Glycemic Alteration Awareness, Prevention, and Management Among Diabetic Patients

Ms. Dharti Patel, Mr. Swapnil Rahane, Mr. Balram Kathaliya and Ms. Janki Rathva

Assistant Professor, Parul Institute of Nursing, Parul University, Vadodara, Gujarat. India.

Abstract:

Introduction: Diabetes, a group of metabolic diseases characterized by elevated blood sugar, originates in the body's failure to produce or maintain enough levels of the hormone insulin. Tertiary care clinic patients with diabetes took part in a descriptive study to assess their knowledge on how to prevent and manage glycemic fluctuations. **Material and Methods:** This study used a descriptive methodology. One hundred patients with diabetes participated in the primary study. Purposive sampling, a non-probability sampling approach, was employed to choose samples of diabetes patients who participated in the pilot study. A subset (10%) of the total study group is used to test out new procedures and procedures are added to the main study population. Experts in the field of nursing verified the accuracy of the study tools. The test-retest strategy was used to establish the instrument's dependability. The study was approved by the institution's ethical review board. Descriptive statistics were the primary tool for analyzing the data. **Results-** The majority of participants (78%) in the study had a good alteration of how to avoid glycemic changes and the risks associated with them, whereas 22% had a poor understanding. Moreover, 54% of participants had a low level of awareness, while 46% had a high level of awareness, of glycemic alteration, and 18% of the whole sample had a low level of awareness, while 82% had a high level of knowledge, of the prevention of hypoglycemia. **Conclusion**- Almost half of the population, according to the study's findings, might benefit from education about diabetes and its prevention and management.

Keywords- Assess, Awareness, Glycemic Alteration, Diabetes Clients

Introduction:

Diseases like diabetes mellitus (DM) affect people all over the world and threaten lives. Several factors contribute to the development of diabetes mellitus. Diabetes mellitus causes progressive dysfunction and eventual collapse of several bodily functions. Symptoms of diabetes mellitus include a need to drink excessive amounts of water, frequent urination, hazy eyesight, and a loss of appetite. At their worst, ketoacidosis and other non-kenotic hyperosmolar conditions can cause stupor and coma. As a result of diabetes mellitus, retinal degeneration, nephropathy, kidney failure, amputation, autonomic dysfunction, sexual dysfunction, and Charcot's joints are all potential late complications. Diabetes mellitus is characterized by hyperglycemia and hypoglycemia. Increased blood glucose levels are called hyperglycemia. Having a blood glucose level that is too low is medically known as hypoglycemia. When managed at home, it is considered "mild," with assistance from another person, "moderate," and "severe," requiring hospitalization and medical attention. [1]

The prevalence of diabetes mellitus is rising faster than any other chronic condition. One in five persons between the ages of 20 and 79 is now living with this condition, and a comparable proportion of the population is at risk of getting it. [2]

From 2005's estimate of 19.4 million to 2025's projection of 57.2 million. [3] Around 65 million people in India are presently living with diabetes, with that figure anticipated to rise to over 100 million by 2050, an increase of nearly 2 million per year. [4]

The best guess in 2013, there were over 382 million diabetics in the world. For the sake of avoiding permanent organ and brain damage, hypoglycemia must be diagnosed and treated immediately. The wide range of symptoms, which may include involuntary activation behavioral abnormalities, cognitive impairment, seizures, and coma, was defined by the duration and severity of hypoglycemia. These outcomes may cause harm to the nervous system, physical injury, cardiac issues, and even death. Without treatment, hypoglycemia can put a heavy financial and emotional burden on the patient.[5]

Self-management can help patients and their families cope with the disease and its repercussions. Therefore, health education and teaching activities should be developed for patients and their families. Nursing assumes a critical role in diabetes care by identifying precipitating factors, prescribing suitable scheduled insulins or oral diabetes medications, and

monitoring bedside blood glucose levels. Beyond this, nurses play a pivotal role in patient education, enlightening patients, family, friends, and staff on symptom recognition, appropriate treatments, and nutritional requirements. They contribute significantly to maintaining glycemic control, crucial for preventing hypoglycemia in individuals with diabetes. [6]

The nurse researchers tracked the diabetes mellitus patients to determine if they were given adequate instructions and education on how to handle hypoglycemia. For these reasons, the current study aimed to increase diabetes patients' knowledge of how to prevent and treat hypoglycemia.

