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A Study to Assess the Effectiveness of Health Teaching on 'Care of Stroke Patients' among the Caregivers of Admitted Stroke Patients in a Selected Hospital, Guwahati, Assam

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Abstract: ***Background of the study: The study aims to find the effectiveness of health teaching on 'Care of Stroke Patients' among the caregivers of admitted stroke patients in a selected hospital, Guwahati, Assam. Objectives of the study: 1.To assess the effectiveness of health teaching in terms of knowledge and skills regarding care of stroke patients of the caregivers of stroke patients. 2. To assess the correlation between knowledge and skills regarding care of stroke patients of the caregivers of stroke patients. 3. To determine the association between knowledge and skills regarding care of stroke patients of the caregivers with selected sample characteristics. Method: Pre-experimental one group pre-test post-test research design and quantitative approach was carried out on 60 caregivers of admitted stroke patients in Rahman Hospitals Pvt. Ltd., Guwahati, Assam by using convenience sampling technique. Results: The findings of the study revealed that, out of 60 caregivers 35 (58.3%) of the caregivers were in the age group of 21-30 years, 39 (65.0%) of the caregivers were male, 32 (53.3%) of the caregivers belong to Hindu, majority 28 (46.7%) of the caregivers were graduate or above, 20 (33.3%) of the caregivers belong to student, 58 (96.7%) of the caregivers does not belong to health related profession, 32 (53.3%) of the caregivers belong to family income of > Rs. 15000, 36 (60.0%) of the caregivers belong to nuclear type of family, 35 (58.3%) of the caregivers were unmarried (combining sons and daughters), 26 (43.3%) of the caregivers were the patient's son, 57 (95.0%) of the caregivers did not have any other family member having stroke. Analysis data shows that highly significance difference between pre-test and post-test knowledge score and skills score of nasogastric tube feeding, back care and exercise on the level of (P<0.05). Health teaching on Care of Stroke Patients was effective in improving the knowledge and skills of caregivers of stroke patients on care of stroke patients.***

Keywords: Assess, effectiveness, health teaching, care of stroke patients, caregivers

1. Introduction

"Happiness lies, first of all, in health".

-George William Curtis

The brain is the part of the central nervous system contained within the cranium, comprising the forebrain, midbrain and hindbrain. The brain is a mass of soft, spongy, pinkish gray nerve tissue that weighs about 1.2 kg in a human being. It is connected at its base with the spinal cord, which is also the part of the central nervous system [1]. The brain controls thoughts, memory, speech and movement. It regulates and function of many organs. When the brain is healthy it works quickly and automatically. However, when problems occur, the results can be devastating. Inflammation in the brain can lead to problems such as vision loss, weakness and paralysis. Loss of brain cells, which happens when a person suffers from stroke [2].

The word 'stroke' is related to the Greek word 'apoplexia' which implies being struck with a deadly blow [3].

According to American Stroke Association stroke is the fifth leading cause of death and a leading cause of disability in the United States [4].

Stroke was defined by the World Health Organization (WHO) more than 4o years ago as "rapidly developing clinical signs of focal (or global) disturbance of cerebral function, with symptoms lasting 24 hours or longer or leading to death, with no apparent cause other than of vascular origin [5]. The risk factors for stroke are nonmodifiable (race, age, sex, low birth weight), modifiable (hypertension, dyslipidemia, diabetes, tobacco smoking, atrial fibrillation, cardiac disorder, sickle cell disease, diet and body mass index) and potential risk factors (metabolic syndrome, alcohol, drug abuse, sleep apnea, migraines, oral contraceptive use) and other environmental factors include lower education, poor economic status, tobacco, infections, body mass index (obesity, body mass index >30 kg/m2) exercise and diet etc [6].

Stroke is potentially preventable by modifying its potentially reversible risk factors. The emergence of lifestyle diseases in developing countries has resulted in a steady increase of stroke incidence [7]. Its incidence is increasing because the population ages. In addition, more young people are affected by stroke in low- and middle-income countries. Ischemic stroke is more frequent but hemorrhagic stroke is responsible for more deaths and disability-adjusted life-years lost. Incidence and mortality of stroke differ between countries, geographical regions, and ethnic groups. In high-income countries mainly, improvements in prevention, acute treatment, and neuro rehabilitation have led to a substantial decrease in the burden of stroke over the past 30 years [8].

