Personalized Evidence, and Young Adults' Attitude and Behaviour Towards Type 2 Diabetes Mellitus Preventive Lifestyle Measures

by

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1 Background

Diabetes Mellitus is a chronic condition characterized by high blood sugar because the body either does not make enough insulin or the one produced is not functioning effectively (Liu et al., 2020). The incidence of diabetes mellitus is higher in specific groups or situations such as having prediabetes, being 45 years and older, being overweight, having a family history of type 2 diabetes, physical inactivity, or a history of gestational diabetes (Lim & Taylor, 2017).

Most of the at-risk populations, which may include young adults, lack adequate knowledge of the disease and/or the specific ways through which they can achieve and maintain optimal health through self-initiated or monitored preventive measures, thus the need for education aimed at enhancing their understanding (Liu et al., 2020). Behavior change programs have demonstrated diabetes risk-reduction benefits (Bean et al, 2021; Ontario Health Technology Assessment Series, 2009). The Health Belief Model suggests that a person's belief in a personal threat of an illness or disease, together with a person's belief in the effectiveness of the recommended health behavior or action will predict the likelihood the person will adopt the behavior (LaMorte, 2019), hence the need for personalized evidence aimed at inducing desirable changes in behavior . Studies on diabetes preventive lifestyle activities largely focus on middle-aged and older adults. Similarly, majority of interventions is on knowledge and skills with less emphasis on behavior change (Paton et al, 2021). This study aimed to investigate non-diabetic young adults' risk of developing Type 2 diabetes mellitus while comparing their attitudes and behaviours towards preventive lifestyle activities.

2 Methods

A descriptive cross-sectional study which involved consenting non-diabetic, non-pregnant young adults aged 20-39 years and living in Middle Eastern countries. Young adults living with diabetes mellitus, those who did not give consent, and middle aged and older adults were excluded from the study. A total of 218 non-diabetic young adults participated in the study.

Data was collected from January 2022 to February 2022 through English and Arabic versions of an electronic form consisting of a modified World Health Organization (WHO) STEPS questionnaire, the American Diabetes Association (ADA) diabetes risk assessment tool (ADA, 2021), as well as an adapted attitude questionnaire. Data analysis was done with Google Sheets. Post data analysis, individual diabetes risk scores and a short educational video on the role of lifestyle intervention on diabetes risk reduction were sent to all the study participants.

3 Results

The mean age of the participants was 31.3 (±5.5) years, with 127 (59.6%) males and 86 (40.4%) females. The mean body mass index (N = 202) was 26.5 (± 5.1) kg/m². A total of 113 (55.9%) indicated that they had a positive family history of diabetes mellitus while 89 (44.1%) did not. Mean diabetes risk score (N = 202) was 3 (± 1); 185 (93.0%) of the participants had low diabetes risk score.

With regards to attitude (N= 212), 185 (88.1%) agreed to the importance of maintaining a healthy lifestyle at a young age, 195 (92.9%) thought a healthy lifestyle would help them to stay healthy, and 180 (85.7%) disagreed that there was no need to maintain a healthy lifestyle at a young age.

Concerning lifestyle behavior (N= 213), in a week 81 (38.0%) of the respondents ate fruits on 2 to 3 days while 51 (23.9%) ate fruits on one day or not at all, 47 (22.1%) ate fruits on 4 to 5 days, and 34 (16.0%) ate fruits on 6 or all 7 days of the week. On the days fruits were eaten, 158 (72.8%) ate 1 - 2 fruit portions, 40 (18.8%) ate 3 - 5 fruit portions while 9 (4.2%) ate more than 5 portions per day. Eighty-one (38.0%) of the respondents ate vegetables 2 - 3 times per week, 67 (31.5%) ate vegetables 4 -5 times while 46 (21.6%) ate vegetables on 6 days or all days of the week. On the days vegetables were eaten, 112 (52.6%) ate 2 - 3 portions, 62 (29.1%) ate one portion, 28 (13.1%) ate 4 - 5 portions, while 11 (5.2%) ate more than 5 portions.

A total of 181 (85.0%) of the respondents indicated that their work did not usually involve vigorous-intensity activity that caused large increases in breathing or heart rate for at least 10 minutes continuously while 32 (15.0%) gave an affirmative response. One hundred and fifty-one (70.9%) indicated that if at all, their work involved doing vigorous intensity activities on 0 -1 days, 44 (20.7%) had the same on 2 - 3 days of the week, 12 (5.6%) on 4 - 5 days of the week, while 6 (2.8%) had same on 6 - 7 days of the week, and on such days, 157 (73.7%) of the respondents spent less than 30 minutes performing vigorous-intensity activities while 33 (15.5%) spent 30- 60 minutes.

About 124 (58.2%) indicated that their work did not usually involve moderate-intensity activity that causes small increases in breathing or heart rate for at least 10 minutes continuously, while 89 (41.8%) said it did. If done at all in a typical week, 97 (45.5%) indicated that they did moderate-intensity activities as part of their work on zero to one day, 74 (34.7%) on 2 - 3 days, and 132 (62.0%) were involved in this for less than 30 minutes per day while 56 (26.3%) for 30 - 60 minutes per day.

A total of 117 (54.9%) of the respondents usually walked or used a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places while 96 (45.1%) of the respondents indicated that they do not walk or use a bicycle for travel on a typical day. If done at all, in a typical week, 77 (36.2%) did this for zero to one day, 57 (26.8%) for 2 - 3 days, 52 (24.4%) for 4 - 5 days, and 27 (12.7%) for 6 - 7 days. For each day, 139 (65.3%) spent less than 30 minutes, 58 (27.2%) spent 30 - 60 minutes, while 8 (3.8%) spent 61-90 minutes walking or cycling.