Research Method:

This study was conducted in a tertiary care medical Centre using a quantitative research strategy and a descriptive study design. One might expect a daily visit to the diabetic outpatient clinic. Twenty to thirty outpatients a day are checking in for scheduled checkups. One hundred patients who satisfied the inclusion criteria were chosen using a probability purposive random sampling method. Patients with a history of several chronic illnesses were excluded from this analysis. The data collection instruments utilized had already been evaluated for content validity and reliability; these included 8 items pertaining to glycemic alteration, 5 items pertaining to the management of hypoglycemic glycemic alteration, and 7 items pertaining to the prevention of glycemic alteration. The demographic variable sheet includes age, gender, educational status, occupation, and how long a person has had diabetes. After the tool's content was verified, the pilot study was carried out. The tool was validated using the "Karl-Pearson Correlation Coefficient" calculation, and its reliability was assessed using the "Test-Retest" approach. Karl-correlation Pearson's coefficient places the boundaries at -1.00 and +1.00. The reliability is confirmed by a "r" value greater than 0.7. So, it can be concluded that the tool can be trusted with the bulk of the study's data. Based on the goals of the study, descriptive statistics were used to examine the data, and the Chi-square test was used to examine whether or not there was a study between the samples' knowledge scores and their demographic characteristics.

Research Findings:
Graph-I: Demographic Data frequency

n=100
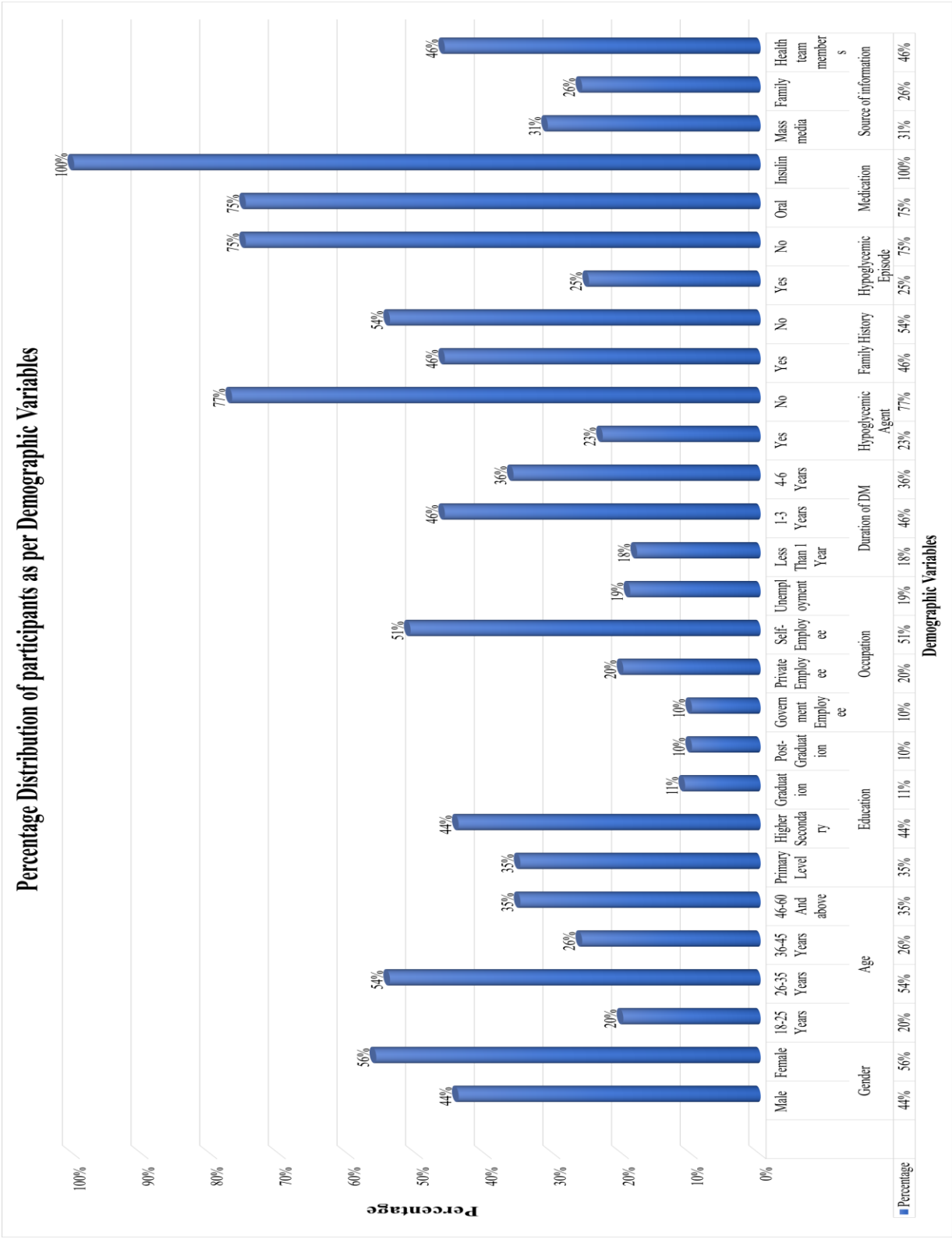
Section-II: Awareness regarding glycemic alterations among diabetic patients.

