

Assessment Knowledge of Diabetic Patients towards Prevention of Diabetic Retinopathy at the Endocrinology and Diabetes Center in Basra City

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Abstract

Objectives: The study goals to: To assess diabetic patients' knowledge of diabetic retinopathy (DR), to assess the knowledge of diabetic patients regarding the prevention of diabetic retinopathy and to find out the relationship between the level of knowledge regarding the prevention of diabetic retinopathy and clinical socio-demographic characteristics.

Methodology: A cross-sectional study design was performed through out the present study for period from 1st December 2020 to 20th March 2021. A non - probability purposive sample of 100 patients at the Endocrinology and Diabetes Center in Basra City. Data were collected through the questionnaire constructed and the self-management reporting process. The questionnaire consists of three parts: social and clinical demographic characteristics (age, gender, marital status, educational level, occupation, the environment, economic Status, duration of illness, type of diabetes mellitus, A family history of diabetes, type of treatment for diabetes and history of eye disease). The second part consist of questionnaire contain questions related to general information regarding knowledge of diabetic patients about diabetic retinopathy. The third part contains questions related to the prevention of diabetic retinopathy in patients with diabetes. The validity of the tool content was determined by a committee of experts, and the internal consistency of the tool was determined through a pilot study and the calculation of the alpha correlation coefficient ($r = 0.70$). Analyzing data by descriptive and inferential statistical approaches using (SPSS) version 22.0.

Results: The results of the study showed that (55%) had a poor level of knowledge regarding diabetic retinopathy, and (50%) had a moderate level of knowledge regarding the prevention of diabetic retinopathy.

Keywords: Knowledge, Diabetic, Prevention, Diabetic Retinopathy.

Introduction

Diabetes (DM) is a progressive disease with metabolic disorders and microvascular complications such as retinopathy, neuropathy, and nephropathy. Diabetic retinopathy (DR) is one of the most common complications of diabetes, its severity, and a major cause of blindness worldwide ⁽¹⁾. 422 million people suffer from diabetes worldwide, especially in developing countries. Diabetes is currently one of the fourth leading causes of death in the world. Global estimates of diabetes among adults over the age of 18 increased from 4.7% in 1980 to 8.5% in 2014.1 Diabetes can be treated

so that its consequences can be avoided or delayed through diet, physical activity, regular examination and treatment for complications ⁽²⁾. The World Health Organization (WHO) aims to stimulate and support the adoption of effective measures to control, prevent and control diabetes and its complications, particularly in low and middle income countries ⁽³⁾. Patient awareness of DR will be the key to further improvements in DR management and prevention. Patients should be told that they play an essential role in blood sugar control and eye care ⁽⁴⁾. Early detection and intervention of diabetes has been shown to be critical for preventing irreversible blindness and improving patient quality of life. The

effectiveness and cost-effectiveness of early detection of DR has been demonstrated ⁽⁵⁾.

Objectives of the Study:

1. To assess diabetic patients' knowledge of diabetic retinopathy (DR).
2. To assess the knowledge of diabetic patients regarding the prevention of diabetic retinopathy.
3. To find out the relationship between the level of knowledge regarding the prevention of diabetic retinopathy and clinical socio-demographic characteristics.

Methodology

In this chapter present the following:

Design of study:

Descriptive study design was conducted though out the present study from period 1st December 2020 to 20st March 2021.

The setting of the study:

Study was conducted at Endocrinology and Diabetes Center in Al- Basra City.

Sample of the study: randomize sampling of (100) patients that come and admitted to Endocrinology and Diabetes Center in Al- Basra City.

Criteria:

- A- Female and male patients have diabetes.
- B- Patients accepted to cooperate in study.

Tool of study:

In order to determine the Assessment Knowledge of Diabetic Patients towards Prevention of Diabetic Retinopathy, the researchers constructed questionnaire consists of:

Part 1: Social and clinical demographic characteristics: include (age, gender, marital status, occupation , educational level, economic Status, the environment , duration of illness, type of diabetes mellitus, A family history of diabetes , type of treatment for diabetes and history of eye disease).

Part 2: Questionnaire consists of questions related to General information regarding knowledge of diabetic patients about diabetic Retinopathy.

Part 3: Questionnaire consists of questions related to prevention of diabetic retinopathy among diabetes patient.

Ethical Considerations: -Official permission was obtained from the administrative of Basra health office and from patients at Endocrinology and Diabetes Center before their inclusion in the study. The researcher explained the purpose of the study for each patient before participation.

Data collection:-

Data collection was performed through the use of the study tool although application interview technique was used as an appropriate method of data collection.