2. Methodology

The objective is to assess the effectiveness of health teaching in terms of knowledge and skills regarding care of stroke patients of the caregivers of stroke patients and to assess the correlation between knowledge and skills regarding care of

stroke patients of the caregivers of stroke patients and also to determine the association between knowledge and skills regarding care of stroke patients of the caregivers with selected sample characteristics.

Research approach adopted for the study was quantitative approach with pre-experimental one-group pre-test post-test design. The study was conducted in Rahman Hospitals Pvt. Ltd., Guwahati for a period of one month. A total of 60 caregivers of admitted stroke patients were selected by using non-probability convenient sampling technique. The data were collected by using sample characteristics, self-structured knowledge questionnaire regarding care of stroke patients and technique used was paper and pencil.

Formal permission was obtained from the concerned authorities of Rahman Hospitals Pvt Ltd. The data was collected from 25th March 2020 to 31st April 2020 from 60 caregivers of admitted stroke patients at Rahman Hospitals Pvt Ltd. The samples were selected by non-probability convenient sampling technique. The purpose of the study was explained to the participants and informed consent was taken from them. On the first day pre-test was conducted by using self-structured knowledge questionnaire regarding care of stroke patients and assessment of the skill based on the random selection of the procedure by the caregiver (20 each) by using lottery method (nasogastric tube feeding/ back care /exercise was done by using an observation checklist of nasogastric tube feeding, back care and exercise. On the same day a health teaching on care of stroke patients was given by using lecture cum discussion and demonstration for the duration of 45 minutes. On 8th day post-test was conducted by using the same self-structured knowledge questionnaire to assess the knowledge of caregivers regarding care of stroke patients and assessment of the same skill which the sample has done in the pre-test skill assessment (nasogastric tube feeding/ back care /exercise) was done by using an observation checklist.

Plan for data analysis: (1) Descriptive statistics: Collected data will be analyzed by descriptive statistics such as frequency, percentage, mean, median, standard deviation. **(2)Inferential Statistics:** The effectiveness of health teaching on knowledge and skills regarding care of stroke patients of the caregivers will be tested by using paired 't' test. The correlation between knowledge and skills regarding care of stroke patients of the caregiver of stroke patients will be tested using Karl Pearson's coefficient correlation. The association between knowledge and skills regarding care of stroke patients of the caregiver with selected sample characteristics can be tested by χ^2 test.

3. Results

Section - 1: Description of frequency and percentage distribution of sample characteristics of caregivers of stroke patients.

Table 1: Frequency and percentage distribution of sample characteristics of caregivers of stroke patients
n = 60

Sample Characteristics	Group	Frequency (f)	Percentage (%)
Age in year	21-30 Years	35	58.3%
	31-40 Years	13	21.7%
	41-50 Years	7	11.7%
	51-60 Years	5	8.3%
Gender	Male	39	65.0%
	Female	21	35.0%
Religion	Christian	6	10.0%
	Hindu	32	53.3%
	Muslim	22	36.7%
	Christian	6	10.0%
Educational status	Non-formal	4	6.7%
	Upto HSLC	7	11.7%
	HSSLC	21	35.0%
	Graduate or above	28	46.7%
Occupation	Business	11	18.3%
	Service	15	25.0%
	Housewife	9	15.0%
	Student	20	33.3%
	Farming	1	1.7%
	Daily Wager	4	6.7%
Health related profession	Yes	2	3.3%
	No	58	96.7%
Family income	< Rs. 5000	3	5.0%
	Rs. 5001 – Rs. 10000	11	18.3%
	Rs. 10001 – Rs. 15000	14	23.3%
	> Rs. 15000	32	53.3%
Type of family	Nuclear	36	60.0%
	Joint	23	38.3%
	Extended	1	1.7%
Marital status	Married	25	41.7%
	Unmarried	35	58.3%
Relationship with the family	Husband	4	6.7%
	Wife	5	8.3%
	Son	26	43.3%
	Daughter	13	21.7%
	Nephew	5	8.33%
	Daughter-in-law	3	5%
	Son-in-law	4	6.66%
Any other family member having stroke	Yes	3	5.0%
	No	57	95.0%