Awareness regarding glycemic alterations among diabetic patients

Percentage	Poor (0-4)	Good (5-8)
Percentage	22%	78%
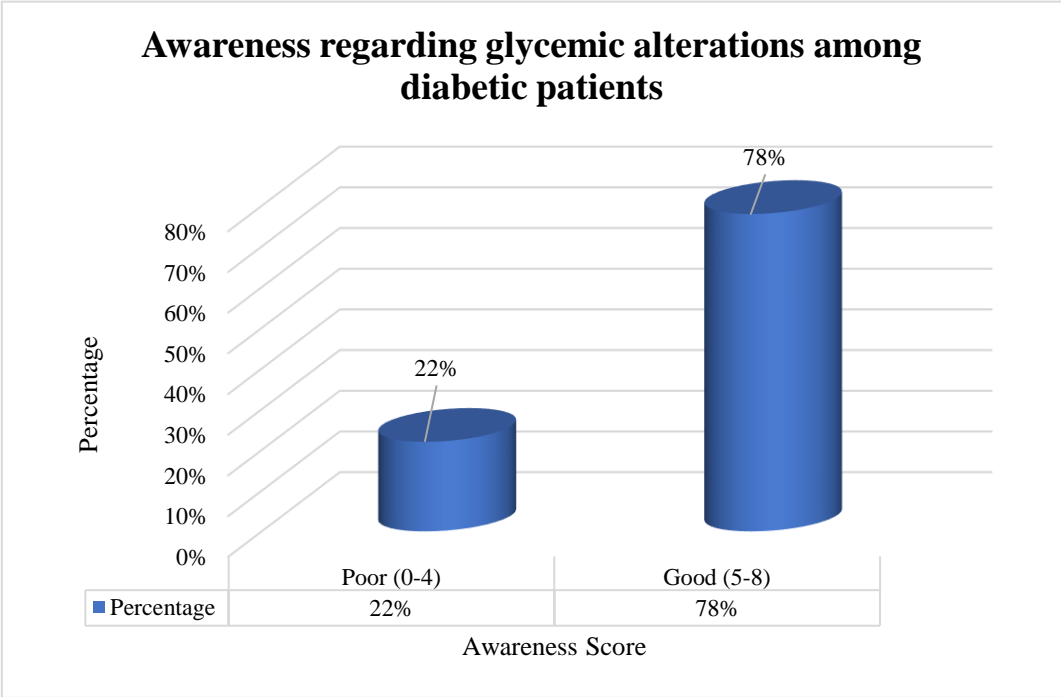
Section-III: Awareness regarding hypoglycemia management among diabetic patients

Awareness regarding hypoglycemia management among diabetic patients

Percentage	Poor (0-3)	Good (4-5)
Percentage	54%	46%

Section-IV: Awareness regarding glycemic alterations prevention among diabetic patients

