Knowledge, Attitudes and Practices of patient with Diabetes Mellitus in Mukalla City-Yemen

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Abstract

Diabetes Mellitus (DM) is a major public health concern which associated with increased morbidity, mortality, health care utilization and costs. Also it is the unremitting diseases that cause high rate of death around the world. **Aim of study**: To assess knowledge, attitudes and practices of study participants about diabetes in Mukalla City –Yemen. **Setting**: The study carried out in Mukalla City –Yemen**. Design:** survey research design**. Sample:** 1650 participants selected, the Subjects were selected based on a systematic random sample of houses in district. **Parts of the study**: Data collected by using three tools: Socioeconomic data, Tool (a): Participants s' knowledge regarding Diabetes mellitus. (b): included knowledge about attitudes of diabetic patients. Tool (c): knowledge about practices of diabetic patients. **Results**: Regarding age groups of the studied participants it found that the mean of participants' age were (70± 8.34). Majority of participants had poor knowledge and practices about diabetes and its management. Also, the vast majority had negative attitude toward DM. **Conclusion**: This study found that participants had poor knowledge, attitude and practices toward DM. **Recommendations**: A continuous and repeated health education guide on diabetes for diabetic patients could be designed to include all aspects of diabetes such as the diagnostic criteria, physical exercise and guideline for managing the disease.

Key words: Diabetes Mellitus's, Knowledge, Attitude, Practices & its Management.

Introduction

Type 2 diabetes is a global public health crisis that threatens the economies of all nations, particularly developing countries. Fueled by rapid urbanization, nutrition transition, and increasingly sedentary lifestyles, the epidemic has grown in parallel with the worldwide rise in obesity. Asia's large population and rapid economic development have made it an epicenter of the epidemic **(Frank, 2013).** The number of people living with diabetes mellitus (DM) continues to rise, with an estimated 371 million individuals around the world who were affected by the illness in 2012 **(International Diabetes Federation, 2013).** The consequences of diabetic illness, place a high toll on patients and the social system, not only in terms of functional life years lost, but also in terms of disability and decreased quality of life **(Hoyert, 2012).** This silent, but imminent, public health problem would impose substantial challenges on the healthcare systems as well as on the economy of most developing nations in the near future. This is because a significant proportion of individuals who suffer from the condition in these countries are within the reproductive age **(Guariguata et al., 2011).** These are the same individuals who are expected to drive the economic machinery in these nations so as to achieve the agreed millennium development goals **(Maina et al., 2010).** Most of these complications are not only irreversible, but there are also costly to manage as they generally require management in specialized centers with sophisticated infrastructure and equipment.

Health educational programs should help people assess their risks of diabetes, motivate them to seek proper treatment and care and inspire them to take charge of their disease **(Maina et al., 2010).** In addition, it should enable early detection and treatment of complications as well as enhanced early referrals of cases to specialized centers for management and follow-up.

Although the importance of educational programs in the prevention and control of DM is well recognized **(Muninarayana et al., 2010)**, there are concerns whether these programs are achieving the desired goal of increasing awareness of DM in developing countries. Indeed, several studies have consistently shown that awareness of the DM in the general population seems to be low There is lack of public awareness regarding DM in Yemen where, medical services are poor **(Molham et al., 2004).** Obtaining information about the level of awareness about diabetes in a population is the first step in

formulating a prevention program for diabetes **(Mohan et al., 2005).** proper knowledge regarding various aspects of health education program can improve the knowledge of patients and change their attitude **(Mehta et al, 2006) .**

Significance of the study

Diabetes Mellitus is one of the most serious health issues in the world today. The mortality and morbidity rates continue to rise. Although the rate of diabetes in Yemen is relatively high, according to WHO (2008). The prevalence of type 2 diabetes, abnormal glucose tolerance and other cardiovascular risk factors (hypertensions) among Yemeni patient which were 10.4%, 9.0% and 14.2% respectively. Diabetes is associated with various serious complications including heart attacks, foot amputation, blindness, kidney disease and death.

