

Knowledge, Attitude, and Practice Regarding Physical Activity Among Type 2 Diabetic Patients Attending a Tertiary Care Hospital

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Abstract

Introduction: Diabetes mellitus is one of the top priority non-communicable diseases. Regular physical activity plays a significant role in patients with diabetes in improving blood glucose levels, and insulin sensitivity as well as in the reduction of morbidities and complications related to diabetes mellitus. The objective of the current study was to identify the knowledge, attitude, and practice regarding physical activity among type 2 diabetes mellitus patients.

Methods: A descriptive cross-sectional study with a sample size of 206 was adopted. A purposive sampling technique was used to select the sample. A semi-structured questionnaire and the International Physical Activity Questionnaire (IPAQ) were used. Collected data were analyzed using both descriptive and inferential statistics.

Results: We found 37.4% of the patients had good knowledge regarding physical activity, 4.9% of patients had good practice of physical activity and only 5.3% had positive attitude towards physical activity. There was a weak negative correlation ($r = -0.194$) between knowledge and attitude toward physical activity and there was a significant relationship between knowledge and practice at 99% CI ($P = 0.005$). But neither knowledge nor attitude were significantly correlated with practice. We found an association between the sex and employment status of the patients with the level of knowledge regarding physical activity and a statistically significant association between the level of practice and the employment status of the respondents.

Conclusions: Most of the respondents had poor level of knowledge, negative attitude and poor practice regarding physical activities. There was a weak negative correlation between knowledge and attitude toward physical activity and there was a significant relationship between knowledge and practice. But neither knowledge nor attitude were significantly correlated with practice. There was a significant association between both level of knowledge and level of practice with sex and employment status of the respondents.

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INTRODUCTION

Non-communicable diseases (NCDs), like heart disease, stroke, cancer, diabetes, and chronic lung disease, are collectively responsible for 74% of all deaths worldwide.¹ Among all chronic diseases, the prevalence of type-2 diabetes mellitus (T2DM) is reaching epidemic proportions and is expected to rise to 366 million by 2030.² Diabetes

mellitus (DM) is a disturbance in the metabolism of carbohydrates, fat, and protein that is caused either due to loss of production of insulin-producing cells in the pancreas or decreased tissue sensitivity to insulin that results in an increased level of glucose in the blood.³

Physical activity is also crucial among patients with

diabetes because it has been associated with decrease in serum glucose level, reduction in diabetes related mortality rate, and effectiveness in protecting DNA and cell membranes from oxidative stress.⁴ A cross-sectional study conducted in the district of Colombo among 453 patients with T2DM showed that most of the patients (58.3%) did not have adequate knowledge regarding physical activities. Although the knowledge was poor, the majority (77.9%) were having an active lifestyle with adequate levels of physical activity in their daily activities.⁵

Despite having enough evidence to support the benefits of physical activities, initiating and maintaining regular exercise has become a difficult task. Individuals across different communities encounter diverse personal, socio-cultural, and environmental barriers that limit their ability to engage in regular exercise.⁶ So, the researcher is interested to assess the knowledge, attitude, and practice regarding physical activity among T2DM patients attending a tertiary care hospital.

METHODS

A cross-sectional descriptive study design was used to assess the knowledge, attitude, and practice regarding physical activity among T2DM patients. The study setting was Shree Birendra Hospital, Chhauni, Kathmandu, Nepal. T2DM patients between 30 - 69 years, and attending the medical OPD of Shree Birendra Hospital for more than six months were selected for the study. Non-probability purposive sampling technique was used. The required sample size was calculated using Cochrane formula i.e. $n = z^2pq / d^2$. The total sample size was 206. A semi-structured interview questionnaire was used for socio-demographic information and knowledge and attitude on physical activity-related information. International Physical Activity Questionnaire (IPAQ) was used to assess the practice of physical activity. The IPAQ questionnaire is publicly available, it is open access, and no permissions are required to use it. Before collecting data, ethical clearance for the study was taken from the Institutional Review Board of Nepalese Army Institute of Health Sciences (NAIHS), Sanobharyang, Kathmandu, Nepal. Administrative approval was obtained from the concerned hospitals through a written request letter from NAIHS, College of Nursing, Sanobharyang, Bhandarkhal, Kathmandu, Nepal. Researcher herself collected the data in Nepali language. Prior to data collection, written informed consent was taken. Privacy was maintained by interviewing patients in one separate room and confidentiality was maintained by using the research findings only for study purposes. Data were collected from March 2023 to April 2023. SPSS version 16 has been used to analyze the data. Descriptive

statistics were used to describe the socio-demographic and other information using frequency, percentage, mean, and standard deviation. Level of knowledge, level of practice and level of attitude were classified on the basis of mean score. The mean score $\geq 50\%$ is considered as good knowledge, positive attitude and good practice. Chi-square test was applied to test whether the factors were significantly associated with knowledge, attitude, and practice of physical activity among T2DM patients.