The data in table 1 shows that majority 35 (58.3%) of the caregivers belong to the age group of 21-30 years. About the gender, majority 39 (65.0%) of the caregivers were female. In terms of religion, majority 32 (53.3%) of the caregivers belong to Hindu. Regarding the educational status, majority 28 (46.7%) of the caregivers were graduate or above. Regarding occupation majority 20 (33.3%) of the caregivers belong to student. In relation to health related profession, majority 58 (96.7%) of the caregivers does not belong to health related profession. About family income, majority 32 (53.3%) of the caregivers belong to family income of > Rs. 15000.With respect to the type of family, majority 36 (60.0%) of the caregivers belong to nuclear type of family. About the marital status, majority 35 (58.3%) of the caregivers were unmarried (combining sons and daughters). Regarding the relationship with the patient, majority 26 (43.3%) of the caregivers were the patient's son. On the basis of family with history of stroke, majority 57 (95.0%) of the caregivers did not have any other family member having stroke.

Section II: Comparison of pre-test and post-test knowledge regarding care of stroke patients of the caregiver of stroke patients by frequency, percentage, mean, median, standard deviation and standard error.

Table 2: Frequency and Percentage Distribution of Pre-Test and Post-Test Level of Knowledge of caregivers of stroke patient n =60

S No.	Level of Knowledge	Score	Pre-Test		Post-Test	
			Frequency	Percentage	Frequency	Percentage
1	Poor	0 – 13	50	83.3%	0	0%
2	Average	14 – 20	10	16.7%	14	23.3%
3	Good	21 – 26	0	0	46	76.7%

Data presented in table 2 indicates that majority 50 **(**83.3%) of the caregivers of stroke patients had poor knowledge, 10 (16.7%) of the caregivers had average knowledge and none of the caregivers had good knowledge in pre-test whereas in post-test, none of the caregivers had poor knowledge, 14 (23.3%) of the caregivers had average knowledge and majority 46 (76.7%) of the caregivers had good knowledge.

Table 3: Comparison between mean, median, standard deviation and standard error of pre-test and post-test knowledge score of caregivers on care of stroke patients, n = 60

Knowledge score	Range	Mean	Median	Standard deviation	Standard error
Pre test knowledge	7 – 16	11.50	12	2.48	0.32
Post test knowledge	16 – 26	22.38	23	2.75	0.35

The data presented in table 3 indicates that the mean post-test knowledge score of caregivers (22.38) was higher than the mean pre-test knowledge score of caregivers (11.50) of care of stroke patients. The median post-test knowledge score of caregivers (23) also showed higher than median pre-test knowledge score of caregivers (12) and the post-test score (SD = 2.75) was higher than the pre-test score (SD = 2.48). The standard error of pre-test was 0.32 and for post-test was 0.35. So it is evident that post-test knowledge score of caregivers were higher than the pre-test knowledge score of caregivers.

Section II.b: Comparison of pre-test and post-test skills regarding care of stroke patients of the caregiver of stroke patients by frequency, percentage, mean, median, standard deviation and standard error.

Table 4: Frequency and percentage distribution of pre-test and post-test level of skill on nasogastric tube feeding of caregivers of stroke patients, n = 20

Sl No.	Level of Skill	Score	Pre-Test		Post-Test	
			Frequency	Percentage	Frequency	Percentage
1	Poor	≤50%	17	85%	0	0%
2	Average	>50-75%	3	15%	3	15%
3	Good	> 75 - 100%	0	0%	17	85%

Data presented in table 4 indicates that in relation to skill of nasogastric tube feeding, majority 17 **(**85%) of the caregivers of stroke patients had poor skill, three (15%) of the caregivers had average skill and none of the caregivers had good skill in pre-test, whereas in post-test none of the caregivers had poor skill, three (15%) of the caregivers had average skill and majority 17 (85%) of the caregivers had good skill.

Table 5: Comparison between mean, median, standard deviation and standard error of pre-test and post-test skill score of nasogastric tube feeding of caregivers of stroke patients, n = 20

Skill score	Range	Mean	Median	Standard deviation	Standard error
Pre test skill	7 – 13	8.95	9	1.88	0.42
Post test skill	14– 21	17.75	18	1.99	0.44

The data presented in table 5 indicates that the mean post-test skill score of nasogastric tube feeding of caregivers (17.75) was higher than mean pre-test skill score of caregivers (8.95) of care of stroke patients. The median post-test knowledge score of nasogastric tube feeding of caregivers (18) also showed higher than median pre-test knowledge score of caregivers (9) and the post-test score of nasogastric tube feeding of caregivers (SD = 1.99) was higher than the pre-test score (SD = 1.88). The standard error of pre-test score of nasogastric tube feeding of caregivers was 0.42 and for post-test was 0.44. So it is evident that post-test skill score of nasogastric tube feeding of caregivers were higher than the pre-test skill score of nasogastric tube feeding of caregivers of stroke patients.