The disease is associated with an increased risk of a variety of macro- (i.e. atherosclerosis) and micro-vascular (i.e. retinopathy) complications. Moreover, several reports clearly indicate a correlation between DM and the epidemiology of amputations. Researchers found that people with diabetes were more than 20 times more likely to experience a lower extremity amputation than people not suffering from diabetes. At present, there is no information as to the extent of type 2 DM in the republic of Yemen **(Molham et al., 2004, King and Rewers, 2006 and Mayyada et al., 2011)** .

The nurse's role

The nurse's role in diabetes care may be as a specialist or as part of general care – primary or secondary. Wherever care is given, the emphasis is always on patient, nurses' roles will change and that they will no longer be the first information-givers, but other important roles will develop. These will include interpreting what the information means to people individually and to their friends and relatives, and creating forums for discussions about how to put the advice into action. Nurses caring for patients with diabetes need to be working towards the same objectives, therefore target setting and determining priorities for managing their condition are important aspects of care **(Mary,2003)**.

Research Questions

What is the level of knowledge, attitudes and practice of non dependent Diabetes Mellitus of participants at Mukalla City,Yemen.

Aim of study

To assess knowledge, attitudes and practices of study patients with diabetic mellitus in Mukalla City – Yemen.

Subjects and Methods

Study design

Survey research design was used in the current study.

Study setting

The current study carried out at Alomal District which affiliated to Mukalla city, Yemen. **Mukalla city:** It is composing from 10 Districts, total coverage for all these districts were carried out due to logistic, time and financial constraints. ***Alomal District:*** Data collected according to administrative classification (East and West sector) to represent the urban localities in the current study. Systematic randomly selected houses were done to represent the different socioeconomic standards. According to criteria sample, the target population recruited was people free from any other medical problem and their age should be over 40 years.

Tools of the study: collected the data by structure interview questionnaire to assess socio economic, knowledge and practice as stated by participants, and based on review of related literature, it included four parts were used for data collection:

First part: Included demographic characteristics such as: age, gender, level of education.

part (2): Assessment of knowledge about diabetes mellitus

It contains 40 items to assess the knowledge classified under four major categories and last part concern the main sources of diabetes mellitus. These categories are:

First: Consist of 9 items about basic knowledge of Diabetes, definition, predisposing factors, signs and symptoms, and care and hygiene foot care.

Second: Consist of 17 items about nutrition, number of meals, Component of healthy meal, and benefit of exercise

Third: Consist of 8 items about treatment and Steps of proper care for diabetic feet .

Fourth: Consist of 6 items about nail care, skin care, and source of your information about diabetes. The knowledge questionnaire contains 2 types of questions; the first: type was statements to which the respondents answer with either Yes or No. The model answers where extracted from all answers after summarizing them.

A scoring system was developed. For each item, one grade was awarded for the correct answer and zero for incorrect answer. A total score of knowledge was determined as Mohammed, 2013 who estimated the answer by taking points as the following:

Poor	< 50 %
Average	50 > - %70 %
Good	> 70%

part (3): **Attitudes scale toward diabetes**:
It composed from (15) statements to assess attitude response modified by the researcher after reviewing different related researches and literature to measure attitude responses were measured using a two-point Likert scale; agree and disagree. The total mean attitude score calculated by:

1- Positive response (agree) given a score of two.
2- Negative response (disagree), given a score of zero.

In this way a score calculated for each individual in relation to the highest possible score.

part (4): Assessment of practices about diabetes
It composed from (23) items to assess the practice classified under two major categories:
First: Consist of 11 items about the feet and nails care.
Second: Consist of 12 items about steps of teeth care.
A score was given for each answer, with the proper answer given a score of one and the wrong answer given a score of zero. A total score of practice was determined for each respondent by taking points as the following

- Satisfactory Practice 60 % - < 70% +
- Unsatisfactory Practice > 60% -

Content validity: test was done through 3 experts from community health nursing staff.

