



ASSOCIATION BETWEEN PHYSICAL ACTIVITY AND HEALTH STATUS AMONG PATIENTS WITH DIABETES MELLITUS

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Abstract

Introduction: Diabetes is a metabolic disorder caused by genetic and environmental factors, which results in insulin insensitivity, insulin deficiency, and impaired biological function. Diabetes mellitus (DM) is a chronic metabolic condition that can lead to severe and life-threatening consequences, necessitates a lifestyle change, and has significant implications for health and health-related quality of life (HRQOL). Sufficient medical care and patient education are not provided to the diabetic patients, patients are at a considerably increased risk of diabetic complications. Various types of physical activity, including flexibility and balancing exercises, improve health and glucose control in people with type 1 and type 2 diabetes.

Objective: To find the Association between physical activity and health status among patients with diabetes mellitus.

Methodology: This Descriptive cross sectional study was conducted in Aziz Bhatti Shaheed Teaching Hospital Gujrat among 244 patients. In this study, diagnosed diabetic type 1 and type 2 patients between the ages of 40 to 70 years were enrolled via non-probability convenient sampling. Participants who met the inclusion and exclusion criteria were selected. IPAQ and VascuQoL-6 was used as a diagnostic tool for assessment. At 95% confidence level, Version 24.0 of SPSS software was used for data entry and analysis. The chi-square test was employed to determine the association between physical activity and health status of diabetic patients.

Results: Out of 244 participants of age 40 to 70 years 81 was males and 163 females, the mean age and standard deviation was 52.9508±9.43189. According to IPAQ the mean age and standard deviation of the male was (81)34.0370±8.17534 and the female was (163) 32.6135±16.6626. According to VascuQoL-6 the mean age and standard deviation of male was (81)17.197± 4.52056 while the female mean age and

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standard deviation was(163) 16.6626 ± 4.78710 . Males health status and physical activity (p-value =.537) and the females (p-value=.351) were considered as statistically significant with p-value<0.05.

Conclusion: This present study indicates that the physical activity and health status of male diabetic patient is less compromise as compare to females. The females health status were more affected with diabetes as compare to males. Awareness programs should be started to decrease the risk of DM and educate them about modifiable risk factors and how they improve their health status.

Key Words: physical activity, DM, Health Status, IPAQ, QoL.

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INTRODUCTION

Diabetes is a metabolic disorder caused by genetic and environmental factors, which results in insulin insensitivity, insulin deficiency, and impaired biological function. The disease has become a critical health concern worldwide owing to its high prevalence and related disability and mortality(1). Diabetes is a growing problem in low-income and middle-income countries(2).

Diabetes mellitus is a chronic illness with a high occurrence in the world and is a result of improper habits and lifestyles, aging populations, and other factors. Physical activity and a balanced diet have become essential for maintaining health and reducing acute and chronic complications in diabetic patients. These therapeutic and non-pharmacological treatments are also important(3).

Short-term and long-term consequences of type 2 diabetes can harm a patient's health and quality of life (QoL) in a variety of ways, including physically, psychologically, and socially. In some but not all situations, a poor health status might result in a poor quality of life. Diabetes mellitus (DM) and its associated consequences are approaching pandemic levels, affecting both the global economy and public health(4).

Exercise is known to be associated with reduced risk of all-cause mortality, cardiovascular disease, stroke, and diabetes, but its association with mental health remains unclear(5). Diabetes is considered to be a major cause of end-stage renal disease and appears to be increasing rapidly. Having pre-diabetes and diabetes was significantly associated with lower health-related quality of life relative to normal glucose tolerance(6).

Lipids and lipid ratios are linked to diabetes mellitus type 2 (T2DM) problems such cardiovascular disease, the connection between blood glucose levels and lipids or lipid ratios in T2DM patients is not entirely understood(7).

Poor glycemic control and self-care practice-induced problems put diabetes patients at risk for unaffordable prices of organ transplantation and dialysis, which in turn raised the number of beggars and the prevalence of suicide attempts(8).

Diabetes mellitus (DM) is a chronic metabolic condition that can lead to severe and life-threatening consequences, necessitates a lifestyle change, and has significant implications for health and health-related quality of life (HRQOL)(9).Sufficient medical care and patient education are not provided, patients are at a considerably increased risk of diabetic complications(10).

METHODOLOGY:

INCLUSION OF PATIENTS

We conducted cross-sectional study to find Association between physical activity and health status among patients with diabetes mellitus. Data were collected from Aziz Bhatti Shaheed Teaching hospitals of Gujrat Punjab Pakistan. Patients diagnosed with T1DM and T2DM with age 40-70 years were included. We exclude the patients diagnosed with Gestational diabetes. The patient with history of heart disease, Excruciating pain and ulcer in his\her legs. The patient who may have non compressible vessels, amputated limbs, wounds or history of neurological or psychological illness, multiple sclerosis and history of dementia are rejected.