Table 6: Frequency and percentage distribution of pre-test and post-test level of skills on back care of caregivers of stroke patients, n = 20

Sl No.	Level of Skill	Score	Pre-Test		Post-Test	
			Frequency	Percentage	Frequency	Percentage
1	Poor	≤50%	18	90%	0	0%
2	Average	>50-75%	2	10%	3	15%
3	Good	>75-100%	0	0%	17	85%

Data presented in table 6 indicates that in related to skill of back care, majority 18 (90%) of the caregivers of stroke patients had poor skill, two (10%) of the caregivers had average skill and none of the caregivers had good skill in pre-test, whereas in post-test none of the caregivers had poor skill, three (15%) of the caregivers had average skill and majority 17 (85%) of the caregivers had good skill.

Table 7: Comparison between mean, median, standard deviation and standard error of pre-test and post-test skill score of back care of caregivers of stroke patients, n = 20

Skill score	Range	Mean	Median	Standard deviation	Standard error
Pre test skill	6 – 13	8.85	8.5	2.06	0.46
Post test skill	15– 25	20.15	20	2.60	0.58

The data presented in table 7 indicates that the mean post-test skill score of back care of caregivers (20.15) was higher than

mean pre-test skill score of caregivers (8.85) of care of stroke patients. The median post-test knowledge score of back care of caregivers (20) also showed higher than median pre-test knowledge score of caregivers (8.5) and the post-test score of back care of caregivers (SD = 2.60) was higher than the pre-test score (SD = 2.06). The standard error of pre-test score of back care of caregivers was 0.46 and for post-test was 0.58. So it is evident that post-test skill score of back care of caregivers were higher than the pre-test skill score of back care of caregivers.

Table 8: Frequency and percentage distribution of pre-test and post-test level of skill on exercise of caregivers of stroke patients, n = 20

Sl No.	Level of Skill	Score	Pre-Test		Post-Test	
			Frequency	Percentage	Frequency	Percentage
1	Poor	≤50%	17	85%	0	0%
2	Average	>50-75%	3	15%	4	20%
3	Good	>75-100%	0	0%	16	80%

Data presented in table 8 indicates that in related to skills of exercise, majority 17 **(**85%) of the caregivers of stroke patients had poor skill, three (15%) of the caregivers had average skill and none of the caregivers had good skill in pre-test, whereas in post-test none of the caregivers had poor skill, four (20%) of the caregivers had average skill and majority 16 (80%) of the caregivers had good skill.

Table 9: Comparison between mean, median, standard deviation and standard error of pre-test and post-test skill score of exercise of caregivers of stroke patients, n = 20

Skill score	Range	Mean	Median	Standard deviation	Standard error
Pre test skill	18 – 42	26.70	25	6.96	1.55
Post test skill	50– 78	66.60	66.5	7.80	1.74

The data presented in table 9 indicates that the mean post-test skill score of exercise of caregivers (66.60) was higher than the mean pre-test skill score (26.70) of care of stroke patients. The median post-test knowledge score of exercise of caregivers (66.5) also showed higher than median pre-test knowledge score of caregivers (25) and the post-test score of exercise of caregivers (SD = 7.80) was higher than the pre-test score (SD = 6.96). The standard error of pre-test score of exercise of caregivers was 1.55 and for post-test was 1.74. So it is evident that post-test skill score of exercise of caregivers were higher than the pre-test skill score of exercise of caregivers.

Section II.c: Effectiveness of health teaching on knowledge and skills regarding care of stroke patients of the caregiver of stroke patients before and after health teaching. The knowledge and skills regarding care of stroke patients of the caregiver of stroke patients before and after health teaching was compared by using paired 't' test.

Table 10: t –test table of pre-test and post-test knowledge score of care of stroke patients of the caregivers of stroke patients, n = 60

Knowledge score	Standard error mean	't' value	df	p-value
Pre test	0.32	65.35	59	<.000**
Post test	0.35			

***Significant at P<0.05*

Table 10 depicts that the calculated 't' value was 65.35 which was more than the tabulated value 2.00 (df=59) at p<0.05. Hence the null hypothesis was rejected and research hypothesis was accepted which shows that health teaching on care of stroke patients was effective in improving the knowledge of caregivers on care of stroke patients.

