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A STUDY ON RISK FACTOR, DIETARY HABITS AND NUTRITION STATUS OF DIABETIC PATIENT ADMITTED IN MEDANTA HOSPITAL

Arefa Khan[1] , Dr. Chaina Trivedi[2]

[1] Student, Deen Dayal Uphadhyay Kaushalya Kendra, Davi Ahilya Vishwavidh=yalaya, Indore, Madhya Pradesh. arefanisarkhan@gmail.com
2 Faculty, Deen Dayal Uphadhyay Kaushalya Kendra, Davi Ahilya Vishwavidh=yalaya, Indore, Madhya Pradesh. Chainatrivedi1977@gmail.com

A B S T R A C T

This study explores the risk factors, dietary habits, and nutritional status of diabetic patients admitted to Medanta Hospital in Indore, Madhya Pradesh. A total of 50 clinically diagnosed diabetic patients aged 45–85 years participated in the research. The majority were found to have Type 2 diabetes (92%), with 74% reporting a family history of the condition, indicating a strong genetic predisposition. Despite 64% of participants claiming to follow a strict dietary plan and 58% identifying as vegetarians, the biochemical findings revealed poor glycaemic control in a significant portion of the sample—82% had elevated HbA1c levels and 60% had uncontrolled blood glucose. Electrolyte imbalances were also common, particularly low potassium and sodium levels. Clinically, fatigue, blurred vision, and poor wound healing were among the most reported symptoms. These findings highlight that although some patients are making efforts to manage their condition through diet, there is a critical need for more effective, individualized interventions focusing on lifestyle changes, nutrition education,   and comprehensive clinical management to improve outcomes and reduce diabetes-related complications.

Keywords: Diabetes mellitus, Type 2 diabetes, risk factors, dietary habits, nutritional status, glycaemic control, electrolyte imbalance, family history, lifestyle modification.

1. 1 Introduction

Diabetes mellitus ranks among the most widespread non-communicable diseases globally and poses a significant threat to public health. It is marked by persistent elevations in blood glucose levels resulting from inadequate insulin production, impaired insulin action, or a combination of both. In India, the prevalence of diabetes is escalating at an alarming rate, primarily due to factors such as rapid urbanization, sedentary behavior, poor dietary choices, and increasing rates of overweight and obesity. If left unmanaged, diabetes can lead to severe complications, including cardiovascular disorders, neuropathy, nephropathy, and retinopathy. Medically, diabetes mellitus is considered a common metabolic condition with multiple causes. It is typified by hyperglycemia and disturbances in the metabolism of carbohydrates, fats, and proteins, mainly due to issues related to insulin functionality. Diabetes is broadly categorized into three types—Type 1, Type 2, and gestational diabetes—based on their clinical presentation and underlying causes.

Type 1 diabetes commonly manifests in childhood or adolescence and is associated with symptoms such as excessive thirst, frequent urination, persistent hunger, sudden weight loss, dry mouth, bed-wetting in children, fatigue, and blurred vision. Conversely, Type 2 diabetes, once primarily observed in adults, is now increasingly diagnosed in younger populations, including children and adolescents. This shift is largely attributed to the rising incidence of obesity, sedentary lifestyles, and unhealthy eating habits.

Type 2 diabetes is believed to result from a complex interaction of various factors, including genetics, medical history, lifestyle, and psychosocial components. Key contributors include elevated serum uric acid levels, poor sleep patterns, smoking, depression, cardiovascular disease, dyslipidemia, hypertension, aging, ethnicity, family history, lack of physical activity, and excess body weight. Dyslipidemia alone accounts for an estimated 4 million deaths and nearly 30 million disability-adjusted life years globally, with growing impact linked to reduced physical activity, longer duration of diabetes, and rising obesity levels.

