

# A STUDY ON NUTRITION AWARENESS AMONGST PATIENTS WITH DIABETES DURING HOSPITALIZATION IN APOLLO HOSPITAL INDORE

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## Abstract:

Diabetes mellitus is a chronic metabolic condition requiring continuous medical care and patient self-management, where nutritional awareness plays a central role. This study aimed to assess the level of nutrition awareness among hospitalized diabetic patients in Apollo Hospital, Indore. A sample of 50 patients aged 30–70 years was selected using random sampling to ensure representation across educational and socioeconomic backgrounds. The study evaluated their demographic characteristics, biochemical parameters, and awareness related to diabetes management, particularly focusing on dietary knowledge. Results revealed that while a significant proportion of participants (90%) acknowledged the importance of diet in diabetes control, only 52% were aware of complications related to uncontrolled diabetes. Additionally, 72% could identify hypoglycemia symptoms, 60% regularly used a glucometer, and 84% monitored blood glucose levels. However, only 8% understood the concept of the glycemic index, highlighting a critical gap in essential nutritional knowledge. Biochemical parameters showed that 76% had controlled HbA1c levels, while 24% presented with anemia. Moreover, 82% of participants reported comorbidities such as hypertension and kidney issues, indicating the broader health burden faced by diabetic patients. The study underscores the need for structured, in-hospital nutrition education programs tailored to diabetic patients. Improving awareness about glycemic control, meal planning, and disease complications during hospitalization can lead to better self-management and long-term outcomes.

**Keywords:** Diabetes Mellitus, Hospitalized Patients, Nutrition Awareness, Glycemic Control, Patient Education, Chronic Disease Management

## 1. INTRODUCTION

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by persistent hyperglycemia due to impaired insulin secretion, action, or both. It is broadly classified into type 1 (T1DM), an autoimmune condition, and type 2 (T2DM), driven by insulin resistance and  $\beta$ -cell dysfunction, with distinct risk factors and clinical presentations. Other forms include gestational diabetes, MODY, and secondary diabetes, each with unique etiologies. (S. Amit & B. Priyanka., 2023) According to recent estimates, approximately 463 million people worldwide live with diabetes, with nearly 80% residing in low- and middle-income nations. (A. Shakil et al., 2024) Type 2 diabetes mellitus (T2DM) develops due to multiple key risk factors, such as unhealthy eating habits, insufficient physical exercise, excessive body weight, increasing age, genetic predisposition, certain ethnic backgrounds, and shifts in daily routines. (AA Aseel et al., 2024). The rising prevalence of diabetes is strongly linked to overweight and obesity, driven by decreased physical activity and unhealthy dietary patterns. These diets are often calorie-dense, rich in fats and sugars, excessive in salt, and lacking in sufficient fruits and vegetables [8]. Additionally, excess body fat—a sign of poor nutrition and sedentary behavior—further increases the risk of developing type 2 diabetes (T2DM) (D S Ali and AA Aziz, 2023) Nutrition plays a pivotal role in managing both type 1 (T1D) and type 2 diabetes (T2D), with dietary recommendations focused on promoting and sustaining healthy eating patterns to maintain optimal blood glucose levels and overall metabolic health. (E. Bettina et al., 2019)

**2. METHODOLOGY**

This study was designed to assess the level of nutrition awareness among hospitalized diabetic patients in Apollo Hospital, Indore. The aim was to identify specific gaps in knowledge that may hinder effective diabetes management. A total of 50 diabetic patients were selected as the study sample. Participants were chosen using a random sampling method to include a diverse group representing different socioeconomic and educational backgrounds. The age range of participants was between 30 and 70 years, and only those who were admitted for at least 48 hours and gave informed consent were included in the study.

**3. RESULTS AND DISCUSSION**

**Table 1: Percentage Distribution of Demographic profile of Participants (N=50)**

DEMOGRAPHIC PROFILE	CATEGORY	FREQUENCY	PERCENTAGE	CHI SQUARE TEST
AGE	30-45	7	14%	4.99737E-78
	46-60	27	54%	
	61-70	16	32%	
GENDER	MALE	28	56%	3.47047E-13
	FEMALE	22	44%	
EDUCATION	NO FORMAL EDUCATION	5	10%	2.803E-105
	PRIMARY/SECONDARY	18	36%	
	GRADUATE/POST GRADUATE	27	54%	
OCCUPATION	HOMEMAKER	15	30%	1.12999E-77
	RETIRED	10	20%	
	PRIVATE/GOVT EMPLOYEE	15	30%	
	OTHERS	10	20%	
FAMILY HISTORY OF DM	YES	23	46%	4.24699E-11
	NO	27	54%	

Source: The Data Was Calculated by Microsoft Excel 2021.

