

# Evaluation of Diabetes Mellitus Patients' Understanding of Managing Diabetes at Home at Bankura Sammilani Medical College & Hospital in West Bengal

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**ABSTRACT**

Diabetes Mellitus (DM) presents a significant global health challenge, affecting millions worldwide and leading to various complications if not properly managed. This Research underscores the importance of understanding DM and its management, particularly in the context of home-based care provided by community health workers known as Home Based Cares (HBCs). The study's background highlights the rising prevalence of DM, especially Type 2 Diabetes Mellitus (T2DM), and its impact on healthcare systems, particularly in South Africa. With a notable shortage of healthcare workers, including nurses, at the primary care level, HBCs have emerged as a crucial alternative workforce, supporting patients with chronic conditions like DM within their homes.

However, despite their essential role, HBCs often lack standardized training and formal education, which can lead to gaps in their knowledge and practices related to DM care. This Research seeks to address this gap by focusing on assessing the knowledge and practices of HBCs regarding DM care in Gadikgale village, South Africa. The study aims to answer the research question: "What is the knowledge of Home-Based Cares who care for diabetes people related to diabetes in a rural village in South Africa?" The findings of this study can inform the development of training programs tailored to address identified knowledge gaps among HBCs, potentially improving service delivery and patient satisfaction.

Furthermore, the research outlines the statement of the problem, which centres on assessing the knowledge regarding home management of DM among patients attending a medical

Outpatient Department (OPD) in Bankura, West Bengal. The objectives of the study include assessing knowledge regarding DM management and exploring associations between knowledge and selected demographic variables. Delimitations specify the inclusion criteria for the study population, focusing solely on DM patients attending the medicine OPD at Bankura Sammilani Medical College and Hospital. Overall, this research underscores the critical need for enhancing knowledge and practices related to DM care among healthcare providers and community workers, ultimately aiming to improve patient outcomes and quality of care.

**Keywords:** Diabetes Mellitus, HBCs, Diseases, Health

## INTRODUCTION

Diabetes Mellitus is a long-term condition caused by either a genetic or acquired inability of the pancreas to produce enough insulin or to use it effectively. It is more than just avoiding sugar; it's a complex illness that can lead to severe complications, disabilities, and even death. While diabetes can be controlled, it cannot be cured. A lack of understanding about managing the disease and not following treatment plans can lead to complications, increasing the cost of care and lowering the quality of life.

As of 2013, an estimated 382 million people globally had diabetes, with 90% of these cases being type 2 diabetes. This accounts for 8.3% of the adult population, with men and women affected equally. In 2012 and 2013, diabetes caused between 1.5 to 5.1 million deaths each year, making it the 8th leading cause of death worldwide. Educating patients on self-care is crucial to meeting treatment goals at home. The American Diabetes Association emphasizes the importance of self-management skills in diabetes care. It is essential for patients and their families to understand the basics of diabetes management, including maintaining good blood sugar control, following treatment plans, and taking preventive measures to manage the condition effectively<sup>1</sup>.

### Need for the Study:

The worldwide rise in Non-Communicable Diseases (NCDs) is putting pressure on healthcare systems across various countries. The occurrence and spread of Type 2 Diabetes Mellitus are growing globally, leading to additional health complications despite numerous efforts to prevent the disease. As the fourth leading cause of death from diseases globally, Type 2 Diabetes Mellitus also imposes a heavy financial strain on both healthcare systems and individuals affected by it.

In South Africa, an increasing number of adults between the ages of 21 and 79 are suffering from Type 2 Diabetes Mellitus, with statistics showing a prevalence of around 7%. The disease is a major health issue in South Asia as well, causing disability and premature deaths. The rising burden of Type 2 Diabetes Mellitus has led to overcrowded healthcare facilities and heavier workloads, particularly in Primary Health Care (PHC), which in turn results in poor service delivery. This

significant rise in Type 2 Diabetes Mellitus in South Asia has also caused shortages of healthcare workers at the PHC level, making it difficult to achieve better health outcomes in the prevention and control of the disease<sup>2</sup>.

The rise in Type 2 Diabetes Mellitus has an impact on the demand for care of chronic diseases and this has pressed for the need to develop an alternative workforce. The demand for care of chronic diseases including Type 2 Diabetes Mellitus led to the utilisation of Home-Based care as an alternative workforce to mitigate the human resources crisis. Home Based Care is a programme that emerged and expanded following HIV/AIDS and the introduction of Antiretroviral Therapy (ART) in many African countries, in which Home-Based Cares were recruited to offer services like treatment adherence and retention. Currently, Policies recommend the use of Home-Based Cares in Type 2 Diabetes Mellitus and other NCDs-related prevention and control activities<sup>3</sup>

Home-Based Cares, also called Community Health Workers or lay Counselors, are individuals who are familiar with the community's culture and language. However, many of them receive only brief, non-standardized training to deliver culturally sensitive health services. There is no specific educational requirement for this role, although a study on supporting people with AIDS and their caregivers in rural South Africa found that most Home-Based Cares have completed basic education, typically up to 12 years. These workers often receive little or no payment and are recruited by Home-Based Care organizations within their community, receiving basic training to provide volunteer caregiving services in people's homes<sup>4</sup>.