In South Asian populations, the growing diabetes burden has been connected to both genetic predispositions and lifestyle transformations, particularly shifts in dietary patterns toward higher consumption of processed foods and refined carbohydrates such as white rice. The coexistence of diabetes and hypertension is also common, with individuals diagnosed with Type 2 diabetes at heightened risk for developing hypertension and, consequently, cardiometabolic syndrome. Evaluating the dietary patterns, lifestyle risk factors, and nutritional profiles of individuals with diabetes is vital to improving disease management and minimizing the risk of complications.

This study, undertaken at Medanta Hospital, seeks to identify modifiable factors—including dietary habits, lifestyle choices, and nutritional status—that significantly influence health outcomes among diabetic patients. The insights gained are anticipated to support the development of targeted, patient-centered approaches to enhance diabetes care and overall quality of life.

1.2. Methods and materials

The study was conducted at Medanta Hospital, Indore, Madhya Pradesh, with the aim of obtaining a representative sample of diabetic patients. A total of approximately 50 participants, aged between 45-55, 56-70 and 71- 85 years and clinically diagnosed with diabetes mellitus, were selected for the study. Data collection was carried out over a two-month period, from February 5th to April 5th, 2025, using a self-structured questionnaire. The questionnaire was designed to capture a comprehensive set of variables, including demographic information, anthropometric measurements, clinical status, dietary habits, lifestyle behaviors, and medical history. Participants were recruited from the hospital's diabetic patient population to ensure relevance and specificity of findings. The data collected was analyzed using Microsoft Excel, and statistical tools such as the Chi-square test were applied to determine associations, with significance assessed through P-values. Results were expressed in terms of frequency distributions and percentages to provide clear insights into the studied variables.

1.3. Result and discussion

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

Demographic profile		Frequency	Percentage	Chi-square test
Age	41-55	16	32	2.7
	56-70	22	44	
	71-85	12	24	
Gender	Male	26	24	1.3
	Female	24	52	
Religion	Hindu	44	88	2.5
	Muslims	6	12	
Marital Status	Married	49	98	0
	Unmarried	**1**	**2**	

Source:- The data was calculated by Microsoft excel 2011

Table 1 showed that the majority were aged between 56–70 years (44%), followed by 41–55 years (32%), and 71–85 years (24%). Gender distribution was nearly equal, with males comprising 52% and females 48%. Most participants were Hindu (88%), while 12% were Muslim. Marital status showed a significant skew, with 98% married and only 2% unmarried. Chi-square tests revealed no significant associations between demographic variables and diabetes in this sample.

Table 2: Mean deviation of Anthropometric measurement of participants (N=50)

Parameters	Male (n=26)	Female (n=24)	P- value
Height (cm)	166.4±5.8	159±5.8	0.9
Weight (kg)	71.2±14.2	69.7±12.7	0.9
BMI (kg/m2)	25±5.0	27±4.5	0.9

Source:- The data was calculated by Microsoft excel 2011

Table 2 showed that males had a mean height of 166.4±5.8 cm and females 159±5.8 cm. The average weight was 71.2±14.2 kg for males and 69.7±12.7 kg for females. BMI values were 25±5.0 kg/m² for males and 27±4.5 kg/m² for females. The p-values indicated no statistically significant differences between genders for height, weight, or BMI.

Table 3: Percentage Distribution of Biochemical parameters of Participants (N=50)

Parameters	Controlled		Uncontrolled	
	Frequency	percentage(%)	Frequency	percentage(%)
Blood glucose	20	40	30	60
Blood Pressure	21	42	29	58
HbA1c	9	18	41	82
Sodium	15	30	35	70

Potassium	5	10	45	90

Source: The Data Was Calculated By Microsoft Excel 2011.

Table 3 revealed that a majority had uncontrolled levels in key health indicators. Blood glucose was uncontrolled in 60% of participants, and 58% had uncontrolled blood pressure. Alarmingly, 82% had elevated HbA1c levels, indicating poor long-term glycaemic control. Electrolyte imbalance was also noted, with 70% showing uncontrolled sodium levels and 90% having abnormal potassium levels. These findings highlight a high prevalence of uncontrolled metabolic and biochemical parameters among the diabetic patients admitted to Medanta Hospital.

