Cross-sectional Study

Knowledge, attitude, and practice regarding lifestyle modification among type 2 diabetes patients with cardiovascular disease at a Tertiary Hospital in Somalia

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ABSTRACT

Background: Diabetic was the eighth leading cause of death among both sexes and the fifth leading cause of death in women in 2012 (WHO, 2016). The main objective of this study is to identify the knowledge, attitude, and practice regarding lifestyle modification among type 2 DM with CVD at Mogadishu Somali Turkish Training and Research hospital in Mogadishu, Somalia.

Method: This study was hospital-based cross-sectional study conducted from type 2 Diabetic Mellitus patients with cardiovascular disease attended to Mogadishu Somali Turkish Training and Research Hospital for medical check-ups and regular medical treatments between September 2020 to August 2,022.

Results: A total of 384 patients were enrolled in the study. Out of 384 participants 221(57.6%) were females, while 163(42.4%) were males. The majority of the respondents, 261 (68%) fell within the age group of 60 years and above. Most of the participants (29.4%, n = 113) had no formal education. Interestingly, more than half 228 (59.4%) of participants were employed, while near one-third of the respondents (34.1%, n = 131) belonged to the low-income group (<2,000,000SH).

Concerning knowledge of the patients towards LSM of diabetic; the majority of the participants 68% (n = 261) had poor knowledge regarding knowledge questions, while 32% (n = 123) had good knowledge. Regarding to the level of attitude, 71.9% of respondents had a negative attitude toward the lifestyle modification of diabetics and the remaining 28.1% (n = 108) had negative attitude. More than two-thirds of participants 61.2% (n = 235) had a poor practice, while 38.8%(n = 149) respondents had a good practice regarding lifestyle modification. Finally A significant relationship was evaluated between Knowledge and Attitude (P = 0.007*) and between Knowledge and Practices (P = 0.000**) suggesting that most participants had good knowledge associated with good attitude and practices correspondingly.

Conclusion: The result of this study revealed, majority of type2 DM patients with CVD had poor knowledge, negative attitude and poor practices towards LSM. So, we recommend to all stake holders (Ministry of health, Health institution, health professionals, and national and international NGO) to improve KAP of the patients towards LSM.

1. Introduction

Diabetes 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 [1]. Globally, an estimated 422 million adults are living with diabetes mellitus, according to the latest 2016 data from the World Health Organization [2]. Furthermore, The global prevalence (age-standardized) of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population. When comparing this data to the 2013 estimation data from International Diabetes Federation that showed 381 million was living with diabetic Mellitus(DM) (“Simple treatment to curb diabetes”, 2014) you can see
that the disease is growing rapidly and it’s believed to project almost double by the year of 2030(3).

Sub-Saharan Africa, like the rest of the world, is experiencing an increasing prevalence of diabetes alongside other non-communicable diseases [4]. In 2010, 12.1 million people were estimated to be living with diabetes in Africa, and this is projected to increase to 23.9 million by 2030 [5]. Just like the World, Type-2 diabetes accounts for over 90% of diabetes cases in Sub-Saharan Africa [6].

Factors that are believed to be related to growing the disease and its risk factor are knowledge, attitude, and practice regarding lifestyle modification in diabetic patients [7].

All the population should change their lifestyle since the lifestyle modification interplay with the prevention of DM type 2, and also reducing the morbidity and the comorbidities of type 2 diabetes [8,9].

In Somalia, there is no data regarding the percentage of Somalis who made lifestyle modification (LSM) and the people consider obesity to be a healthy, prosperity, and wealth symbol [10].

Despite the importance of the topic, there’s no accessible study done in Somalia; therefore this study will try to establish the knowledge, attitude, and practice regarding lifestyle modification among type 2 DM patients with cardiovascular disease in a tertiary hospital in Mogadishu, Somalia.

2. Material and method

This study was conducted in a tertiary teaching hospital in Mogadishu, Somalia between September 2020 to August 2, 2021. It was a hospital-based cross-sectional study.

The study population was all type 2 Diabetic Mellitus patients with cardiovascular disease attending Mogadishu Somali Turkish Training and Research Hospital for medical check-ups and regular medical treatments. People who were mentally fit, above the age of 18, consented for participation and willing to provide information on this matter were included in this study. Written informed consent was obtained. The participants were interviewed individually at their convenient places and the questionnaire was made anonymous and kept in a lockable cabinet.