Home Based Care workers in South Africa play a crucial role in promoting health and preventing diseases by providing basic treatment and gathering community health information. They collaborate with other healthcare providers to educate patients, manage cases, coordinate care, and offer support. Due to the rise in Non-communicable Diseases (NCDs) like Type 2 Diabetes Mellitus, many people in South Africa require home-based care. This care is delivered directly in patients' homes. The South African National Department of Health (NDoH) has called on all Government and Non-Governmental Organisations (NGOs) to support their vision of a healthy lifestyle for everyone in the country. To

meet the growing demand, a study on NCDs highlighted the importance of deploying and training Home Based Care workers according to standard guidelines<sup>5</sup>.

Home Based Cares act as a link between nurses at Primary Health Centers and patients in the community. They play a vital role in ensuring that patients comprehend, recall, and are encouraged to follow their care plans. Home Based Cares are recognized as essential in many effective Diabetes self-management programs. Additionally, they contribute to the health and well-being of their community by sharing health information and supporting diabetes interventions. Research also shows that Home Based Cares can significantly help patients manage their conditions better by providing health education and promoting healthy lifestyles<sup>6</sup>.

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Perajevasu Dinesh, Amaro Gunderokulkarni, Namrathakumarigangadhar. Knowledge and self-care practices regarding among patients with Type 2 Diabetes Mellitus in Rural sullia, karnataka. Only 24.5% of them poor knowledge. Among the self-care practices, foot care was the most neglected area<sup>8</sup>.

### Objectives:

- To assess the knowledge regarding home management of diabetes mellitus among diabetes mellitus patients attending medicine Out Patient Department of Bankura Sammilani Medical College and Hospital, Bankura.
- To find out association between knowledge regarding home management of diabetes mellitus and selected demographic variables.

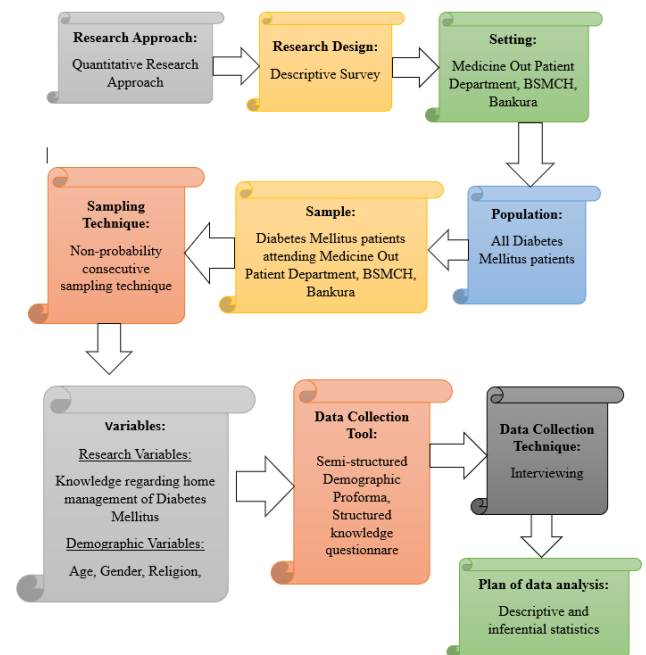
## METHODS AND ANALYSIS

### Research Approach

#### Quantitative Research Approach

### Research Design

Research design is the overall plan or blue print of the study investigation. Here in this study non-experimental descriptive analytical research design is suitable as shown in figure.1



**Figure 1. Schematic presentation of the study methodology**

## RESEARCH SETTING

Pilot Study: Medicine Out Patient Department of Bishnupur District Hospital, Bishnupur, Bankura, West Bengal.

Final Study: Medicine Out Patient Department of Bankura Sammilani Medical College and Hospital, Bankura, West Bengal.

## VARIABLES UNDER STUDY

### Demographic variables

It refers to the participant's age, religion, educational status,

occupation of mother, occupation of father, type of family, type of residence, family income, any sensitization programme of diabetes mellitus attended.