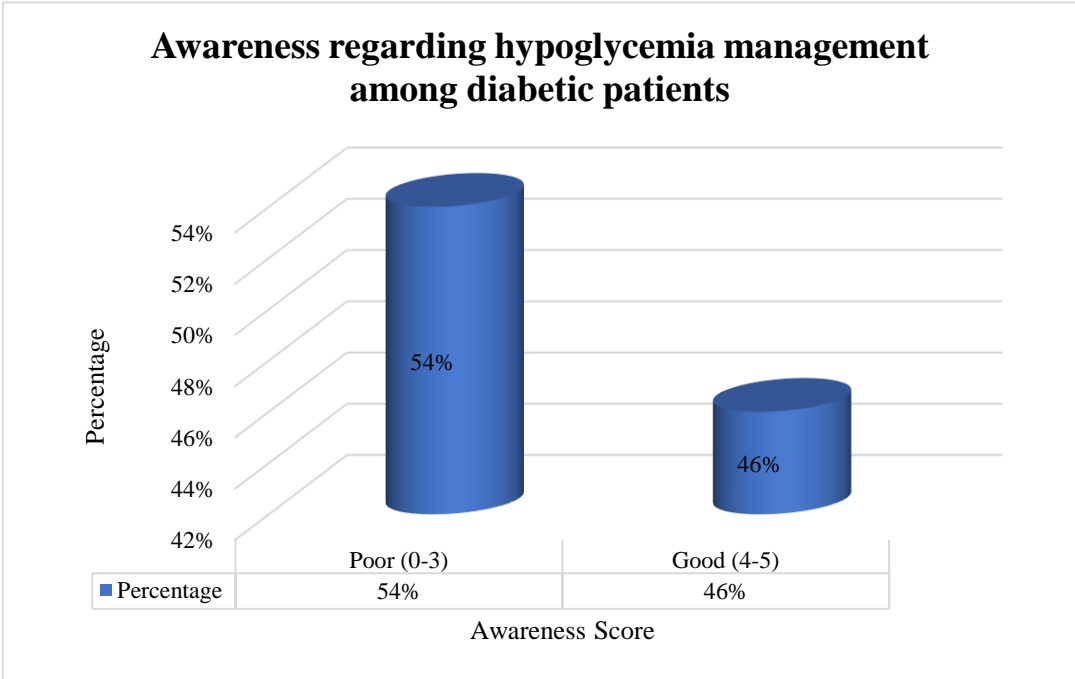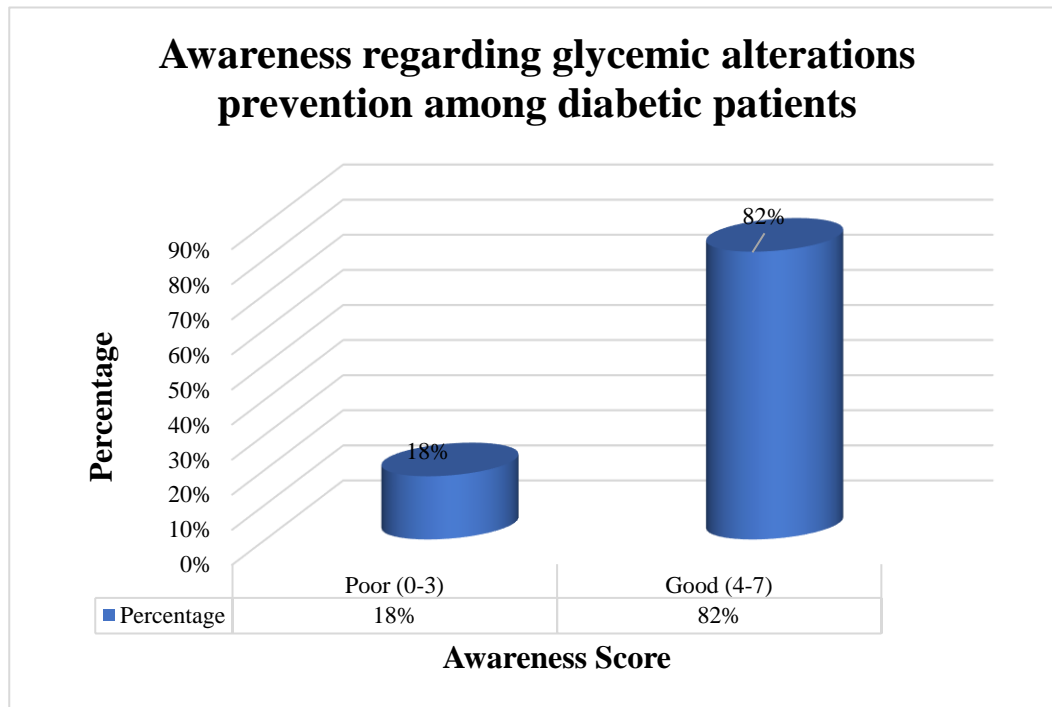**Section – IV: Association of demographic variables with awareness regarding glycemic alterations among diabetic patients.**