Table 11: t –test table of pre-test and post-test skill score of nasogastric tube feeding among the caregivers of stroke patients, n = 20

Skill score	Standard error mean	't' value	df	p-value
Pre test	0.42	17.22	19	<.000**
Post test	0.44			

*****Significant at P<0.05***

Table 11 depicts that the calculated 't' value was 17.22 which was more than the tabulated value 2.09 (df=19) at p<0.05. Hence the null hypothesis was rejected and research hypothesis was accepted which shows that health teaching on care of stroke patients was effective in improving the skill of caregivers on nasogastric tube feeding.

Table 12: t –test table of pre-test and post-test skill score of back care among the caregivers of stroke patients, n = 20

Skill score	Standard error mean	't' value	df	p-value
Pre test	0.46	19.92	19	<.000**
Post test	0.58			

***Significant at P<0.05*

Table 12 depicts that the calculated 't' value was 19.92 which was more than the tabulated value 2.09 (df=19) at p<0.05. Hence the null hypothesis was rejected and research hypothesis was accepted which shows that health teaching on care of stroke patients was effective in improving the skill of caregivers on back care.

Table 13: t –test table of pre-test and post-test skill score of exercise among the caregivers of stroke patient, n = 20

Skill score	Standard error mean	't' value	Df	p-value
Pre test	1.55	23.82	19	<.000**
Post test	1.74			

***Significant at P<0.05*

Table 13 depicts that the calculated 't' value was 23.82 which was more than the tabulated value 2.09 (df=19) at p<0.05. Hence, the null hypothesis was rejected and research hypothesis was accepted which shows that health teaching on care of stroke patients was effective in improving the skill of caregivers on exercise.

Section III: Correlation between knowledge and skills regarding care of stroke patients of the caregiver of stroke patients

Table 14: Correlation between pre-test knowledge on nasogastric tube feeding and pre-test skill score of caregivers on care of nasogastric tube feeding, n = 20

Pre Score	Mean	SD	*r*	*P*-value
Knowledge	11.30	2.40	0.78	.000*
Skill	8.95	1.88		

* - ***Significant at P<0.05***

The data presented in table 14 shows that there was a highly significant positive correlation between pre-test knowledge of nasogastric tube feeding of caregivers of stroke patients and pre-test skill score of nasogastric tube feeding of caregivers of stroke patients (r = 0.78) which was statistically significant at 0.05 level of significance. Thus, research hypothesis was accepted and null hypothesis was rejected. Therefore it can be inferred that there was a significant correlation between nasogastric tube feeding knowledge of caregivers and nasogastric tube feeding skill of caregivers.

Table 15: Correlation between pre-test knowledge on back care and pre-test skill score of caregivers on care of back care, n = 20

Pre Score	Mean	SD	*r*	*P*-value
Knowledge	11.45	2.35	0.82	.000*
Skill	8.85	2.06		

* - *Significant at P<0.05*

The data presented in table 15 shows that there was a highly significant positive correlation between pre-test knowledge of back care of caregivers of stroke patients and pre-test skill score of back care of caregivers of stroke patients (r = 0.82) which was statistically significant at 0.05 level of significance. Thus, research hypothesis was accepted and null hypothesis was rejected. Therefore it can be inferred that there was a significant correlation between back care knowledge of caregivers and back care skill of caregivers.

Table 16: Correlation between pre-test knowledge on exercise and pre-test skill score of caregivers on care of exercise, n = 20

Pre Score	Mean	SD	r	P-value
Knowledge	11.75	2.78	0.76	.000*
Skill	26.70	6.96		

* - *Significant at P<0.05*

The data presented in table 16 shows that there was a highly significant positive correlation between pre-test knowledge of exercise of caregivers of stroke patients and pre-test skill score of exercise of caregivers of stroke patients (r = 0.76) which was statistically significant at 0.05 level of significance. Thus, research hypothesis was accepted and null hypothesis was rejected. Therefore it can be inferred that there was a significant correlation between exercise knowledge of caregivers and exercise skill of caregivers.

Section IV: Association between knowledge and skills regarding care of stroke patients of the caregiver with selected sample characteristics.

