

Research Article

# Assessment of Knowledge Attitude, and Practice of Type 2 Diabetes Mellitus in Selected Hospital of Somalia

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## Abstract

Diabetes is a serious, chronic disease that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin it produces. Diabetes is an important public health problem, one of four priority non-communicable diseases (NCDs) targeted for action by world leaders. Both the number of cases and the prevalence of diabetes have been steadily increasing over the past few decades. Socioeconomic and demographic characteristics of the respondents showed that. Age- majority of the respondent's age were 33 (25-30%) comprising (33 N=80), 18 (22.5) their age was 30-35, 16 (20.0%) were age 35-40 while 40-45 were 13 (16.2%). Table shows the characteristics of study participants stratified by their gender. The respondent of 49 (61.2%) were males and 31 (38.8%) were females. As see the table above that most of the participants was married while few numbers were windowed and divorced. 15 Were single (18.8%), 58 were Married (72.5%), 3 were widow (3.8%) and 4 were divorced (5.0%). The majority respondents reported to have attained are never go to school education, 53 (66.2%) while of the respondents, secondary education were 8 (10.0%) and also 3 (3.8%) were primary. 12 (15.0%) had Diploma. While 4 (5.0%) was Bachelor degree and above education. The table above shows that majority of the respondents were self employment 33 (41.2%), while the house wife was in second number of respondents were 31 (38.8%) Civil society were 11(13.8) and Health workers also were 5(6.2).

## Keywords

Knowledge, Attitude, Practice, Diabetes

## 1. Introduction

Diabetes mellitus has both ancient roots and expanding research base. Diabetes comes from a Greek word meaning "to pass or flow through" (excessive urination) and Mellitus means "sweet" [1]. It is currently defined as a group of metabolic disorders characterized by hyperglycemia that results from defects in the secretion or action of insulin, or both [2]. According (WHO) Diabetes is a serious, chronic disease that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood glucose), or when the

body cannot effectively use the insulin it produces [3]. Raised blood glucose, a common effect of uncontrolled diabetes, may, over time, lead to serious damage to the heart, blood vessels, eyes, kidneys and nerves [4].

Globally, an estimated 422 million adults were living with diabetes in 2014, compared to 108 million in 1980. The global prevalence (age-standardized) of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population [5]. This reflects an increase in associated risk factors such as

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being overweight or obese. Over the past decade, diabetes prevalence has risen faster in low- and middle-income countries than in high-income countries [6, 7].

Diabetes caused 1.5 million deaths in 2012. Higher-than-optimal blood glucose caused an additional 2.2 million deaths, by increasing the risks of cardiovascular and other diseases. Forty-three percent of these 3.7 million deaths occur before the age of 70 years. The percentage of deaths attributable to high blood glucose or diabetes that occurs prior to age 70 is higher in low- and middle-income countries than in high-income countries [8]. Because sophisticated laboratory tests are usually required to distinguish between type 1 diabetes (which requires insulin injections for survival) and type 2 diabetes (where the body cannot properly use the insulin it produces), separate global estimates of diabetes prevalence for type 1 and type 2 do not exist. The majority of people with diabetes are affected by type 2 diabetes. This used to occur nearly entirely among adults, but now occurs in children too. [8]

The long-feared diabetes epidemic is no longer predicted. Diabetes strikes at people of all ages, in all walks of life, and in all countries. For people in countries where there is little or no social security, a diagnosis of diabetes can sentence a whole family to generations of financial and educational hardship and even poverty. Once thought a disease of the elderly, type 2 diabetes has now become a huge problem and threat of the productive years of the life cycle [9, 10]. Diabetes is increasingly affecting people earlier and earlier in their life, in some cases even in their teens and younger. Once thought of as a disease of affluence, new evidence suggests higher prevalence rates among slum dwellers in some countries [11, 12]. High-, middle- and low-income countries alike have to bear the burden and are suffering under the impact of diabetes on health care costs, disability and productivity, early retirement, increased pensions and early death [13]. At present about two-thirds of persons with diabetes live in developing countries and the majority of new cases will originate from these area [14]. The prevalence of type 2 diabetes is increasing in the world at high rate. For example according to the study of Diabetes Screening in Canada (DIASCAN) in the year 2000; the prevalence of Type 2 diabetes in individuals 40 years of age and older who see a general practitioner was 16.4% in Canada and nearly 20% in Québec [15]. It was predicted that the number of Canadian diabetics will double within the next 15 years. The impact of diabetes on the health of populations and individuals afflicted with the disease is primarily related to late-stage complications. Diabetes is the primary cause of terminal kidney failure, blindness before the age of 65 and amputations [16].

