

Study of Association between Knowledge and Practice Versus Dietary Pattern of type 2 Diabetes Patients in Eastern India

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Abstract: *The present study evaluates the knowledge and practice related to dietary pattern among type 2 diabetes mellitus (T2DM) patients of eastern India. We have randomly selected the data of 100 patients, who visited the clinics and hospitals in Kolkata. All the data have been collected from clinical records and questionnaire survey to know the knowledge and practice related to dietary pattern among T2DM patients. The association between knowledge and practice related to the dietary pattern did not observe statistically significant difference among T2DM patients. Moreover, maximum frequency of knowledge observed good, but the frequency was higher in poor practice. In conclusion, knowledge and practice related to dietary pattern, higher frequency of good knowledges but poor practices were recorded, which may influence the prevalence of T2DM in the patients of eastern India. This is a preliminary study and further suggested with a larger sample size to study the dietary management through knowledge and practice for T2DM patients.*

Keywords: Type 2 Diabetes mellitus, Dietary pattern, Knowledge and Practice, Diabetic management, Eastern India

1. Introduction

Diabetes mellitus (DM) is one of the metabolic disorders causes health hazards of the 21st century. ^[1]This disease is categorized into type - 1 (due to islet beta - cell destruction) and type - 2 (with varying degree of insulin resistance and/or insulin secretory defect). Besides these, other specific types of diabetes viz. gestational diabetes and secondary diabetes are well - known. The pre - diabetes (intermediate hyperglycaemia) occurrence is also found as borderline blood sugar level may lead to diabetes in the future. ^[2] There are several aetio - pathologies such as abnormal insulin secretion, insulin action, or both, as well as disorders of carbohydrate, fat, and protein metabolism recorded. ^[3]

According to World Health Organization (WHO) estimation, globally DM is ranked as third highest risk factor for early mortality, after hypertension and tobacco addiction. It is contributed 5 million (14.5%) of all - cause mortality among people aged 20 - 79 years. ^[4] In 2019, the global DM prevalence has been estimated of about 9.3% (463 million people), which predicted to be increasing to 10.2% (578 million) by 2030 and 10.9% (700 million) by 2045. ^[1]

Dietary practice implies to know preferences in food consumption among patients', which is based on diabetes nutrition education, highlighting to take foods with lesser fat, higher fiber, and lower sodium. ^[5] It is recommended that carbohydrate, protein, and fiber should be taken on a daily basis with proportion of 45 - 50%, 10 - 20%, and 12% of energy, respectively, for fat minimum 0.5 g per meal. ^[6] Generally, nutrition plays a vital role to control or prevent DM. ^[1] The risk of T2DM is closely related to both under and over nutrition. ^[7] It is well fact that the balanced food

intake with endogenous and/or exogenous insulin levels is preventing DM in improving glycemic control. ^[8] Furthermore, inadequate health information system and absence of data regarding dietary knowledge and practice of DM patients affect the long - term management of diabetes in eastern India is lacking.

The present study attempted to evaluate the knowledge and practice related to dietary pattern among type 2 diabetes mellitus (T2DM) patients of eastern India.

2. Materials and Methods

Research questions

Study of any association between knowledge and practice of T2DM patients' regarding dietary pattern.

Type of study

Questionnaire - based survey in clinics.

Place of study

The study was conducted in the clinics and hospitals.

Study period

The study was conducted for a period of two years (2020 - 2022).

Sample size

A total 100 patients were studied who visited clinics and hospitals.

Sampling method

Random sampling was done for T2DM patients.

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Data collection

Data collections were done by oral questionnaire.

Inclusion criteria

- 1) Patients having T2DM.
- 2) Patients willing to participate in this study.

Exclusion criteria

- 1) Not willing to participate.
- 2) Patients who were severely ill at the time of data collection.
- 3) The patient who were suffering from chronic illness at the time of data collection.

Statistical analysis

The data were statistically analysed by using SPSS tool (version, 20). Categorical variables were expressed by frequency and percentage. The association between knowledge and practice related to dietary pattern such as protein, carbohydrate, fat and calorie were analysed by using Chi square method. In statistical analysis, $P < 0.05$ was considered statistically significant.

3. Results

Table 1 describes the demographic profiles of T2DM patients. Maximum frequency (36%) of age groups (51 - 60 years) followed by 61 - 70 years (29%) and 41 - 50 years (20%) were recorded in patients. Among patients, higher males (52%) and lower females (48%) were recorded. Majority of patients were from urban area (94%). Maximum patients were educated up to college level (39%) followed by secondary level (35%).

