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KNOWLEDGE ATTITUDE AND PRACTICE AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS: A CROSS-SECTIONAL DESCRIPTIVE STUDY

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ABSTRACT

Diabetes is a common health problem that rapidly increased in Egypt with essential effect on morbidity, mortality, and health care resources. This cross-sectional study carried out to assess knowledge, attitude and practice of patients with diabetes type 2. A structured questionnaire was developed by the researchers to collect data related to patients' characteristics such as age, level of education, health status, level of knowledge attitude and practice were also obtained from 150 patients in National Institute of Diabetes and Endocrinology. The study results revealed that, 62% of patients age was ranged between 41 to 60 years and around half of them were male (54.7%), while one third of them cannot read and write (38%). The patients in general had poor knowledge, attitude and practice towards type 2 diabetes care. Health education program should be developed by a multidisciplinary team to improve the knowledge, attitude and practice of patients with type 2 diabetes. Effective guidelines should be established in Egypt to help in developing criteria to improve knowledge and attitude of patient towards practicing appropriate care.

Keywords: Type 2 diabetes mellitus, Cross-sectional study, Knowledge attitude, Pracicte

INTRODUCTION

Diabetes is a common chronic illness in all countries (Shaw, Sicree & Zimmet, 2007). Diabetes is a widespread health problem that rapidly spread in Egypt with essential effect on morbidity, mortality, and health care resources. Currently, the prevalence of type 2 diabetes (T2D) in Egypt is around 15.6% of all adults aged 20 to 79. According to International Diabetes Federation (IDF), Egypt has been classified as the ninth leading country in the world for the incidence of T2D (Hegazy & Mohamed, 2015). The report also added that the prevalence of T2D in Egypt was almost tripled over the last 2 decades, with an annual death of 86,478 related to diabetes. In addition, the IDF estimated that 7.5 million individuals have diabetes and around 2.2 million are pre-diabetes in Egypt. Furthermore, most patients with prediabetes in Egypt are likely undiagnosed and the report highlighted that their incidence was about 43%. The number of people with type 2 diabetes mellitus, worldwide was 194 million in 2003 and it is estimated to rise to 333 million by 2025 (Boutayeb, 2004).

It is important for T2D patients to change their lifestyle and knowledge. But this alone cannot enhance to bring about drastic changes. So, attitude as a psychological variable play a significant part on the relationship between knowledge and practice for changing lifestyle (Ardena *et al.,* 2010; Basavanagowdappa *et al.,* 200).

Few studies were conducted to assess the knowledge, attitude and practice of T2D which reported that the patients have medium knowledge and recommended the necessity for an awareness program, patient counseling and education on self-care management of the diabetic patients to improve their knowledge regarding diabetes with the emphasis on lifestyle modifications (Shooka *et al.,* 2015). Other study carried out in India reported that the patient with T2D have good attitude but poor knowledge about diabetes and recommended the need for

structured programs to improve the knowledge and behaviors of the patients (Nikhil *et al.,* 2012).

Moodley and Rambiritch (2007) highlighted that if the researchers know the characteristics of diabetic patients in terms of their knowledge, attitude and practice this will help them to fight diabetes mellitus better. They also added that adequate information can help in assessing the risk factors that aggravate the complications of T2D and enhance patients to seek appropriate medical treatment that they need and receive the required care on time. It will help to motivate the patients with T2D, to change their attitude towards early detection and prevention of disease complications. In such cases it has been seen that diabetic nurse educators help in achieving optimal level of care for T2D patients (Hawal *et al.,* 2012).

Nurses are considered as one of the multidisciplinary team who play a significant role in reducing the risk of diabetes by providing health awareness program to patients to avoid complications of diabetes. Therefore diabetes education by qualified nurses prevent occurrence of the complications and decrease cost of care that burden the economic state of the country. Furthermore teaching patients to adhere to the referred diet, maintenance of body weight, drug regimen, physical exercise, meticulous skin care of feet and legs, symptoms of hypoglycemia or hyperglycemia as well as blood glucose and blood pressure monitoring are essential elements in the health promotion levels of these patients. Therefore the researchers carried out this study to alert the nursing professionals because they are on a strategic position to assess knowledge, attitude, and practice of T2D in National Institute of Diabetes and Endocrinology in Cairo. It is hoped that finding of this study will help in developing guidelines for the development of educational and prevention program in Egypt.