## 2. Material and Methods

The time scope that the study was cover is from December 2016 to 2017. It was a cross-sectional study design was adapted to assess the level of knowledge, attitude and practice

of type 2 Diabetes among a representative sample in selected hospital in 26 June district in Hargeisa - Somalia with the use of structured questionnaire on formal interview basis as well as direct measurements.

The study population comprise of individual with type 2 diabetes with in the hospital. The target population for the study is selected individuals above the 25 years of age in both sexes as the time of the and who is attending in the hospital for a period of interview is going on it is assume the people the age above 25 with interview. Study participants were selected from the district hospital and the hospital is purposely selected because they are large number of diabetic patients attending. A questionnaire was used to collect the data. The questionnaire is written in English, and translated into Somali language since most of Somali elderly they don't know English language. The researcher explained the purpose of the study to the participants and get reliable data. The choice of the instrument is a questionnaire as a research instrument is a quick method to collect data. However, the technique is less time consuming and adequately covered the entire sample within the proposed time framework.

After the collection of data, the researcher verified and checked the data and then entered in to the computer. Data was analyzed by the researcher by using a software package used for statistical analysis i.e. Statistical Package for Social Sciences (SPSS) version 16 and excel. According to key variables.

## 3. Results

**Table 1.** Distribution of Study Participants by Socio Demographics (N=80).

Variable	Frequency	percentage
Age		
35-40	33	41.2
45-50	18	22.5
55-60	16	20.0
65-70	13	16.2
Mean±SD	33.61 ±5.504	
Sex		
Male	49	61.2
Female	31	38.8
Marital status		
Single	15	18.8
Married	58	72.5
Widow	3	3.8
Divorced	4	5.0

For total 80 study participants, age- majority of the respondent's age were 33 (35-40) comprising (33 N=80), 18(22.5) their age was 45-50, 16 (20.0%) were age 55-60 while 65-70 were 13 (16.2%). Table shows the characteristics of study participants stratified by their gender. The respondent of 49 (61.2%) were males and 31 (38.8%) were females. As see the table above that most of the participants was married while few numbers were windowed and divorced. 15 Were single (18.8%), 58 were Married (72.5%), 3 were widow (3.8%) and 4 were divorced (5.0%).

**Table 2.** Distribution of Study Participants by Socio Demographics.

Variable	Frequency	percentage
Educational level		
Never	53	66.2
Primary	3	3.8
Secondary	8	10.0
Diploma	12	15.0
Bachelor degree and above	4	5.0
Occupation		
House wife	31	38.8
Civil society	11	13.8
Self employee	33	41.2
Health worker	5	6.2
Income		
Less or equal 400,000	15	18.8
450,000-500,000	36	45.0
550,000-600,000	20	25.0
650,000-700,000	9	11.2
Mean±SD	504.94±87.488	

The majority respondents reported to have attained are never go to school education, 53 (66.2%) while of the respondents, secondary education were 8 (10.0%) and also 3 (3.8%) were primary. 12 (15.0%) had Diploma. While 4 (5.0%) was Bachelor degree and above education. The table above shows that majority of the respondents were self employment 33 (41.2%), while the house wife was in second number of respondents were 31 (38.8%) Civil society were 11 (13.8) and Health workers also were 5(6.2). The above table 2 indicates the distribution of the respondents by their income. The respondents in this study were asked their monthly family income. It was observed that the income of the participants was different according to their occupational status. Most of the respondents 36 (45.0%) their income was

(450,000-500,000sh.so) Some of the families their income was between (550,000-600,000) with proportion of 20 (25.0%) Some of the families their income (Less or equal 400,000sh.so) with proportion 15 (18.8%) according to rich people with above than 650,000-700,000sh.so 9 (11.2%).

