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Original Article

Physical Activity and Perceived Barriers among Type2 Diabetic Patients in Erbil City

Rezhna Abdullah Ahmed; *Department of Nursing, College of Nursing, Hawler Medical University, Erbil, Iraq.* (Correspondence: rejna92@gmail.com)
Ronak Nihmatala Hussain; *Department of Nursing, College of Nursing, Hawler Medical University, Erbil, Iraq. Iraq.*

ABSTRACT

Background and objectives: Physical activity is necessary for providing a healthy lifestyle, improving quality of life, controlling diabetes mellitus and promoting glycemic control. The aim of the study was to assess physical activity and to determine barriers to physical activity among type 2 diabetic patients in Erbil city.

Methods: A cross-sectional study was conducted among 400 type 2 diabetic patients, attending Layla Qasim Center in Erbil City during May 27 to 30 August 2019. Data was collected using an interview based questionnaire to obtain socio-demographic data, clinical characteristics, Physical activity assessed using Global Physical Activity Questionnaire (GPAQ) and standardized questionnaire developed by the Centers of Diseases Control and Prevention for determining barriers of physical activity. Data were analyzed using descriptive statistical approach.

Results: Participant were 400 patients with mean age of 57.0 + 9.4 years, 64.3% of the sample were females. (72.3%) of the sample were illiterate, 77.5% were either unemployed or housewives. 83.8% of the sample were married, 80.25% of samples had first degree relative positive family of diabetes. 56.5% of samples take oral hypoglycemic mediactons.39.2% of samples were overweight and 83.7% of samples had poor glycemic control.57.8% of participants didn't meet recommendations (< 600 minutes per week) of physical activity. The main barriers that keeps patients from being active were lack of energy (54.8%), lack of willpower (53%), and lack of skill (49.3%).

Conclusions: According to the finding of the study type 2 diabetic patients had insufficient physical activity to meet the recommended level necessary to achieve optimal glycaemic control, prevent or decrease diabetic complications. Interventions should include guiding individuals to evolving recreational physical activity and overwhelming barriers to physical activity.

Keywords: Physical activity, Type 2 Diabetes Mellitus, glycemic control, overweight, lack of energy

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INTRODUCTION

Diabetes is a serious, long-standing disease that develops either when the pancreas does not make adequate insulin (a hormone that regulates blood glucose), or when the body cannot definitely use the insulin it produces. Diabetes has turn into one of the major causes of morbidity and mortality across the globe. It is combined with large varieties of complications like retinopathy, neuropathy and lower limb amputation [1].The rising prevalence of diabetes mellitus conceives medical and social leads to the diabetic complications. If comorbid diseases of diabetes which are hyperlipidemia, hypertension and obesity accordingly labeled, restriction of these complications is achievable. Physical activity, dietary adjustment and counseling

therapy are part of the overall treatment strategy in type 2 diabetic patients [2].World Health Organization (WHO) defines physical activity as any movement of the body that composed by skeletal muscles that requires energy consumption-including activities attempted while working, playing, carrying, travelling, and inviting in recreational pursuits. Inadequate physical activity is one of prominent risk factors for global mortality and people who are insufficiently active have a 20% to 30% increased risk of death compared to whom are sufficiently active [3]. Regular exercise can offer both general health benefits and diabetes-specific health benefits. It can reduce the cardiovascular risk by improving lipid profile, lowering the blood pressure and inducing weight loss [4]. Appraisal and Highlighting barriers are very necessary to develop and apply effective physical activity programs and guidelines to diabetic patients according to the barriers. Western community has reported lack of time [5] [6], lack of knowledge, lack of willpower [7]. in Arab countries data on barriers to physical activity in both public and type 2 diabetic patients are lack of time [8] and lack of resources [9]. No study in Iraq even in Kurdistan region on physical activity among type 2 diabetic patients, the aim of this study was to assess physical activities and determine barriers to physical activity among type 2 diabetic patients.

METHODS

A descriptive cross-sectional interview-based study was conducted among 400 type 2 diabetic patients in Layla Qasim Health Center for Diabetes in Erbil City during May 27 to August 30, 2019. The sample size was determined by Epi. Info software (Version 7) used for sample size estimation. The expected frequency (25%) based on the study done in United Arab Emirates [10] and confidence interval of 95%. The population size 2433 number of diabetic patients that visited Layla Qasm center from April 2018 to April 2019 accordingly the estimated sample size by Epi. Info was 380 but the researcher decided to select 400 cases as a sample size to be more accurate representative sample. Researcher attained confirmation of the Ethics Committee at the College of Nursing at 13, June 2019 (number 68), Hawler Medical University and the official approval from the Ministry of Health in Erbil Directorate of Health was taken. A questionnaire prepared for collecting data based on Global Physical Activity Questionnaire [11] and The Centers of Diseases Control and Prevention questionnaire [12] for determining barriers of physical activity were used. The questionnaires are reliable and accessible in public, no arrangements are actually needed to practice it, and it its open entry and broadly tested for reliability and validity in nine [13] countries also in Ireland [14], USA [15]and Bangladesh [16].Pilot study was conducted on 20 included type 2 diabetic patients were selected purposively from Layla Qasim Health Care Center on April 2019 and re-tested after 15 days' same patients were asked same questions. The pilot study was useful to determine the reliability, clarity, acceptability and time estimation for each participant to complete the interview which was 30-40 minutes. The results of two analyzing (test and re-test) were checked to determine the reliability by calculating Cronbach's Coefficient Correlation it was 0.87.Socio-demographic data of diabetic patients Included age, gender, marital status, educational level, occupation and family income, and medical data of samples included family history, duration of diabetes, types of treatment, body mass index and glycemic control. Physical Activity Assessment