Study phases

I- Administrative phase
An official approval letter was obtained from the Dean of Faculty of Nursing, Hadramout University to the local Council whom it may concern in Mukalla city, Yemen. The natural and purpose of the study was explained to the participants and the consent from the participants was obtained.

II- Pilot study
A pilot study was carried on a sample of 20 participants excluded from the sample from Alomal quarter during August 2012 in order to determine adequacy, clarity of questions, and response of participants and estimate the length of time required to complete the questionnaire. The necessary modification was done.

III- Ethical considerations
The purpose of this study explained for all participants. The participants have ethical rights to agree or refuse to participate in the study; oral consent was taken from all participants who were participated in the study and informed that the information and data obtained was confidential and used only for the purpose of the study. Tools can be also revised by the ethical committee.

IV- Data collection

Field work
The data were collected for around ten months from (2/11/2012 to 28/8/2013). An explanation of the purpose of the research was made to participants to gain their cooperation before starting data collection. The interview of the participants took 25-30 minutes and daily number of (3-4) participants. Survey had been carried for descriptive information in the selected district and discovered diabetic cases among targeted population.

Results

Table (1): Distribution of the study participants according to their personal-demographic characteristics-in Yemen-2013 (n=1650).

Characteristics	No. (n= 1650)	%
Age in years		
< 40	15	0.9
40 –	696	42.2
50 –	549	33.3
≥ 60	390	23.6
Mean ± SD (Range)	53.23 ± 8.35 (40 – 70)	
Sex		
Male	743	45.0
Female	907	55.0
Marital status		
Married	1574	95.4
Single	29	1.8
Divorced	21	1.3
Widow	26	1.6
Education		
Illiterate	472	28.6
Read & write	373	22.6
Primary school	323	19.6
Preparatory school	84	5.1
Secondary school	348	21.1
University & high study	50	3.0
Occupation		
Employee	1273	77.2
Non-employee	377	22.8

Table (2): Distribution of the studied participants' knowledge about definition, causes, factors, signs and symptoms and complications of diabetes in Yemen-2013.

Items	No. (n= 1650)	%
Meaning of Diabetes	69	4.2
Factors affecting diabetes: (•)		
Congenital	32	1.9
Environmental	27	1.6
Psychological	46	2.8
Malnutrition	115	7.0
Obesity	74	4.5
Don't know	1367	82.4
Types of diabetes: (•)		
Insulin dependent	57	3.5
Non-insulin dependent	78	4.7
Gestation (Appear during pregnancy)	125	7.6
Due to take some medicine	81	4.9
Don't know	1342	81.3

Items	No. (n= 1650)	%
Symptoms of diabetes: (•)		
Increased frequency of urination	191	11.6
Increased thirsty	87	5.3
Hunger and tiredness	35	2.1
Eye problem	45	2.7
Don't know	1342	81.3
Complications of diabetes: (•)		
Heart diseases	41	2.5
Effect in vision	155	9.4
Foot gangrene	272	16.5
Skin and lymph nodes infections	37	2.2
Diabetic coma (loss consciousness)	267	16.2
Don't know	919	55.7

(•) More than one answer were selected

Table (3): Distribution of the studied participants obtained in pretests regarding to correct knowledge about nutrition- in Yemen-2013.

Items	No. (n= 1650)	%
Number of meals per day: (•)		
Two meals	227	13.8
Three meals	465	27.2
Four meals	105	6.4
Five meals	92	5.6
Base on feeling of hungry	506	30.7
Don't know	269	16.3
Components of healthy meal		
Contains of nutritional elements (vitamin, proteins, mineral salts, carbohydrate and fat)	276	16.7
Free of carbohydrate and sugar	660	40.0
Don't know	714	43.3
Food contains sugar should diabetic patient avoid it:	1645	99.7

(•) More than one answer were selected

Table (4): Distribution of the studied participants regarding characters about exercise in Yemen-2013.

