Assessment of Knowledge and Attitude towards Diabetes Mellitus among Type 2 Diabetes Patients Attending Biryogo Health Centre.

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Abstract- Diabetes is recognized as a growing public health problem in the world and in Rwanda. One of the critical inputs to the strategies for combating this disease is to create attitudes and build knowledge about it within a population. This study aimed to find out Knowledge and Attitude towards Diabetes Mellitus among Type 2 Diabetes patients attending Biryogo Health centre. A cross sectional study that involved randomly selected 103 diabetes mellitus type 2 patients was conducted. The results revealed that the level of knowledge was good for the participants. However this knowledge is not translated into desired attitude. Statistically significant demographic characteristics associated with diabetes knowledge level indicator developed in the course of the study were gender ($p<0.05$) and duration of diabetes ($p<0.01$). It was further found out that significant variables associated with diabetes attitude level were respondent's education level ($p<0.05$) and duration of diabetes ($p<0.05$).The findings of the study suggest that efforts to educate adults with diabetes mellitus (DM) to change their attitude should be reinforced.

Index Terms- Knowledge, Attitude, Diabetes mellitus

I. INTRODUCTION

Diabetes mellitus type 2 is a 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.[1] Diabetes is an important public health problem and one of the four priorities of non-communicable diseases (NCDs) targeted for action by world leaders, especially since both the number of death cases and the prevalence of diabetes have been steadily increasing over the past few decades .[1]

Over the past decade, diabetes prevalence has risen faster in low- and middle-income countries than in high-income countries, and caused 1.5 million deaths. In 2012, 1.5 million deaths were caused by diabetes and 2.2 millions deaths were caused by high blood glucose levels, which also increase the risk of cardiovascular diseases. The World Health Organization estimates that diabetes will be the 7th leading cause of death by year 2030 (WHO, 2016).

According to International Diabetes Federation Report of 2011 an estimated 366 millions people had DM, by 2030 this number is estimated to reach around 552 million.[3]

Knowledge of diabetes can prevent the imminent chronic morbidities of DM, which impact significantly on the quality of life of the diabetic patients. Information can help people to assess their risk of diabetes, motivate them to seek proper treatment and care, and inspire them to take charge of their disease for their lifetime. [4]

The use of self-management programs in chronic disease including type 2 diabetes mellitus is relatively well known, and some of these programs are beginning to show success. [5]

According to Rwanda Diabetic Association the prevalence of diabetes in Rwanda is about 3.16% of the population with 1,918 diabetes related deaths per year. [6] Biryogo health center started following up the patients living with diabetes mellitus since 2008 where it has a big number of patients with diabetes who are on follow up on appointments accordingly with a total number of 250 patients with diabetes. [7] At Biryogo health center there is no documented study that has assessed the knowledge and attitude towards patients with diabetes Mellitus type 2 about diabetes. Thus, this study aimed to assess the knowledge and attitude towards diabetes mellitus type 2 for patients with diabetes type two attending Biryogo health centre.

II. MATERIAL AND METHODS

Study area

The study was conducted at Biryogo health centre which is located in Nyarugenge District, Kigali City Nyarugenge sector, Biryogo cell and Nyiranuma village, with a total number of 250 diabetic patients. Biryogo health centre was purposively selected because it has a relatively big number of the patients living with diabetes mellitus and has had a tradition of following them regularly since 2008.

Study design

Quantitative cross-sectional study design was used.

Study population

The study population was patients with type 2 iabetes mellitus attending Biryogo health centre. At the time of conducting this study, 205 type 2 diabetes patients were attending Biryogo health center.

Sample size

Using Yamane approach, the sample size calculation for the finite population was used. Based on the study population of 205 type 2 diabetes patients and 0.05 margin of error, the required sample size was 136 type 2 diabetes patients.

Sampling strategies

Simple random sampling, which implied that each of 136 type 2 diabetes mellitus patients had an equal chance of being selected, was used. The list of all the type 2 diabetic patients was used as the sampling frame.

Data collection instruments

The instrument used was a three-part questionnaire adapted from a questionnaire used in a similar study in Western Nepal, and on the survey, instruments provided online by the Michigan Diabetes Research Training Centre which were adjusted to suit the local culture and expanded to include questions on knowledge, and attitudes about diabetes. The permission was requested to adapt this questionnaire and the feedback was received. The questionnaire consisted of 45 questions. Section 1 was composed of 8 Demographic data. Section 2 was composed of 25questions of Knowledge and Section 3 was composed of 13 Attitude questions.

Data collection Procedures

After getting the permission from Biryogo health centre to conduct the study, the study investigation team requested for the list of type two Diabetes mellitus patients attending Biryogo health centre, during the period of the study and were invited to participate in the study. Those who agreed to participate, they got more explanations about the purpose of the study clearly and researchers read the questionnaire to the participants explained to them before starting the study. The participants, who voluntarily accepted to participate in the study, were requested to sign consent forms after giving them the explanations about the consents, the participants signed the consent forms and started to answer the questionnaires and were informed that they had no obligation to participate in the study.

