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"A Study To Assess The Effectiveness Of Structured Teaching Program Regarding Type-2 Diabetes Mellitus Among Nursing Students In Selected Nursing Colleges Bareilly, (U.P)"

Dr. Rajendra Kumar Sharma[1], Mr. Rohit Singhania[2]

Gangasheel School of nursing Bareilly

ABSTRACT

The present study was conducted to assess the effectiveness of a structured teaching program regarding type-2 diabetes mellitus among nursing students in selected nursing colleges in Bareilly, Uttar Pradesh. In the present study, an evaluative approach was selected. One group pre and post-test design was adopted. The Structured Knowledge Questionnaire was developed to collect the data. The sample size of 60 among nursing students, selected by a simple random sampling technique and the data collected were analysed and interpreted based on descriptive and inferential statistics. As a result, the overall knowledge score of students revealed that a majority of student nurses, 83.3%, had moderate knowledge, 13.33% had inadequate knowledge, and only 3.33% students had adequate knowledge. The pre-test analysis revealed that most of them had some knowledge about type 2 diabetes mellitus. During post-test analysis, it was found that most of them scored in the category of adequate knowledge and post test score mean was 21.96, and the mean difference of pre-test and post-test was 7.38. post-test assessment significant difference ($p<0.05$) was found between pre-test and post-test score was demonstrated by using 't' test; it was found that the structured teaching program was effective.

Keywords- structured teaching program, structured teaching program, nursing students, Structured Knowledge Questionnaire.

INTRODUCTION

Background of the Study

The term diabetes mellitus is made up of two words – Diabetes is derived from greek word meaning "to pass" or "to flow like a snake"; mellitus is derived from the Latin word meaning "sweet" combined this word diabetes mellitus mean "passing of sweet urine[1]"

The term "type 2 dm" was formally distinguished and described in the context of modern medicine by Harold Himsworth in 1905- 1993, A British Physician and researcher who made significant contributions to understanding Diabetes, including distinguishing between Insulin – Sensitive and Insulin – Insensitive Type of Diabetes, which laid ground work for the modern classification of type 1 and type 2 diabetes. Diabetes Mellitus is a group of metabolic diseases in which a defect in insulin secretion or action results

in high blood sugar (Hyperglycaemia). Approximately 1.31 billion people in the world have diabetes mellitus[3].

In Type 2 DM (formally called adult-onset DM, non-insulin dependent DM or NIDDM), some insulin is still made by the pancreas, but in inadequate amounts. Sometimes the amounts of insulin are normal or even high, but the tissue is resistant to it and hyperglycaemia results[4].

With type 2 DM, a chronic condition that affects the way the body processes blood sugar, and the persons are suffered from hyperglycaemia, then they might experience Polydipsia, Polyuria, Polyphagia, Glycosuria, Nocturia, Dehydration, Obesity, Fatigue, Blurred vision, Abdominal Pain, Headache. Type 2 DM is a complex, multifactorial disease resulting from a combination of genetic and environmental factors. The primary mechanisms involved are insulin resistance and beta cell dysfunction, for instance, insulin resistance, pancreatic beta cell dysfunction, impaired insulin secretion, genetic predisposition, lifestyle factors, and environmental factors.

Other Contributing Factors: Age, Prediabetes, Gestational Diabetes (GDM)

Other Medical Conditions: High B.P., Low HDL, PCOS, Depression, Sleep Quality and Quantity, Environmental Chemicals, Gut Microbiota[6.] International diabetes federation (IDF) diabetes atlas (latest data available referenced as 2024/2025), approximately 589 million adults (20-79 years) are living with diabetes globally. Over 90% of these cases are T2DM. The IDF projects this number to increase to 853 million by 2050[7].

