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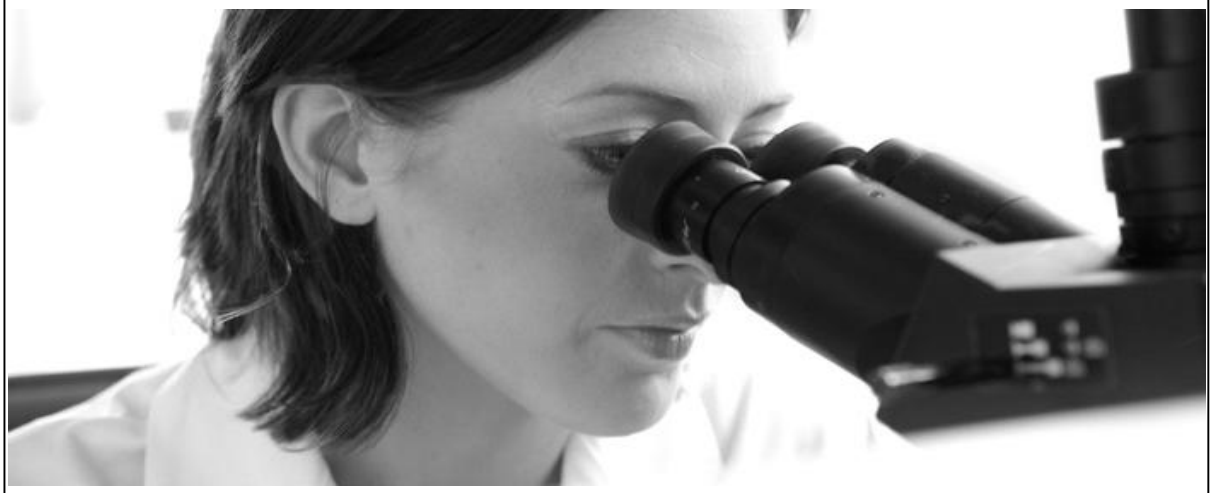

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RESEARCH ARTICLE

ASSESSMENT OF DIABETIC PATIENT'S KNOWLEDGE ABOUT DIABETES MELLITUS IN PRIMARY HEALTH CENTERS

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ABSTRACT

This study was carried out on 100 saudi patients recording in the primary health centers (PHCs) at Riyadh city. The aim of this study was to assess diabetic patient's knowledge about Diabetes Mellitus (DM) in PHCs of Riyadh city. The data was collected using one tool; "Structured questionnaire sheet" which consists of 38 questions related to socio-demographic characteristics, patient's history and diabetes mellitus. The result of this study indicated that about more than half of both male and female patients had satisfactory knowledge regarding to DM. The most of male patients (90.9%), and 73.6% of female patients had satisfactory knowledge regarding the signs and symptoms. Meanwhile more than half of both male and female patients (54.5% and 52% respectively) had satisfactory knowledge regarding the Complications. There is significant relationship between gender and Patient's DM Type. Also, there was no significant relationship between gender and Frequency of follow up DM, and checking the blood glucose level.

INTRODUCTION

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar. Hyperglycemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels [1,2]

Diabetes Mellitus is a global disease with an extreme effect on patient's life due to its major complications and its risk factors for other dangerous diseases such as coronary artery disease [3]. According to World Health Organization WHO**,** the global prevalence of diabetes * was estimated to be 9% among adults aged 18+ years, 171 million worldwide suffer from diabetes, and an estimated 1.5 million deaths were directly caused by diabetes [4-6].

The Kingdom of Saudi Arabia (KSA) is rapidly developing country with a change that influenced the lifestyle of the people to wards urbanization, particularly over the past 3 decades. Previous surveys from KSA suggested that diabetes is present in epidemic proportions throughout the country with exceedingly high rates concentrated in urban areas [7].

In 2013, the top 10 countries with higher prevalence of diabetes are Tokelau (37.5%), Federated States of Micronesia (35%), Marshall Islands (34.9%), Kiribati (28.8%), Cook Islands (25.7%), Vanuatu (24%), Saudi Arabia (23.9%), Nauru (23.3%), Kuwait (23.1%) and Qatar (22.9%)[8]. At Riyadh city, the prevalence of diabetic patients in PHCs is 461 saudi male and 571 saudi female. Diabetes care is a lifelong responsibility, careful management and early treatment strategies may reduce the risk of complications, some of which are fatal [8-10].

Diabetes mellitus remains the most common cause of blindness, kidney failure, heart disease and stroke is two to four folds greater among people with diabetes. At least 65% of people with diabetes will die from a heart attack or stroke, yet many individuals remain un aware of these risks [11-12].