## RESEARCH VARIABLES

Knowledge regarding home management of Diabetes Mellitus among Diabetes Mellitus patients

### Sample Size Calculation:

$$n = Z^2pq/d^2$$

Z = 1.96 at 95% of confidence interval

p = prevalence rate of knowledge regarding home management among DM patients.

$$q = (100-p)$$

d = allowable error (10)

$$n = [(1.96)^2 24.5(100-24.5)] / (10)^2$$

$$= 71.059$$

10% non-response sample

$$\text{Actual sample (n)} = 71.059 + 7.1059$$

$$= 78.16$$

The sample size of the study was 78.

### Sample:

Patients of Medicine Out Patient Department, Bankura Sammilani Medical College and Hospital, Bankura, West Bengal, who are available at the time of data collection.

### Sampling Technique:

In the present study the sample selection was done by non-probability consecutive sampling.

### Data Collection tools and techniques:

An important aspect of any investigation is the collection of appropriate information which provides necessary data to answer the questions that arise in the study. Data collection means the precise, systemic gathering information

relevant to the research purpose and in relation to specific objectives of the study. The following data collection tools

**Table 1: Data collection tools and technique**

Variables to be measured	Tools	Techniques
Demographic variables	Tool-I Semi-structured socio demographic proforma	Interviewing
Knowledge regarding home management of Diabetes Mellitus	Tool-II Structured knowledge questionnaire	Interviewing

& techniques to be utilized for the study are presented in table below (Table 1).

### Criteria for Selection of Sample:

Inclusion criteria: Both type of diabetes mellitus (type I and type II) patients and Willing to participate in research study.

Exclusion criteria: Patients who are seriously ill.

### Study Population

All Diabetes Mellitus patients in West Bengal.

## RESULTS & DISCUSSIONS

Organization and presentation of study findings The findings were presented according to the objectives of the study (Table 2).

Data were organized tabulated and interpreted using descriptive statistics presented in the following sections:

Section-I: Findings related to the socio-demographic data of the patients attending medicine outpatient department of Bankura Sammilani Medical College and Hospital, Bankura.

Section-II: Analysis of knowledge regarding home management of diabetes mellitus according to obtained scores in regard structured knowledge questionnaire.

Section-III: Findings related to association between knowledge score and socio-demographic variables.

Section-IV: Description of patient characteristics This section deals with socio-demographic characteristics among the diabetes mellitus patients attending medicine outpatient department of Bankura Sammilani Medical College and Hospital, Bankura.



**Table 2: Frequency and percentage distribution of the patients according to age, gender, religion, marital status.**

Variables	Frequency (f)	Percentage (%)
<b>Age (in years)</b>		
Below 40	14	17.95
Above 40	64	82.05
<b>Gender</b>		
Male	40	51.28
Female	38	48.72
<b>Religion</b>		
Hindu	60	76.92
Muslim	18	23.08
<b>Marital status</b>		
Married	74	94.87
Unmarried	4	5.13

Data presented in Table no.02 showed that most of the patients (82.05%) belongs to above 40 years of age group.

It is also depicted that majority of the patients are male (51.28%), most of the patients are married (94.87%) and most of the patients (76.92%) belongs to Hinduism.

Section-II: Analysis of knowledge regarding home management of diabetes mellitus according to obtained score in regards of structured questionnaire.

Section III: Finding related to association between knowledge level regarding home management of diabetes mellitus and socio-demographic variables.

## DISCUSSION

In the present study discussion was done on the basis of findings an objective. To this study a descriptive survey design was applied. The data collected from 78 patients attending Medicine Out Patient Department, Bankura Sammilani Medical College. Findings depicted that only 20.51 % patients have adequate knowledge.

The study result is supported by the descriptive study conducted by Perajevasu Dinesh, Amaro Gunderokulkarni, Namrathakumari Gangadhar about knowledge and self-care practices among patient with type 2 Diabetes mellitus in rural sullia , Karnataka. In this study only 24.5% of them had adequate knowledge<sup>8</sup>.

## CONCLUSION

On the basis of present study, the maximum findings revealed that majority of patients have very good knowledge regarding home management of diabetes mellitus. And it is

highlighted that demographic characteristics (religion) had impact on their level of knowledge. Good knowledge about home management of diabetes mellitus helps to manage diabetes mellitus at home and helps to remove misconceptions.

**Funding:** None

**Conflict of Interest:** None

**Ethics approval:**

This study involves human participants and ethical approval from the local research ethics committees and written consent from participants were obtained from each site Formal administrative permissions were taken from Chief Medical Officer Of Health, Bishnupur, Bankura, West Bengal and Superintendent of Bishnupur, Bankura, Principal of Government College of Nursing, B.S.M.C., Bankura MSVP, BSMC&H, Bankura, MSVP, Bishnupur District Hospital, Bishnupur, Bankura, HOD Medicine dept, BSMC&H, Bankura, and HOD Medicine dept, Bishnupur District Hospital, Bishnupur, Bankura.

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