DATA COLLECTION

For each patient, we first collected socio-demographic data (age, sex, marital status,

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socioeconomic level) and their history. IPAQ was used to check the physical activity of diabetic patients. We use another questionnaire VasuQoL-6 to check the health status of the patients. We collect the data on the bases of standard questionnaire rather than perform any kind of test to check the physical activity level and health status of diabetic patients.

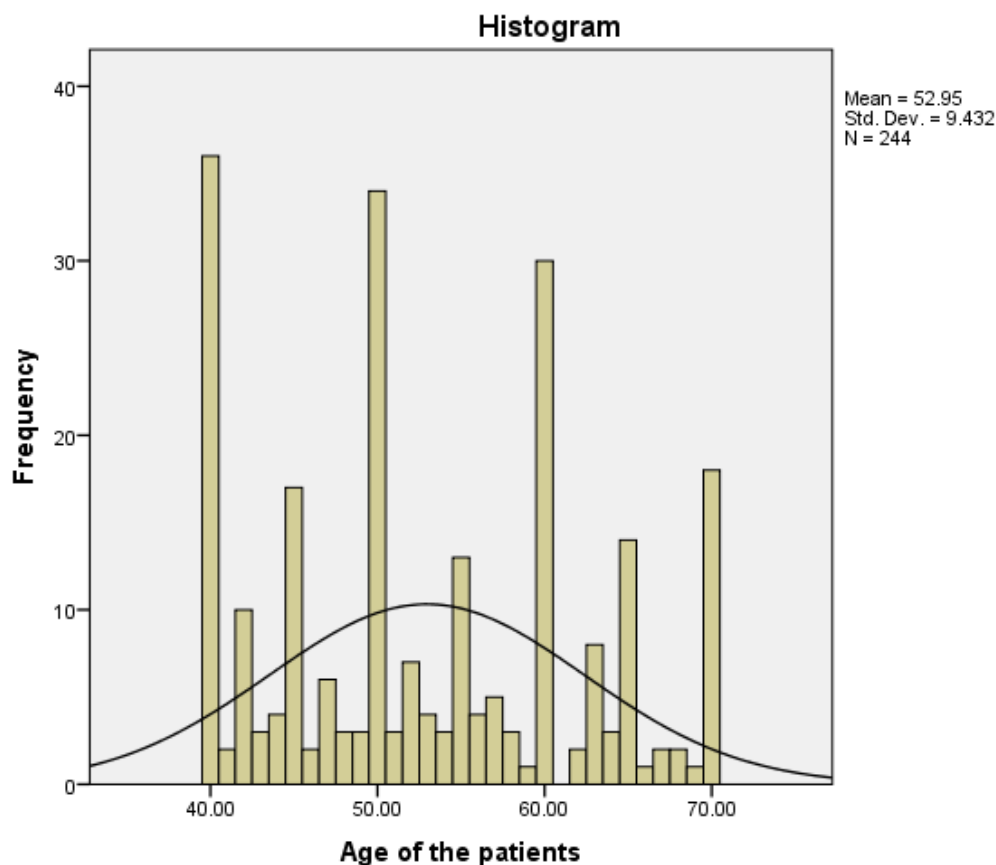
STATISTICAL ANALYSIS

Data will be entered and analyzed using statistical package for Social Sciences (SPSS) software version 24. For descriptive analysis, mean and standard deviation will be calculated

for quantitative variables whereas Frequency and percentages will be calculated for qualitative variables. For inferential statistics, appropriate statistical test will be applied. All results will be calculated at 95% confidence interval and P-value ≤ 0.05 will be considered as a significant value.