The management of diabetes poses a challenge to the medical and nursing staff as well as to the patients themselves. Since diabetes is a chronic disorder, most diabetic patients need to take their treatment [5]. Also the control of DM through a tight schedule of blood glucose and urine sugar monitoring, medication and adjustment to dietary modification[13-14].

Moreover Lwueze[13] added that such a chronic condition requires competent self-care, which can be developed from a thorough understanding of the disease process, and the

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management challenges by the patient and family members. This pre-supposes a need for some form of diabetes education and counseling for the patient and family members. According to Colbert [15] education and supporting diabetic patients in managing their daily lives are important goals of diabetic patients care today.

Miyar[16] reported that poor knowledge about DM affects the success of the treatment, prevention of impending chronic co-morbidities and the chance to improve the quality of life **.**

Based on the previous mentioned statement and Miyar study [16] found that most of diabetic patients had satisfactory level of knowledge about DM and there is an urgent need to increase the awareness toward complications of the disease, and author suggested that change in the diabetic patient's behavior in terms of their lifestyle is affected by the knowledge they have about their disease ,as well as other factors like the meaning of the disease, risks and control methods.

Moodley [17] found that the regular assessment of patient's knowledge is important. Therefore, there is a need to assess diabetic patient's knowledge about diabetes mellitus in PHCs at Riyadh city.

Problem Statement

There is an urgent need to assess diabetic patient's knowledge about DM because their knowledge may affect on their lifestyle .Hence, it will control their disease.

Aim Of Study

To assess diabetic patient's knowledge about Diabetes Mellitus in PHCs at Riyadh city.

MATERIAL AND METHODS

Research Design

The design of this study is a descriptive study done to assess diabetic patient's knowledge about Diabetes Mellitus disease in PHCs at Riyadh city.

Setting

The study was conducted in two primary health centers (PHCs) at Riyadh city.

Subjects

The population of this study consisted of 100 saudi patients who have recording in the primary health centers (PHCs) at Riyadh city.

Tool for data collection

One tool was used in the study “structured questionnaire sheet”:- It was developed by the researcher based on the review of related nursing literature to assess diabetic patient's knowledge about diabetes mellitus at PHCs at Riyadh city.
It comprised of two parts.

Part I

It included items related to socio-demographic characteristics of the studied patient such as age, sex, marital status, educational level and occupation.

Part II

It included 38 questions related to patient's knowledge regarding DM**,** (patient's history, signs and symptoms, management, and complications).

Pilot study

A pilot study was carried out after the development of the tools. It was carried out on 10 patients recording in the primary health centers (PHCs) at Riyadh city to test the reliability and applicability of the tools of the study. The necessary modifications were done based on the results of the pilot study.
Ethical Considerations Permission to conduct the study was obtained from the responsible authorities after explanation its purpose. The tools were tested for their content validity and clarity by 9 experts in nursing field and doctors specialized in the management of patients with **DM** and appropriate modification was done accordingly.

Data was obtained from each patient prior to their inclusion in the study after explaining its purpose and importance. Confidentiality of the information was assured by the researcher.

Scoring system

The total score of patient' knowledge against the 4 items was calculated to be 27. The respondent was given one point for each correct answer and zero for incorrect one. For each part, the scores of the items were summed up. These scores were converted into a percent score. Total score of 60% and more was considered satisfactory in knowledge while scores below 60% was considered unsatisfactory.

Statistical analysis

After data were collected, they were coded and transformed into a specially designed format suitable for computer feeding. All entered data were verified for any errors. Data were analyzed using statistical package for social sciences **(SPSS)** windows 17.0 versionnd were presented in tables.

RESULTS

Table (1) shows the socio-demographics characteristics of studied patients. About two third of the male patients (60.6%) were more than 50 years and, (18.2%) of male patients were 35 years and less than 50 years .While about one third of female patients (38.8%) were 35 years and less than 50 years

and 25.4% of female patients were 20 years and less than 35 years.

As regards to their educational level, most of male patients (27.3%, 27.3 %) had primary and bachelor certificate respectively. While more than half of the female patients (52.2%) were non educated, and minority of female patients (1.5%) had Secondary certificate.

About more than half of the male patients (54.5 %) and the majority of female patients (80.6%) don't work .The majority of male patients (81.8%) and about two third of female patients (67.2%) are married.

(NIDDM) while one third of female patients (38.8 %) were insulin dependent diabetes mellitus (IDDM).The majority of male patients (78.8%) and female patients (71.6%) regarding frequency of follow up were monthly.

As regard to frequency of checking the blood glucose level about more than half of both male and female patients (51.5%, 56.7% respectively) were monthly.

Table (3) shows relationship between gender and diabetic patient's history. It demonstrated statistically significant relationship between gender and Patient's DM Type where x^2 =14.240[a] at p- value (.001*).

