



Perception of Importance of Physical Activity and Factors for Noncompliance to Physical Activity among Adult Type 2 Diabetic Patients

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Financial Support: None declared
Conflict of Interest: None declared
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How to cite this article:

Taranum A, Kalasker P. Perception of Importance of Physical Activity and Factors for Noncompliance to Physical Activity among Adult Type 2 Diabetic Patients. *Ntl J Community Med* 2016; 7(11):882-886.

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Date of Submission: 04-10-16

Date of Acceptance: 29-11-16

Date of Publication: 30-11-16

ABSTRACT

Background: Diabetes is growing epidemic in India with more than 65 million diabetic individuals currently diagnosed with the disease. Regular physical activity is a cornerstone of type 2 diabetes management, but is often neglected and underutilized.

Objectives: To determine the pattern and the factors for non-compliance to physical exercise recommendation among type 2 diabetic patients.

Materials and Methods: It is a facility based cross-sectional study conducted on 125 type 2 diabetic patients who were interviewed using pretested, predesigned questionnaire on physical activity.

Results: The reported levels of physical activity were low and only 9.6% of the studied population met the recommended guidelines, though 92% had perception about the importance of physical activity. Main factors for the non-compliance were Poor health condition or disease (45.7%), lack of time (42.4%), feel tired after exercise (31.2%), inaffordability of suitable sportswear (30.4%).

Conclusion: The majority of patients with type 2 diabetes does not engage in regular physical activity, with a rate significantly below recommended levels.

Key Words: Non Compliance, Barriers, Physical activity, Perception, Type 2 Diabetes mellitus

INTRODUCTION

Diabetes Mellitus (DM) is growing epidemic in India with more than 62 million diabetic individuals diagnosed with the disease.^{1,2} Currently India is a country with second highest number of people with type 2 Diabetes Mellitus (65.1 million).³ Asian countries contribute more than 60% of world's diabetic population as the prevalence of diabetes is increasing in these low income countries.⁴ Complications of diabetes are common and the economic burden is very high, especially among the poor strata of the society.

Several large studies have shown lifestyle intervention involving regular moderate physical activity to significantly reduce the incidence and complications of type 2 diabetes.⁵⁻⁷ Regular physical activity has also been shown to improve psychological wellbeing and self esteem. Physical activity is an important factor in reducing morbidity from diabetes and maintaining quality of life.⁸ American Heart Association (AHA) and the American Diabetes Association (ADA) recommend carrying out at least 150 minutes of moderate-intensive aerobic activity, or at least 90 minutes of vigorous aerobic exercise per week.⁹ The activity should be distrib-

uted over at least three days per week, with no more than 2 consecutive days of inactivity. While physical activity may be contraindicated for some patients, the new guidelines recommend moderate intensity of physical activity (i.e., 30 min of moderate intensive physical activity ≥ 5 days/week) for most patients, particularly those with type 2 diabetes.¹⁰

However, recent studies have shown that adults with diabetes may undertake less physical activity than non-diabetic individuals.^{11,12} Although physical activity is encouraged, long term compliance is a major problem with physical activity programmes. Many patients fail to maintain self motivated home based physical activity. Personal and environmental barriers have been associated with failure to participate or maintain physical activity.^{13,14}

With this background, this study was undertaken to assess the knowledge regarding importance of physical activity and actual physical activity levels among diabetic patients and examined reasons preventing them from performing more physical activity.

METHODOLOGY

This is a cross-sectional study that was carried among diabetic patients attending medicine OPD (diabetic clinics) at Tertiary care hospital (JJM Medical college and Hospital) Davanagere for 6 months from January to July 2013.

About 125 diabetic patients were selected who met the eligibility criteria who visited the diabetic clinics during the stated period and all were interviewed using a predesigned, pretested and semi-structured questionnaire. The study was carried after obtaining informed consent from the participants and also ethical clearance from the hospital.

The Questionnaire comprised of socio-demographic profile, presence of diabetes and its complications, perception about importance of physical activity, pattern of and reasons for non-compliance to physical activity.

Perception of importance of physical activity was assessed using 5-point Likert scale with '1' indicating 'strongly agree' and '5' indicating 'strongly disagree'.

According to the American Heart Association (AHA) and the American Diabetes Association (ADA) guidelines⁹, patients are characterized as physically active if they accumulated at least 150 minutes of moderate intensive activity per week.⁹ However for this study, physical activity was redefined as walking 3 times a week ≥ 30 minutes (ei-

ther strenuously or not), involvement in regular sport's activities atleast 3 times a week of 30 minutes duration, engagement in household chores (household activities and/or gardening of at least 30 minute duration 3 times a week), occupational activity of moderate or vigorous intensity at least 300 minutes per week. Indicators of physical inactivity were 1. Time spent at work and 2. Time spent in watching TV.