Knowledge	No. (n= 1650)	(%)
Important of body weight for diabetic patient		
Yes	889	53.9
No	243	14.7
Don't know	518	31.4
A benefit of exercises for diabetes		
Yes	435	26.4
No	731	44.3
Don't know	484	29.3
Places to give insulin injections: (n=15)		
Upper parts of arms	3	20.0
Upper of thigh	6	40.0
The upper outer quadrant of the buttocks	6	40.0

Knowledge	No. (n= 1650)	(%)
Times have to analyzed the urine		
Once a day	285	17.3
Once a week	473	28.7
Once a month	76	4.6
Don't know	816	49.5

(•) More than one answer were selected

Table (5): Distribution of the studied participants regarding knowledge about treatment in Yemen-2013.

Items	No (n=1650)	(%)
Taking daily treatment		
Yes	15	0.9
No	1635	99.1
Which one inject insulin: (n=15)		
The same person	2	13.3
One of family members	3	20.1
Nurse	10	66.6
Deadline for taking treatment: (n=15)		
Before meal	7	46.6
After meal	5	33.3
When remembering	3	20.1
Times have to analyzed the blood sugar		
Once a day	203	12.3
When necessary	1400	84.8
Don't know	47	2.8
Playing sports		
Regular	157	100.0
Irregular	394	23.9
Don't, play	1099	66.6
Playing a particular sport: (n= 551) (•)		
Walking	551	100.0
Running	44	8.0
Bicycling	32	5.8
Swimming	7	1.3

(•) More than one answer were selected

Table (6): Distribution of the studied participants regarding correct knowledge about symptoms of high and low blood sugar (hyper & hypoglycemia) in Yemen-2013.

Items	No. (n= 1650)	%
Symptoms of hyperglycemia		
Yes	127	7.7
No	1523	92.3
If yes, (n=127) (•)		
Increased frequency of urination	95	74.8
Increased thirst and hunger	34	26.8
Increased fatigue	12	9.4
Precautions to be taken into account in hyperglycemia		
Only treatment	158	9.6
Complete rest	255	15.5
Visit the doctor	486	29.5
Don't know	751	45.5

Items	No. (n= 1650)	%
Symptoms of hypoglycemia		
Yes	95	5.8
No	1515	94.2
If yes, (n= 95)		
Chills and headache	49	51.6
Sweating of the body and dizziness	35	36.8
Increase in heart rate and yawning	7	7.4
Extreme hunger and pale color	4	4.2
Precautions to be taken into account in hypoglycemia (•)		
Taking treatment	289	17.5
Take a piece of sweet, juice	176	10.7
Comfort	281	17.0
Don't know	921	55.8

(•) *More than one answer were selected*

Table (7): Distribution of the studied participants regarding knowledge about care of feet, nail, skin and shoes in Yemen-2013.

Items	No. (n= 1650)	%
Knowledge of proper care for diabetic feet		
Yes	36	2.20
No	1614	97.8
Steps of proper care for diabetic feet: (n= 36)		
Check and foot washing daily	15	41.7
Choose the best possible wear footwear for feet so clear that pressure on the fingers	12	33.3
Do not walk bare feet inside and outside the home	9	25.0
Steps of proper care of cut fingernails for diabetic feet: (n= 36)		
Circular fashion immediately after bathing	22	61.1
Circular fashion immediately before bathing	8	22.2
Cut nails at any time	6	16.7
Steps of proper care for cut finger feet for diabetic feet: (n= 36)		
A straight manner immediately after bathing	16	44.4
A straight manner immediately before bathing	8	22.2
Cut nails at any time	12	33.4
Steps of proper care for diabetic skin: (n= 36)		
Fat hands and feet skin soothing cream before going to sleep	4	11.1
Do not fat hands and feet skin soothing	6	16.7
Cream before going to sleep	22	61.1
Fat hands skin soothing cream when necessary	4	11.1
Proper shoe for diabetic feet: (n= 36)		
Shoe leather is not open from the front with the use of more than footwear	12	33.3
Any type of shoes	24	66.7
Commitment of diabetic patient to visit the doctor: (n= 36)		
When a high or low in sugar	23	63.9
When injury occurs or dermatitis	9	25.0
Visit your doctor regularly for follow-up	4	11.1

Table (8): Distribution of the studied participants regarding practices about care of feet and nails of diabetic patients in Yemen-2013.