Table 4: Percentage Distribution of Clinical Measurements of Participants (N=50)

Parameters	Yes		No	
	Frequency	**Percentage(%)**	**Frequency**	**Percentage(%)**
Dullness of skin	24	48	26	52
Fatigue	43	86	7	14
Frequent urination	15	30	35	70
Blurred vision	30	60	20	40
Numbness in hand /foot	16	32	34	68
Poor wound healing	21	42	29	58
Abnormal appetite	28	56	22	44
Nausea	4	8	46	92
Dizziness	11	78	39	22

Source: The Data Was Calculated By Microsoft Excel 2011.

Table 4 showed that a significant number of diabetic patients experienced common diabetes-related symptoms. Fatigue was the most reported symptom (86%), followed by blurred vision (60%) and abnormal appetite (56%). Dullness of skin was present in 48% of participants, while 42% experienced poor wound healing. Other symptoms included numbness in hands or feet (32%), frequent urination (30%), and dizziness (22%). Nausea was the least reported symptom at 8%. These findings indicate a high prevalence of clinical complications, reflecting the overall poor management of diabetes among the participants.

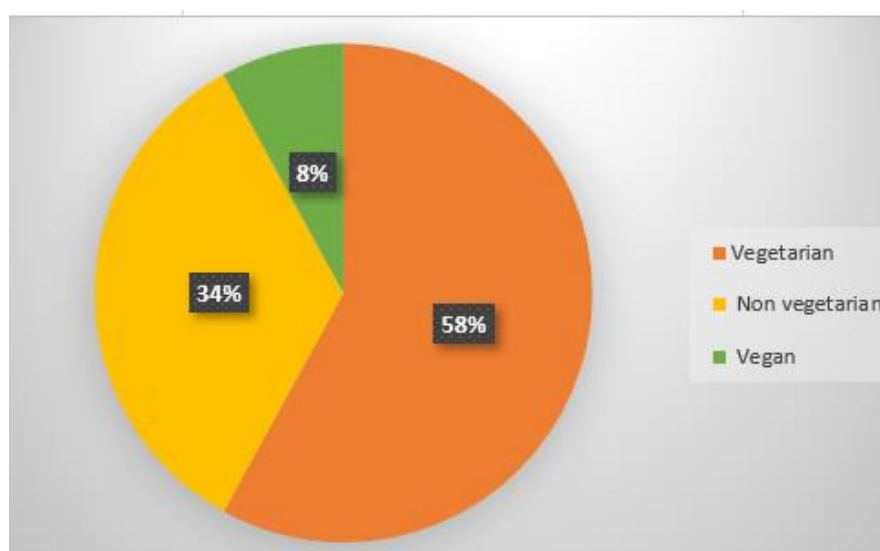**Figure 1: Percentage Distribution of Participants 'foods habit**

Figure 1 showed that 58% followed a vegetarian diet, 34% were non-vegetarian, and 8% identified as vegan. The predominance of vegetarian diets suggests a plant-based food preference among diabetic patients, although a significant portion still consumed animal-based foods. These dietary patterns may influence overall nutrition status and glycemic control, highlighting the need for personalized dietary counseling in diabetes management.
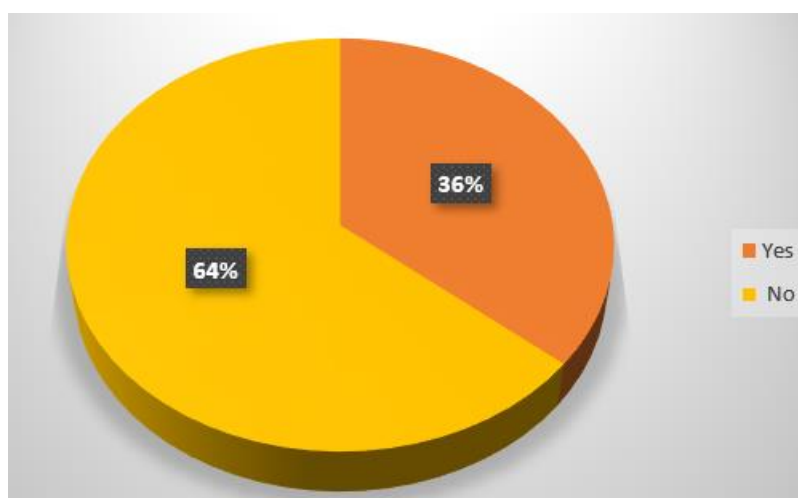
Figure 2: Percentage Distribution of Participants follow strict diet plan