Table 1: Demographic profiles of T2DM patients

Demographic profiles	Frequency	Percent
Age group (Years)		
20 - 30	3	3
31 - 40	4	4
41 - 50	20	20
51 - 60	36	36
61 - 70	29	29
>70	8	8
Gender		
Male	52	52
Female	48	48
Residence		
Urban	94	94
Rural	6	6
Education		
Primary	5	5
Secondary	35	35
HS	12	12
College	39	39
University	7	7
Illiterate	2	2

Table 2 evaluates the association between knowledge and dietary pattern among T2DM patients. The knowledge of protein intake as per dietary pattern, the association did not observe statistically significant ($P=0.611$) change. The knowledge of carbohydrate intake as per dietary pattern, the association did not observe statistically significant ($P=0.779$)

change. The knowledge of fat intake as per dietary pattern, the association did not observe statistically significant ($P=0.539$) change. The knowledge of calorie intake as per dietary pattern, the association did not observe statistically significant ($P=0.222$) change.

Table 2: Association between knowledge and dietary pattern among T2DM patients

Parameters	Dietary pattern	Knowledge		Total	Chi square value	P – value
		Good	Poor			
Protein	Low	18	7	25	.985	.611
	Optimum	26	6	32		
	High	35	8	43		
	Total	79	21	100		
Carbohydrate	Low	45	11	56	.499	.779
	Optimum	6	1	7		
	High	28	9	37		
	Total	79	21	100		
Fat	Low	9	3	12	1.325	.539
	Optimum	41	13	54		
	High	29	5	34		
	Total	79	21	100		
Calorie	Low	27	7	34	3.014	.222
	Optimum	20	9	29		
	High	32	5	37		
	Total	79	21	100		

Table 3 evaluates the association between practice and dietary pattern among T2DM patients. The practice of protein intake as per dietary pattern, the association did not observe statistically significant ($P=0.611$) change. The practice of carbohydrate intake as per dietary pattern, the association did not observe statistically significant ($P=0.623$) change. The practice of fat intake as per dietary pattern, the association did not observe statistically significant ($P=0.489$) change. The practice of calorie intake as per dietary pattern, the association did not observe statistically significant ($P=0.737$) change.

Table 3: Association between practice and dietary pattern among T2DM patients

Parameters	Dietary pattern	Practice		Total	Chi square value	P – value
		Good	Poor			
Protein	Low	3	22	25	.985	.611
	Optimum	4	28	32		
	High	9	34	43		
	Total	16	84	100		
Carbohydrate	Low	8	48	56	.947	.623
	Optimum	2	5	7		
	High	6	31	37		
	Total	8	48	56		
Fat	Low	1	11	12	.611	.489
	Optimum	9	45	54		
	High	6	28	34		
	Total	16	84	100		
Calorie	Low	4	30	34	1.429	.737
	Optimum	4	25	29		
	High	8	29	37		
	Total	16	84	100		

Table 4 evaluates the association between overall knowledge and practice among T2DM patients. This association did not observe statistically significant ($P=0.809$) change.

Table 4: Association between knowledge and practice of dietary pattern among T2DM patients

	Practice		Total	Chi square value	P – value
	Good	Poor			
Knowledge	Good	13	66	.058	.809
	Poor	3	18		
Total		16	84	100	

4. Discussion

The prevalence of T2DM is influenced by knowledge and practice of dietary pattern. In the present study, higher values of poor practice compared to knowledge related to dietary pattern. Interestingly, it was noted that the prevalence of T2DM might be higher in the eastern part of India as per poor practice among patients. In an earlier study, among literate patients of Kolkata, India the knowledge regarding diabetes was found not good and suggested to create awareness on diabetes.^[9] Herein, knowledge was observed good, but patients did not practice of dietary pattern for maintaining diabetic diet because diabetic education may not be updated. Still, many studies have found poor knowledge regarding dietary pattern among T2DM patients in developing and low - income countries.^[1]¹⁰Some earlier studies have observed poor practice of dietary pattern among T2DM patients, which supported the present study.^[5, 11]Moreover, it was noted that facing difficulty to choose foods, nonavailability of fruits and vegetables, and worrying about the high cost of foods were the factors significantly associated with poor dietary practice.^[5]

5. Conclusion

It is concluded that knowledge and practice related to dietary pattern, former one found good while later one found poor, which may influence the prevalence of T2DM in the patients of eastern India. This is a preliminary study and further suggested with a larger sample size to study the dietary management through knowledge and practice for T2DM patients.

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Conflict of interest

The authors declare no potential conflicts of interest with respect to research, authorship and/or publication of this article.

Consent

Informed written consent was obtained from all the participants.

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