NEED FOR THE STUDY

Diabetes is a multisystem disease related to abnormal insulin production, impaired insulin utilization or both. It has emerged as one of the most challenging public health problems in the 21st century. It currently affects over 366 million people worldwide, and this figure is likely to double by 2030. The greatest burden of this condition is felt in low and middle- income countries. And this nation accounts for about 80% of all cases of diabetes. When the disease affects these individuals and if not properly controlled, it may lead to lifelong complication which are generally associated with increased morbidity and mortality.[12]

For instance, poorly controlled T2DM can cause damage to the eyes (leading to blindness), kidneys (leading to renal failure), and the nerves (leading to impotence and foot disorder / possibly amputation) as well as increased risk of heart disease, stroke and poor blood supply to the limbs.[13]

Most of the complications are not only irreversible, but they are also costly to manage as they generally require management in specialised centres with sophisticated infrastructure and equipment, well-trained staff and potent medication. Since most of these specialized centres are not available in many community settings, patient education

becomes a central component in the prevention and control of this disease in the community. Such education should lead to diet modification, increased physical exercise and lifestyle changes, including the promotion of weight loss.[14]

These educational programs should help people assess their risk of t2dm motivate them to seek proper treatment and care, and inspire them to take charge of their disease.[15]

A descriptive study was conducted to assess the knowledge of nursing students regarding T2DM in selected nursing colleges in Bareilly. Structured teaching program of T2DM have been documented in many developing countries; very few studies have been done in nursing colleges. Consequently, this study sets out to assess the effectiveness of a structured teaching program regarding T2DM among nursing students in selected nursing colleges in Bareilly. Assessing the knowledge of nursing students regarding T2DM is crucial for several compelling reasons.[16]

OBJECTIVES

1) To Assess the Pre-Test Level Knowledge Regarding Type2Diabetes Mellitus Among Nursing Students.
2) To Assess Post-Test Level Knowledge Regarding Type 2 Diabetes Mellitus Among Nursing Students in Selected Nursing Colleges in Bareilly.
3) To Assess Effectiveness on Structured Teaching Programme on Type 2 Diabetes Mellitus by Comparing Pre-Test Post-Test Knowledge Score.
4) To Find the Association Between Pre-Test Knowledge Score and Selected Demographic Variables.

HYPOTHESIS

H1: There Is a Significant Increase in the Knowledge Level of Students Regarding T2DM And Its Management After Administration of STP.
H2: There is a Significant Association Between Pre-Test Knowledge Score and Their Selected Socio-Demographic Variable.

REVIEW OF LITERATURE

The review of literature is organised under the following headings

SECTION 1: Review of literature regarding knowledge and awareness about Type 2 diabetes mellitus
SECTION 2: Review of literature related to the effectiveness of the teaching programme.

SECTION 3: Review of literature related to the prevalence of diabetes mellitus.

SECTION 4: Review of literature related to self-care management of diabetes mellitus.

To conducted study on the awareness of diabetic patient about their illness and associated complications in Ethiopia. A total of 118 diabetic patients were included in the study. Among the respondents, 70 [59.33%] were males, and 30[25.42%] were in the age group of 40 to 49 years. The majority, 90 [76.27%] of the respondents were literate, of which 30 [25.42%] had completed grade 9-12 and 16 [13.56%] respondents completed grade 12. majority 53 [44.92%] of respondents did not know the type of diabetes they had those who knews,40 [33.90%] were type 2 and 25 [21.2%] were type 1 among respondents 85 [72.03%] patient has knowledge about acute complication will 80 [67.80%] patient knew chronic complication they concluded that most diabetic patient have good knowledge on action to be taken on occurrence of acute complication and reason for development of acute complication but health education should be given regularly to update patient with disease.[25]

A randomised controlled study on a structured teaching program of older patients with diabetes mellitus with 155 geriatric patient the result of the study show that there was an improved level of haemoglobin in 6 months after diabetes treatment and teaching program (DTTP), and fewer acute complications than the study group and good self-management of diabetes. The diabetes education program focused on the learning capabilities and the particular needs of older persons is effective in improving metabolic control and in maintaining autonomy in geriatric patients with diabetes mellitus.[33]

A study was conducted to estimate the prevalence of diabetes mellitus in rural areas of Hublitaluk, Karnataka, India, and to assess the associated risk factors. One village was randomly selected in the taluk. FBS was recorded, and the WHO criteria were used for diagnosis. Results depict that 15.6% are known diabetics and 84.4% were non-diabetics. According to IDRS risk scores, 6.4% Subjects belonged to the low-risk category, 34.9% belong to the medium-risk category, and 58.7% belonged to the high-risk category. 11% of people were underweight, 40.4% were normal, 22% were overweight, 22.9% were pre obese, and 3.7 percent are obese. 8.3% had impaired glucose tolerance, and 14.7% had impaired fasting glucose. There was a significant difference in the mean FBS values and mean IDRS risk score of normal subjects, pre diabetics and diabetics on the ANOVA test. The study concludes that the total prevalence of diabetes in the study was 22%. There was a significant relationship between the family history of diabetes among diabetics and non-diabetics.[37]

Methodology

Research approach: A Quantitative research approach was used regarding Type-2 Diabetes Mellitus Among Nursing Students in Selected Nursing Colleges in Bareilly.

