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A Study To Assess The Effectiveness Of Structured Teaching Programme (Stp) On Knowledge And Attitude Of Self-Care Among Patients With Diabetes Mellitus At Selected Hospitals In Tumkur

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ABSTRACT

Background and Objectives:

Diabetes mellitus is a chronic metabolic disorder that requires effective self-care practices to prevent complications and improve quality of life. This study was conducted to assess the effectiveness of a structured teaching programme (STP) on knowledge and attitude regarding self-care among patients with diabetes mellitus at a selected hospital in Tumkur. The study was undertaken in partial fulfillment of the requirements for the degree of Master of Science in Nursing at Aruna College of Nursing, Tumkur.

The objectives of the study were:

1. To assess the level of knowledge regarding self-care among patients with diabetes mellitus.
2. To assess the attitude towards self-care among patients with diabetes mellitus.
3. To evaluate the effectiveness of a structured teaching programme on knowledge and attitude regarding self-care among patients with diabetes mellitus.

Methods:

A quasi-experimental one-group pre-test and post-test research design was adopted for the study. The population comprised patients with diabetes mellitus aged between 35 and 64 years. A sample of 60 diabetic patients attending the outpatient department of a selected hospital in Tumkur was selected using a simple random sampling technique. Data were collected using a structured knowledge questionnaire and an attitude scale. The pre-test was conducted, followed by the administration of the structured teaching programme on the same day. The post-test was conducted one week after the pre-test using the same tools. Data were analyzed using descriptive and inferential statistics.

Results:
In the pre-test, 51 (85%) patients had inadequate knowledge and 9 (15%) had moderately adequate knowledge regarding self-care. Regarding attitude, 55 (91.7%) patients had an inadequate attitude and 5 (8.3%) had an adequate attitude towards self-care.
In the post-test, 56 (93%) patients demonstrated adequate knowledge and 4 (7%) showed moderately adequate knowledge. Post-test attitude assessment revealed that 45 (75%) patients had an adequate attitude, while 15 (25%) had a moderately adequate attitude towards self-care activities.
The paired *t* test indicated that the structured teaching programme was statistically significant in improving knowledge and attitude at the $p < 0.001$ level. The chi-square test showed a significant association ($p < 0.05$) between post-test knowledge and marital status, and between post-test attitude and family monthly income.

Conclusion:
The findings of the study revealed a significant improvement in both knowledge and attitude regarding self-care among patients with diabetes mellitus after the administration of the structured teaching programme. The study concludes that structured teaching programmes are effective in enhancing self-care knowledge and attitude among diabetic patients and can be used as an important educational intervention in clinical settings.

Keywords: Diabetes mellitus; self-care activities; knowledge; attitude; structured teaching programme; diabetic patients.

INTRODUCTION

Diabetes mellitus is a chronic multisystem metabolic disorder characterized by abnormal insulin secretion, impaired insulin action, or a combination of both, resulting in hyperglycemia. It is one of the most serious and rapidly increasing public health problems worldwide, contributing significantly to morbidity, mortality, and healthcare costs[1].

Diabetes mellitus is not a modern disease. Historical records indicate that as early as 1500 B.C., ancient Egyptian manuscripts described conditions associated with excessive urination. In 1000 B.C., the Indian physician Sushruta recognized and described diabetes based on the sweetness of urine. Later, in 1798, the Greek physician John Rollo identified the association between diabetes and elevated blood glucose levels. A major milestone in the management of diabetes was the discovery of insulin by Banting and Best in 1921, which revolutionized the treatment and prognosis of the disease[2].

World Diabetes Day is the primary global awareness campaign aimed at increasing knowledge and understanding of diabetes mellitus. It is observed annually on 14th November, commemorating the birthday of Sir Frederick Banting, who co-discovered insulin along with Charles Best. World Diabetes Day was officially introduced by the International Diabetes Federation and the World Health Organization to emphasize prevention, care, and management of diabetes[3].

Lifestyle factors play a crucial role in the development and progression of diabetes mellitus. The theme for World Diabetes Day 2014, “Fight obesity, prevent diabetes,” highlighted the strong association between unhealthy lifestyle practices and the increasing burden of diabetes. A healthy lifestyle, including balanced nutrition, regular physical activity, and weight management, is essential for preventing and controlling diabetes[3].

In individuals with type 2 diabetes, particularly those who are obese, a cluster of metabolic abnormalities such as hyperglycemia, hyperinsulinemia, dyslipidemia, and hypertension often coexist. This metabolic syndrome significantly increases the risk of cardiovascular diseases, including coronary artery disease and stroke, and is further exacerbated by obesity[3].

Rapid urbanization, industrialization, and technological advancements have drastically altered lifestyle patterns, especially among younger populations. In India, genetic predisposition combined with sedentary lifestyles, unhealthy dietary habits, obesity, and physical inactivity has led to an alarming rise in type 2

diabetes among young adults and even adolescents below 30 years of age. These factors play a major role in the early onset of diabetes mellitus[3].