Research question

What are the level of knowledge, attitude and practice of patient towards T2D?

SUBJECT AND METHODS

Research Design:

A cross-sectional descriptive design for observational study was utilized to conduct the current study. The purpose of this design is to provide data on T2D patients by assessing their knowledge, attitude and practice. This type of design allows the researchers to obtain a snap shot of information about the phenomena of interest without establishing the causality of the research findings (Wood & Habber, 2015).

Setting:

The study was conducted at outpatients' clinic in National Diabetes and Endocrinology Institute in Cairo. This institute aims to provide care for diabetic patients to meet the highest international standards with the control diabetes to deal with its complication at an early stage.

Sample:

A convenience sample consisting of 150 patients with T2D, representing patients accepted to participate in the current study. The inclusion criteria are age above 20 years, both male and female with T2D and the exclusion criteria includes patients with type 1 diabetes mellitus, gestational diabetes, other specific types of diabetes mellitus and diabetes insipidus. In addition, all T2D patients with impaired memory or cognitive functions along with those younger than 20 years were also excluded.

Data collection:

Face-to-face interview was done to collect socio-demographic data covering questions related to age, gender, level of education, occupation, marital status and others. Also health assessment questionnaires were developed by the researchers and elicited information related to smoking and eating habits, exercise, blood glucose monitoring and the history since when patients suffering from the diabetes. In-addition information about knowledge of diabetes, risk factors, complications, regularly check up, habits of cutting the nails, washing leg regularly, measure leg size during buying a new shoes, check shoes from inside before wearing it. The researchers met the patients for 30 minutes in a private room in order to collect data in a quite environment. This level of knowledge is divided to scores out of ten. The score is aggregated to three levels as poor (below 4), desirable level (4-7), good level (above 7) .

Validity and Reliability of the tools

To ensure objectivity and clarity of the study tool A pilot study was conducted on 10% of the patients and necessary modifications were done. Content

validity of the designed tool was reviewed by a panel of five experts in the field of medical surgical nursing and diabetic along with endocrinology.

Ethical Consideration

A written permission was obtained from the Ethical Committee of National Institute of Diabetes and Endocrinology. Every patient had the right to accept or refuse to participate in the study. The benefits and the purpose of the study were explained for each patient. Also informed consent was provided for all patients as well as anonymity and confidentiality were assured through coding the data.

DATA ANALYSIS

Collected data was analyzed using statistical package for the social science (SPSS) program, version 24. A descriptive statistics such as frequency, percentage, mean and standard deviation were utilized. Inferential statistics such as Chi square is used to assess the association between knowledge, attitude in relation to patients' characteristics. Level of significance was adopted at $p < 0.05$.

RESULTS

Table 1: Frequency and percentage distribution of the patients' characteristics

Variable	N0	%
Age		
20 - 40	42	28%
41 - 60	93	62%
More than 60	15	10%
Gender		
Male	82	54.7%
Female	68	45.3%
Marital Status		
Single	25	17.3%
Married	102	67.5%
Divorced	15	9.9%
Widow	8	5.3%
Occupation		
Unemployed	23	15.3%
Employee	40	26.7%
Student	24	16%
Worker	14	9.3%
House wife	49	32.7%
Level of education		
Cannot read and write	57	38%
Can read and write	33	22%
Primary and preparatory	28	18.7%
Secondary	14	9.3%
Higher education	18	12%
Place of residence		
Countryside	43	28.7%
urban	107	71.3%

Table 1 showed that the higher percentage (62%) of patients age was ranged between 41 to 60 years and around half of them were male (54.7%) while one third of them cannot read and write (38%).