Physical activity assessment was divided into two sub-sections (16 items). Section I assesses non-leisure activities during occupation or housework or college hours. Section II assesses leisure activities during preceding one week. For both sub-sections, 5 point scale from 1-5 was allocated for each activity done with '1' indicating least activity done and '5' reflected most activity done. Activity levels of both sub-sections were categorized as 'least active', 'moderately active' and 'most active' according to score totals.

All the consenting type 2 diabetic patients above 20 years of age, non-pregnant, with diabetes diagnosed at least 1 year prior to the study with better physical health condition so as to respond to the questionnaire were included in the study. Diabetic patients who were seriously ill/ with gangrene or amputations were not included in the study. Data was entered in excel sheet and analysed using proportions and percentage.

RESULTS

In the present study, (from Table 1) out of 125 diabetics, 81(64.8%) were males and 44 (35.2%) were females. Most of the participants (32%) were in the age group of more than 60 years followed by 41-50 years (29.6%). In our study majority of participants had education upto high school (36%) and least were graduates (16.8%). Majority of the participants were involved in unskilled type of occupation (28.8%) and least were skilled workers (14.4%). Housewives comprised (20%). In our study 85.6 % were married and 2.4 % were unmarried. Majority (58.4 %) of the study population belonged to Class IV and V of socio-economic status while least (10.4%) belonged to Class II. The mean duration of Diabetes was 10.52 years (SD 8.4) and ranging from 1-26 years.

The reported levels of physical activity were low and only 12(9.6%) of the studied population met the recommended guidelines for physical activity. Only 9 subjects (7.2%) strongly agreed and 107 subjects (85.6%) agreed that being physically active was most important in management of Diabetes mellitus.

Table 1: Sociodemographic profile of participants

Variable	Participant (n= 125)%
Age group	
31-40	17 (13.6)
41-50	37 (29.6)
51-60	31 (24.8)
>60	40 (32.0)
Gender	
Male	81 (64.8)
Female	44 (35.2)
Education	
Illiterate	34 (27.2)
Primary	25 (20.0)
High School	45 (36.0)
PUC/Graduate	21 (16.8)
Occupation	
Professional	23 (18.4)
Skilled	18 (14.4)
Unskilled	36 (28.8)
Retired/unemployed	23 (18.4)
Housewives	25 (20)
Socioeconomic status*	
Class I and II	13 (10.4)
Class III	39 (31.2)
Class IV and V	73 (58.4)
Marital status	
Unmarried	3 (2.4)
Married	107 (85.6)
Divorce /separated/widow	15 (12.0)
Duration of Diabetes	
1-5 year	52 (41.6)
5-10 years	45 (36.0)
>10 years	28 (22.4)

*Modified BG Prasad Socio-economic Classification ¹⁵

Table 2: Pattern of physical exercise undertaken by study participants (n= 125)

Physical activity	Participant (%)
According to recommended guidelines	12 (9.6)
Walking as most common activity	85 (68.0)
Walking for 30 mins 3 times a week	28 (22.4)

Table 3: Physical Activity Score of participants

Category	Activity Score	Participant (n= 125) (%)
Least active	9-23	76 (60.8)
Moderately active	24-42	44 (35.2)
Most active	43-60	5 (4.0)

While 6 subjects (4.8%) remained neutral and 3 subjects (2.4%) disagreed. Walking for the purpose of exercise was the most popular activity undertaken by 68% of participants. However, only 22.4 % reported normal regular walking for at least 30 minutes at least 3 times per week (Table 2). Other types of physical activities which participants were doing were Gardening/household chores (18%), followed by Yoga (8%), Aerobics (5%), and Sports (2%) and jogging (1%). But these activities were not done on a regular basis.

According to the Physical activity score, only 4% were most active while majority 60.8 % were least active. (Table 3)

Table 4: Barriers for not doing recommended physical activity (n=125)

Reported Barriers	Participants
Physical	
Poor health condition/Disease (osteoarthritis)	57 (45.7)
Get tired easily	39 (31.2)
Fear of injury from practicing sports	8 (6.4)
Psycho-social	
No family support	25 (20.0)
No company/partner	36 (28.8)
Environmental	
Not getting enough time	53 (42.4)
Weather conditions	9 (7.2)
No suitable place to do exercise	18 (14.4)
Inavailability of nearby parks	29 (23.2)
Cultural	
Feel embarrassed to wear sportswear	6 (4.8)
Feel embarrassed/shy to go out for exercise	24 (19.2)
Socio-economic	
No suitable sportswear (low income)	38 (30.4)
High Cost of joining the gym	22 (17.6)
Attitude towards exercise	
Feel lazy to do exercise	30 (24.0)
Get bored doing exercise	33 (26.4)
Doing household chores is enough	25 (20.0)

