Effectiveness of Structured Teaching Programme on Risk Factors and Primary Prevention of Stroke among Patients with Diabetes Mellitus

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Abstract

Stroke is an important cause of morbidity and mortality, and is an economic burden. Diabetes is an important modifiable risk factor for stroke. Patients with diabetes have a higher incidence of stroke and a poorer prognosis after stroke. An experimental approach was adopted in the present study. A self-administered knowledge questionnaire was prepared and used to assess the level of knowledge of patients with diabetes mellitus regarding risk factors and primary prevention of stroke. Data were collected from 60 patients using non probability convenience sampling. Descriptive and inferential statistics were used for data analysis, the level of significance set at 1% and 5%.The post test mean knowledge score of patients with diabetes mellitus in experimental group who received STP in significantly higher than their pre-test knowledge score as evidenced from paired't' test value of 10.13, degree of freedom t (29) at 0.05 level of significance. The mean gain in post knowledge scores of patients in experimental group is significantly higher than the control group as evidenced from independent't' value of 15, df (58) at 0.05.There is significant association of pre-test knowledge scores with demographic variables such as education (χ^2 – value = 9.16df = 1) p< 0.05 level in the experimental group.There is significant association of pre-test knowledge scores with demographic variables such as education (χ^2 – value = 9.16df = 1) p< 0.05 level in the experimental group.The study has indicated that it is the responsibility of the health personnel to provide teaching programme to the patients who are at risk for developing stroke to reduce its occurrence.

Keywords: Structured teaching programme; Diabetes mellitus; Primary prevention; Stroke.

Background of the Study

Stroke is a global epidemic and an important cause of morbidity and mortality. It ranks next to cardiovascular disease and cancer as a cause of death. Stroke is a non-communicable disease of increasing socioeconomic importance in ageing population. Stroke occurs when there is ischemia to a part of brain or hemorrhage into the brain that results in death of brain cells. Functions such as movement, sensation, or emotions that were controlled by the affected area of the brain are lost or impaired. The severity of the loss of function varies according to the location and extent of the brain involved.[1,2,3] According to WHO, stroke was the second commonest cause of worldwide mortality in 1990 and the third commonest cause of mortality in more developed countries; it was responsible for about 4.4 million deaths worldwide. In the recent estimates made in 1999, the number of deaths due to stroke reached 5.54 million worldwide, with two-thirds of these deaths occurring in developed countries. Stroke is also a major cause of long-term disability and has potentially enormous emotional and socioeconomic consequences for patients, their families and health services. The case fatality rate due to stroke is reported to vary from 11.7% to 32.4%.[2,4]

Statement of the Problem

A study to evaluate the effectiveness of structured

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teaching programme on risk factors and primary prevention of stroke among patients with diabetes mellitus in selected hospital in Bangalore.

The Objectives of the Study

1) assess the knowledge regarding risk factors and primary prevention of stroke among patients with diabetes mellitus in experimental and control group in terms of pretest.
2) compare the knowledge scores regarding risk factors and primary prevention of stroke among patients with diabetes mellitus in experimental and control group in terms of post test.
3) determine the association of knowledge scores of patients with diabetes mellitus regarding risk factors and primary prevention of stroke with their selected demographic variables.

Conceptual or Theoretical Framework

The study is based on system theory by Von Bertanlanffy.The present study was focused on evaluating the effectiveness of structured teaching programme on risk factors and primary prevention of stroke among patients with diabetes mellitus.This model consists of three phases – input, process/ throughput and output.In the present study, the input refers an evaluation of effectiveness of structured teaching programme regarding risk factors and primary prevention of stroke among patients with diabetes mellitus. Process/ Through Output refer to administration of structured teaching programme regarding risk factors and primary prevention of stroke among patients with diabetes mellitus.Output refers to the administration of post-test leading to significant gain in knowledge of patients with diabetes mellitus regarding risk factors and primary prevention of stroke indicating adequate knowledge or no significant gain in knowledge of patients with diabetes mellitus regarding risk factors and primary prevention of stroke.