Table 2: Frequency and percentage distribution of the patients' life style

Variable	NO	%
Smoking Habits:		
Number of Cigarette /day		
2-4 cigarettes	6	11.1%.
5-7 cigarettes	40	74.1%
8-10 cigarettes	8	14.8%
Negative smoker	133	88.7%
Positive smoker	17	11.3%
Non-smoker	96	64.2%
Eating Habits (Meal number)		
1/day	23	15.3%
2/day	79	52.3%
3 /day	48	32%
Using saturated fat in food		
Yes	103	68.7%
No	47	31.3%
Having snakes		
1- Yes	103	68.7%
2-No	47	31.3%
Number of snakes		
1/day	47	45.6%
2/day	46	44.7%
3/day	10	9.7%
Practice exercise		
Yes	37	24.7%
no	113	75.3%
How many times /week		
1	11	29.7%
2	19	51.4%
3	7	18.9%

Table 2 illustrated that most of the study participants (74.1%) were smoker from 5-7 cigarette per day while the minority having 2-4 cigarettes per day and the same table showed that around half of the study participant (52.7%) have 2 meals per day. Also the above table showed that the majority of the patients were using saturated fats in their food (68.7%) and having snakes (68.7%) while the majority of them didn't practice any type of exercise (75.3%) and only 18.9% practiced exercise three times per day.

Table 3 showed that the majority of the study

Table 3: Frequency and percentage distribution of practicing blood glucose level measurement

Variable	No	%
Measuring times/week		
One /weak	101	67.3%
Two /week	25	16.7%
Three /week	16	10.7%
More than three times/week	8	5.3%
Having knowledge of normal range of blood glucose		
Yes	49	32.7%
No	101	67.3%

participants measures their blood glucose level once per week (67.3%) and most of them did not have knowledge about the normal range of glucose (67.3%).

Table 4: Frequency and percentage distribution of patients' awareness and knowledge about diabetic complications

Variable	No	%
Having knowledge		
Yes	110	73.3%
no	40	26.7%
If yes type of complications		
Coma	12	10.9%
Renal	26	23.6%
Vision	30	27.3%
Cardiac	6	5.2%
Foot	36	32.7%

Table 4 showed that (73.3%) of the patients having knowledge about complication of diabetes and among those (32.7%) having knowledge and were aware that diabetes can lead to foot problems while the minority (5.2%) did not have any idea that diabetes can lead to cardiac problems.

Table 5: Frequency and percentage distribution of Participants health history status

Variable	No	%
Years since having diabetes		
1-10 years	101	67.3%
11-20year	49	32.7%
Having another chronic disease.		
Yes	124	82.7%
No	26	17.3%
If yes chronic diseases are		
HTN	60	48.4%
Cardiac	30	24.2%
Orthopedic	12	9.7%
Renal	8	6.5%
Respiratory	14	11.3%

Table 5, revealed that most of the patients under the study suffer from chronic disease (82.7%). Among those who have chronic disease, 48.4% suffering from hypertension while the minority (6.5%) were suffering from renal disease.

Table 6: Frequency and percentage distribution of participants level of Knowledge about T2D care

Variable	NO	%
Having knowledge		
Poor	39	23.8%
Desirable	99	65.6%
Good	15	9.9%

The above table revealed that 23.8% of the patients have poor knowledge about T2D care while most of them (65.6%) and only (9.9%) have desirable and good knowledge respectively.

Table 7: Patient attitude and practice towards T2D care

Variable	No	%
Patient practice and attitude		
Poor	96	64%
Desirable	36	24%
Good	18	12%

T2D: Type 2 diabetes

The above table showed that most of the patients (64%) have poor attitude and practice towards T2D care (Mean=1.86 ± 0.0567).

DISCUSSION

This cross-sectional study was conducted to assess the knowledge attitude and practice of T2D patients. Overall it was found that the higher percentage for the study sample was male and this finding is consistent with study conducted in India (Ramachandran *et al.,* 2001). The present study showed that there was higher prevalence of T2D among males than in females in compliance with the study by Chris *et al.,* 2012. Whereas, another study conducted by Nikhil *et al.,* (2012) found that the gender-wise distribution of the study participants revealed most of the affected individuals as females. The current study showed that most of the patients having poor knowledge about T2D care as well as poor practice and attitude towards the concerned disease. This finding was supported by many studies carried out in developing countries