Table 1 depicts the percentage distribution of demographic profile of participants in which age was divided into 3 subgroups 30-45 years, 46-60 years, and 61-70 years. In group 1 (30-45) there was 7 (14%) participants, in group 2 (46-60) there was 27 (54%) participants and in group 3 (61-70) there was 16 (32%) participants. Gender was divided into male and female in which the frequency of male participants was 28 (56%) and the frequency of female participants was 22 (44%). Literacy level was divided into 3 sub-groups (no formal education, primary/secondary, graduate/post graduate). In group 1 (no formal education) there was 5 (10%) participants, in group 2 (primary/secondary) there was 18 (36%) participants and in group 3 (graduate/post graduate) there was 27 (54%) participants. Occupation was divided into homemaker, retired, private/govt employee, others in which the frequency of homemaker was 15 (30%), the frequency of retired participants was 10 (20%), the frequency of private/govt employee was 15 (30%) and the frequency of other work was 10 (20%). The frequency of family history of diabetes was 23 (46%). Chi-square test values were applied to examine the statistical association between each demographic factor and the variables of interest in the study. The Chi-square values for age (4.99737E-78), gender (3.47047E-13), education (2.803E-105), and occupation (1.12999E-77) were all found to be highly statistically significant ( $p < 0.05$ ). These results suggest a strong

association between these demographic variables and diabetes-related awareness or behavior. In particular, the extremely low p-value for education indicates that educational status may play a crucial role in influencing participants' nutritional knowledge and lifestyle choices. Similarly, the significant values for age, gender, and occupation suggest these factors are also relevant in shaping health-related behaviors among the participants.

**Table 2: Percentage Distribution of Biochemical parameters of Participants (N=50)**

PARAMETER S	CATEGORY	FREQUENCY	PERCENTAGE
<b>Hba1c</b>	CONTROLLED (<7%)	38	76%
	UNCONTROLLED (>7%)	12	24%
<b>RBS</b>	CONTROLLED	34	68%
	UNCONTROLLED	16	32%
<b>SERUM CREATNINE</b>	CONTROLLED	32	64%
	UNCONTROLLED	18	36%
<b>HB</b>	NORMAL (>12G/DL)	38	76%
	LOW	12	24%

Source: The Data Was Calculated by Microsoft Excel 2021.

Table 2 depicts the participants with controlled Hba1c level was 38(76%) and with uncontrolled Hba1c level was 12(24%). The participants with controlled Random blood sugar (RBS) level were 34(68%) and with uncontrolled RBS level was 16(32%). The participants with controlled serum creatinine were 32(64%) and with uncontrolled serum creatinine were 18(36%). the participants with normal hemoglobin were 38(76%) and low hemoglobin were 12 (76%)

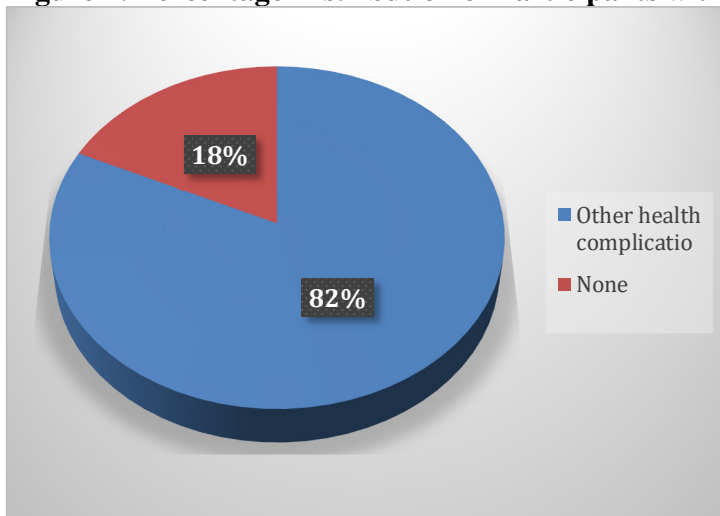
**Table 3: Percentage Distribution of awareness of Participants (N=50)**

AWRENESS QUESTION	YES	%	NO	%
<b>Aware of complications of uncontrolled diabetes</b>	26	52%	24	48%
<b>Aware of hypoglycemia symptoms</b>	36	72%	14	28%
<b>Own and use a glucometer regularly</b>	30	60%	20	40%
<b>Believe diet plays a role in management</b>	45	90%	5	10%

Source: The Data Was Calculated by Microsoft Excel 2021.

Table 3 depicts a majority of the participants, 26 (52%) were aware of the complications associated with uncontrolled diabetes, while 36 (72%) were aware of the symptoms of hypoglycemia. About 30 (60%) of the participants reported owning and regularly using a glucometer and 45 (90%) participants believed that diet plays a key role in diabetes management.