Diabetes mellitus is often referred to as an "iceberg disease," as a large proportion of cases remain undiagnosed. Globally, both the prevalence and incidence of type 2 diabetes have increased substantially, particularly in developing and newly industrialized countries undergoing economic transition. The global diabetic population was estimated to be around 150 million, and this number is projected to double by the year 2025, with the greatest increase expected in countries such as India and China[4].

The rising prevalence of diabetes in developing countries is closely linked to socioeconomic development and lifestyle changes. It is estimated that approximately 20% of the world's diabetic population resides in the South-East Asian region. The number of individuals with diabetes in this region is expected to increase from about 30 million to nearly 80 million by 2025[4].

India shows an increased susceptibility to diabetes mellitus, with prevalence rates of approximately 2.4% in rural populations and 4.0%–11.6% in urban populations. Studies have also reported a high prevalence of impaired glucose tolerance, ranging from 3.6% to 9.1%, indicating a significant potential for a further rise in diabetes cases in the coming decades[4].

Age-specific prevalence rates consistently demonstrate an increase in diabetes mellitus with advancing age. In the South-East Asian region, the proportion of the population aged 30 years and above is projected to rise from 37.2% in 1995 to 41.9% by 2025. This demographic shift is expected to result in a corresponding increase in diabetes cases among older adults, particularly in urban areas, emphasizing the need for preventive strategies, health education, and promotion of self-care practices[4].

METHODOLOGY

Research Approach

- An **evaluation research approach** was adopted to assess the effectiveness of a structured teaching programme (STP) on self-care among diabetic patients.

Research Design

- **Quasi-experimental one-group pre-test and post-test design** was used.
- Design layout:
  - **O_1** – Pre-test (Knowledge and Attitude)
  - **X** – Structured Teaching Programme
  - **O_2** – Post-test (Knowledge and Attitude)

Variables

- **Independent Variable:** Structured Teaching Programme (STP)
- **Dependent Variables:** Knowledge and attitude regarding self-care
- **Demographic Variables:** Age, sex, marital status, education, occupation, family income, religion, and source of information

Study Setting

- Diabetic outpatient clinics of:
  - Aruna Hospital, Tumkur
  - Prithvi Hospital, Tumkur

Population

- Diabetic patients attending outpatient clinics of selected hospitals in Tumkur.

Sample and Sampling Technique

- **Sample size:** 60 diabetic patients
  - 40 from Aruna Hospital
  - 20 from Prithvi Hospital
- **Sampling technique:** Simple random sampling

Inclusion Criteria

- Patients aged **35–64 years**
- Both male and female patients
- Willing and cooperative participants
- Able to understand **English or Kannada**
- Attending outpatient diabetic clinics

Exclusion Criteria

- Patients unwilling to participate
- Patients with severe illness or associated complications
- Patients included in the pilot study
- Patients below 35 years or above 64 years

Tool for Data Collection

- **Structured interview schedule**, consisting of three parts:
  - **Part I:** Demographic variables
  - **Part II:** Knowledge questionnaire (30 items)
  - **Part III:** Attitude scale (5-point Likert scale with 20 statements)

Scoring and Interpretation

- **Knowledge:**
  - <50% – Inadequate
  - 51–75% – Moderately adequate
  - 75% – Adequate
- **Attitude:**
  - <50% – Adequate attitude
  - 51–75% – Inadequate attitude
  - 75% – Most inadequate attitude

Validity and Reliability

- **Content validity** established by experts in nursing and medicine
- **Reliability:**
  - Knowledge questionnaire: **0.896**
  - Attitude scale: **0.891** (Split-half method)

Structured Teaching Programme (STP)

- Topics included:
  - General information on diabetes
  - Diet
  - Exercise
  - Medication/insulin administration
  - Self-monitoring of blood glucose
  - Foot care
- Teaching methods:
  - Lecture-cum-discussion
  - Demonstration
- Teaching aids:
  - Charts, flip charts, pamphlets, real food items
- Duration:
  - One session of **1 hour**
- STP translated into **Kannada**

Pilot Study

- Conducted in January–February 2021
- Findings showed improvement in post-test scores
- Study found to be **feasible**

Protection of Human Subjects

- Approval obtained from institutional research committee
- Permission taken from hospital authorities
- Informed consent obtained from participants
- Confidentiality maintained

Data Collection Procedure

- **Duration:** 15 February 2021 to 30 March 2021
- **Pre-test:** Conducted using interview schedule
- **STP:** Administered on the same day
- **Post-test:** Conducted after **7 days** using the same tool

Plan for Data Analysis

- Descriptive statistics: Frequency, percentage, mean, and standard deviation
- Inferential statistics:
  - **Paired t-test** to compare pre- and post-test scores
  - **Chi-square test** to determine association with demographic variables

RESULTS

The data were collected from 60 patients with diabetes mellitus and analyzed using descriptive and inferential statistics to assess the effectiveness of a structured teaching programme (STP) on knowledge and attitude regarding self-care activities.