Data analysis

The collected data were checked for completeness and entered using SPSS version 21 for analysis. Appropriate answers were assigned 1 point. Other answers were assigned a score of zero. Statistical tests were performed using 0.05 as the level of significance. Descriptive statistics was used to analyze the demographic data. Chi-square testing was conducted to determine associations between knowledge and demographical variables and between demographic variables and attitude was conducted to determine the existing association.

Ethical consideration

The ethical approval was obtained from Institutional Review Board (IRB) of University of Rwanda, and a letter from the Head of the Biryogo Health centre to allow us to conduct the study in Biryogo Health centre. We informed the participants that the participation was voluntary and before participating they were informed about the study and its purpose, and the participants interviewed and signed the consent for those who accepted to participate in study. Anonymity and confidentiality was ensured, and participants were given all instructions related to the data collection.

III. RESULTS

Socio demographic information of participants

Table 1 describes Sociodemographic information of participants. The findings revealed that the majority of respondents involved in this study were aged more than 40 years old: 41 to 65 years (53.4%), and those who are 66 years and more were 27.2%. The majority (58.3%) of diabetes patients who come to Biryogo health centre are mainly women. A large proportion (74.8%) of participants is married. Education was assessed in this study. Findings showed that diabetes patients found at Biryogo health centre and involved in this study were in majority people with relatively low education level. Largely respondents were not working. On the other hand, (28.2 %) and (13.6 %) were working full-time and part time respectively. The results of the study found that the majority of respondents were affiliated to Christianity with (67%).

Knowledge towards Diabetes Mellitus among Type 2 Diabetes Patients Attending Biryogo Health Center

Knowledge towards Diabetes mellitus was assessed (Table 2). Overall, the results reveal that the majority of respondents knew correct responses about the posed questions about diabetes. This indicates however that other education session should be organized to further knowledge among all the diabetes patients.

Attitude towards Diabetes Mellitus among Type 2 Diabetes Patients Attending Biryogo Health Center

The results on attitudes of respondents regarding diabetes revealed that there were different attitudes among different respondents. Generally, almost 87.3 % (n=90) of the respondents agreed that it was very important to learn about diabetes. It was also indicated that 78.6% (n=81) believed that patient actions affect health more than health practitioners'' actions. Other attitudes of respondents were also reflected in other questions summarized in table 3

Table 1 Socio demographic information of participants

Variables	Frequency	Percent
Age group (N=103)		
<=40 years	20	19.5
41 to 65 years	55	53.4
=>66 years	28	27.2
Sex of respondents (N=103)		
Female	60	58.3
Male	43	41.7
Marital status (N=103)		
Never married	4	3.9
Married	77	74.8
Separated/divorces	4	3.8
Widowed	18	17.5
Education level(N=103)		
Partial primary school	27	26.2
Completed primary school	30	29.1
Partial high school	29	28.2
Completed high school	8	7.8
Technical or trade school	2	1.9
University graduate	7	6.8
Occupation(N=103)		
Unemployed not looking for work	25	24.3
Unemployed or laid looking for work	3	2.9
Working full-time 35 hours or more a week	29	28.2
Working part-time less than 35 hours a week	14	13.6
Disabled/not able to work	14	13.6
Retired	18	17.5
Religion(N=103)		
Christian	69	67.0
Muslim	34	33.0

Source: Primary data, 2018

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Table 2: Knowledge   towards Diabetes Mellitus among Type 2 Diabetes Patients Attending Biryogo Health Center

Knowledge about diabetes	incorrect responses	correct responses
What is diabetes	8	98
Major causes of diabetes	39	64
Symptoms of diabetes	7	96
Knowledge on method to monitor diabetes	10	93
Effect of high blood pressure on diabetes	9	94
Frequency of blood pressure check up	11	92
Frequency of eye check up	19	84
Regular exercise and diabetes	21	82
Purpose of regular urinary test	12	91
Elements of well balanced diets that control blood sugar	11	92
A well balanced diet components	15	88
Diabetic foot care requirements for diabetes management	13	90
Knowledge of diabetes treatments	30	73
Action for low blood sugar	12	91
Effect of untreated diabetes	12	91
Cause of rise of sugar in blood	35	68
People with diabetes may have poor circulation of blood in the feet	18	85
Sore feet are common in people with diabetes	24	79
Diabetic medication may cause swelling of the feet	32	71
Salty food will prevent sugar levels from dropping	22	81
Poor control of diabetes could result in a greater chance of complications	12	91
Diabetes medication can cure diabetes	34	69
Diabetes medication should be taken for life	23	80
Stop taking diabetes medication in case of other sickness	24	79
Knowledge of food classes	18	85

Source: Primary data, 2018

Table 3: Attitude towards Diabetes Mellitus among Type 2 Diabetes Patients Attending Biryogo Health Center