Research design:

A pre-experimental one group pre and post-test design is used in the study.

Dependent variables: Structure Teaching Program on Type 2 Diabetes Mellitus.

Independent variables: Knowledge Regarding the Type-2 Diabetes Mellitus

Population size: 60 students

Sample – nursing students selected a nursing college.

Sampling technique

Non-probability, purposive sampling technique was used to select the sample.

Selection and development of the tool

An instrument in a research study is the device used to collect the data. Based on the objectives of the study, a structured knowledge questionnaire was prepared in order to assist the knowledge of nursing students regarding T2DM.

SCORING TECHNIQUE

The structure knowledge questionnaire consisted of 30 objective-type questions Single correct answer. Every correct answer was awarded a score of one (1), and every incorrect/unanswered answer was awarded zero (0). The maximum score on the structured knowledge questionnaire was thirty (30).

LEVEL OF KNOWLEDGE	SCORE
ADEQUATE	21-30(60-100%)
MODERATE	11-20(30-60%)
INADEQUATE	0-10(0-30%)

ANALYSIS AND INTERPRETATION

The tool selected for the study was a structured questionnaire, which consisted of two sections- Section 1 and Section 2

Section I: distribution of sample characteristics according to demographic variables of nursing students.
Section II. Analysis and interpretation of knowledge scores of nursing students regarding type 2 diabetes mellitus

Table 1- Frequency and percentage distribution of nursing students according to Demographic variables. N=60

SI. No	Demographic variables	Frequency	Percentage (%)
1	**Age (in years)**		
	a) 18-20 years	48	80%
	b) 21-23 years	11	18.33%
	c) 23 and above	01	1.66%
2	**Gender**		
	a) Male	25	41.6%
	b) Female	35	58.3%
	c) Transgender	00	00%
3	**Educational status of Student**		
	a) B.Sc. nursing	60	100%
	b) Post B.Sc.	00	00%
	c) GNM	00	00%
	d) ANM	00	00%
4	**Religion**		
	a) Hindu	46	76.66%
	b) Muslim	08	13.33 %
	c) Christian	04	6.66%
	d) Sikh	02	3.33%
5	**Total Monthly Income (family)**		
	a) Below 15 thousand	10	16.6%
	b) 16-20	06	10%
	c) 21-25	11	18.3%
	d) Above 26	33	55%
6	**Area of residence**		
	a) Urban	32	53.3%
	b) Rural	27	45%
	c) Slum	01	1.66%
7	**Type of Family**	35	58.3%
	a) **Nuclear**	25	41.6%
	b) **Joint**	00	00%
	c) **Single Mother**	00	00%
	d) **Divorce**		
8	**Sources of information about t2DM**	17	28.3%
	a) **Multimedia**	02	3.33%
	b) **Friends**	15	25%
	c) **Family**	26	43.3%
	Health care centre		