Demographic Characteristics

The majority of participants were aged 45–54 years (43.3%), followed by 55–64 years (31.7%). More than half of the respondents were males (56.7%), and most were married (63.3%). Regarding education, 41.7% had primary education, while 11.7% had college-level education. The majority of participants were

Hindus (71.7%). Occupationally, 28.3% were employed. About 30% of participants had a monthly family income between Rs. 1001–2010. Media sources such as television and radio were the main source of information about diabetes for 36.7% of the participants.

Pre-test Knowledge and Attitude

Before the intervention, the overall mean knowledge score was **13.25 ± 2.85** out of 30 (44.16%), indicating inadequate knowledge regarding self-care activities. The lowest mean knowledge scores were observed in the areas of exercise and diet.
The mean pre-test attitude score was **32.73 ± 4.81** out of 80 (40.91%), reflecting an inadequate attitude toward diabetes self-care.

In terms of levels, 85% of participants had inadequate knowledge and 15% had moderately adequate knowledge. Regarding attitude, 91.7% showed an undesirable attitude, while only 8.3% demonstrated a desirable attitude in the pre-test.

Post-test Knowledge and Attitude

Following the structured teaching programme, a marked improvement was observed. The overall mean post-test knowledge score increased to **24.30 ± 1.42** (81.1%). Component-wise analysis showed the highest post-test knowledge scores in general information (84%) and diet (81%), while exercise had the lowest score (78%).
The mean post-test attitude score improved to **63.53 ± 4.07** (79.1%), indicating a desirable attitude toward self-care activities.

After the intervention, 93.3% of participants achieved adequate knowledge and 6.7% had moderately adequate knowledge. In terms of attitude, 75% demonstrated a highly desirable attitude and 25% showed a desirable attitude.

Effectiveness of Structured Teaching Programme

The paired *t* test revealed a highly significant improvement in both knowledge and attitude after the intervention. The overall *t* value for knowledge was **42.51**, and for attitude was **57.84**, which was statistically significant at **p < 0.001**. This confirms the effectiveness of the structured teaching programme in improving knowledge and attitude related to diabetes self-care.

Association with Demographic Variables

Chi-square analysis showed no statistically significant association between pre-test knowledge and attitude scores with selected demographic variables.

In the post-test, a significant association was found between:

- **Knowledge and marital status** ($p < 0.05$)
- **Attitude and monthly family income** ($p < 0.05$)

No other demographic variables showed a significant association with post-test knowledge or attitude levels.

DISCUSSION

Diabetes mellitus is a chronic metabolic disorder that requires effective self-care practices to prevent complications and improve quality of life. The present study evaluated the effectiveness of a structured teaching programme (STP) on knowledge and attitude regarding self-care activities among patients with diabetes mellitus.

The findings revealed that diabetic patients had **inadequate knowledge and attitude** toward self-care activities in the pre-test. The overall pre-test knowledge score (44.16%) and attitude score (40.91%) indicated poor awareness and unfavorable attitude toward essential self-care practices such as diet, exercise, insulin administration, blood glucose monitoring, and foot care. These findings are consistent with earlier studies reporting gaps between knowledge and actual self-care practices among diabetic patients.

Following the implementation of the structured teaching programme, there was a **significant improvement** in both knowledge and attitude. The post-test mean knowledge score increased to **81.1%**, and the attitude score improved to **79.1%**, demonstrating the effectiveness of the teaching intervention. The paired *t* test confirmed that these improvements were statistically highly significant ($p < 0.001$).

Component-wise analysis showed marked improvement in all areas of self-care, with the highest post-test scores in general information, diet, and insulin administration. These findings are supported by previous studies that emphasize the positive impact of structured diabetes education programmes on patient knowledge, self-care behavior, glycemic control, and quality of life.

The study also identified a significant association between post-test knowledge and marital status, and between post-test attitude and family income, indicating that social and economic factors may influence the effectiveness of educational interventions.

Overall, the findings highlight the importance of structured, nurse-led educational programmes in improving knowledge and attitude toward diabetes self-care.

CONCLUSION

The present study concludes that patients with diabetes mellitus had inadequate knowledge and unfavorable attitude toward self-care activities prior to the intervention. The structured teaching programme was found to be **highly effective** in improving both knowledge and attitude related to diabetes self-care practices.

The statistically significant improvement observed after the intervention ($p < 0.001$) confirms that structured teaching programmes can play a vital role in enhancing patient awareness, promoting positive attitudes, and encouraging active participation in self-care activities.

The study emphasizes the need for incorporating regular, structured diabetes education programmes into routine clinical and nursing practice. Such educational interventions can contribute to better self-management, improved metabolic control, prevention of complications, and overall enhancement of quality of life among patients with diabetes mellitus.

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