Kish-Leslie formula (Kish 1965) was used to determine the required sample size.

\[ n = \frac{Z^2 P Q}{(e)^2} \]

where \( n \) = required sample size.

\[ Z^2 = 1.96 \] (Critical value of the standard normal distribution corresponding to error rate \( \alpha/2 \) at the level of significance \( \sigma = 0.05 \) (5%).

\( P = \) Estimated proportion of people who fortify food

\( Q = (1-P) \), which represents the estimated proportion of people who do not fortify food

\( e = \) error allowed.

Therefore, using the formula above, the sample size was:

\[ n = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} \]

\[ n = \frac{(3.8416)(0.25)}{(0.0025)} \]

\[ n = \frac{0.9604}{(0.0025)} \]

\[ n = 384.16 \approx 384 \text{ respondents} \]

From the selected hospital, before the data is collected from the field, a pretest was made, by identifying 15 respondents from the target population, in order to identify questions that do not make sense to participants, and other problems within the questionnaire that had probe biased answers. The questions that did not provide useful data were discarded and final revisions of the questionnaire were made. All Diabetic Mellitus type 2 patients who consented to participate in the study were interviewed conveniently until the sample size of 384 respondents was achieved.

This study used a structured questionnaire guide to collect information. The research assistants explained the aim of the interview to the participants and also sought consent from the respondents. While preparing the questionnaire new knowledge scale for patients with type 2 diabetes and poor literacy: Spoken Knowledge in Low Literacy Patients with Diabetes (SKILLD) [11].

The questionnaire comprised four sections, first part constituting socio-demographic details of participants, the second consisted of knowledge regarding the benefits of exercise, diet control, weight loss, and stress management, the third part assessed attitude toward lifestyle modifications and fourth part evaluated on lifestyle modification practices of patients towards LSM of diabetic. The questionnaire consisted of both open and close-ended items which were filled by direct face-to-face interviews with all eligible participants.

KAP score, for knowledge each positive response was given score1 while a negative response was scored 0. Total knowledge scores can range between 0 and 8. Knowledge scores; from 0 to 3 were considered as poor knowledge and scores more than 3 were considered as having good knowledge regarding type two diabetes.

Attitude towards diabetic patients was assessed using 6-item questionnaires; where attitudes scored between 0 and 3 were considered poor attitude and scores 4 to 6 were considered a good attitude.

Practice towards diabetic patients was assessed using 6-item questionnaires; where practice scores between 0 and 3 were considered poor practice and scores 4 to 6 were considered as good practice. Before the data is collected from the field, a pretest was made, by identifying 15 respondents from the target population, to identify questions that do not make sense to participants, and other problems within the questionnaire that had probe biased answers. The questions that did not provide useful data were discarded and final revisions of the questionnaire were made. To avoid being inconsistent about translating from English to the Somali language verbally, the structured questionnaire Guide which is written in the English version was translated into Somali language and the respondents were subjected to a questionnaire with the Somali version.

This study was conducted after we found the permission letter that has been written officially by the ethical comette board of Mogadishu Somali Turkish Training and Research Hospital. The confidentiality was assured in such a way that no disclosure of any name of the patients, the health care provider or drug product in relation to this finding.

The data was collected, edited, coded, and put into Epi-Data and then exported to the IBM SPSS (Statistical Package for Social Science) template. Descriptive analysis was made to determine the knowledge, attitude, and practice towards lifestyle modification among type two Diabetic Mellitus. The distribution of the variables was analyzed using frequency tables. KAP score was introduced for Bivariate analysis to establish the determinant factors associated with lifestyle modification by using Pearson’s correlation.

3. Results

A total of 384 patients were enrolled in the study. As table-1 shows that out of 384 participants 221(57.6%) were females, while 163 (42.4%) were males. The majority of the participants, 261 (68%) fell within the age group of 60 years and above. It also shows that a majority of the participants, 113(29.4%) had no formal education. Interestingly, more than half 228(59.4%) of participants were employed and 156 (40.5%) participants were unemployed. Near one-third of the respondents (34.1%, n = 131) belonged to the low-income group.
betic Patients with cardiovascular disease.

Concerning knowledge of the patients towards lifestyle modification or not, their knowledge regarding benefits of lifestyle modification among diabetic patients with CVD and who were married.