Poor health condition or disease (arthritis) was the most common barrier for physical activity (45.7 %). Lack of time (42.4%), feel tired after exercise (31.2%), inaffordability of suitable sportswear (30.4%), no company or partner (28.8%), get bored doing exercise (26.4%) , etc were the other among the other barriers reported for physical activity. (Table 4)

DISCUSSION

The present study revealed that the levels of physical activity are very low in the diabetic population, with only 9.6% of subjects meeting the recommended guidelines for physical activity. Other studies also reported that only 15- 70% of respondents met the minimum recommended exercise regimen.¹⁶⁻²⁰

Patient’s perceptions regarding the effects of exercise to their diabetes condition was not a possible barrier influencing compliance towards exercise according to this study. This was because a significant number (92%) of patients had a positive perception that exercise is important in controlling their diabetes, but still majority did not comply with physical activity recommendation. Other studies also reported similar findings.¹⁹ Some studies suggested that health beliefs were minimally associated with compliance to specific aspects of diabetes control regimens and perceived severity²¹ while few studies showed that appropriate health beliefs can predict better adherence in patients with diabetes.²²

In our study, outdoor walking was the most commonly reported physical activity (67%), and is consistent with previous studies.²⁰

This study showed that the most possible factor for exercise noncompliance is the physical factor like 'poor health condition' (45.7%) or getting 'tired' (31.2%) etc. resulted from diabetic complications such as extremity ulcers and associated diseases such as arthritis. Other studies also reported similar findings.^{19,20,22,23} while this was the most common factor in our study.

Other separate studies showed that Psycho-social factors such as good communication with

spouses, partners and other family members were associated with greater regimen adherence in patients with diabetes.^{24,25} These results also reflected in our study as lack of company or partner (28.8%) was a barrier for physical activity.

While cultural factors especially women feeling shy/embarrassed to do exercise (19.2%) or to wear suitable sportswear (4.8%) or go for recreational events were higher in our study as compared to other studies.¹⁹ But this was similar to study by Al-Kaabi et al.²⁰ This can be due to prevalent local socio-cultural beliefs. Furthermore, traditional clothes, for both gender hinder physical activity.

Environmental factor in the sense of 'lacking of time to exercise', 'busy with work' (42.4%), and non-availability of parks or suitable places (14.4%) to exercise also contributed to non-compliance. Almost the same factors reported by other studies.^{19,26}

Whereas socio-economic factors like no suitable sportswear (30.4%) or cost of joining gym (17.6%) was higher in this study as compared to other studies.^{20,26} but similar to study by Ghadzi and Bahari.¹⁹

Besides, this study also showed that patient's attitude in term of 'lazy to exercise' (24%) is possibly a barrier towards compliance to exercise recommendation. This result supported by other studies that showing motivational and cultural causes were the factors of noncompliance to exercise regimens.²⁷ Another study by highlighted the factor for exercise noncompliance as 'lack of mind' to do.²⁶

Other attitude elements or personal factors such as 'shy to exercise'(19.2%) and 'bored to exercise' (26.4%) were common barriers to exercise in this study whereas in the study by Ghadzi and Bahari¹⁹ most of the subjects stated that both factors were not influencing their decision to comply with exercise regimen.

Higher number of the subjects (20%) felt doing household activities was enough as they were

themselves doing household work. while in other studies this was low as many subjects were dependent on domestic helpers.²⁰

CONCLUSION

In this study, majority of subjects perceived the importance of physical activity in management of Diabetes but their level of physical activity was very low. Only a few subjects reported to do physical activity as recommended. The study of barriers to non-compliance of physical activity revealed poor health condition / comorbid-disease as the most common factor. Followed by lack of time, getting tired easily, lack of suitable clothes /sports wear, feel lazy or bored to do exercise. Some also felt doing household chores is enough. Furthermore in popular culture physical fitness is not considered important and is rarely discussed in daily life.

RECOMMENDATIONS

Thus, standardized routine counseling given by treating physicians fails to empower patients to self manage their disease. Physical activity prescriptions should begin by determining the patient's physical activity preference patterns, education level, time constraints, social support, and other challenges. At the individual level, it is important to identify and overcome personal and family barriers to physical activity. Thus, it is important to tailor physical activity counseling to the individual. Perhaps most important is the involvement of dedicated multidisciplinary teams consisting of physicians, diabetic educators, and other health care providers. Together, they can reinforce the message of the value of physical activity to their patients.

Acknowledgment: I am thankful to all diabetic patients who were part of the study for their kind cooperation. I also thank my colleagues, post graduate students for their support during the course of the study.

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