Table 1 Socio-Demographic Characteristics of Diabetic Patients

Items		SEX				Total	
		Male		Female			
		Count	Percentage %	Count	Percentage %	Count	%
Age	20-<35	7	21.2%	17	25.4%	24	24.0%
	35-<50	6	18.2%	26	38.8%	32	32.0%
	50^+	20	60.6%	24	35.8%	44	44.0%
Educational Level	Non Educated	7	21.2%	35	52.2%	42	42.0%
	Primary	9	27.3%	14	20.9%	23	23.0%
	Intermediate	5	15.2%	4	6.0%	9	9.0%
	Secondary	3	9.1%	1	1.5%	4	4.0%
	Bachelor Degree	9	27.3%	13	19.4%	22	22.0%
Occupational Status	Working	15	45.5%	13	19.4%	28	28.0%
	Not Working	18	54.5%	54	80.6%	72	72.0%
Marital Status	Married	27	81.8%	45	67.2%	72	72.0%
	Un Married	6	18.2 %	22	32.0 %	28	28.0%
Total		33	100%	67	100%	100	100%

Table 2 Frequency of diabetic male and female patients regarding diabetic patient's history.

patient's knowledge about		SEX				Total	
		Male		Female			
		Count	Percentage %	Count	Percentage %	Count	%
Duration of diagnosis	1-5 years	12	36.4%	28	41.8%	40	40.0%
	6-10 years	11	33.3%	22	32.8%	33	33.0%
	11-15 years	3	9.1%	5	7.5%	8	8.0%
	16-20 years	4	12.1%	5	7.5%	9	9.0%
	20+ years	3	9.1%	7	10.4%	10	10.0%
Patient's DM Type	IDDM	7	21.2%	26	38.8%	33	33.0%
	NIDDM	20	60.6%	15	22.4%	35	35.0%
	I don't know	6	18.2%	26	38.8%	32	32.0%
Frequency of follow up	Monthly	26	78.8%	48	71.6%	74	74.0%
	Every six months	4	12.1%	13	19.4%	17	17.0%
	yearly	1	3.0%	1	1.5%	2	2.0%
	Never	2	6.1%	5	7.5%	7	7.0%
Checking the blood glucose level frequency	yearly	1	3.0%	3	4.5%	4	4.0%
	Monthly	17	51.5%	38	56.7%	55	55.0%
	Weekly	8	24.2%	11	16.4%	19	19.0%
	Daily	5	15.2%	10	14.9%	15	15.0%
	Never	2	6.1%	5	7.5%	7	7.0%
	Total	33	100.0%	67	100.0%	100	100.0%

Table3 Relationship between gender and diabetic patient's history.

Patient's history	X^2	P- Value
Patient's DM type	14.240[a]	.001*
Frequency of follow up	1.166[a]	0.761
Checking the Blood Glucose Level	1.000[a]	0.910

Statistically significant (*) P-value<.0005.

Table (2): Shows frequency of diabetic male and female patients regarding diabetic patient's history. As regards to their duration of diagnosis about one third of male patients (36.4 %) and female patients (41.8%) were from 1 to 5 years.
About two third of male patients (60.6 %)regarding patient's DM types were non insulin dependent diabetes mellitus

Meanwhile there were statistically insignificant relation ship between gender and Frequency of follow up, and frequency of checking the blood glucose level where x^2 =1.166[a], and 1.000[a] respectively at p- value= .771, and .910* respectively.

Table 4 shows frequency of diabetic male and female patients regarding patient's knowledge about the diabetes mellitus The results indicated that the diabetic male and female patients had satisfactory knowledge regarding DM. Whereas two third of male patients (63.3%) more than the female patients had satisfactory knowledge regarding to Diabetes Process, and Causes.

Table 4 Frequency of diabetic male and female patients regarding patient's knowledge about the diabetes mellitus.

Patient's knowledge about		Sex				Total	
		Male		Female			
		Count	Percentage %	Count	Percentage %	Count	%
Diabetes Process and Causes	satisfactory	21	63.6%	29	43.3%	50	50.0%
	unsatisfactory	12	36.4%	38	56.7%	50	50.0%
Signs and Symptoms	satisfactory	30	90.9%	49	73.1%	79	79.0%
	unsatisfactory	3	9.1%	18	26.9%	21	21.0%
Management and Self-Care	satisfactory	20	60%	41	61.2%	61	61.0%
	unsatisfactory	13	39.4%	26	38.8%	39	39.0%
Complications	satisfactory	18	54.5%	35	52.2%	53	53.0%
	unsatisfactory	15	45.5%	32	47.8%	47	47.0%
Total		33	100%	67	100%	100	100%

While the most of male patients (90.9%), and 73.6% of female patients had satisfactory knowledge regarding the Signs and Symptoms.

About two third of both male and female patients (60.0%, and 61.2% respectively) had satisfactory knowledge regarding the Management and Self-Care. Meanwhile more than half of both male and female patients (54.5 and 52% respectively) had satisfactory knowledge regarding the Complications.