To assess the attitude of participants towards LSM, we used main questions related to LSM; whether it’s useful or useless, believes that LSM is a benefit for diabetic patients, and their thought of controlling diabetes with regular exercise or controlled by diet modification. The majority of the respondents 71.9% (n = 276) had a negative attitude toward the lifestyle modification of diabetics and the remaining 28.1% (n = 108) had negative attitude (Table-2).

Regarding the practice of lifestyle modification, 6 questions related to the practices of participants were used to assess the level of the knowledge included; sought treatment, and preventive measures such as screening for DM, exercise, and planned and controlled diet. More than two-thirds of participants 61.2% (n = 235) had a poor practice, while 38.8%(n = 149) respondents had a good practice regarding lifestyle modification.

A significant relationship was evaluated between Knowledge and Attitude (0.007*) and between Knowledge and Practices (P = 0.000**) suggesting that most participants had good knowledge associated with good attitude and practices correspondingly (Table 3).

4. Discussion

The study enrolled and selected 384 diabetic patients for medical check-ups and regular medical treatments in 1 year at Mogadishu Somali Turkish Training and Research Hospital. This study is the first study from Somalia to report on knowledge, attitude, and practice related to LSM among diabetes patients.

Majority of respondents in this study came from the age groups 46–59 years, 51–60 years and >60 years with 20.3% and 68% of respondents respectively, this is due to the fact that type 2 diabetes mellitus frequently develops in elderly age [12,13].

This study enrolled more females (57.6%) than males (42.4%), reflecting the gender ratio of patients at the Mogadishu Somali Turkish training and research hospital, Mogadishu, Somali. DM and associated risk factors are more common among women, according to recent data from developing nations including South Africa and Ethiopia (12,13).

In this study, most of the participants (29.4%, n = 113) had no formal education which is similar to the previous study on KAP regarding lifestyle modification among type 2 diabetic mellitus patients reported by Adem AM et al. and his collagenous [13].

Majority participated in this study, near one-third (34.1%, n = 131) belonged to the low-income group (<2,000,000SH), followed by respondents in between 2,000,000SH and 4,000,000SH. This finding was consistent with the findings of a cross-sectional study in Ethiopia attachment to Diabetes Self-Management Practices among Type 2 Diabetic Patients, in which the majority of the study participants, 139 (43%), had absolutely low monthly income [14].

The Diabetes Prevention Project demonstrated that lifestyle modification, including intensive exercise, is more effective in preventing diabetes than pharmacological therapy, and highlighted the role of trained professionals in motivating people to follow lifestyle interventions. Although lifestyle intervention improves the condition of the patients with type 2 diabetes mellitus and prevents those with IGT to develop diabetes there is not enough evidence to determine if lifestyle interventions affect mortality in those who already have DM2 [15].

Knowledge is the greatest weapon in the fight against diabetes. Information can help people assess their risk of diabetes, motivate them to seek proper treatment and care, and inspire them to take charge of their life.

| Variable                | Category     | Frequency | Percentage |
|-------------------------|--------------|-----------|------------|
| Age                     | 18–30 yrs    | 15        | 3.9        |
|                         | 31–45 yrs    | 30        | 7.8        |
|                         | 46–59 yrs    | 78        | 20.3       |
|                         | 60 Above     | 261       | 68.0       |
|                         | Total        | 354       | 100.0      |
| Gender                  | Male         | 163       | 42.4       |
|                         | Female       | 221       | 57.6       |
|                         | Total        | 384       | 100.0      |
| Marital status          | Married      | 241       | 62.8       |
|                         | Single       | 34        | 8.9        |
|                         | Divorced     | 48        | 12.5       |
|                         | Widowed      | 61        | 15.9       |
|                         | Total        | 384       | 100.0      |
| Educational status      | No formal ed | 113       | 29.4       |
|                         | Primary school | 97     | 25.3      |
|                         | Secondary school | 98  | 25.5      |
|                         | Tertiary education | 76 | 19.8    |
|                         | Total        | 384       | 100.0      |
| Income status per month | <2,000,000 SH| 131       | 25.0       |
|                         | 2,000,000–4,000,001 SH | 102 | 25.0   |
|                         | 4,000,000–6,000,000 SH | 61  | 15.9    |
|                         | >6,000,000 SH | 90    | 34.1      |
|                         | Total        | 384       | 100.0      |
| Occupational Status     | Employee     | 228       | 59.4       |
|                         | Unemployed   | 156       | 40.6       |
|                         | Total        | 384       | 100.0      |
Regarding the level of knowledge toward lifestyle modification, Almost (68.0%) of the respondents had poor knowledge about lifestyle modification among type 2 diabetes with CVD, and most of them had not known diet control, while some others now knew about exercise but a handful of others not knew about stress management. In similar to this study, poor knowledge regarding lifestyle modification of diabetes has been reported in several studies from Pakistan, Kenya and Nepal [17–19]. In contrast to this finding, Adem and his teammate found in their study that 77.59% of respondents had adequate (good) knowledge to the LSM included benefits of exercise, weight loss and healthy diet among diabetic patients [13].