Statistical Analysis

Data were analyzed using IBM.SPSS (version 22) to data presented as number and percentage data analyzed by applying frequency and percentage.

Results

Table (1): Distribution of the sample according to social and demographic characteristics

Characteristic	Groups	Frequency	Percent
Age	18 – 27	9	9.0
	28– 37	8	8.0
	38 – 47	20	20.0
	48– 57	34	34.0
	58 -- 67	29	29.0
	Total	100	100
Mean ± SD 3.66 ± 1.232			
Gender	Male	40	40.0
	Female	60	60.0
	Total	100	100
Marital status	Married	80	80.0
	Single	9	9.0
	Widow	11	11.0
	Divorced	0	0
	Total	100	100
Education Level	Primary	42	42.0
	Intermediate	32	32.0
	Secondary	15	15.0
	diploma	6	6.0
	University or higher	5	5.0
	Total	100	100
Occupation	Work	24	24.0
	Don't work	16	16.0
	House wife	49	49.0
	Retired	11	11.0
	Total	100	100
Economic Status	High	12	12.0
	Middle	75	75.0
	Low	13	13.0
	Total	100	100
The environment	Urban	92	92.0
	Rural	8	8.0
	Total	100	100

F=Frequency, %= Percent

The results of this table reveal that average age of patients among study (3.66 ± 1.232) years old with highest percentage (34.0%) of age (48 □ 57), Concerning the gender of patients the largest number of study sample are female (60.0 %), The marital status among study sample refers that more of them are married with the highest percentages (80.0 %), Regarding the educational level of patients, the finding refers that the highest

percentage of patients are graduated from primary school (42.0 %) , The occupational status indicates that (49.0%) of patients are housewives , The patients among the study sample reveal that they associated with moderate socioeconomic level (75.0%), Relevant to the environment , the finding reveals that more of the patients are resident in an urban area (92.0%).

Table (2): Distribute the sample according to their clinical characteristics

Characteristic	Groups	Frequency	Percent
Duration of illness	1-5	39	39.0
	6-10	28	28.0
	11-15	21	21.0
	>15	12	12.0
	Total	100	100
Type of diabetes mellitus	Type I	13	13.0
	Type II	12	12.0
	Don't know	75	75.0
	Total	100	100
Family history of diabetes	Yes	59	59.0
	No	41	41.0
	Total	100	100
Type of treatment for DM	Tablets only	44	44.0
	Injection only	47	47.0
	Both	9	9.0
	Total	100	100
History of eye disease	Yes	49	49.0
	No	51	51.0
	Total	100	100

F: Frequency, %: Percentage

This table indicates duration of illness is (1-5 years) for patients among the study sample (39.0 %), regarding type of diabetes mellitus the results showed that a higher percentage of the studied sample is don't know (75.0%),

Most of the patients among the study sample showing that they having a family history of diabetes (59.0%), they also show that most of them are on injection only treatment of diabetes (47.0%) , Regarding suffering from eye diseases, only (51.0%) of the patients are suffering from eye disease.

Table (3): Overall assessment of patient's knowledge regarding diabetic's retinopathy

Classification	Frequency	Percent	M.S	S.D	Ass
Poor	55	55.0	1.1688	0.49409	poor
Moderate	32	32.0			
Good	13	13.0			
Total	100	100			

Ass: Assessment, F: Frequency, %: Percentage, M.S: Mean of Score, S.D:standard deviation

Poor = 1 – 1.67, Moderate = 1.68 – 2.33. Good = > 2.33

This table presents the level of patients' knowledge regarding diabetic's retinopathy; the finding among the study sample reveals that patients are showing poor level of knowledge (55.0%).

Table (4) Overall assessment of patient's knowledge regarding prevention of diabetic's retinopathy

Classification	Frequency	Percent	M.S	S.D	Ass
Poor	35	35.0	1.8400	0.33382	Moderate
Moderate	50	50.0			
Good	15	15.0			
Total	100	100			

Ass: Assessment, F: Frequency, %: Percentage, M.S: Mean of Score, S.D: standard deviation

Poor = 1 – 1.67, Moderate = 1.68 – 2.33. Good = > 2.33

This table reveals the overall assessment of patients' knowledge about prevention of diabetic retinopathy; the finding indicates that patients among the study samples are showing moderate level of knowledge (50.0%).

Table (5): Association between Socio-Demographic characteristic of patients and Overall knowledge regarding diabetic’s retinopathy.