Physical activity level of patients with type 2 diabetes mellitus T2DM were

determined by using Global Physical Activity Questionnaire (GPAQ). It is comprised of 16 questions about physical activity in a typical week and determines physical activity in three domains, work, transportation and recreational activities. The ratio of a person's functioning metabolic rate relative to the resting metabolic rate is called metabolic equivalent (MET). In the estimation of a person's overall energy consumption, 4 METs was given to the time used in moderate activities, and 8 METs to the time used in vigorous activities. The total time used on physical activity during a typical week, the number of days as well as the intensity of physical activity is taken into account to calculate for the categorical indicator, through a week, including activity work, during transport and leisure time, adults should do at least 150 minutes of moderate- intensity physical activity, 75 minutes of vigorous-intensity physical activity and an equivalent combination of moderate-and vigorous – intensity physical activity achieving at least 600 MET-minutes. Total physical activity MET-minutes/week (=the sum of the total MET minutes of activity computed for each setting) Equation: physical activity MET-minutes/week= [(P2*P3*8) + (P5*P6*4) + (P8*P9*4) + (P11*P12*8) + (P14*P15*4)]
The two levels of physical activity suggested for classifying patients, not meeting recommendations (MET<600 minutes per week) and Meeting recommendations (MET ≥ 600 minutes per week). Center for Disease Control (CDC) questionnaire barriers to Physical Activity Center for Disease Control questionnaire 'Barriers to Being Active' was used in a study which is 21 questions on seven barriers (lack of time, lack of social support, lack of energy, lack of willpower, fear of injury, lack of skill and lack of resources). A set of three related questions (total of 21 questions) given in random order within the questionnaire one barrier category. A scoring system was used to demonstrate how likely each statement/item was considered to be a barrier (very likely=3, somewhat likely=2, somewhat unlikely=1, very unlikely=0). Scores of the three theme-related questions were added up to provide a total for each category of barriers. A score of ≥5 was considered as an important barrier to overcome.

RESULTS

Table 1 shows the socio-demographic characteristics of the study sample, the mean age + SD was 57.0 + 9.4 years and the highest percentage of the patients 38.8% were within the age groups 55-64 years. Regarding to the gender, more than half of the sample 64.3% were female and the minority were male 35.8%. Furthermore, 83.8% of the sample were married, most of them were illiterate 72.8%, and 77.5% were either unemployed or housewives and regarding the income was enough for 44.5% of the patients and only 13.8% were exceeded needs. Table 2 shows the medical data of samples 72.75% had positive family of diabetes. In relation to the duration of diabetes mellitus by years, the highest percentage 56% of the sample in durations of diabetes mellitus was 1-8 years, while the lowest percentage 0.8% was ≥25, with the mean duration of 8.61 years. the majority of the patients take oral hypoglycemic drugs, either alone 56.5%, in combination with insulin 15.8%, or in combination with a dietary regimen 9.8%. about BMI 39.2% were overweight and majority of patients had poor glycemic control based on Hba1c ≥ 7 83.8%. Results shows that more than half 57.8% of the sample didn't meet the recommended score for physical activity (Table 2). Results also shows (Table 3) that the main barriers that keeps patients from being active were lack of energy 54.75%, lack of willpower 53%, and lack of skill 49.25%.

Table 1: Socio-demographic characteristics of study sample

Age (years)	No.	(%)
< 45	32	(8.0)
45-54	130	(32.5)
55-64	155	(38.75)
≥ 65	83	(20.75)
Gender		
Male	143	(35.75)
Female	257	(64.25)
Marital status		
Single	7	(1.75)
Married	335	(83.75)
Divorced	2	(0.5)
Separated	6	(1.5)
Widow/er	50	(12.5)
Educational level		
Illiterate	289	(72.25)
Primary school graduate	47	(11.75)
Intermediate school graduate	23	(5.75)
High school graduate	10	(2.5)
Diploma	18	(4.5)
College and post gradate	13	(3.25)
Occupation		
High rank	12	(3.0)
Non manual	22	(5.5)
Skilled manual	25	(6.25)
Unskilled manual	31	(7.75)
Unemployed/housewife	310	(77.5)
Family income		
Enough	178	(44.5)
Not enough	167	(41.75)
Exceeds needs	55	(13.75)