RESULTS

In the present study, 206 respondents were enrolled. Table 1 depicts the socio-demographic characteristics of the study population. Table 2, 3 and 4 represent the knowledge, attitude and practice of the respondents regarding the physical activity respectively. Table 5 demonstrates the correlation of knowledge, attitude and practice regarding physical activity. Table 6 showed the association of level of attitude regarding physical activity. Tables 7 and 8 depicts the association of attitude and practice regarding physical activity with socio-demographic characteristics respectively.

Table 1: Socio-demographic information of the respondents (N = 206)

Variables	Frequency	Percent
Age in years		
≤ 40	13	6.3
41 - 50	30	14.6
51 - 60	57	27.7
> 60	106	51.5
Mean age: 58.63, S.D ± 9.888		
Sex		
Male	89	43.2
Female	117	56.8
Religion		
Hindu	192	93.2
Buddhist	11	5.3
Christian	3	1.5
Marital Status		
Married	192	99.0
Widow / Divorced	2	1.0
Educational status		
Illiterate	113	54.9
Informal education	18	8.7
Formal education	75	36.4
If formal education (N = 75)		
Primary level	14	6.8
Secondary level	36	17.5
Higher secondary level	21	10.2
Bachelor and above	9	4.4
Occupation		
Employed	22	10.7
Agriculture	41	19.9
Home manager	35	17.0
Retired	102	49.5
Others	6	2.9
Residence		
Rural	140	68.0
Urban	66	32.0

Table 2: Level of knowledge regarding physical activity (N = 206)

Level of knowledge	Frequency	Percent
≥ 50% = Good knowledge		
< 50% = Poor knowledge		
Good	77	37.4
Poor	129	62.6

Table 3: Level of attitude of the respondents regarding physical activity (N = 206)

Level of attitude	Frequency	Percent
≥ 50% = Positive attitude		
< 50% = Negative attitude		
Positive	11	5.3
Negative	195	94.7

Table 4: Level of practice of respondents regarding physical activity (N = 206)

Level of practice	Frequency	Percent
≥ 50% = Good practice		
< 50% = Bad practice		
Good	10	4.9
Poor	196	95.1

Table 5: Correlation of knowledge, attitude and practice regarding physical activity (N = 206)

Variables	R	P value
Knowledge - Attitude	-0.194	0.005
Knowledge - Practice	0.065	0.351
Attitude - Practice	-0.017	0.806

Table 6: Association of knowledge regarding physical activity with socio-demographic characteristics (N = 206)

Characteristics	Level of knowledge		Chi-square Value	P value
	Good No. (77) (%)	Poor No. (129) (%)		
Age				
≤ 60 years	39 (39.0%)	61 (61.0)	0.218	0.373
> 60 years	38 (35.8%)	68 (64.2%)		
Sex				
Male	41 (46.1%)	48 (53.9%)	5.054	0.018
Female	36 (30.8%)	81 (69.2%)		
Education status				
Illiterate and informal education	45 (34.4%)	86 (65.6%)	1.409	0.150
Formal education	32 (42.7%)	43 (57.3%)		
Employment status				
Working	48 (46.2%)	56 (53.8%)	6.910	0.006
Retired	29 (28.4%)	73 (71.6%)		
Residence				
Rural	47 (33.6%)	93 (66.4%)	2.706	0.069

Table 7: Association of attitude regarding physical activity with socio-demographic characteristics (N = 206)

Variables	Level of attitude		chi-square value	P value
	Positive No. (11) (%)	Negative No. (195) (%)		
Age				
≤ 60 years	6 (6.0%)	94 (94.0%)	0.166	0.460
> 60 years	5 (4.7%)	101 (95.3%)		
Sex				
Male	4 (4.5%)	85 (95.5%)	0.222	0.760
Female	7 (6.0%)	110 (94.0%)		
Education status				
Informal education	7 (5.3%)	124 (94.7%)	0.000	1.000
Formal education	4 (5.3%)	71 (94.7%)		
Employment status				
Working	7 (6.7%)	97 (93.3%)	0.804	0.538
Retired	4 (3.9%)	98 (96.1%)		
Residence				
Rural	9 (6.4%)	131 (93.6%)	1.025	0.508
Urban	2 (3.0%)	64 (97.0%)		

Table 8: Association of practice regarding physical activity with socio-demographic characteristics (N = 206)