n=100

Demographic Parameters		Awareness		df	Chi-Square	Chi Table Value	P-value	Results
		Good	Poor					
Gender	Male	34	10	1	0.02	3.84	0.87	NA
	Female	44	12					
Age	18-25 Years	15	05	2	0.20	5.99	0.90	NA
	26-35 Years	43	11					
	36-45 Years	20	06					
	46-60 And above	27	08					
Education	Primary Level	27	08	3	0.54	7.81	0.90	NA
	Higher Secondary	35	09					
	Graduation	09	02					
	Post-Graduation	07	03					
Occupation	Government Employee	07	03	3	3.36	7.81	0.33	NA
	Private Employee	18	02					
	Self-Employee	37	14					

				df	Chi-Square	Chi Table Value	P-Value	Results
	Unemployment	16	03					
Duration of DM	Less Than 1 Year	13	05	2	0.51	5.99	0.77	NA
	1-3 Years	37	09					
	4-6 Years	28	08					
Hypoglycemic Agent	Yes	13	10	1	1.39	3.84	0.29	NA
	No	65	12					
Family History	Yes	38	08	1	0.07	3.84	0.78	NA
	No	40	14					
Hypoglycemic Episode	Yes	19	06	1	1.25	3.84	0.26	NA
	No	59	16					
Medication	Oral	24	76	1	0.09	3.84	0.75	NA
	Insulin	54	36					
Source of information	Mass media	22	09	2	0.53	5.99	0.76	NA
	Family	19	07					
	Health team members	37	09					

* Association at 0.05 level of significance

Section – V: Analysis related to the association of demographic variables with awareness regarding management of glycemic alterations among diabetic patients.

n=100

Demographic Parameters		Awareness		df	Chi-Square	Chi Table Value	P-Value	Results
		Good	Poor					
Gender	Male	34	10	1	0.25	3.84	0.61	NA
	Female	44	12					
Age	18-25 Years	15	05	2	0.39	05.99	0.82	NA
	26-35 Years	43	11					
	36-45 Years	20	06					
	46-60 And above	27	08					
Education	Primary Level	27	08	3	5.30	7.81	0.15	NA
	Higher Secondary	35	09					
	Graduation	09	02					
	Post-Graduation	07	03					
Occupation	Government Employee	07	03	3	4.52	7.81	0.21	NA
	Private Employee	18	02					
	Self-Employee	37	14					

	Unemployment	16	03					
Duration of DM	Less Than 1 Year	13	05	2	1.45	5.99	0.48	NA
	1-3 Years	37	09					
	4-6 Years	28	08					
Hypoglycemic Agent	Yes	13	10	1	3.42	3.84	0.06	NA
	No	65	12					
Family History	Yes	38	08	1	4.16	3.84	0.04	A*
	No	40	14					
Hypoglycemic Episode	Yes	19	06	1	0.50	3.84	0.04	NA
	No	59	16					
Medication	Oral	59	16	1	4.41	3.84	0.03	A*
	Insulin	24	76					
Source of information	Mass media	22	09	2	0.73	5.99	0.69	NA
	Family	19	07					
	Health team members	37	09					