Research Methodology

Research Approach

The research approach adopted for the present study is an evaluative research approach. The evaluative approach was used for the study aimed at evaluating the effectiveness of structured teaching programme on risk factors and primary prevention of stroke among patients with diabetes mellitus.

Research Design

The research design adopted for this study was non-equivalent control group pre-test post-test design (quasi experimental). On day 1, structured knowledge questionnaire was used to assess the knowledge of patients with diabetes mellitus regarding risk factors and primary prevention of stroke for control group. On the 7th day post test was administered to control group and pre-test and structured teaching programme for experimental group. Subsequently pre test was conducted using structured knowledge questionnaire for experimental group. On the 7th day post test will be conducted using the same structured knowledge questionnaire.

Variables

- *Independent Variable:* structured teaching programme on risk factors and primary prevention of stroke.
- *Dependent Variable:* knowledge regarding risk factors and primary prevention of stroke among patients with diabetes mellitus in selected hospital of Bangalore.
- *Other Variables:* age, education, occupation, religion, dietary habits, type of family, Presence of risk factors such as Hypertension, Cardiac Diseases, Physical activity, Consumption of illicit drugs, alcoholism and smoking, Previous exposure to health teaching on risk factors and primary prevention of stroke and previous exposure to mass media and teaching programme on risk factors and primary prevention of stroke.

Setting of the Study

The study was conducted at K. C. General Hospital Bangalore.

Population of the Study

The population for the present study comprised of patients who are diagnosed to have diabetes mellitus and got admitted in selected hospital of Bangalore.

Sample and Sampling Criteria

The sample for study consists of 60 patients who are diagnosed with diabetes mellitus with 30 each in experimental group and control group from selected hospital in Bangalore.

Sampling Technique

Non- probability convenience sampling technique was adopted for the study.

Sampling Criteria

Inclusion Criteria

- Patients who are willing to participate.
- Patients who can comprehend Kannada and English.

Exclusion Criteria

- Patients who are not willing to participate.
- Patients who cannot comprehend Kannada and English.

Data Collection Technique

SKQ to assess the knowledge of diabetes mellitus patients regarding risk factors and primary prevention of stroke.

Development of Structured Teaching Programme

STP on risks factors and primary prevention of stroke among patients with diabetic mellitus for improving the knowledge of patients with diabetic mellitus on risks factors and primary prevention of stroke.

Content Validity

The STP and SKQ were submitted to 6 experts in the field of nursing and one physician. They were requested to give their opinions and suggestions regarding the items in the tool. There was 100% agreement from all experts on all times (Annexure-VII).

Reliability

The reliability was established through split half method by administering to 10 patients with diabetes mellitus at K. C. General Hospital, Malleswaram. The reliability of the SKQ was obtained by computing Karl Pearson's Correlation formula and spearman's Brown formulae which was found to be 0.82. This indicated that tool was reliable.

Pilot Study

A Pilot study was conducted at K. C. General Hospital, Malleswaram after getting approval from Medical Superintendent. 10 samples were selected as per sampling technique, 5 in each control and experimental groups.

Data Collection Procedure

On day 1, knowledge was pre-tested by administering the SKQ for control group. On day 7 the post test was administered to control group and pre-test and STP on risk factors and primary prevention of stroke among patients with diabetes mellitus for experimental group. On day 14, post test was administered by using the same SKQ for experimental group.

Plan of Data Analysis

Data was planned to be analysed by using descriptive and inferential statics. The analysis was

Table1:Frequency and Percentage Distribution of Patients with Diabetes Mellitus according to Demographic Variables