Items	Done		Not done	
	No.	%	No.	%
Foot washing with water	534	32.4	1116	67.6
Attended the tools necessary to take care of feet and nails	191	11.6	1459	88.4
Put towel in front of you	67	4.1	1583	95.9
Filled container with warm water after ascertaining the water temperature	118	7.2	1532	92.8
Put his feet into the warm water	266	16.1	1384	83.9
Soak feet in warm water for 10-20 minute	375	22.7	1275	77.3
Brush lightly under fingernail	124	7.5	1526	92.5
Dry fingers	209	12.7	1441	87.3
Pen fingernails straight	174	10.5	1476	89.5

Table (9): Distribution of the studied participants regarding practices about care of teeth of diabetic patients in Yemen -2013.

Items	Done		Not done	
	No.	%	No.	%
Wash your hands	347	21.0	1303	79.0
Exit kit of artificial teeth if found	43	2.6	1607	97.4
Put it in suitable container	17	1.0	1633	99.0
Clean his mouth by clean warm water	293	17.8	1357	82.2
Put artificial dentures under running tap water to clean them of any plankton	36	2.2	1614	97.8
Put artificial dentures in bowel containing of warm water	15	0.9	1635	99.1
Clean dentures by soft brush and toothpaste	22	1.3	1628	98.7
Clean dentures industrial soft brush and toothpaste in a nice way	177	10.7	1473	89.3
Put artificial dentures under running tap water to clean them of any plankton	306	18.5	1344	81.5
Clean gums and tongue by soft brush	135	8.2	1515	91.8
Returned his artificial teeth to status	34	2.1	1616	97.9
Clean instrument and return to suitable place	218	13.2	1432	86.8

Fig.(1): Total score of study participants' knowledge regarding diabetes mellitus in Yemen -2013

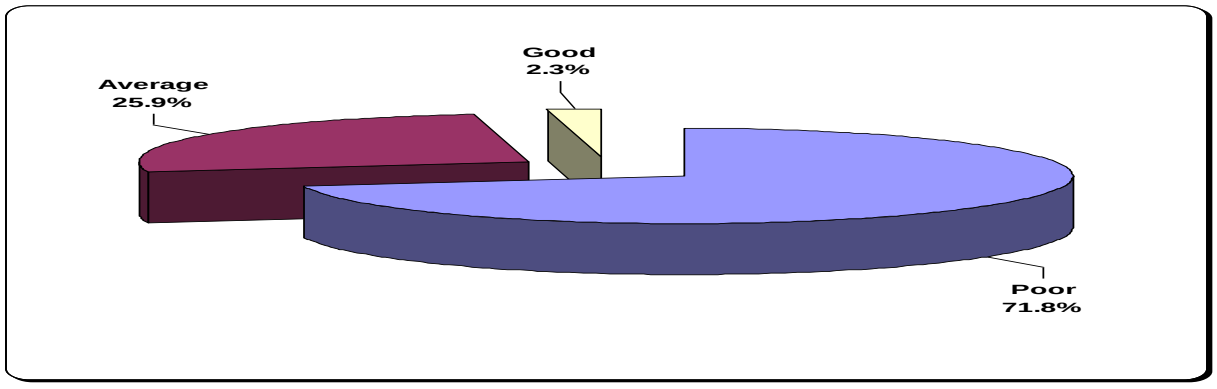

Fig. (2): Total score of study participants' attitudes regarding diabetes mellitus in Yemen -2013.