Table 17: Chi square test showing the association of pre-test knowledge score on Care of Stroke Patients of caregivers of stroke patients with selected sample characteristics,n = 60

Sample characteristics	Groups	Pre Knowledge		Chi Square	df	P value
		Poor	Average			
Age	21-30 Years	29	6	1.73	3	7.81 NS
	31-40 Years	11	2			
	41-50 Years	5	2			
	51-60 Years	5	0			
Gender	Male	32	7	0.13	1	3.84 NS
	Female	18	3			
Educational status	Non-formal	3	1	0.34	3	7.81 NS
	Upto HSLC	6	1			
	HSSLC	18	3			
	Graduate or above	23	5			
Occupation	Business	10	1	6.61	5	11.07 NS
	Service	12	3			
	Housewife	7	2			
	Student	17	3			
	Farming	0	1			
	Daily wager	4	0			
Health related profession	Yes	1	1	1.65	1	3.84 NS
	No	49	9			
Family income	< Rs. 5000	3	0	3.56	3	7.81 NS
	Rs. 5001 – Rs. 10000	10	1			
	Rs. 10001 – Rs. 15000	13	1			
	> Rs. 15000	24	8			
Type of family	Nuclear	29	7	0.61	2	5.99 NS
	Joint	20	3			
	Extended	1	0			
Marital status	Married	21	4	0.01	1	3.84 NS
	Unmarried	29	6			
Any other family member having stroke	Yes	3	0	0.63	1	3.84 NS
	No	47	10			

NS - Not Significant at 0.05 level of significance

The data presented in table 17 shows that there was no significant association of pre-test knowledge score on care of stroke patients of caregivers with selected sample characteristics at 0.05 level of significance. Hence the research hypothesis was rejected and null hypothesis was accepted. Therefore it can be concluded that the pre-test knowledge on care of stroke patient of caregivers of stroke patient is independent of their sample characteristics.

Table 18: Chi square test showing the association of pre-test skill score on nasogastric tube feeding of caregivers with selected sample characteristics, n = 20

Sample characteristics	Groups	Pre Skill		Chi Square	df	P value
		Poor	Average			
Age	21-30 Years	13	2	6.40	2	5.99 S
	31-40 Years	4	0			
	41-50 Years	0	1			
	51-60 Years	0	0			
Gender	Male	12	3	1.17	1	3.84 NS
	Female	5	0			
Educational status	Non-formal	1	1	2.67	3	7.81 NS
	Upto HSLC	2	0			
	HSSLC	4	1			
	Graduate or above	10	1			
Occupation	Business	3	1	8.23	5	11.07 NS
	Service	3	1			
	Housewife	2	0			
	Student	8	0			
	Farming	0	1			
Family income	Rs. 5001 – Rs. 10000	4	1	1.96	2	5.99 NS
	Rs. 10001 – Rs. 15000	7	0			
	> Rs. 15000	6	2			
Type of family	Nuclear	14	2	0.39	1	3.84 NS
	Joint	3	1			
Marital status	Married	6	1	0.00	1	3.84 NS
	Unmarried	11	2			
Any other family member having stroke	Yes	1	0	0.18	1	3.84 NS
	No	16	3			

S- Significant at 0.05 level of significance NS - Not Significant at 0.05 level of significance

The data presented in table 18 shows that there was no significant association of pre-test skill score of nasogastric tube feeding of caregivers with selected sample characteristics with respect of gender, educational status, occupation, family income, type of family, marital status and any other family member having stroke but there was significant association of pre-test skill score of nasogastric tube feeding with selected sample characteristics with respect of age at 0.05 level of significance. Hence the research hypothesis was rejected and null hypothesis was accepted. Therefore it can be concluded that the pre-test skill score of nasogastric tube feeding of caregivers of stroke patient is independent of their sample characteristics.

Table 19: Chi square test showing the association of pre-test skill score on back care of caregivers with selected sample characteristics, n=20

Sample characteristics	Groups	Pre Skill		Chi Square	df	P value
		Poor	Average			
Age	21-30 Years	8	1	0.60	3	7.81 NS
	31-40 Years	6	1			
	41-50 Years	2	0			
	51-60 Years	2	0			
Gender	Male	12	1	0.22	1	3.84 NS
	Female	6	1			
Educational status	Non-formal	1	0	0.55	3	7.81 NS
	Upto HSLC	3	0			
	HSSLC	7	1			
	Graduate or above	7	1			
Occupation	Business	5	0	3.33	4	9.48 NS
	Service	5	0			
	Housewife	2	1			
	Student	5	1			
	Farming	1	0			
Health related profession	Yes	1	0	0.11	1	3.84 NS
	No	17	2			
Family income	< Rs. 5000	2	0		3	7.81 NS
	Rs. 5001 – Rs. 10000	3	0			