A study done by WHO in 2016 has stated that the application of appropriate knowledge and information with mass involvement of people in overcoming and controlling chronic disease could lead to a hasty improvement in life expectancy and quality of life especially among middle-age and older people in some countries [20].

In the current study, majority of respondents 71.9% had a negative (poor) attitude regarding lifestyle modification followed by 28.1% of the respondents who had a positive (good) attitude. This finding is a contrast to those of studies done in South Africa at Mamelodi Hospital in which the majority of respondents (92.7% and 51.6% respectively) had a positive (good) attitude towards lifestyle modifications [12]. In this study also differences in other studies do in Ethiopia, in which the majority of respondents 81.9% had positive (good) attitudes towards lifestyle modifications [21].

The Somali population doesn’t believe that obesity is an illness or it may lead to any disease because they believe that obesity is a sign of health, prosperity, and wealth symbol [10].

Also, the practice of the patient is not only affected by the patient’s compliance but also it can be affected by limited resources and low income which limit their affordability for a well-balanced dieting and necessary equipment to exercise [1]. In the present study, the majority of the respondents 61.2% had poor practice and those with an average of 38.8% had good practice regarding to lifestyle modification. Correspondingly to the present study, a study from Kenya revealed that 75.6% of respondents had poor practices concerning lifestyle modifications among diabetic patients [22]. The proportion of participants with poor lifestyle practices was in contrast to a study done in India which reported that 99% of their participants had good practices towards lifestyle modification among diabetic patients [23].

5. Conclusion

The result of this study revealed, majority of type2 DM patients with CVD had poor knowledge, negative attitude and poor practices towards LSM.

Based on in our research findings about knowledge, attitude, and practice to lifestyle modification on type two diabetic patients with CVD, we recommended:

- All stake holders (Ministry of health, Health institution, health professionals, and national and international NGO) to improve KAP of the patients towards LSM.
- Ministry of Health and health partners should sensitize the community members on possible options of lifestyle modification, and to be the especially targeted on the lifestyle related patients and sensitize them on the advantages of lifestyle modifications and its impact on their current and future health.
- Health Workers/health professionals should provide relevant information about the lifestyle modification to all clients visiting at their respective health facilities, and special consideration should be offered for diabetic and other chronic patients.
- The ministry of health should implement lifestyle modification friendly spaces including special runways for morning an evening exercises and importations quality control unit.
- The media and other health organizations should play a role in increasing the awareness of LSM about diabetes most steadily.
- Training, empowering, nutritional intervention programs, and motivating health care providers for delivering adequate health messages.

Ethical approval

Approval for conducting the study was obtained from Mogadishu Somali Turkish Training and Research Hospital.

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We declare that we have no funding source.

Author contributions

MFYM: Was evaluated and selected the study, did the analysis, wrote the first draft, and critically read through the manuscript.

MOOJ: was reviewed and revised the manuscript for important intellectual content.

Both authors discussed the results and commented on the manuscript. Both authors read and approved the final manuscript.

Trial registry number

1.Name of the registry: Not Applicable.
2.Unique Identifying number or registration ID: Not Applicable.
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Guarantor

As Corresponding Author, I confirm that the manuscript has been read and approved by all named authors.

Consent

Written informed consent was obtained from the patients for publication of this article and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Availability of data and material

All data generated or analyzed during this study are included in this article.

Declaration of competing interest

We declare that we have no conflict/competing interests.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amsu.2022.103883.

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