n= 30

Sl No	Demographic Variables	Experimental Group n= 30		Control Group n= 30		Total	
		f	%	f	%	f	%
1	**Age in years**						
	a) 35-45 years	10	33.33	9	30	19	31.67
	b) 46-55 years	16	53.34	14	46.67	30	50
	c) Above 56 years	4	13.33	7	23.33	11	18.33
2	**Education**						
	a) Illiterate	5	16.67	6	20	11	18.33
	b) Primary School	5	16.67	6	20	11	18.34
	c) High School	10	33.33	8	26.67	18	30
	d) Degree	5	16.67	6	20	11	18.33
	e) Post Graduate	5	16.67	4	13.33	9	15
3	**Occupation**						
	a) Agriculture	10	33.33	9	30	19	31.67
	b) Business	6	20	8	26.67	14	23.33
	c) Govt Employee	8	26.67	7	23.33	15	25
	d) Others	6	20	6	20	12	20
4	**Religion**						
	a) Hindu	19	63.33	17	56.67	36	60
	b) Muslim	9	30	9	15	18	30
	c) Christian	2	6.67	4	13.33	6	10
5	**Dietary Habits**						
	a) Vegetarian	14	46.67	12	40	26	43.33
	b) Non Vegetarian	10	33.33	11	36.67	21	35
	c) Mixed Diet	6	20	7	23.33	13	21.67
6	**Type Of Family**						
	a) Nuclear Family	14	46.67	17	56.67	31	51.67
	b) Joint Family	16	53.33	13	43.33	29	48.33
7	**Presence of Risk Factors**						
	a) Hypertension	8	26.67	9	30	17	28.33
	b) Cardiac Diseases	3	10	3	10	6	10
	c) Physical Activity	12	40	10	33.33	22	36.67
	d) Alcoholism & Smoking	7	23.33	8	26.67	15	25
	e) Consumption of illicit drugs	0	0	0	0	0	0
8	**Previous Exposure to Health Teaching on risk factors and primary prevention of stroke**						
	a) Yes	5	16.67	3	10	8	3.33
	b) No	25	83.33	27	90	52	86.67
9	**Previous exposure to mass media on risk factors and primary prevention of stroke**						
	a) Yes	9	30	10	33.33	19	31.67
	b) No	21	70	20	66.67	41	68.33

planned on the basis of objectives and hypothesis.

Analysis

Characteristics of the Demographic Variables

Findings in the present study shows that, in the experimental group 16 (53.34%) maximum samples were in the age group of 46-55 years and in control group 14 (46.67%) maximum samples were in the age group of 46-55 years (Fig 1). In experimental group maximum samples 20 (66.67%) and control group maximum samples 20(66.67%) were educated up to high school (Fig 2). In experimental group, patients with diabetes mellitus 10 (33.33%) and in control group maximum 9 (30%) were doing

Figure 1:Percentage Distribution of Patients with Diabetes Mellitus According to their Age

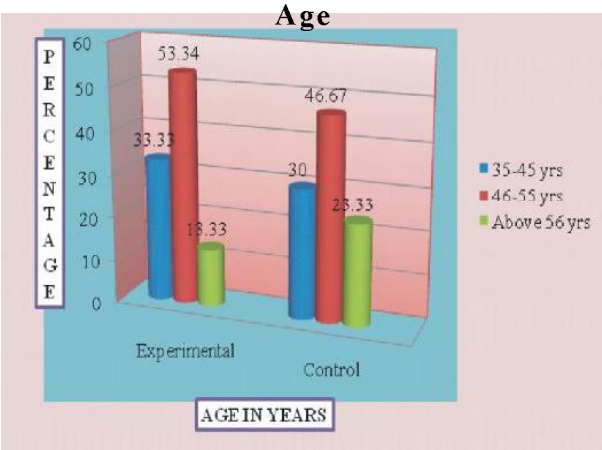


Figure 2: Percentage Distribution of Patients with Diabetes Mellitus According to their Education