Figure 2 showed that 64% of diabetic patients reported following a strict diet plan, while 36% did not adhere to any specific dietary regimen. This indicates that although a majority are making conscious efforts to manage their condition through diet, a significant portion still lacks dietary discipline, which may contribute to poor glycemic control and related complications.
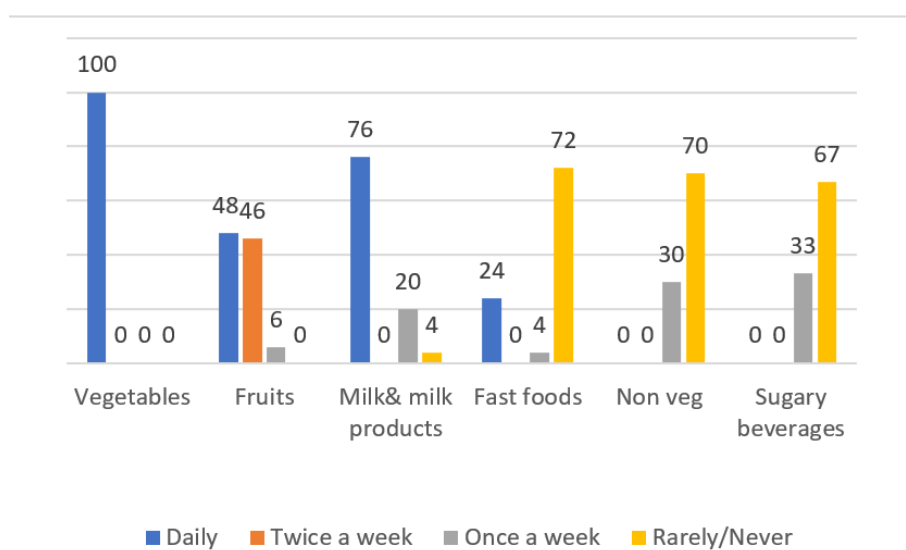
Figure 3: Percentage Distribution of Dietary pattern of Participants

Figure 3 indicated that while a large majority of participants consume vegetables and milk/milk products daily, and fruits frequently, their intake of less healthy options like fast foods, non-vegetarian food, and sugary beverages is predominantly infrequent or non-existent; this suggests a generally health-conscious dietary profile among the studied diabetic patients, though further analysis would be needed to correlate these habits with their overall health and nutritional status.
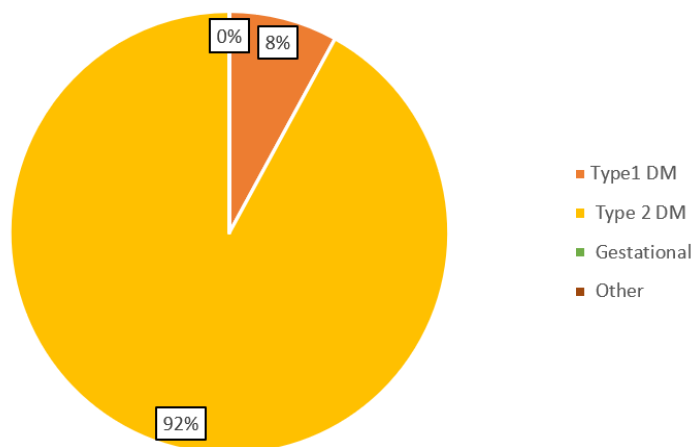
Figure 4: Percentage Distribution of types of diabetes of Participants