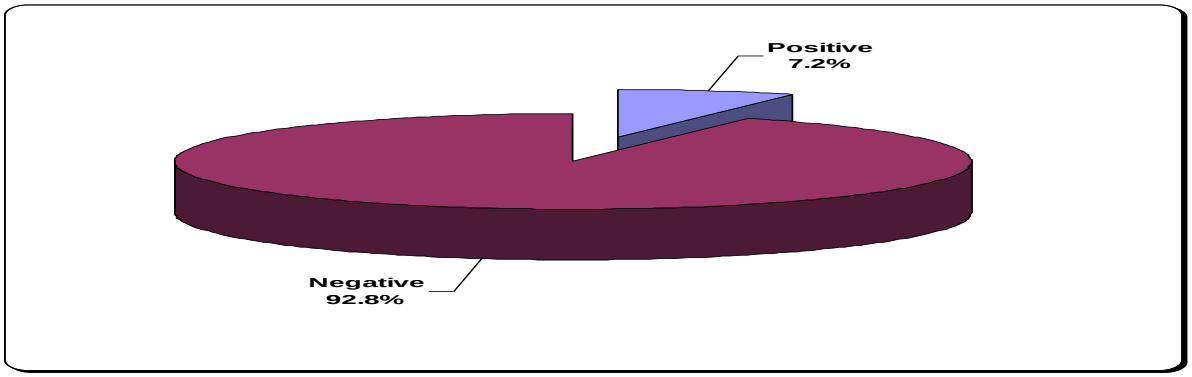

Fig. (3): Total score of study participants' practices regarding diabetes mellitus in Yemen -2013

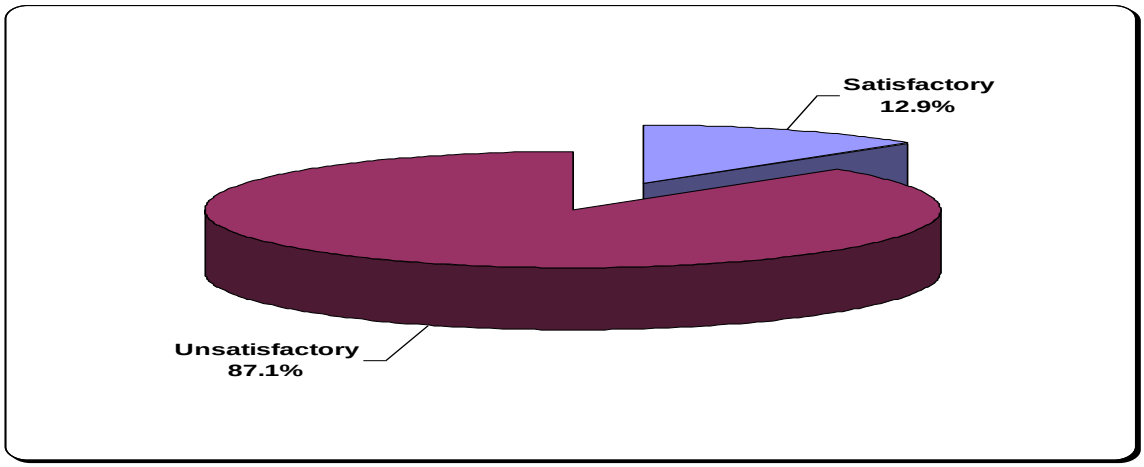

Table (1) : shows the distribution of the study sample regarding to socio-demographic characteristics. It clarifies that 42.2% of the studied sample aged 40 years and above, while 33.3% of them had 50 years and above. According to the sex, more than half of sample 55.0% was females, while 45% were males. The majority of the participants 95.4% were married while, 1.3% divorced. As regards of education, it was found that 28.6% were illiterate, while 3.0% university level of education. Regarding to the sample's job, 77.2% were employees, while 22.8% were unemployed.