Socio-demographic Characteristics	Rating	Knowledge			Sig.
		Poor	Moderate	Good	
Age	18 – 27	6	1	2	p- value (0.70) d.f = 8 N.S.
	28– 37	3	4	1	
	38 – 47	9	7	4	
	48– 57	16	8	10	
	58 -- 67	16	8	5	
Gender	Male	21	10	9	p-value (0.858) d.f = 2 N.S.
	Female	29	18	13	
Marital status	Married	38	26	16	p-value (0.294) d.f = 4 N.S.
	Single	6	0	3	
	Widow	6	2	3	
Education Level	Primary	22	15	5	p-value (0.003) d.f = 8 H.S.
	Intermediate	16	8	8	
	Secondary	10	3	2	
	diploma	2	2	2	
	University or higher	0	0	5	
Occupation	Work	7	7	10	p-value (0.037) d.f = 6 S
	Don’t work	11	5	0	
	House wife	25	15	9	
	Retired	7	1	3	
Economic Status	High	8	4	0	p-value (0.258) d.f = 6 N.S.
	Middle	37	18	19	
	Low	4	6	3	
The environment	Urban	45	25	22	p-value (0.292) d.f = 2 N.S.
	Rural	5	3	0	

df: Degree of freedom, P: Probability value, Sig: Significant, N.S: Not Significant, H.S: high significant

This table depicts that there is no significant relationship between patients' knowledge with their (age, gender, marital status, the environment and economic status) among study sample evidenced by insignificant differences at $p\text{-value} \leq 0.05$.

Also, the table show that their significant relationship between patients' knowledge with their occupation at $p\text{-value} \leq 0.05$, and high significant with their educational level at $p\text{-value} \leq 0.05$.

Table (6): Association between clinical characteristics of patients and Overall knowledge regarding diabetic's retinopathy.

clinical characteristics	Rating	Knowledge			Sig.
		Poor	Moderate	Good	
Duration of illness	1-5	23	8	8	p-value (0.173) d.f = 6 N.S.
	6-10	9	13	6	
	11-15	13	3	5	
	15 and more	5	4	3	
Type of diabetes mellitus	Don't know	43	19	13	p-value (0.077) d.f = 4 N.S.
	Type I	3	6	4	
	Type II	4	3	5	
Type of treatment for DM	Tab only	22	11	11	p-value (0.128) d.f = 4 N.S.
	Injection only	27	12	8	
	Both	1	5	3	
Family history of diabetes	Yes	26	17	16	p-value (0.252) d.f = 2 N.S.
	No	24	11	6	
History of eye disease	Yes	19	18	12	p-value (0.070) d.f = 2 N.S.
	No	31	10	10	

df: Degree of freedom, P: Probability value, N.S: Not Significant

This table depicts that there is no significant association between patients' knowledge with their (duration of illness , type of diabetes mellitus , type of treatment for diabetes mellitus , family history of diabetes and history of eye disease) among study sample evidenced by insignificant differences at $p\text{-value} \leq 0.05$.

Discussion

1. Discuss the social and demographic characteristics of the study sample

The finding of current study reveals that the average age of patients among study sample is (3.66 ± 1.232) years

old with highest percentage (34.0%) of age (48– 57). This result congruent with cross-sectional descriptive study was conducted by (6), their studied results revealed that (35.2%) of sample their age between (50-59) years and this finding in the same line with present study. The findings of the study underhand depict that (60.0 %) of patients are females among study sample. These results are compatible with a cross-sectional study, the findings referred that (64.2%) of patients were females (7). Concerning the marital status among study sample. The results of the current study illustrate that more of them are married with the highest percentages (80.0 %). These findings are identical with (8) who have been found that (79%) of the sample were married. Regarding the educational level of patients; The results of the current study reveal that the highest percentage of patients are graduated from primary school (42.0 %). These results are harmonizing with cross-sectional that carried out by (9) who stated that (54.0%) of the sample were primary school. The results of the study underhand indicate that (49.0%) of patients are housewives among the study sample. These findings come along with cross sectional study, in which (32.0%) of patients were housewife (10). The result of the current study depicts that the socioeconomic level of patients among the study group is associated with moderate socioeconomic level (75.0%), These results come along with (11) Their studies were stated that (71.2%) of participants were with moderate socioeconomic levels. Results of the current study reveal that more of the patients are residents in an urban area among the study sample (92.0%). These results are inconsistent with (12) study; their results stated that (52.0%) of participants are resident in urban areas.