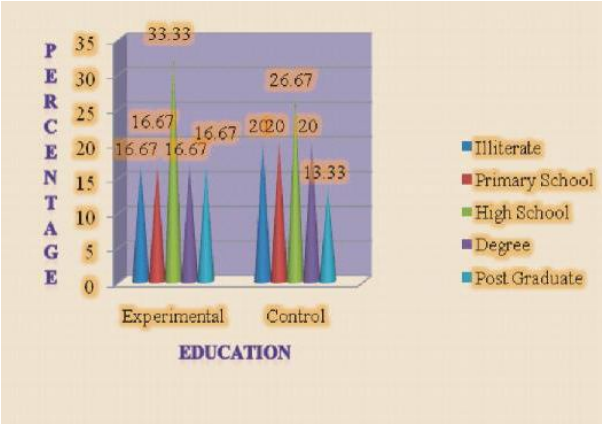
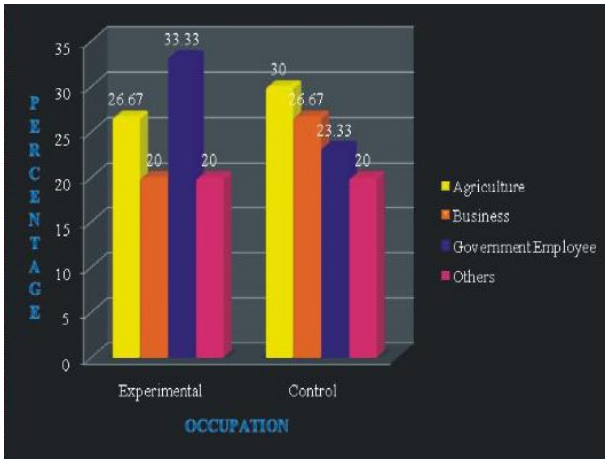


Figure 3 : Percentage Distribution of Patients with Diabetes Mellitus According to their Occupation

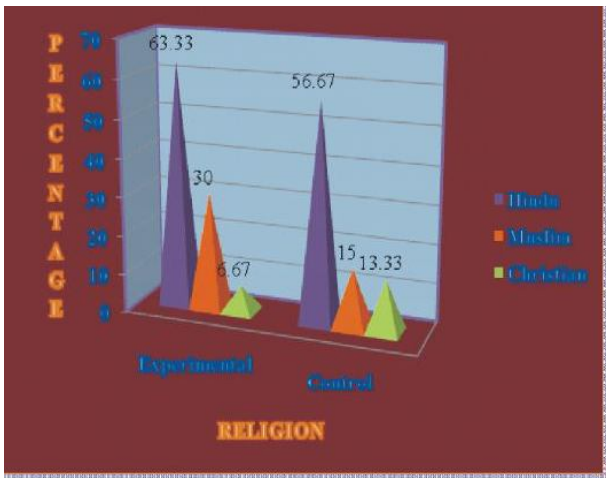


agriculture(Fig 3).Maximum samples 19 (63.33%) in experimental group and 17 (56.67%) in control group were belonging to Hindu religion (Fig 4). And considering the presence of risk factors shows that maximum samples 8(26.67%) in experimental and 9(30%) in control group were having hypertension. In both experimental and control group maximum samples 14 (46.67%), 12 (40%) respectively were vegetarians (Fig 5). In experimental group 16 (53.33%) belongs to joint family and in control group 17 (56.67%) belongs to nuclear family. In experimental group maximum samples 25(83.33%) and 27 (90%) in control group were not exposed to any health teaching programme. In experimental group 21 (70%) were not exposed to mass media and in control group 20 (66.67%) were not exposed to mass media on risk factors and primary prevention of stroke among patients with diabetes mellitus.

The first objective was to assess the knowledge regarding risk factors and primary prevention of stroke among patients with diabetes mellitus in experimental and control group in terms of pre-test.

The pre-test knowledge scores of patients with diabetes mellitus on risk factors and primary prevention of stroke ranged from 16-31 in experimental group and 10-31 in control group. The mean pre-test knowledge scores were 24.6 with standard deviation 5.05 in experimental group and

Figure 4: Percentage Distribution of Patients with Diabetes Mellitus According to Religion

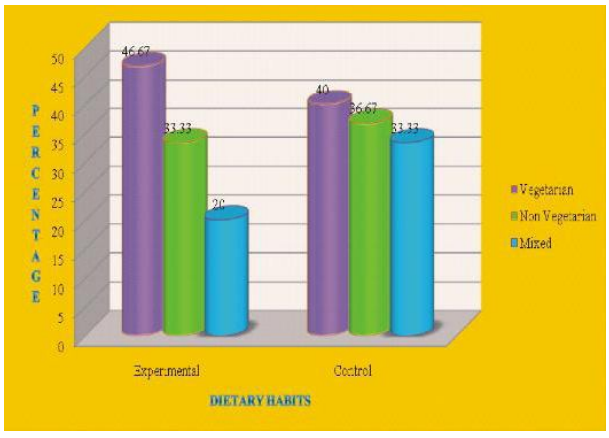


the mean pre-test score was 24.3 with standard deviation 5.8 in control group.