Table (2) : illustrates that 95.8% of the participants didn't know the definition of diabetes. Only 1.9 %, 1.6%, 2.8%, 7.0%, 4.5% of the studied participants mentioned that congenital, environmental, psychological factors, Malnutrition and obesity respectively as the factors affecting diabetes, and 82.4% don't know. Regarding knowledge of types of diabetes 3.5%, 4.7%, 7.6% and 4.9%, of the studied participants mentioned that insulin dependent, non-insulin dependent, gestation (Appear during pregnancy), due to take some medicine respectively as the types of diabetes, and more than three quarters 81.3 % didn't know.

Table (3) : indicates that 16.3% of participants don't know number of meals per day for diabetic patients, while 28.2% replied three times. Regarding components of healthy meal, 16.7% of the study participants knew that the component of healthy meal contains of nutritional elements, and 99.7% of the study participants answered regarding the food contains sugar should avoid it, whereas (0.3%) answered incorrectly.

Table (4) : regarding the participant's Knowledge about exercise reveals that more than half 53.9% of the studied participants replied yes that the body weight for diabetic patient is important and only 14.7% of them replied no that the body weight for diabetic patient is not important. Regarding a benefit of exercises for diabetes two fifth 44.3 % of the studied sample replied no while more than one quarter 26.4% replied "yes" there is a benefit of exercises for diabetes.

Table (5): clarifies the participant's knowledge about treatment, it observed that majority 99.1% of them

doesn't taking daily treatment. Also the table indicates that 66.6% of the studied participants replied the nurse, regarding which one inject insulin. Regarding deadline for taking treatment about half 46.6% of them are before meal while only (33.3% and 20.1%) of them are after meal and when remembering respectively. According to times have to analyze the blood sugar most of the studied sample 84.8% is when necessary while only 12.3% are one time a day.

Table (6): illustrates participant's knowledge about symptoms of high blood sugar, it indicates that only 7.7 % of participants knew symptoms of high blood sugar (74.8 % increased frequency of urination, 26.8% increased thirst and hunger, 9.4 % increased fatigue respectively). Regarding of precautions to be taken into account in high blood sugar, 9.6 % are taking only treatment, and 29.5% of them is visit the doctor.

Table (7): Regarding the participant's Knowledge about care of feet, nail, skin and shoes for diabetic patients of the studied sample reveals that majority 97.8% of the studied sample did not have any Knowledge about proper care for diabetic feet while only 2.20 % of them have knowledge about proper care for diabetic feet (41.7 % check and foot washing daily, 33.3% choose the best possible wear foot wear respectively). As regard to steps of proper care of cut fingernails for diabetic feet this table indicates that 61.1 % of the studied sample circular fashion immediately after bathing and 16.7 % cut nails at any time for diabetic feet.

Table (8) : Regarding the practice of care of feet and nails about diabetes patient's of the studied sample reveals that 67.6% of the studied sample didn't done the foot washing with water and only 32.4% have done. About an attended the tools necessary to take care of feet and nails 88.4% of the studied sample didn't do while 83.9% of them are not put their feet into the warm water and only 77.3% of the studied sample did soak feet in warm water for 10–20 minute.

Table (9): shows the study sample regarding practice care of teeth. It clarifies that only 21.1 % of the studied sample wash your hands and 79.0% didn't wash it. About clean his mouth by clean warm water only 17.8 % did it while more than three quarters of study sample 82.2 % didn't clean his mouth by clean warm water. In general, majority 99.0% of the studied samples are not practice of care of teeth.

Fig. (1) : This figure shows that the majority of participants (71.8%) had poor score of knowledge about diabetes. While, only (2.3%) of them had good score.

Fig. (2): This figure reveals that the vast majority of participants (92.8 %) had negative attitude score toward diabetes.

Fig. (3): This figure shows that the majority of participants (87.1 %) had unsatisfactory score of practice about diabetes.