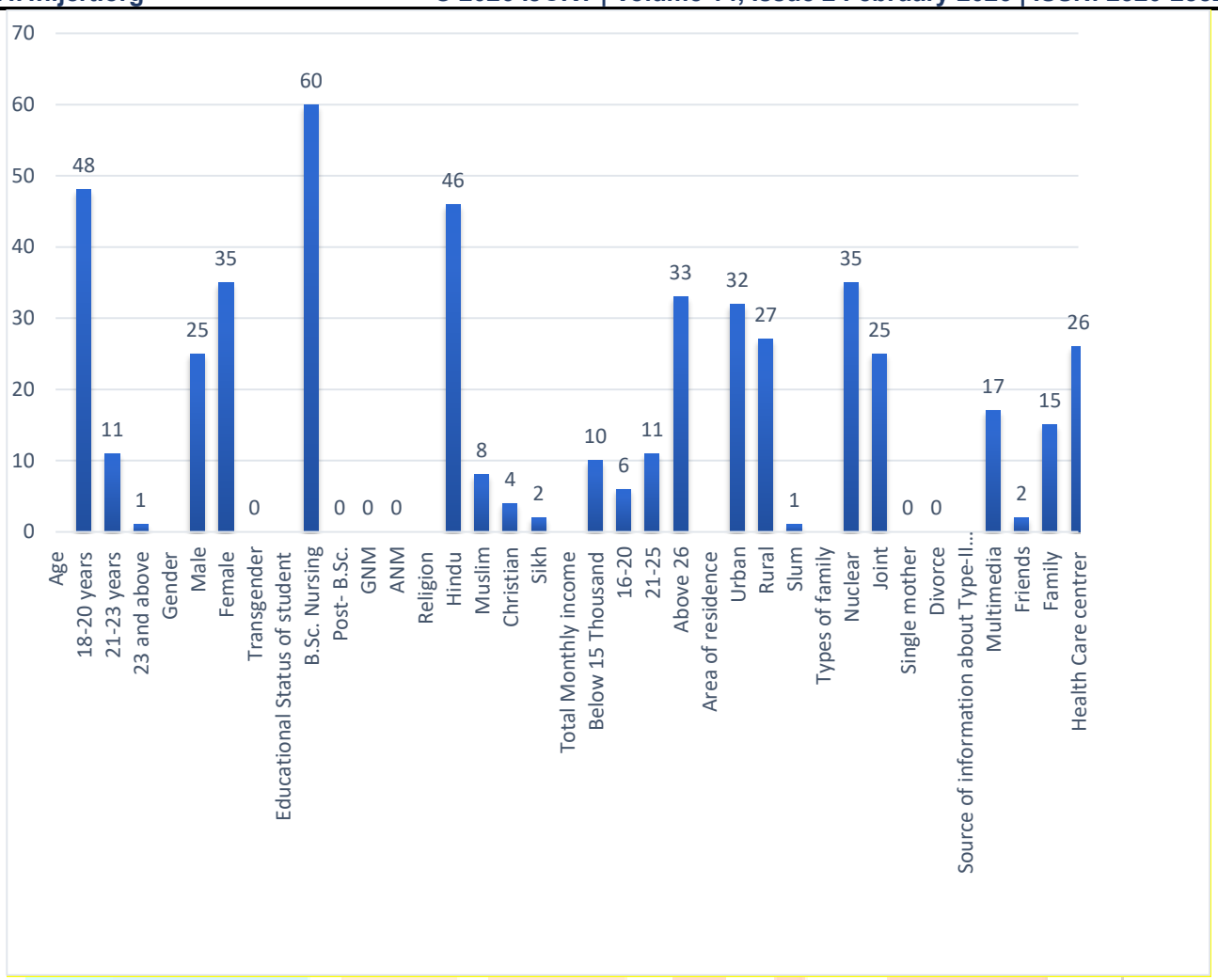
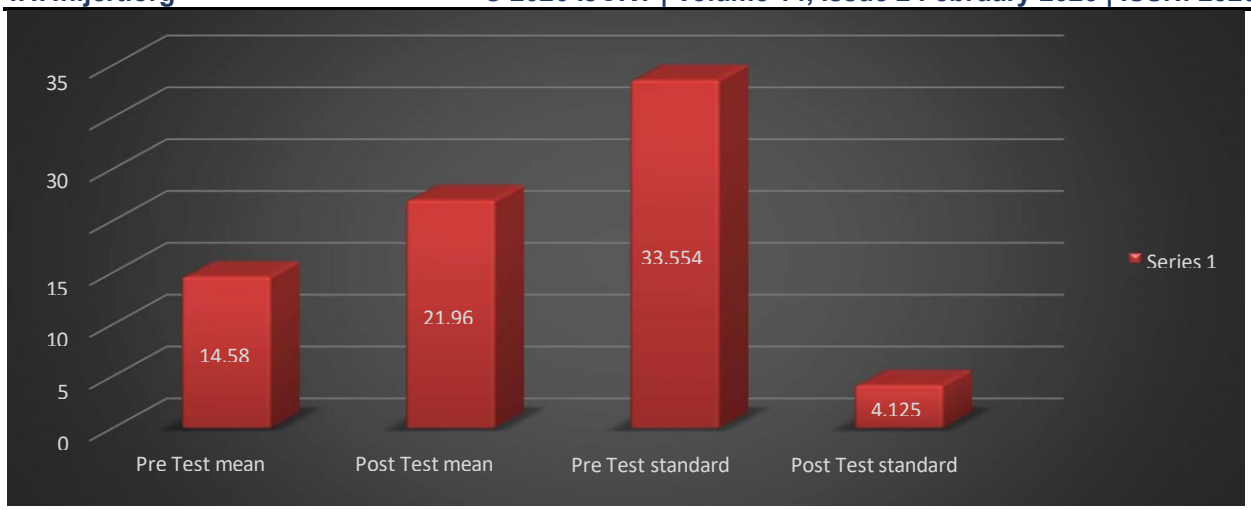