In the same vein, 158 (74.2%) indicated that they do not do any vigorous-intensity sports, fitness or recreational (leisure) activities that cause large increases in breathing or heart rate for at least 10 minutes continuously, while 55 (25.8%) indicated that they do. If done at all, in a typical week 150 (70.4%) did this for zero to one day, 42 (19.7%) did this for 2 - 3 days, 18 (8.5%) did this for 4 - 5 days while 3 (1.4%) did this for 6 - 7 days of the week. Meanwhile, 164 (77.0%) did this for less than 30 minutes, 37 (17.4%) did this for 30 -60 minutes, and 8 (3.8%) did this for 61 - 90 minutes on any day.

One hundred and thirty-nine respondents (65.3%) indicated that they did not usually do any moderate-intensity sports, fitness or recreational (leisure) activities that cause a small increase in breathing or heart rate for at least 10 minutes continuously, while 74 (34.7%) indicated that they did. If done at all, in a typical week, 147 (69.0%) indicated that they did so on zero to 1 day of the week, 47 (22.1%) did so on 2 to 3 days of the week, 14 (6.6%) on 4 to 5 days of the week, while 5 (2.3%) did so on 6 to 7 days of the week. On the said days, 161 (75.6%) indicated that they spent less than 30 minutes, 40 (18.8%) spent 30 - 60 minutes, while 10 (4.7%) spent 61 - 90 minutes doing moderate-intensity sports, fitness or recreational (leisure) activities.

There was a weak and negative correlation between age and diabetes risk score (r =-0.1) while body mass index was positively correlated with diabetes risk score (r = 0.63).
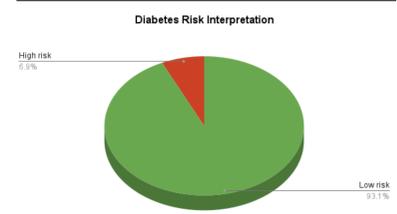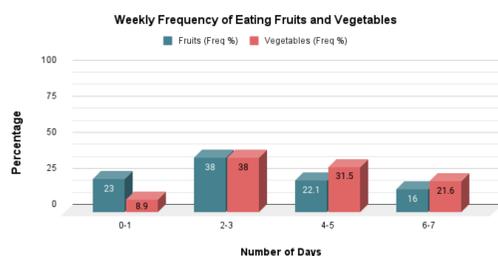

Fig. 1: Diabetes Risk
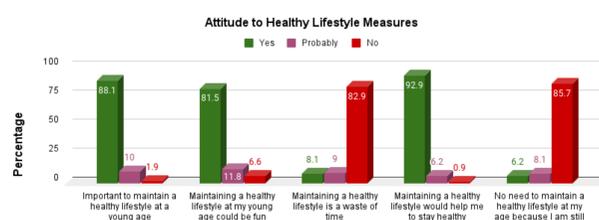

Fig 2: Weekly Frequency of Eating Fruits and Vegetables
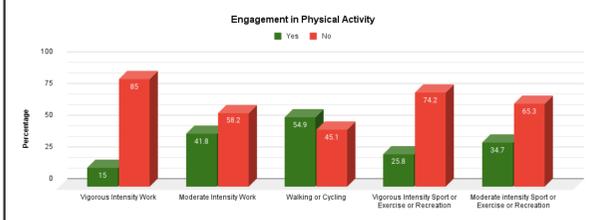

Fig. 3: Attitude to Healthy Lifestyle Measures

Fig. 4: Engagement in Physical Activity

5 Discussion

Type 2 Diabetes is a preventable chronic condition that has become one of the leading causes of death globally. The risk factors that are associated with this chronic condition can be managed individually or collectively. Studies have demonstrated the possibility of achieving positive outcomes through individual or self-care management approaches (Liu et al., 2020).

Majority of the participants had a low risk of developing Type 2 diabetes mellitus, and this corroborates current evidence that the risk increases from age 45 years and above. The study population was an overweight one. And although majority reported a positive attitude towards preventive lifestyle measures which did not correspond to their reported lifestyle behaviours/practices. This negates evidence from existing studies which found unhealthy diet and lifestyle, high level of cholesterol, lack of exercise, and obesity or being overweight to be among the preventable yet common risk factors associated with the incidence of diabetes mellitus (Othman et al., 2020), as well as evidence that also indicate that an active lifestyle lowers the blood sugar (Galaviz et al., 2015; Reddy, 2017).
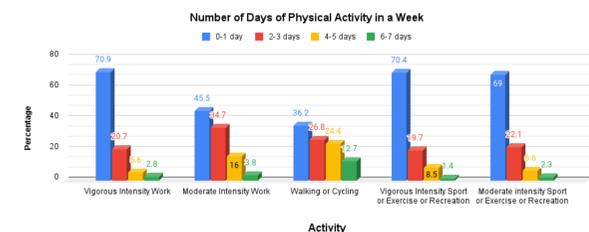

Fig. 5: No. of Days of Engagement in Physical Activity in a Week

6 Conclusion

Evidence from this study indicates that most young adults have desirable attitudes towards healthy lifestyle measures as recommended by current health guidelines. However, their behaviours in terms of practising the recommended healthy lifestyle measures are not commensurate with their attitudes. Lifestyle modification or intervention education provided by physicians, psychologists, and other healthcare workers to young adult patients should enable and monitor behavior change towards adoption of the recommended healthy lifestyle measures. This may facilitate greater adoption of recommended healthy lifestyle behaviors, and ultimately prevent the onset and reduce the incidence of, or delay progression from pre-diabetes (high risk) to Type 2 diabetes mellitus.

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Ethical Approval Code: KU-EXT-21-12-29