Discussion

It was found that the knowledge score of the patients to be low. However, a study from Gambia identified that a wariness of Diabetes Mellitus in the general population is low **(Mafomekong et al, 2013).** The difference in the findings among different studies may be due to the differences in the literacy of the study patients, the training received by them and availability of information on diabetes. In Yemen, generally these facilities are not available for the patients and hence might have contributed to a low level of knowledge. It is well understood that these educational programs should help people assess their risks of diabetes, motivate them to seek proper treatment and care and inspire them to take charge of their disease **(Maina et al., 2010).** Diabetes knowledge; the definition 18.9%, causes (congenital 4.5%, environmental 2.7%, psychological 6.3%, malnutrition 5.4%, obesity 2.7%), signs-symptoms 20.28% and complications 64.8%. This finding in the same line with Study from Saudi Arabia noted that Only 19.1% of participants were found to have knowledge about diabetes and moreover the diabetes knowledge score among the study subjects was 67.4%, whereas general knowledge regarding the disease, risk factors, symptoms and complications were 71.1, 63.4, 80.8 and 47.7% respectively **(Mohieidin et al., 2011)**. Study from Qatar showed that a total of 66 patients out of 186 diabetic patients were not aware of their condition (35.5%)

(Abdulbari et al., 2009), which is similar to the figure in Sultanate of Oman that only one third of Omani diabetic subjects knew that they had diabetes **(Al-Lawati et al., 2010).**

In the same time study from Omani showed Three hundred and twenty subjects 56.8% reported that they were aware of the meaning of the condition called diabetes. However, when they were asked to define it, only 262 subjects (46.5%) were able to give at least a rudimentary definition (data not shown in the table). Most frequently, diabetes is defined as 'a disease in which there are elevated levels of sugar in the blood **(Liudmila et al., 2008) .**

Although all participants In the present study, found that the major source of information are 30.8% mass media, nurse 30.1%, 28.5% doctor and 10.7% relative, this could be due to social status of Yemeni people who spend some of their time talking daily

event, doctors also have some role 20.4% to information to patients. In the contrast, these results disagree with Study from Saudi Arabia mentioned that relatives and friends, in addition to media, were the major sources of information 73.8 and 47.1% respectively) **(Mohieidin et al., 2011)**, at the same time, only 19.1% of participants were found to have knowledge about diabetes from the healthcare professionals in this study. In the contrast, these results disagree with study from Malaysia mentioned that the most common source of information on diabetes was from health care professional **(Ambigapathy et al, 2003).** Regarding to total self-reported Practice score of the participants, in this study found that the minority had satisfactory score, while 87.1% had unsatisfactory score. This finding was in the same line with study from Nepal showed that the KAP scores of the patients to be low **(Dinesh et al., 2007).** In contrast, these results disagree with Study from Malaysia identified a good knowledge, attitude and practice score **(Ambigapathy et al., 2003).** The difference in the findings among different studies may be due to the differences in the literacy of the study patients, the training received by them and availability of information on diabetes. In Yemen, generally health education facilities are not available for the patients and hence might have contributed to a low level of KAP. Regarding to attitude score responses towards diabetes, in this study only 7.2 %, had positive score while almost of the participants have got negative attitude. This finding was in the same line with study from Nepal found that The response of the patients regarding the attitude related questions are Do you exercise regularly, Are you following a controlled and planned diet, Do you miss taking the doses of your diabetic medication, Are you aware of blood sugar levels falling below normal when you are taking drugs, 66.48%, 85.71%, 67.58%, 21.43% have replied correctly respectively **(Dinesh et al, 2007).**

Conclusion

Majority of participants have poor knowledge, attitude and self-reported practice about Diabetic Mellitus .

Recommendations

A continuous and repeated health education intervention on diabetes for diabetic patients could be designed to include all aspects of diabetes such as the diagnostic criteria, guideline for managing the disease, dietary and physical exercise, pharmacologic engagement, diabetic complications and its preventions, diabetic monitoring and other relevant information, if the knowledge on diabetes disease has been provided regularly to the patients and the patients will have the positive attitude to the concept of the self-practice along with own accurate self-practice performance in the future.

Diabetes mellitus clinic should create positive strategies to improve the attitude on drug taking or diet control.

Further studies are suggested on how to make the nondependent Diabetes Mellitus patients have appositive toward drug taking.

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