(Gunay *et al.,* 2006; Gul, 2006; Upadhyay *et al.,* 2008) who reported that the patients with T2D have poor knowledge about the disease. Similar study carried out by Baradaran and Knill (2004) in England reported poor knowledge of diabetes among ethnic groups. Whereas other study conducted in Malaysia (Ambigapathy & Ambigapathy, 2003; Uthman, Ullah, & Shah, 2015) highlighted a good knowledge, attitude and practice score among diabetic patients. Furthermore study conducted in India by (Nikhil *et al.,* 2012) reported that patients had good attitude but poor knowledge and practices towards diabetes. Another study conducted by Uthman, Ullah, & Shah (2015) found that the overall knowledge attitude and practice response was not adequate and the majority of the studied patients had low levels of correct knowledge and practice regarding various variables and points related to the diabetes. This level of variation among different studies could be due to lack of available counseling and resources such as mass media that support improvement of knowledge among these patients.

It was further reported that the knowledge about diabetes complications in our study participants is unluckily lower and comparable with poor attitude and poor practice (Rafique, Azzam & White, 2006). In this current study it is observed that the majority of the patients have knowledge about complication of diabetes however minor percentages of them are aware that diabetes can lead to foot problems and cardiac diseases. These findings were consistent with the study conducted in Pakistan (Rafique, Azam & White, 2006) and other study carried out in Libyan (Roaeid & Kablan, 2007).

The researchers reported lower awareness about diabetes complications among the studied patients. Another study conducted by Shooka *et al.,* (2015) reported insufficient awareness of complications and the importance of lifestyle modification. These findings alert the researchers to suggest repeated counseling by health care providers and orienting T2D patients regarding complication and the importance of avoiding it. Regarding number of years suffering from diabetes, the present study reported that most of the patients diagnosed with diabetes are less than 10 years while one third of them were diagnosed with diabetes for more than 10 years. These findings were incongruent with Rafique, Azam & White, (2006) who conducted a study at Agha Khan University, Karachi where patients who had diabetes were diagnosed for less than 10 years and reported good knowledge but lower score for practice. Other studies (Nikhil *et al.,* 2012; Uthman, Ullah, & Shah (2015) reported that the distribution of the study participants based on their duration of diagnosis with diabetes were living for 5 to 10 years with diabetes and this is inconsistent to the present study. Another study carried out in 2011 in England and India showed that female gender was an indicative of poorer self-care (Austin *et al.,* 2011).

As regards attitude towards practicing exercise, it was observed in the current study that the majority of patients did not practice exercise and could not balance their food. This finding is consistent with the study conducted in Egypt (Kamel *et al.,* 2003) on diabetics among outpatient clinic in Cairo. However Nikhil *et al.,* (2012) highlighted that regular exercise and diet control for diabetic patients did not affect their attitude. From the present study it is evident that the researchers were aware of the present state of patients' level of knowledge and its concomitant effects on T2D care such as controlling and balancing diet, practicing exercise, appropriate foot care, and early detection of complication. So the findings of this study could potentially be useful if repeated in different settings to confirm the enhancement and improvement of knowledge attitude and practice of T2D care. To support clinical relevancy of this study findings, further research is needed to be carried out to investigate the relationship between patients characteristics and its effect on level of knowledge, attitude and practice among diabetic patients.

CONCLUSION AND RECOMMENDATION

In order to improve knowledge, attitude and practice among T2D patients a health education program should be established with the emphasis on new strategies in the National Institution of Diabetes and Endocrinology.

Health awareness program should be developed with multidisciplinary team to emphasize on the importance of orienting patient towards complication, increase knowledge of T2D patients as well as nurses in Egypt, this could help in reducing cost of care.

Management of care should be developed and encouraged by the government by introducing training programs that aim at preparing enough nurses to provide sufficient teams including diabetic nurse educators and nurse dietitian across the country. Also Faculty of Nurse should involve diabetic care as a cornerstone in the curriculum and introduction of postgraduate diploma on diabetic for nurses can be formulated. Specialized nurses will be able to encouraged and improve the patients knowledge and attitude towards T2D care.

There is a need for educational awareness. Effective guidelines should be established in Egypt to help in developing criteria to improve patient care.

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