Figure 4, showed that the prevalence of different diabetes types among the admitted patients. The overwhelming majority (92%) of participants have Type 2 Diabetes Mellitus (Type 2 DM). A small percentage (8%) have Type 1 Diabetes Mellitus (Type 1 DM). Notably, there were no reported cases of Gestational diabetes (0%) or other specified types of diabetes (0%) within this study group. This distribution highlights that Type 2 DM is the predominant form of diabetes among the patients admitted to Medanta Hospital included in this research.
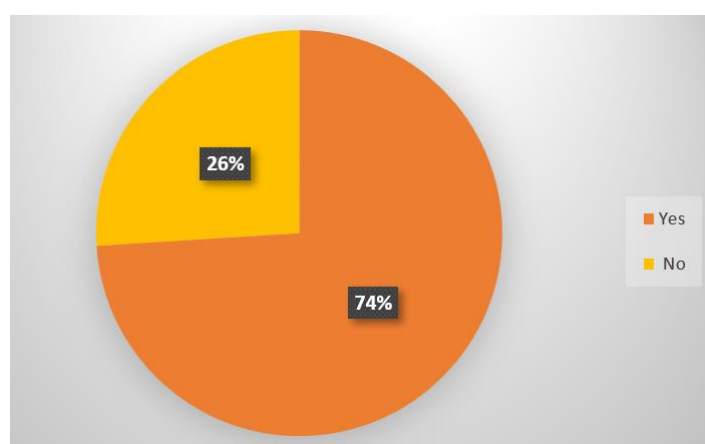
Figure 5: Percentage Distribution of family history of diabetes of Participants

Figure 5 showed that the prevalence of diabetes within the families of the study participants. A significant majority (74%) reported having a family history of diabetes. In contrast, a smaller proportion indicated no family history of the condition. This suggests that a strong familial link to diabetes is present in a considerable number of the diabetic patients admitted to Medanta Hospital included in this study, potentially highlighting the role of genetics and shared environmental factors in their predisposition to the disease.

1.4. Conclusion

In conclusion, this study conducted at Medanta Hospital in Indore provides valuable insights into the demographic profile, dietary habits, clinical status, and familial history of diabetic patients. The findings indicate that the majority of participants are older adults, predominantly between 56 and 70 years of age, with a nearly equal gender distribution, and largely identify as Hindu and married. Notably, Type 2 diabetes is overwhelmingly the most common type of diabetes observed in this cohort.

While a considerable proportion of the participants reported following a vegetarian diet and adhering to a strict dietary plan, the study reveals a concerning trend of poorly controlled biochemical parameters. A significant majority exhibited elevated blood glucose and HbA1c levels, indicating suboptimal long-term glycemic control, along with uncontrolled blood pressure and electrolyte imbalances. This is further reflected in the high prevalence of diabetes-related symptoms such as fatigue and blurred vision among the patients.

The study also highlights the significant role of family history in the predisposition to diabetes, with a large majority of participants reporting a familial link to the disease. This underscores the potential influence of genetic and shared environmental factors within this population.

Collectively, these findings suggest that despite some reported efforts towards dietary management, there is a substantial need for more effective and tailored interventions to improve the metabolic control and overall health outcomes of diabetic patients admitted to Medanta Hospital. Future efforts should focus on individualized dietary counselling, strategies to enhance treatment adherence, and comprehensive management plans to address the alarmingly high rates of uncontrolled biochemical markers and prevalent clinical symptoms within this population. Ultimately, these targeted approaches are crucial for minimizing the risk of diabetes-related complications and improving the quality of life for these patients in the Indore region.

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