Table - Frequency and percentage distribution

Table 2: Mean difference, standard deviation, and 't' value for the pre-test and post-test knowledge scor of higher secondary nursing students regarding T2DM.

Sr. No	Knowledge of nursing students	Mean	SD	Mean differences	Mean percentage (%)	t value
1.	Pre-test score	14.58	3.554	7.38	48.61%	10.54
2.	Post-test score	21.96	4.125		73.22%	

Df49=2.00 at p<0.05 **Significant**



Discussion :

Major findings

The major findings of the study were discussed under the following sections:

1. Frequency Percentage Distribution of the Demographic Characteristics of Samples.
2. Existing Knowledge of the Higher Nursing Students Regarding Type 2 Diabetes Mellitus
3. Effectiveness of the Structured Teaching Program on Type 2 Diabetes Mellitus
   Association Between Knowledge Scores of Nursing Students Regarding Type 2 Diabetes Mellitus and Selected Demographic Variables

CONCLUSION

Based on finding the study below side conclusion was drawn. It also brings out the limitations of the study in the picture.

The pretest knowledge score was lower among higher nursing students. After the structured teaching program, the knowledge score increased. So, it is effective.

The focus of this study was to assess the effectiveness of a structured teaching program on the level of knowledge regarding type 2 diabetes mellitus among nursing students in selected nursing colleges in Bareilly (u. p.)" Pre experiment (one-group pre-test post-test) design and an evaluation approach were used in the study. The data was collected from 60 samples through the purposive sampling technique.

The Tata collected bars were subjected to analysis using descriptive statistics in terms of frequencies, percentage and inferential statistics like chi-square to find the association.

A total of 60 nursing student but participate in the it was revealed that the majority, 48 (80%), belong to the age group 18-20 years, 11 (18.3%) belong to the age group of 21-23 years, and 01 (1.6%) belongs to 23 and above.

The majority, 35 (58.3%) of the samples were females, and the remaining 25 (26.6%) were males. Majority 60 (100%) of the samples were B.Sc. nursing 4th semester students.

The majority, 46 (76.6%) of the samples belong to the Hindu Religion, followed by 09 (15%) Muslim students, 04(6.6%) of Christian students and 02 (3.33%) of Sikh students.

Majority nurses' students' 33(55%) total family income was above 26 thousand, 11(18.3%) were 21-25 thousand, 10(16.6%) were below 15 thousand, 06 (10%) were 16-20 thousand.

The majority of nursing students, 32 (53.3%), were from urban area while 27 (45%) were from rural areas, and 01 (1.6%) were from slum areas.

The majority of nursing students, 35(58.3%), were from a nuclear family, while 25

(41.6%) were from a joint family, 00 (0%) from a single mother and 00 (0%) from a divorce. Majority number nurses' students (26, 43.3%), source of information regarding T2DM from Health care centre, 17(28.3%) from Multimedia, 15(25%) from family, 02 (3.33%) from friends.

The overall mean pre-test knowledge score obtained by the subjects was 14.58, with a standard deviation of 7.679 indicates average knowledge.

The overall mean post-test knowledge score was 21.96, with a standard deviation of 4.125, which reveals the improvement in the knowledge.

The total differences in the mean of overall knowledge score were 7.38 with the 't' value of and found to be significant at the level of $p<0.05$.

There was a statistically significant association between the knowledge score of nursing students with demographic variables such as age, educational qualification and family income at the probability level $p< 0.05$.

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