mellitus (35.6%), 84.4 percent were non-vegetarian, two- third (68.9%) were smokers, 57.8 percent had history of drinking alcohol, 71.1 percent had no family history of CVA.

These findings were supported by a study on association of hypertension (HTN) with stroke recurrence in China by Wang et al (2013). Their results showed that out of 11560 patients with ischemic stroke, 72.7 percent had HTN and 17.7 percent experienced a recurrent stroke within one year.

**Effectiveness of a teaching programme regarding home care of CVA patients on knowledge and practice of informal caregivers:** The teaching programme on home care of CVA patient was significantly effective in increasing knowledge and practice of informal
caregivers. Mean post-test knowledge score was significantly higher than that of their mean pre-test knowledge score with calculated ‘t’ value 28.96 which was significant at p<0.05 level. The post-test practice score mean was significantly higher than that of their pre-test practice score mean with calculated ‘t’ value 34.75 which was significant at p<0.05 level.

Results were supported by an experimental study by Choi et al (2006) on effectiveness of education on knowledge and practice of caregivers of the stroke patient. A non-equivalent control group non-synchronised design was used. The sample consisted of 40 primary caregivers, 20 each from experimental group and control groups. The results showed that knowledge (t=5.87, p=0.00) and practice (t=5.53, p=0.00) of the experimental group were significantly different from the control group, concluding that the stroke patient care education made a significant promotion in the knowledge and practice of caregivers.

Conclusion

The mean post-test knowledge score was higher than that of their mean pre-test knowledge score of informal caregivers on home care of CVA patients indicating that the gain in knowledge score was not by chance but because of the teaching programme. Similarly the mean post-test practice score of informal caregivers on home care of CVA patients was higher than that of their mean pre-test practice score. implying the effectiveness of the teaching programme.

It can therefore be concluded that the teaching programme was effective method for increasing the knowledge and practice of informal caregivers as cognitive changes can be brought by teaching methods.

References