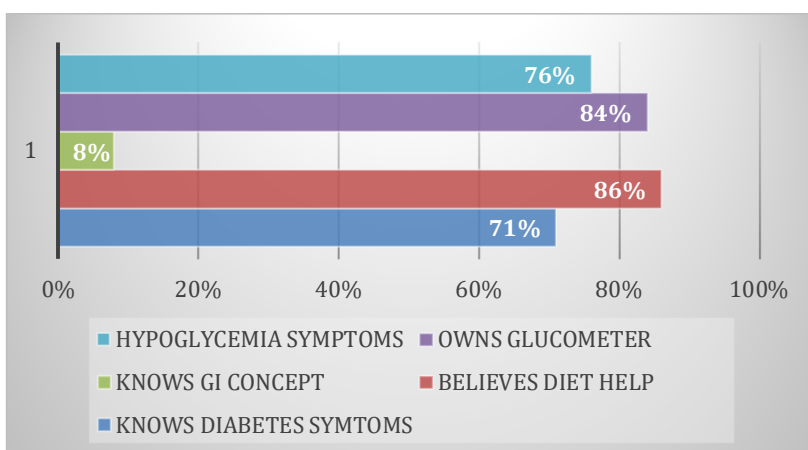
**Figure 1: Percentage Distribution of Participants with other health complications**



Source: The Data Was Calculated by Microsoft Excel 2021.

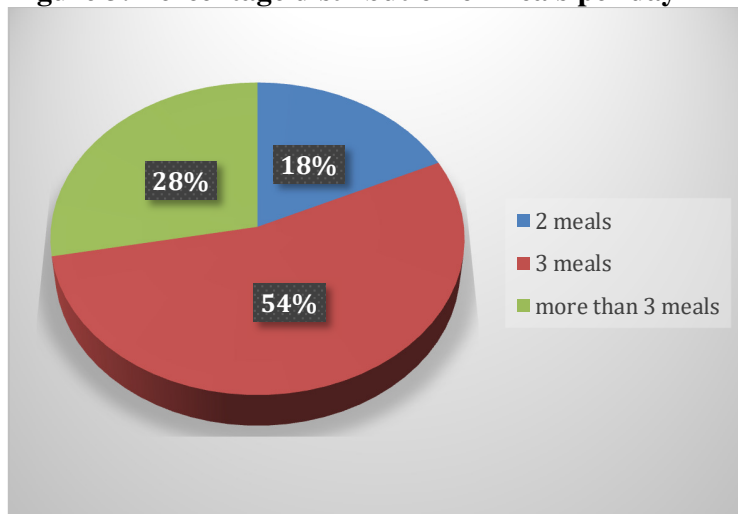
Figure 1 depicts 41(82%) participants had other health complications such as hypertension (HTN), heart disease, kidney disease and 9(18%) participants showed no reported health conditions.

**Figure 2: Percentage Distribution of Awareness**



Source: The Data Was Calculated by Microsoft Excel 2021.

Figure 2 depicts 37 (71%) participants knew common diabetes symptoms, while 43(86%) believed diet helps in managing diabetes. Only 4(8%) participants understood the glycemic index (GI) concept. [42\(84%\) participants owned a glucometer and check diabetes regularly.](#) [38 \(76%\) participants recognized hypoglycemia symptoms.](#)

**Figure 3: Percentage distribution of meals per day**

Source: The Data Was Calculated by Microsoft Excel 2021.

FIGURE 3 depicts 27 (54%) participants reported eating more than 3 meals per day, while 14 (28%) participants consumed 3 meals daily and a smaller proportion 9(18%) participants ate only 2 meals per day.

#### 4. CONCLUSION

This study highlights crucial insights into the nutrition awareness and self-care practices among hospitalized diabetic patients in Apollo Hospital, Indore. While a majority of participants demonstrated basic awareness of diet's role in diabetes management (90%) and could identify hypoglycemia symptoms (76%), significant knowledge gaps remain. Nearly half (48%) were unaware of complications linked to uncontrolled diabetes, and only a small fraction (8%) understood the glycemic index, a key concept in blood sugar regulation. The findings further revealed that although many participants owned and used a glucometer (84%), this did not necessarily translate into deeper nutritional understanding. Additionally, the presence of other health complications such as hypertension, kidney issues, and cardiovascular disease in 82% of patients underscores the urgent need for integrated and comprehensive nutrition education during hospitalization. These results suggest that hospitalization provides a critical window of opportunity to implement structured nutrition counseling. Personalized education programs focusing on meal planning, understanding food labels, and the impact of glycemic control could significantly improve patient outcomes. Future studies should consider a larger and more diverse patient sample and explore the long-term impact of hospital-based nutrition interventions. Strengthening patient education not only enhances self-management but also plays a pivotal role in preventing diabetes-related complications and improving quality of life.

#### 5. REFERENCES

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