**Table 3.** Knowledge Assessment of Respondents.

Variable	Frequency	percentage
diabetes are hereditary		
Yes	59	73.8
No	21	26.2
frequent urination/thirst/hunger		
Yes	69	86.2
No	11	13.8
To measure diabetes		
Yes	49	61.2
No	31	38.8
eyes disease or blindness		
Yes	37	46.2
No	43	53.8

**Table 3.** About Concerning the knowledge about the major causes of diabetic are heredity and obesity; majority of the respondents 59(73.8) was said yes were as the 21(26.2) was said no. According the knowledge of respondents that the symptoms of diabetes are frequent urination increased thirst and hunger so most of respondents were 69(86.2) said yes and while the 11(13.8) was said no or didn't know. As the above table indicates respondents were asked about if they know how to measure diabetes most of the respondents said yes with 49 (61.2%), while the remaining 31 (38.8%) respondents said no in their answers. As the above table show the respondents were asked about if they believe that diabetes causes eye disease and blindness the majority of the respondents which is 43 in total said no with (53.8%,) while the remaining 37 respondents they said yes with (46.2%).

**Table 4.** Knowledge Assessment of Respondents.

Variable	Frequency	percentage
Exercise		
Yes	57	71.2
No	23	28.8
Condition in which body contains		

Variable	Frequency	percentage
High level sugar blood than normal	54	67.5
Low level sugar blood than normal	16	20.0
I don't know	10	12.5
Symptoms of diabetes are		
Increase frequency urination	46	57.5
Increased thirst and hunger	19	23.8
Increased tiredness	5	6.2
I don't know	10	12.5
Controlling blood sugar		
Diet	27	33.8
Exercise	31	38.8
Medication	13	16.2
I don't know	9	11.2

As we see the above table most of the respondents said yes on the diabetes controlled by regular exercise which is 57 respondents with (71.2%), while respondents 23 with (28.8%) said no of their answers. As the above table shows most of the respondents which is 54 were a high level of sugar in the blood than normal with (67.5%) while the second most respondents in number chosen a low level of sugar in the blood than normal their total number were 16 respondents with (20.0%), and remaining of 10 respondents were said they don't know with (12.5%). As the above table indicates the respondents were asked about the symptoms of diabetes the majority of the respondents were 46 in total increased frequency of urination with (57.5 %,) while the 19 respondents they said increased thirst and hunger with (23.8%) and also 5 of respondents they were said increased tiredness with (6.2%) and 10 were the remaining of respondents they don't know with (12.5%) As we see the above table show most of the respondents were 31 they said regular exercise with (38.8%) while the 27of respondents they were said controlled and planned diet with (33.8%) and also were the 13 respondents said medication with (16.2%) and remaining of 9 respondents were said they don't know with (11.5%).

**Table 5.** Attitude of Respondent.

Variable	Frequency	percentage
Do you exercise regularly		
Yes	43	53.8
No	37	46.2
Do you think diabetes can be managed		

Variable	Frequency	percentage
Yes	64	80.0
No	16	20.0
Diabetes if not treated may lead to kidney problem		
Yes	67	83.8
No	13	16.2
Diabetic medication will have negative effect		
Yes	61	76.2
No	19	23.8

As the above table shows respondents were asked about whether they do exercise regularly, most of the respondents said about exercise regularly with yes which is 43 respondents with (53.8%), while 37 the respondents said no about whether they were not regularly exercise with (46.2%). As the above table 5. indicates respondents were asked about if they can be managed the diabetes most of the respondents said yes with 64 (80.0%), while the remaining 16 (20.0%) respondents said no in their answers. As we see the above table 5. highlights the attitude respondents were asked about if the diabetes is not treated may lead kidney problem, most of the respondents which were 67 said yes with (83.8%), while 13 respondents said no with (16.2%). Table 5 shows the characteristics of study participants attitude that the missing doses of diabetic medication have a negative effect the respondent of 61 (76.2%) were yes and while 19 (23.8%) were said no.