* Association at 0.05 level of significance

Section – VI: Analysis related to the association of demographic variables with awareness regarding the prevention of glycemic alterations among diabetic patients.

n=100

Demographic Parameters		Awareness		df	Chi-Square	Chi Table Value	P-Value	Results
		Good	**Poor**					
Gender	Male	34	10	1	27.93	3.84	0.000	A*
	Female	44	12					
Age	18-25 Years	15	05	2	15.65	5.99	0.004	A*
	26-35 Years	43	11					
	36-45 Years	20	06					
	46-60 And above	27	08					
Education	Primary Level	27	08	3	43.16	7.81	0.0003	A*
	Higher Secondary	35	09					
	Graduation	09	02					
	Post-Graduation	07	03					
Occupation	Government Employee	07	03	3	34.37	7.81	0.005	A*

	Private Employee	18	02				
	Self-Employee	37	14				
	Unemployment	16	03				
Duration of DM	Less Than 1 Year	13	05	2	20.46	5.99	0.0003	A*
	1-3 Years	37	09				
	4-6 Years	28	08				
Hypoglycemic Agent	Yes	13	10	1	5.14	3.84	0.0023	A*
	No	65	12				
Family History	Yes	38	08	1	0.0352	3.84	0.023	NA
	No	40	14				
Hypoglycemic Episode	Yes	19	06	1	8.11	3.84	0.004	A*
	No	59	16				
Medication	Oral	24		1	9.40	3.84	0.002	A*
	Insulin	54					
Source of information	Mass media	22	09	2	25.76	5.99	0.000	A*
	Family	19	07				
	Health team members	37	09				

*Association at the significance level of 0.05.

Only one variable, family history, was calculated to be smaller than the chi-square table value, suggesting that it had no relationship with diabetic patients' awareness of glycemic change prevention. All other variables (age, gender, education, occupation, hypoglycemic agent, and hypoglycemic episode) were calculated to be greater than the chi-square table value for the prevention of glycemic alterations in diabetic patients. Thus, these characteristics were associated to awareness.

Discussion and Conclusion:

The study aimed to evaluate the level of knowledge among diabetic patients visiting multispecialty hospitals about the prevention and treatment of glycemic alteration. 100 samples were picked using the non-probability sampling methodology, namely the purposive selection method. Analysis of data collected via a self-designed questionnaire administered in several hospitals indicates that 22% of participants exhibited inadequate understanding of glycemic alteration, whereas 78% demonstrated satisfactory knowledge. Regarding the treatment of glycemic alteration, 54% of

participants had inadequate awareness, whereas 46% exhibited satisfactory knowledge. Regarding the prevention of glycemic alteration, it was shown that 18% of participants had a deficient understanding, whereas 82% of participants had a satisfactory level of knowledge. The current study was to evaluate the level of knowledge on glycemic changes among individuals with diabetes. The study results revealed that the majority of participants, 60%, were male, while 40% were female. Approximately 50% of the participants are between the age range of 36 to 45. Oral medicine accounts for 70%. Regarding the source of information, 50% originated from the health team.[7] Similar outcomes are obtained in the studies that were done before the interest, Dr. Komal Suresh Gawande's study in 2015. Diabetes mellitus (DM) is a metabolic condition caused by a combination of variables, including persistent hyperglycemia and disruptions in carbohydrate, lipid, and protein metabolism as a consequence of either inadequate insulin production, insulin resistance, or both. Out of 56 surveyed subjects, the study diabetes mean age was 39.48 3.49 (95% CI: 35.99-42.97), and the study diabetes duration was 7.768 1.372 (95% CI: 7.07-9.64). The majority of patients (64.29%) were male. Despite its limitations, this study may be utilized as a starting point to identify educational requirements and develop strategies for establishing good attitudes and helpful actions among diabetics.[8]

Implications: This study has significant implications for the fields of Nursing Education, Nursing Administration, and Nursing Research.

Recommendations: The results of this study can be generalized to a larger population; an experimental study can be conducted to assess its effectiveness; and a study could be conducted to review the management of nurses in providing care in a number of settings.

Conflict of Interest: In this study, no conflicts of interest exist.

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