

Available online at www.sciencerepository.org

Science Repository



Supplementary Materials

Barriers to Exercise in Type 2 DM Patients: An Institutional Cross-Sectional Descriptive Study

N. Chowdhuri¹, K.K. Gangopadhyay^{1,2}, S. Majumdar^{1,3*}, B. Ghoshdastidar⁴, S. Dasgupta¹, A. Majumder⁵ and K. Bhattacharjee⁶

¹Peerless Hospital, Department of Endocrinology and Diabetes, Kolkata, India

²Fortis Hospital, Department of Endocrinology and Diabetes, Kolkata, India

³GD Hospital and Diabetes Institute, Department of Endocrinology and Diabetes, Kolkata, India

⁴Calcutta Medical Research Institute, Department of Medicine, Kolkata, India

⁵KPC Medical College, West Bengal University of Health Sciences, Department of Medicine, Kolkata, India

⁶Independent Biostatistician and Clinician, India

ARTICLE INFO

Article history:

Received: 5 July, 2019

Accepted: 26 July, 2019

Published: 3 September, 2019

Keywords:

Diabetes

barriers

exercise

india

ABSTRACT

Background: The benefits of regular exercise are well recognized in type 2 diabetes subjects. However, a substantial proportion of patients don't exercise at all. We aimed to enumerate the barriers to exercise in Type 2 Diabetes Mellitus (T2DM) patients and factors associated with these barriers.

Methodology: A cross-sectional study of successive type 2 diabetes patients attending routine out-patient diabetes clinics in tertiary care hospitals in Kolkata, India from 1st April, 2017 to 31st March 2018. All patients who matched our study eligibility criteria were interviewed by diabetes care providers using a structured questionnaire modeled after a systematic review of similar studies but tuned to regional preferences. Besides demographic details, patient particulars, laboratory investigations, the questionnaire included 2 direct questions on possible barriers to exercise. The questions were grouped into five categories viz. environmental (4 questions), behavioral (9 questions), occupational (2 questions), physical inability (7 questions) and medical reason (1 question). Patients' who didn't meet the ADA-EASD recommended exercise (at least 150 minutes moderate intensity aerobic physical activity viz. brisk walking at 3-5 km-hour were classified as non-exercisers).

Results: The present study included a total of 1061 patients', which had a slight male preponderance 617 versus 444 females. 636 (59.9%) were not doing physical activity as per current international standards. A substantial higher proportion of females (68.9%) did not exercised as compared to males (53.5%), which is statistically significantly higher, $p < 0.001$. Insulin usage was found to be significantly associated to hamper exercise $p = 0.017$, physical activity being 8% lower (34.5% in insulin users versus 42.5% in non-insulin users). Male gender (OR=1.877, 95% CI=1.217-2.894, $p = 0.004$) and doctor's prior advice for exercise (OR=3.397, 95% CI=2.035-5.671, $p < 0.001$) were found as significant predictors for increased physical activity.

Conclusion: This study elaborates the need for awareness regarding possible barriers when counseling T2DM patients. Exercise remains one of the cheapest pillars of DM management, the benefits of which extend beyond glycemic control. However, as this study illustrates about 60% of patients with T2DM do not carry out the recommended exercise. This study also highlights the importance of physician advice regarding exercise. Behavioural causes seem to be the commonest barrier to exercise and hence strategies to target the same needs to be thought of.

© 2019 Sujoy Majumder Hosting by Science Repository. All rights reserved.

*Correspondence to: Dr. Sujoy Majumder, Consultant Diabetologist & Endocrinologist, G.D. Diabetic Institute, Kolkata; Tel: +91 8334834560; E-mail: sujoyinky@gmail.com

QUESTIONNAIRE ON BARRIERS TO EXERCISE

- Form ID:
-
- Name:
-
- Age: Sex: Weight: Height: BMI:
-
- HbA₁C: FBS: PPBS:

Informed consent form

		Please tick(✓) in the box
(i)	I confirm that I have read and understood the purpose of the survey with the above title initiated by Dr. Kalyan Kumar Gangopadhyay and have had the opportunity to ask questions.	[]
(ii)	I understand that my participation is voluntary.	[]
(iii)	I understand that my identity will not be revealed if any information is released to third parties or published.	[]
(v)	I agree not to restrict the use of any data or results that arise from this project provided such a use is only for scientific purpose(s).	[]
(vi)	I agree to take part in the survey.	[]

_____ Date: ____/____/____
Signature of the Subject

_____ Date: ____/____/____
Signature of the Investigator

Investigator's Name

QUESTIONNAIRE ON BARRIERS TO EXERCISE

- How long has it been since you were diagnosed with Diabetes?:
- Do you use Insulin?: (Please Circle)
- Do you take medicines for High Blood Pressure?: (Please Circle)
- Have you been told by your doctor that you need to exercise at least 150 minutes per week? (Please Circle)
- Do you exercise according to this recommendation? (Please Circle)

It is recommended that patients with diabetes mellitus should perform at least 150 min of moderate intensity aerobic physical activity per week. (example: brisk walking @ 3-5 km/hour)

If you answered 'No' to the above question, please choose **Three reason(s)** among the choices that applies to you and rank them **First (1), Second (2) or Third (3)** accordingly

1	Lack of time	ω
2	Odd office/duty hours (morning/night shift)	ω
3	Lack of proper space to walk	φ
4	Unsafe locality – theft, robbery, antisocial elements	φ
5	Unsafe locality - dogs	φ
6	Breathing trouble	δ
7	Joint pain	δ
8	Leg cramps	δ
9	Dizziness	δ
10	Chest pain	δ
11	Fear of hypoglycaemia	β
12	Depression	β
13	Too overweight to exercise	δ
14	Afraid of injury	δ
15	Tiredness	β
16	Laziness/lethargy	β
17	Poor sleep – hence I wake up late	β
18	Lack of company	β
19	Family commitments (looking after children)	β
20	Family commitments (looking after ill family members)	β
21	Daily exercise is boring	β
22	Climate unsuitable – too hot/too cold	φ
23	Doctor advised me not to exercise since I have foot ulcer/eye/heart problems	μ
24	Other reasons- Please elaborate	

Barrier Groups:

A] Physical Environment (φ) B]Behavioural (β) C]Occupational (ω) D] Physical Disability (δ) E]Medical reasons (μ)