**Table 6.** Attitude of respondents.

Variable	Frequency	percentage
Can be controlled by avoiding sugar		
Yes	57	71.2
No	23	28.8
Can be controlled by avoiding smoking		
Yes	28	35.0
No	52	65.0
your physician		
Yes	51	63.8
No	29	36.2
Blood sugar levels falls below normal		
Yes	57	71.2
No	23	28.8
Blood glucose levels respond to food		

Variable	Frequency	percentage
Yes	59	73.8
No	21	26.2

The Table 6. above illustrates the attitude respondents were asked about the diabetic can be controlled by avoiding sugar, the majority of respondent were 57 with (71.2%) said yes while the 23 remaining of respondent with (28.8%) were said no that means they have no idea about it. According above table 6. it explains attitude of respondent were asked avoiding to smoke is controlled by diabetes risk the most of respondent were 52 with (65.0%) said no and where as 28 remaining with (35.0%) were said yes of their answers. The table 6. above indicates general attitude of most patients was Wish in touch with their physician were 51 (63.8%), said yes while 29 (36.2%) were said no their. As we see the above table 6. illustrates respondents were asked about blood sugar levels falls below normal when you are taking drug, most of the respondents yes with 57 (71.2%), while the remaining 23 respondents they said no with (28.8%). According the above table 6. show that respondents were asked about if the blood glucose level respond to food particularly carbohydrates, most of the respondents which is 59 in total said yes with (73.8%), while the remaining 21 respondents they said no with (26.2%).

**Table 7.** Assessment of Practice of respondents.

Variable	Frequency	Percentage
Last check of blood pressure		
1 week ago	23	28.8
1 month ago	18	22.5
2 month ago	12	15.0
6 month ago	27	33.8
Urine examined		
1 week ago	15	18.8
1 month	14	17.5
2 month ago	16	20.0
6 month ago	27	43.8

The table 7. above explains practice of respondents the last check of blood pressure most of the respondents 27 were said 6 month ago with (33.8%) while the 23 respondents with (28.8%) were said 1 week ago, and also 18 respondents with (22.5%) were said 1 month ago while the remaining 12 respondent with (15.0%) were said two month ago of last check

of their blood pressure. The 4.7 table above shows practice of respondents the last time in urine examination most of the respondents 35 were said 6 month ago with (43.8%) while the 16 respondents with (20.0%) were said 2 month ago, and also 15 respondents with (18.8%) were said 1 week ago while the remaining 14 respondents with (17.5%) were said 2 week ago.

**Table 8.** Association between demographic variables and control of diabetics.

Variables	yes	no	p-value
Gender			
Male	26	23	< 0.016
Female	8	23	
How to measure diabetes			
Yes	26	23	<0.001
No	8	23	
Believes diabetes cause eyes disease			
Yes	20	17	<0.042
No	14	29	
Diabetes can be controlled by regular exercise			
Yes	29	28	<0.01
No	5	18	

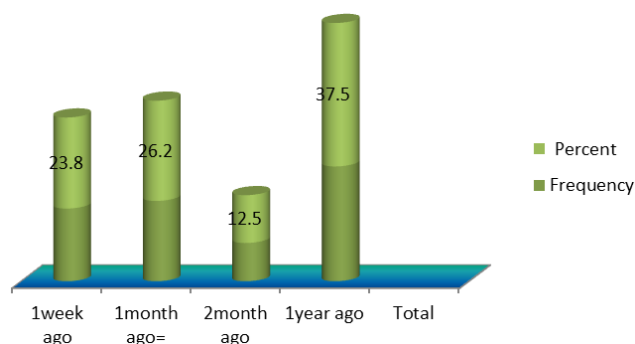
To explore the relationship between demographic variables and controlled of type two diabetes, chi-square analysis was conducted to investigate the association and found significant association with gender ( $p < 0.016$ ), how to measure diabetes ( $p < 0.001$ ) including association with the cause of eyes disease or blindness ( $p < 0.042$ ), also association between regular exercise ( $p < 0.01$ ).