Table 5 Relationship between gender and patient's knowledge about the diabetes mellitus.

Patient's knowledge about:	X^2	P- Value
DM Process and Causes	.000	1.000
Signs and Symptoms	.588	.745
Management and Self-Care	4.153	.125
Complications	1.026	.599

Table 5 shows relationship between gender and patient's knowledge about the diabetes mellitus disease. It demonstrated statistically insignificant relation ship between gender and patient's knowledge about the diabetes mellitus.

Finally both male and female patients had satisfactory knowledge regarding to DM.

DISCUSSION

Diabetes mellitus is a major public health problem which is cause of morbidity and mortality [6]. There is a deep need for an increase in the awareness of diabetes management and its complications in the primary healthcare sector. Continuing education to DM and its complications for primary healthcare providers is crucial and this should be accompanied by a regular assessment of their diabetic knowledge [12]. So the aim of this study was to assess diabetic patient's knowledge about diabetes mellitus in PHCs at Riyadh city.

The results of the present study revealed that about two third of the male patients (60.6%) were more than 50 years. While about one third of female (38.8%) were 35 years and less than 50 years. These results might be due to that about one third of sample (35.0 %) were NIDDM

These results were supported by leite, *et al.* [18] who reported that in brazil, a multi-center study about the prevalence of DM found that the frequency gradually increases after the age of 50. This same study emphasized the importance of diabetes as a health problem associated with the progressive tendency of population aging that has been confirmed in brazil.

As regards to their educational level, most of male patients (27.3 %, 27.3 %) had primary and bachelor certificate respectively. While more than half of the female (52.2%) were non educated.

These results were disagreement with leite, *et al.* [18] who found (59.3%) patients had not finished the primary level of education, which is in agreement with the study on the prevalence in brazil and ribeirao preto- SP[19].

The results of the present study revealed that 54.5 % of the male patients and 80.6% of the female patients had no occupation. further 81.8% of the male patients and 67.2% of the female patients are married. These results might be due to that most of them old age and no effect of disease on the relationship of marriage.

These results were agreement with leite, *et al.* [18] who found that marital status and occupation, the author observed that (68.5%) and (42.8%) were married and retired, respectively.

As regard to patient's knowledge about DM in the current study, about two third of male patients (63.3%) and more than half of female patients (56.7%) had satisfactory knowledge regarding to diabetes process, and causes. This result might be due to increasing awareness and educating the community towards DM. This finding in agreement with whitley, *et al*[20] who reported that the majority of diabetic patients have awareness regarding the causes of disease.

The result of this study, most of male patients (90.9%), and 73.6% of female patients had satisfactory knowledge regarding to signs and symptoms. This result might be due to most of patient experienced the signs and symptoms since episode of DM.

This finding was in accordance with Miyar, *et al*[11] who found that a significant increase in the knowledge about signs and symptoms of disease.

The finding of this study revealed that about two third of both male and female patients (60.0%, and 61.2% respectively) had satisfactory knowledge regarding to management and self-care.

This result might be due to relevant as these health professionals play a role of great responsibility in educating diabetic patients toward self- management.

This finding in agreement with Miyar, *et al* [11] who reported that a significant increase in the patients' knowledge about self management was observed so it is important to understand that diabetic patient's knowledge about the disease is the basis to achieve diabetes self –management.

This result was in disagreement with Moodley[12] who reported that African diabetic patient have a poor ability to manage their disease. Optimal patient self – management of diabetes is largely dependent on patient knowledge. The results of the present study revealed that more than half of both male and female patients had satisfactory knowledge regarding to Complications. These results might be due to that studied patients ask the short and long term complications.

This result was in disagreement with Moodley[12] who reported that studied diabetic patient had no knowledge about its complications.

CONCLUSION

Based on the results of the present study, the following were concluded:

1. About more than half of both male and female patients had satisfactory knowledge regarding to DM.
2. The most of male patients (90.9%), and 73.6% of female patients had satisfactory knowledge regarding the Signs and Symptoms.
3. About more than half of both male and female patients (54.5 and 52% respectively) had satisfactory knowledge regarding the Complications.
4. There is significant relationship between gender and Patient's DM Type.
5. There were insignificant relationship between gender and Frequency in follow up DM, and frequency of checking the blood glucose level.

Recommendation

1. A well organized and structured education program should be established at Primary Health Centers for Diabetic patients.
2. Health care providers should take time to explain in depth on diabetes, causes and prevention/control through health and self-care measures to prevent complications.
3. Family members of diabetic patients should also be counseled to adopt a healthy lifestyle in order to prevent diabetes.
4. Studies on similar context but with wider scope and mush larger sample size are recommended to confirm finding of this study.

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