Attitude of participants	Negative attitude	positive attitude
Learning diabetes is important	10 93	
Patient actions affect health more than health practitioner action?	22	81
Being drunk while on diabetic drugs is not a serious problem	58	45
Knowing enough information about a person who make prepare your food is important	26	77
I often think it is unfair that I should have diabetes when other people are so healthy	35	68
If I did not have diabetes I think I would be quite a different person	47	56
I dislike being referred to as a diabetic	51	52
Diabetes is the worst thing that has ever happened to me.	39	64
I often feel embarrassed about having diabetes	62	41
There is little hope of leading a normal life with diabetes	64	39
I avoid telling people I have diabetes	69	34
My diabetic diet spoils my social life	56	47
Being told you have diabetes is like	55	48

Source: Primary data, 2018

Multiple logistic regression analyses between Sociodemographic characteristics and Knowledge, attitude towards Diabetes Mellitus

Results from multiple logistic regression showed that males are two times more likely to be knowledgeable than female [AOR=2.1; 95% CI: 1.9−3.2]. However this knowledge is not translated into desired attitude. Knowledge towards diabetes mellitus increases with level of education. Those who completed high school and above are more than two times more likely to be knowledgeable [AOR=2.6; 95% CI: 2.0−3.7]. The study revealed that those who completed secondary school were two times more likely to have good attitude towards diabetes [AOR=1.9; 95% CI: 1.6−2.7] than those without education level. Knowledge towards diabetes increases with the duration of diabetes. Those who reported that the duration of diabetes is more than ten years are more knowledgeable two times more than those who said that the duration of diabetes is less than one year [AOR=2.8; 95% CI: 2.2−4.4]. Those with more than ten years were more than three times more likely be knowledgeable towards diabetes [AOR=3.6; 95% CI: 2.9−5.5] than those of less than one year. Those who reported to be employed were more than 1 time to be knowledgeable than their counterparts [AOR=1.7; 95% CI: 1.2−2.2].

Table 4: Multiple logistic regression analyses between Sociodemographic characteristics and Knowledge, attitude towards Diabetes Mellitus

Variables	Knowledge AOR(95%CI)	Attitude AOR(95%CI)
Age		
< = 40 years	1.6(1.2−1.9 [NS])	0.9(0.8−1.9 [NS])
=> 41	Ref	Ref
Sex of respondents		
Male	2.1(1.9−3.2*)	1.5(1.3−2.4 [NS])
Female	Ref	Ref
Marital status		
Never married	1.8(1.6−2.2 [NS])	1.6(1.23−.2 [NS])
Married	Ref	Ref
Education level		
None	Ref	Ref
Partial high school and below	0.9(0.71−.1.4 [NS])	0.4(0.21−1.2 [NS])
Completed high school and above	2.6(2.0−3.7**)	1.9(1.6−2.7**)
Duration of diabetes		
Less than one year	Ref	Ref
two to ten years	2.8(2.2−4.4*)	2.5(1.2−3.0*)
More than ten years	3.6(2.9−5.5**)	3.1(2.6−4.1**)
Occupation		
employed	1.7(1.2−.2.2 *)	1.1(0.9−.1.9 [NS])
Unemployed	Ref	Ref
Religion		
Christian	Ref	Ref
Muslim	1.4(0.9−1.8 [NS])	1.1(0.6−1.4 [NS])

NS= Not statistically significant *p ≤ 0.05; **p ≤ 0.01

IV. DISCUSSION

This study aimed to assess the knowledge and attitude towards diabetes mellitus type 2 for patients with diabetes type two attending Biryogo health centre. The main findings about knowledge and attitude towards diabetes were found to be higher as compared to other studies conducted in some parts of the world: Kenya [8], Sudan [9], and Sri Lanka. [10] Those differences were probably due to that these studies were conducted in rural areas. Similarly, this study found out that knowledge plays a vital role in any future disease development and its early prevention and detection. Positive knowledge and attitude (KA) are important for DM patients. Elements of KA are interrelated and dependent on each other. If the level of one element is higher, the other two factors should be affected positively. KA regarding diabetes varies greatly depending on socio-economic conditions, cultural beliefs and habits. [11] Knowledge of diabetes can prevent the imminent chronic morbidities of DM, which impact significantly on the quality of life of the diabetic patients. Information can help people to assess their risk of diabetes, motivate them to seek proper treatment and care, and inspire them to take charge of their disease for their lifetime. [12]

Regarding factors associated with knowledge, this study found out that higher educational status was associated with both good knowledge level and attitude. This was however not supported by a study conducted by Herath that indicated that the attitude towards diabetes was poor in majority (90%) and level of education had no significant effect on attitude. [13] It is in line with the study done by Mukeshimana (2010) conducted in Rwanda. The study further revealed that factors such as duration of diabetes were significantly associated with knowledge level whereas others demographic variables (age, marital status, and religion) were not significantly associated with knowledge level. [14]

V. CONCLUSION

This study aimed to assess the knowledge and attitude towards diabetes mellitus type 2 for patients with diabetes type two attending Biryogo health center. Overall the findings of the study revealed that the level of knowledge was good. However this knowledge is not translated into desired attitude. Education with the purpose of changing bad attitude to good attitude towards diabetes should be reinforced.

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