The second objective was to compare the knowledge scores regarding risk factors and primary prevention of stroke among patients with diabetes mellitus in experimental and control group in terms of post-test

In the current study, the post test knowledge scores ranged from 28-37 in experimental group, 13-32 in control group. The mean post-test knowledge score was 32.7 with standard deviation 3.01 and median of 34 in experimental group and mean post-test knowledge score was 24.7 with standard deviation 5.7 and median of 24 in control group.

Figure 5: Percentage Distribution of Patients with Diabetes Mellitus According to Dietry Habits



The post test mean knowledge score of patients with diabetes mellitus in experimental group who received STP in significantly higher than their pre-test knowledge score as evidenced from paired 't' test value of 10.13, degree of freedom t (29) at 0.05 level of significance. Mean gain in post knowledge scores of patients with diabetes mellitus in experimental group is significantly higher than the control group as evidenced from independent't' value of 15, df(58) at 0.05 level of significance.

This indicates that there is gain in knowledge scores among patients with diabetes mellitus who underwent STP on risk factors and primary prevention of stroke. Thus STP is an effective strategy to improve the knowledge of patients with diabetes mellitus.

The third objective was to determine the association of knowledge scores of patients with diabetes mellitus regarding risk factors and primary prevention of stroke with their selected demographic variables.

There was no significant association found at 0.05 levels between pre-test knowledge scores of patients with diabetes mellitus and their selected personal variables were not significant at 0.05 level in the experimental group.

The demographic variable that is education alone had showed significant association with pre-test knowledge scores of patients with diabetes mellitus. Hence, the research hypothesis stated as H2: "There will be a significant association of knowledge with selected demographic variables of patients with diabetes mellitus" was accepted.

But in control group, the obtained chi – square value computed between the of pre-test knowledge scores of patients with diabetes mellitus and their selected demographic variables were not significant at 0.05 level.

Conclusion

This study evaluated the effectiveness of STP on

risk factors and primary prevention of stroke among patients with diabetes mellitus. The analysis of findings indicated that STP was effective in increasing the knowledge of patients with diabetes mellitus on risk factors and primary prevention of stroke as evidenced from the computed paired 't' test, which was significant at 0.05 level of significance. This study gave the evident that, through STP knowledge of patients with diabetes mellitus regarding health related behaviour can be improved.

Implications

The investigator has drawn the following implications from the studies, which are of vital concern to the field of nursing service, nursing education, nursing administration and nursing research.

Nursing Practice

- Nurses should play a major role in effective teaching about risk factors and primary prevention of stroke at right time by having adequate knowledge and skill.
- Nurses are the resource persons working in the hospital should impart education especially on risk factors and primary prevention of stroke among patients with diabetes mellitus..
- Self-explanatory posters and charts regarding risk factors and primary prevention of stroke can be displayed in the public areas.

Nursing Education

- The student nurses from School of Nursing and College of Nursing should be encouraged to attend specialized courses and seminars on primary prevention of stroke.
- Health exhibition can be conducted which includes charts, posters etc.
- Nurses need to take role as a motivator, facilitator, educator, counsellor, advocator, change agent and researcher.

Nursing Administration

- The nurse administrator should formulate policies, protocols, guidelines and system of care in collaboration with the multi-disciplinary team.
- Nurse administrator ensures professional practice with evidence based research which is clinically effective.

Nursing Research

- This study will serve as a valuable reference material for future investigators.
- Dissemination of findings through conferences and professional journals will make the application of research findings to be effective.
- Keywords: Effectiveness, structured teaching programme, Knowledge, patients with diabetes mellitus, risk factors and primary prevention of stroke.

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