Variables	Level of practice		chi-square value	P value
	Good No. (10) (%)	Poor No. (196) (%)		
Age				
≤ 60 years	8 (8.0%)	92 (92.0%)	4.163	0.050
> 60 years	2 (1.9%)	104 (98.1%)		
Sex				
Male	7 (7.9%)	82 (92.1%)	3.075	0.105
Female	3 (2.6%)	114 (97.4%)		
Educational Status				
Informal Education	4 (3.1%)	127 (96.9%)	2.527	1.175
Formal education	6 (8.0%)	69 (92.0%)		
Employment				
Working	9 (8.7%)	95 (91.3%)	6.565	0.019
Retired	1 (1.0%)	101 (99.0%)		
Residence				
Rural	5 (3.6%)	135 (96.4%)	1.557	0.296
Urban	5 (7.6%)	61 (92.4%)		

DISCUSSION

The study aimed to assess knowledge, attitude and practice regarding physical activity among patients with T2DM. The present study showed that regarding the level of knowledge only 37.4% of the respondents had good knowledge and 62.6% of the respondents had poor knowledge about the physical activity. This finding is consistent with the finding of the study conducted in Saudi Arabia which showed that 46.4% of the respondents had a strong knowledge about physical activity and 53.6% had poor knowledge about physical activity.⁷ This is also further supported by the study conducted on the rural population in Karad which showed that 45.9% had good knowledge about physical activity and 40.9% had poor knowledge about physical activity.⁸ However, this result is inconsistent with the finding of the study conducted in Northern Tanzania where 98.4% of the respondents had good knowledge about physical activity and only 1.6% of the respondents had poor knowledge about physical activity.⁹ The difference in findings might be due to difference in the study settings of the different studies.

The present study findings showed that 5.3% had positive attitudes towards physical activities and 94.7% had negative attitude towards physical activities. In contrast to

this finding was the finding of the similar study conducted in Saudi Arabia which showed that most of the study participants (82%) had positive attitude towards physical activity and only 12% had negative attitude towards physical activities.⁷ This is further supported by another similar study conducted in the Kilimanjaro region of Northern Tanzania which showed that 95.6% of the respondents had favorable attitudes towards physical activity.⁹ The variation in the findings might be due to some countries like Saudi Arabia and Tanzania which might be having national or local health promotion programs encouraging regular exercise, which can significantly improve public attitudes toward physical activity.

In the present study, 4.9% had good practice regarding physical activities and 95.1% had poor practice regarding physical activities. This finding of the study is consistent with the finding of the study conducted in on the rural population of the Karad which showed that 42.62% had poor practice regarding physical activities and 16.4% had good practice regarding physical activities.⁸ This finding of the study is in contrast with the findings of the study conducted in Northern Tanzania showed that 94.3% had good practice regarding physical activities.⁹ This variation in findings could be due to a lack of motivation to apply the knowledge into action or practice.

In the present study, there was a weak negative correlation ($r = -0.194$) between knowledge and attitude toward physical activity and there was a significant relationship between knowledge and practice at 99% CI ($P = 0.005$). But neither knowledge nor attitude were significantly correlated with practice. This finding is contrast with the finding of the similar study conducted in Northern Tanzania which revealed that the knowledge and attitudes towards physical activity were significantly associated with physical activity practice.³

In this study, the level of knowledge regarding physical activity was significantly associated with the sex and the employment status of the respondents. The finding of this study is in contrast with the finding of the study conducted in Bangladesh in which the age of the respondents was significantly associated with the level of knowledge regarding physical activity,¹⁰ which is also supported by the similar study conducted in Vinayaka Mission's Kirupananda Variyar Medical College Hospital in Salem, Tamil Nadu, India which showed that sex of the respondents was not significantly associated with level of knowledge regarding physical activity.¹¹

In the present study, there was no significant association between the level of attitude towards physical activity and

the education status of the respondents. This study finding is inconsistent with the study conducted in Bangladesh where the education status of the respondents was significantly associated with the level of attitude towards physical activity.¹⁰

In this study, the level of practice was significantly associated with the age of the respondents and the employment status of the respondents in contrast to these findings the study conducted in Bangladesh showed that the age and employment status of the respondents was not significantly associated with the level of practice.¹⁰ The major limitation of the present study is that it is a single centric study conducted among relatively small number of population. Hence, the present findings may not be generalized to other settings.

CONCLUSIONS

It can be concluded that most of the respondents had poor level of knowledge, negative attitude and poor practice regarding physical activities. There was a weak negative correlation between knowledge and attitude toward physical activity and there was a significant relationship between knowledge and practice. But neither knowledge nor attitude were significantly correlated with practice. There was a significant association between both level of knowledge and level of practice with sex and employment status of the respondents.

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