Discussion of Clinical Characteristics

The results of current study indicate duration of illness is (1-5 years) for patients among the study sample (39.0 %). These findings harmonizing with study (13) who reported that sample of study had duration of diabetic between (1-5 years) (45.1%). The finding of the study showed that a higher percentage of the studied sample is don't know (75.0%). This study was in agreement with a cross-sectional study conducted in two primary health care centers at King Abdulaziz Medical

City in Riyadh (14). Who reported that sample of study don't know the type of diabetic mellitus (85.0%). And also show that most of study sample have a family history of diabetic (59.0%) and this congruent with this study reported that (71.0%) with family history for diabetes mellitus. The results of the current study show that more patients are undergoing parenteral therapy for diabetes patients (47.0%) .These findings are identical with (15) who indicated that most of patients on insulin drugs (57.5%). The findings of study underhand reveal that only (51.0%) of the patients among the study sample suffering from eye disease. These results are incompatible with study entitled (Factors associated with retinal screening among patients with diabetes in Taiwan) conducted by (13). The findings referred that the majority of participants (42.9%) suffering from eye problem.

Overall assessment of patient knowledge regarding diabetic's retinopathy

The findings of the present study reveal the overall assessment of patients' knowledge regarding diabetic's retinopathy; the finding indicates that patients among the study sample show poor level of knowledge (55.0%). These results are consistent with (16) who reported that half of the respondents (60.8%) had no knowledge of diabetic retinopathy.

Overall assessment of patient's knowledge regarding prevention of diabetic's retinopathy

The findings of present study reveal the level of patients' knowledge regarding prevention of diabetic's retinopathy; the results show that (50.0%) of study sample have moderate level of knowledge and these findings in-contrast with cross-sectional survey conducted by (17) who reported that (75.0%) have poor knowledge regarding prevention of diabetic retinopathy.

The relationship between sociodemographic characteristics of patients and general knowledge regarding diabetic retinopathy.

The results of the present study show that there is no statistically significant relationship between patients' knowledge with (age, gender, and economic status). This

finding is contradicted by a study (18). The results of the study underhand depict that no statistically significant relationship between social status and environment.

These findings are not compatible with (12) who said that there is significant association with environment. The results of the current study also revealed the existence of statistically significant differences between patients knowledge with their occupation, the results are in the same line with (12). And the finding of current study depict that there is significant relationship between patients' knowledge with their educational level. These findings are compatible with (5) who said that there is significant differences with education at ($P < 0.05$).

Association between clinical characteristics of patients and Overall knowledge regarding diabetic's retinopathy.

The findings of the present study indicate that there is no statistically significant relationship between patients' knowledge with their duration of diabetes. These results are matching with cross sectional study conducted by (19) their results stated that no association was found between diabetes duration and consciousness level. And this current study not compatible with (12) who reported that significant association with family history of DM. These findings go along with a cross- sectional study mentioned by (20) there was no significant relationship between DR and type of diabetes. These results are inconsistent with (20) their results mentioned that there was significant association with type of treatment for DM. The findings of the present study indicate that there is no significant relationship between patients' knowledge with their history of eye disease. These results are incongruent with (10), which stated that there is a significant correlation between patients' knowledge with history of eye disease.

Association between Socio-Demographic characteristic of patients and Overall knowledge regarding prevention of diabetic's retinopathy.

The findings of the study underhand indicate There was no statistically significant relationship between patients' knowledge regarding prevention of

diabetic retinopathy and their gender. These study in same line with (2). But significant association with their age and this disagree with current study. The results of the current study indicate that there is no statistically significant relationship between the patients' knowledge

with their education, marital status. These results are in the same line with (21) who said that there is no significant. The results of the study underhand indicate that there is no significant relationship with their economic status and this disagree with (22) who said that there is significant association. The results of the present study indicate that there is no statistically significant relationship between knowledge of the patient with their occupation and environment, this study disagree with (10) who reported that significant association with occupation and environment.

Association between clinical characteristics of patients and overall knowledge regarding prevention of diabetic retinopathy.

The results of the present study show that no statistically significant relationship between them was reported (duration of DM and family history for DM) and regarding prevention of diabetic retinopathy. These not compatible with (2) reported that there is statistical association between them. The finding of this study shows that high significant association between knowledge and history of eye disease and this harmonizing with (14) who reported that high significant with eye problem. The finding of this study shows that no Significant correlation of knowledge regarding the prevention of diabetic retinopathy with type of DM and type of DM treatment. These study incompatible with (23) who reported that significant association.

Conclusion

1. A highest percent of the study sample were middle age female, married, housewife, and primary school, resident in an urban area with moderate socioeconomic level.

2. There is a significance need for improving patient knowledge regarding prevention of diabetic retinopathy between (occupation, environment, duration of illness,

type of DM and treatment, eye disease).

Recommendations:

1. Encourage people with diabetes to talk about diabetic retinopathy with their doctors.

2. Presenting the most important points in this study to primary health care center physician in training centers and writing a booklet on diabetic retinopathy for distribution to diabetic patients.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Nursing and all experiments were carried out in accordance with approved guidelines.

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