	Rs. 10001 – Rs. 15000	5	1	0.86		
	> Rs. 15000	8	1			
Type of family	Nuclear	9	1	0.12	2	5.99 NS
	Joint	8	1			
	Extended	1	0			
Marital status	Married	7	1	0.09	1	3.84 NS
	Unmarried	11	1			
Any other family member having stroke	Yes	2	0	0.24	1	3.84 NS
	No	16	2			

NS - Not Significant at 0.05 level of significance

The data presented in table 20 shows that there was no significant association of pre-test skill score of back care of caregivers with selected sample characteristics at 0.05 level of significance. Hence the research hypothesis was rejected and null hypothesis was accepted. Therefore it can be concluded that the pre-test skill score of back care of caregivers of stroke patient is independent of their sample characteristics.

Table 20: Chi square test showing the association of pre-test skill score on exercise of caregivers with selected sample characteristics, n = 20

Sample characteristics	Groups	Pre Skill		Chi Square	df	P value
		Poor	Average			
Age	21-30 Years	10	1	3.72	3	7.81 NS
	31-40 Years	1	1			
	41-50 Years	4	0			
	51-60 Years	2	1			
Gender	Male	9	2	0.19	1	3.84 NS
	Female	8	1			
Educational status	Non-formal	0	1	9.10	3	7.81 S
	Upto HSLC	1	1			
	HSSLC	8	0			
	Graduate or above	8	1			
Occupation	Business	2	0	1.04	4	9.48 NS
	Service	5	1			
	Housewife	3	1			
	Student	5	1			
	Farming	2	0			
Health related profession	Yes	1	0	0.18	1	3.84 NS
	No	16	3			
Family income	< Rs. 5000	1	0	1.17	3	7.81 NS
	Rs. 5001 – Rs. 10000	2	1			
	Rs. 10001 – Rs. 15000	1	0			
	> Rs. 15000	13	2			
Type of family	Nuclear	9	1	0.39	1	3.84 NS
	Joint	8	2			
Marital status	Married	8	2	0.39	1	3.84 NS
	Unmarried	9	1			

S- Significant at 0.05 level of significance NS - Not Significant at 0.05 level of significance

The data presented in table 20 shows that there was no significant association of pre-test skill score of exercise of caregivers with selected sample characteristics with respect of age, gender, occupation, health related profession, family income, type of family and marital status but there was significant association of pre-test skill score of exercise with selected sample characteristics with respect of educational status at 0.05 level of significance. Hence the research hypothesis was rejected and null hypothesis was accepted. Therefore it can be concluded that the pre-test skill score of exercise of caregivers of stroke patient is independent of their sample characteristics.

4. Summary

- Majority 35 (58.3%) of the caregivers belong to the age group of 21-30 years.
- Majority 39 (65.0%) of the caregivers were female.
- Majority 32 (53.3%) of the caregivers belong to Hindu.
- Near half 28 (46.7%) of the caregivers were graduate or above.
- More than one third 20 (33.3%) of the caregivers belong to student.
- Most 58 (96.7%) of the caregivers does not belong to health related profession.
- Majority 32 (53.3%) of the caregivers belong to family income of > Rs. 15000.
- Majority 36 (60.0%) of the caregivers belong to nuclear type of family.
- Majority 35 (58.3%) of the caregivers were unmarried (combining and sons and daughters).
- Near half 26 (43.3%) of the caregivers were the patient's son.

- Most 57 (95.0%) of the caregivers did not have any other family member having stroke.

5. Recommendations

- A similar study can be replicated with a control group.
- The study can be conducted on the basis of assessing knowledge, attitude and practice.
- A study can be done to assess the needs of the caregivers regarding care of stroke patients.
- The study can be replicated on a large scale for wider generalizations.

6. Conclusion

From the findings of the present study, it can concluded that health teaching on care of stroke patients was effective in increasing the knowledge and skills among the caregivers of stroke patients. It is important for the health personnel to take initiatives in educating caregivers of stroke patients regarding care of stroke patients to reduce the morbidity and mortality among stroke patients.

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