**Table 9.** Association between attitude and control of diabetics.

Independent variables	yes	no	p-value
Controlled by avoiding smoking			
Yes	15	13	< 0.01
No	19	33	
Your physician			
Yes	27	24	< 0.012
No	7	22	
Your blood sugar level falls below normal			
Yes	29	28	< 0.017

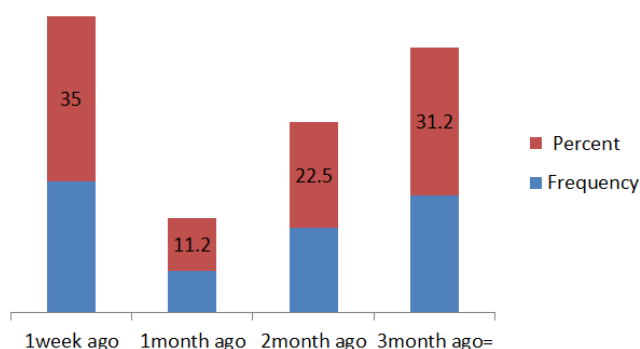
Independent variables	yes	no	p-value
No	5	18	
Last visit your physician			
One week ago	13	10	
One month ago	9	9	<0.06
Two month ago	5	7	
One year ago	6	21	

To investigate the relationship between attitude and controlled of diabetes, chi-square analysis was carried out and found significant association with controlled diabetes with avoiding smoking ( $p<0.01$ ) and association with keep in touch your physician ( $p<0.012$ ), also found significant association blood sugar ( $p<0.01$ ).



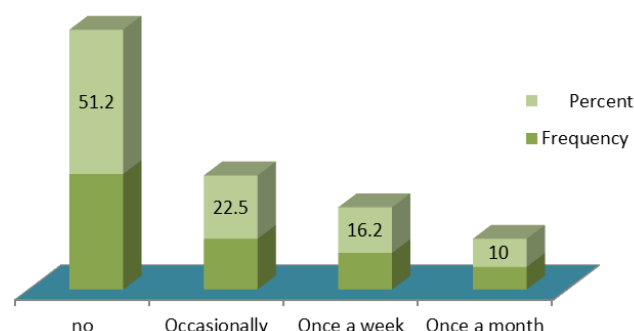
**Figure 1.** Last visit to your physician.

The above figure highlights respondents were asked about visit their physician, most of the respondents 30 (37.5%) were said 1 year while 21 (26.2%) of respondents were said 1month ago and also 19 (23.8%) of the respondents were said 1week ago and 10 (12.5%) of remaining respondents were said 2month ago visit their physician.



**Figure 2.** Blood sugar last checks.

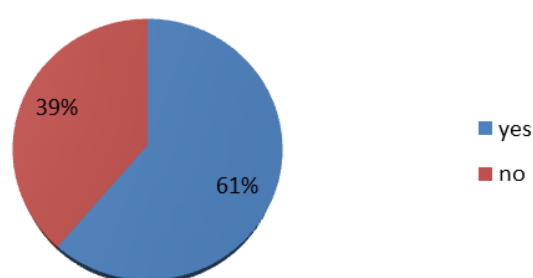
The figure above show practice of the respondents were asked about last check of blood sugar, the majority of the respondents 28 (35.0%) were said 1week ago while 25 (31.2%) of respondent were said 3 month ago and also 18 (22.5%) of the respondent were said 2 month ago and 9 (11.2%) of remaining respondents were said 1 month ago so there was a different practice of respondents in their answers.



**Figure 3.** doses of your diabetes medication.

As we see figure 3 of above illustrates the practice of the respondents were asked about if they miss taking their medication, the most of the respondents 41 (51.2%) were said no to miss their medication to take while 18 (22.5%) of respondents were said occasionally miss of their medication and also 13 (16.2%) of the respondents were said once a week and 8 (10.0%) of remaining respondents were said once a month to miss of their medication.

## Frequency



**Figure 4.** following a plan diet.

About the above figure 4. highlights practice of the respondents were asked about if they planned their diet, most of the respondents 49 (61.2%) were said yes while remaining of the respondents 31 (38.8%) were said no.