Table 2: Medical data of study participants

	No.	(%)
Family history of DM		
No	109	(27.25)
Yes	291	(72.75)
Duration of DM / years		
1 – 8	224	(56)
9-16	137	(34.25)
17-24	36	(9)
≥25	3	(0.75)
Types of treatment		
Insulin	61	(15.25)
Oral hypoglycemic	226	(56.5)
Diet	4	(1.0)
Insulin & oral hypoglycemic	63	(15.75)
Oral hypoglycemic & diet	39	(9.75)
None	7	(1.75)
BMI		
<25	100	(25)
25-29	157	(39.25)
30-34	118	(29.5)
≥35	25	(6.25)
Glycemic control		
Good HbA1c (<7%)	65	(16.25)
Poor HbA1c (≥7%)	335	(83.75)

Table 3: Physical activity scores of study samples

MET-minutes/week*	No.	(%)
Not meeting recommend tions (< 600 minutes per week)	231	(57.75)
Meeting recommendations (≥600 minutes per week)	169	(42.25)
Mean ± SD 870.1 ± 1208.4		
Total	400	(100)

Table 4: Barriers to being active

Barriers * No. n = 400	No.	(%)
Lack of energy	219	(54.75)
Lack of willpower	212	(53)
Lack of skill	197	(49.25)
Fear of injury	180	(45.0)
Lack of time	179	(44.75)
Social influence	141	(35.25)
Lack of resources	64	(16)

*More than one barrier is a possibility in the same patient.

DISCUSSION

The mean age of current study is 56.9 ± 9.3 which agree with the result of previous study done on 320 type 2 diabetic patients who found that most of participants were between 45 -65-year-oldandthe mean age was 55 years old [17]. Most of the patients in this study were female and married which is persistent with earlier studies that demonstrated similar results [17] [18]. Majority of patients in this study were housewives as supported by study done in Iran [19]. The present study findings show that the highest percentage (80.25%) of patients had positive family history of diabetes for a first degree relative similar to study results done in Saudi Arabia [20]. About the duration of diabetes higher percentage was between 1-8 years with the mean and standard deviation 8.61 ± 5.4. This result agrees with the study done in Emirates [10]. in addition, majority of them were taking oral hypoglycemic medications, this concurs with a cross-sectional survey conducted on 305 type 2 diabetic patents in Oman [21]. Results show that high proportion of the study samples has poor glycemic control (≥7%) with the mean and standard deviation of 8.7 ± 1.6 finding come along with a cross-sectional study done in Philippine which reported that the higher proportion (89.4%) pf patients had Poor glycemic control (≥7%) [22]. The present study finding show poor glycemic control was associated with low or insufficient physical activity practices, being active physically aids in glycemic control by increasing insulin sensitivity thus maintaining good glycemic control. The majority of patients had inadequate physical activities in Erbil city and more than half of patients didn't meet recommended guidelines of physical activity, this finding is similar to a study done among type 2 diabetic patients in Emirates [10], Pakistan [23] and UK [24].Insufficient physical activity could be related to many factors, in our study we found that high level of illiteracy, older age are main factors perhaps due to the matter that individuals aged older tend to prefer less intense activity. The level of physical activity has definitely declined in recent years due to changing in lifestyle and enhancing in wellbeing facilities. Living in urban areas, applying elevators approximately in all buildings and the improvement of public transportation systems, expanding markets and shopping centers promote to a reduction in physical activity level. Three barriers were derived through the determination of barriers to physical activity practice in patients with type 2 diabetes in this study. Lack of energy towards physical activity was the main barrier. Studies shown that type 2 diabetic patients often struggle with lack of energy and fatigue, which affects their self-care and quality of life, also fatigue has been related to physical inactivity, depression, high body mass index, sleep disturbance, and chronic lo-grade inflammation [25]. Findings revealed that lack of willpower has been reported as second important barrier to physical activity practice in patients with diabetes. A previous study also indicated lack of willpower as the most influencing factor for low physical activity level among type 2 diabetes mellitus patients [21] [26].

CONCLUSION

The study stated that the majority of the type 2 diabetic patients in Erbil didn't meet recommended guidelines of physical activities mostly patients with poor glycemic control and older age. study also identified lack energy and lack of willpower as the most common barriers to achieving physical activities. We should provide arrangements toward establishing the programs on how to strengthen our patients

to have continued exercise that improve health and applying strategies to overwhelming these barriers and developing motivators are crucially needed.

RECOMMANDATIONS

- Health care providers have crucial role in explaining the effects of physical exercise on blood glucose control, health benefits of physical activity, and eventually on the quality of life also they play role in patients monitoring, weight reduction, counseling and appropriate management of diabetes.
- Regular physical activity should be improved among diabetic patients to achieve optimal glycaemic control and prevent complications of diabetes.
- Approaches that strengthen will power and strategies to enhancing energy include (maintaining healthy weight, eating healthy diet, regular exercise, adequate rest and sleep, stress restriction and meditation.

CONFLICT OF INTREST

The author reports no conflict of interests.

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