## 4. Discussion

This study enrolled chronic disease or Non-communicable



Diseases equal number of males to females within the age classes between 35 to 80 years and above. The major objective of this study is to give information about type two diabetes awareness and how to prevent be for it occurs and after also self-care management and good practice. This study is little difference of another two in study made Africa Ethiopia and South Africa [16]. The characteristics of study participants stratified by their gender. The respondent of 49 (61.2%) were males and 31 (38.8%) were females. As see the table above that most of the participants was married while few numbers were windowed and divorced. 15 Were single (18.8%), 58 were Married (72.5%), 3 were widow (3.8%) and 4 were divorced (5.0%). The majority respondents reported to have attained are never go to school education, 53 (66.2%) while of the respondents, secondary education were 8 (10.0%) and also 3 (3.8%) were primary. 12 (15.0%) had Diploma. While 4 (5.0%) was Bachelor degree and above education. The table above shows that majority of the respondents were self employment 33 (41.2%), while the house wife was in second number of respondents were 31 (38.8%) Civil society were 11(13.8) and Health workers also were 5(6.2). The above table 2 indicates the distribution of the respondents by their income. The respondents in this study were asked their monthly family income. It was observed that the income of the participants was different according to their occupational status [16]. About Concerning the knowledge about the major causes of diabetic are heredity and obesity; majority of the respondents 59 (73.8%) was said yes were as the 21 (26.2%) was said no. According the knowledge of respondents that the symptoms of diabetes are frequent urination increased thirst and hunger so most of respondents were 69 (86.2%) said yes and while the 11 (13.8%) was said no or didn't know. As the above table indicates respondents were asked about if they know how to measure diabetes most of the respondents said yes with 49 (61.2%), while the remaining 31 (38.8%) respondents said no in their answers. As the above table show the respondents were asked about if they believe that diabetes causes eye disease and blindness the majority of the respondents which is 43 in total said no with (53.8%), while the remaining 37 respondents they said yes with (46.2%).

There were more females (62.1%) than males (37.1%) participated in this study, a reflection of the gender ratio attendance of patients in the diabetic clinic at AHMC hospital. More recent reports from developing countries have found that DM and its risk factors are more common in women This finding is in keeping with the results from a study conducted in South Africa at Mamelodi Hospital in which 81.1 % were female and 18.9 % were male. In this study respondents with no formal education consists (53.5%) and only (2.6%) respondents with higher education. This indicates that most respondents had little or no education. This result may be the direct consequence of scarcity of higher education system in Ethiopia in the past. Additionally the results of this study reported less than half (45.7%) of the participants got diabetic education such as attending meeting with health professionals.

This confirmed with the study conducted in 2011 at Jimma University Specialized Hospital which reported as there was no attention given to diabetic education in Ethiopia.

## 5. Conclusions

The knowledge and attitude levels of lifestyle modifications among type 2 diabetes mellitus patients attending selected Hospital were generally high. However practice of the patients regarding to measure of blood still not sufficient as more the patients had no good practices.

Diet alone or exercise alone or diet and exercise combined have promise in reducing incidence of Type 2 diabetes mellitus. Knowledge of diabetic patients was not fairly good but attitude and practices were partially good and still not fairly good. Public health Programs involving educational interventions and behavioral change is the needed for better control and prevention of the disease both in urban and rural areas in our population. Lack of awareness among diabetic patients is the prime factor causing type 2 diabetic mellitus and its complications. Education and awareness regarding disease aetiology, risk factors, management, complications and life style modification should be provided to patients for achieving better outcome. The results also reflected the inadequate in our health care system regarding patients counseling [18]. It highlighted the need for educational intervention such as public awareness programs regarding diabetes management. Moreover health care professionals need to be trained enough to provide counseling in effective manner [17].

## Abbreviations

WHO: World Health Organization  
IDF: International Diabetic Federation  
DM: Diabetic mellitus  
HG: Hyperglycemia  
BG: Blood Glucose  
KAP: Knowledge Attitude Practice  
SPSS: Statistical package of Social Sciences  
IDDM: Insulin-Dependent Diabetes Mellitus  
BGL: Blood Glucose Level  
BSL: Blood Sugar Level

## Conflicts of Interest

The authors declare no conflicts of Interest.

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