ETHICAL CONSIDERATION

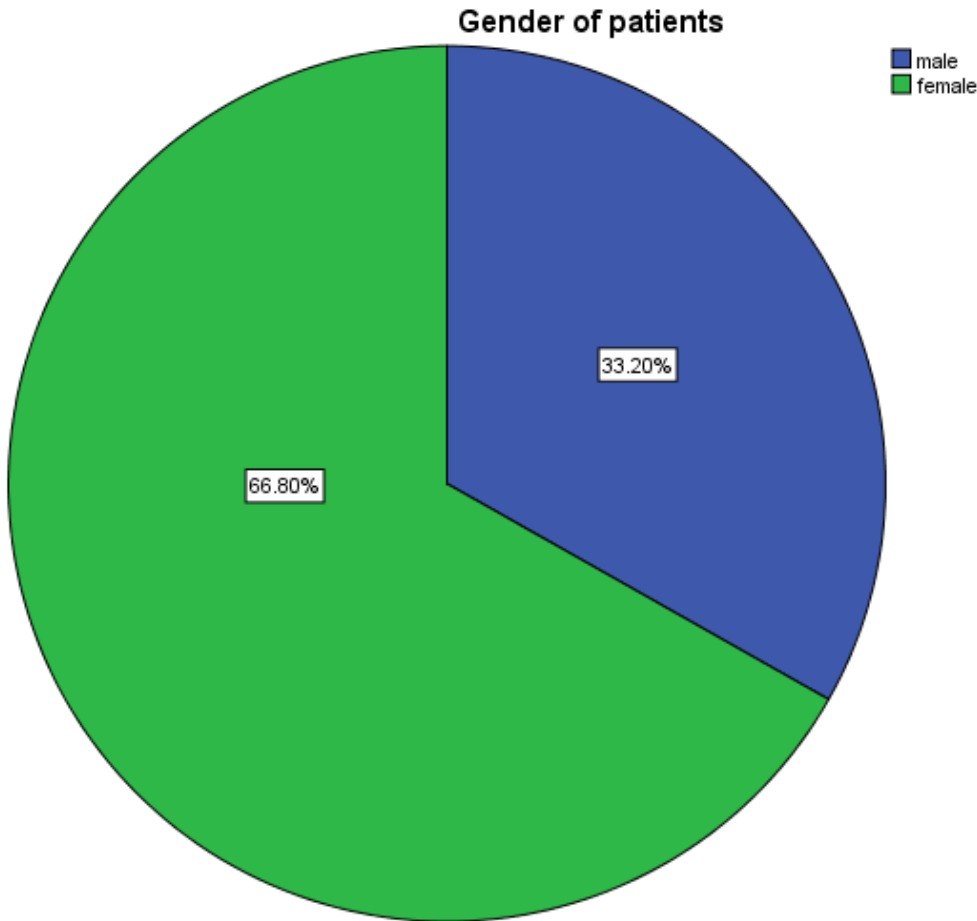
Informed consent was obtained for all patients in the study. We also obtained permission from the directors of Aziz Bhatti Shaheed Teaching hospitals to conduct the investigation. All information and data collection were kept confidential.



RESULTS

This figure shows that out of 244 diagnosed diabetic patients the mean age of the patients is 52.95 and the Std. Dev. = 9.432.





This figure shows that out of 244 diabetic patients the man were (81) 33.20% and the females were (163) 66.80% of the data. The frequency of the female were more than male.

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Case Processing Summary

Gender of patients		Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
male	IPAQ * PAD	81	100.0%	0	0.0%	81	100.0%
female	IPAQ * PAD	163	100.0%	0	0.0%	163	100.0%

This table shows that out of 244 patients 81 male while 163 were females who participate in IPAQ and VascuQoL-6.S.

Statistics

	Gender of patients							
	male				female			
	N		Mean	Std. Deviation	N		Mean	Std. Deviation
	Valid	Missing			Valid	Missing		
IPAQ	81	0	34.0370	8.17534	163	0	32.6135	7.48771
PAD	81	0	17.1975	4.52056	163	0	16.6626	4.78710



This table shows that out of 244 patients 81 were male and 163 females who participate in IPAQ and VascuQoL-6 . The mean value of male patients in IPAQ is 34.0370% and Std. Deviation is 8.17534% while the females mean value is 32.6135% and Std. Deviation is 16.6626%. According to the VascuQoL-6 males mean value is 17.1975% and Std. Deviation is 4.52056% while the female mean value is 16.6626% and Std. Deviation is 4.78710%.

DISCUSSION

The aim of this research was to check the Association between physical activity and health status among patients with diabetes mellitus in Gujrat Punjab, Pakistan among diagnosed diabetic population of age between 40-70 years. A population of 244 diagnosed Type 1 and Type 2 Diabetic patients in which 163 females and 81 males were included in the study. Chi square test and P value significance was used to derive results. So the purpose of this study is to determine whether diabetes affects the degree of physical activity, physical function and health status of patients. If it is linked then physical therapy management protocols and exercise rehabilitation programs will be considered to help diagnose and treat the patients effectively.

This study was conducted in 2017, in this study the overall health-related quality of life of population in East-China was moderate. Diabetes patients had lower score of health-related quality. The healthy-related quality was associated with the age, gender, economic development of region, level of education and marital status(11). My research shown that a strong association were found in males while females were less associated with physical activity and health related in diabetes mellitus.

In 2017, this study was conducted. In this study three diabetes-management behaviors were substantially associated with improved D-HRQOL: sophisticated methods for measuring food intake, more frequent daily blood glucose monitoring, and more days per week that children engaged in 30 minutes of physical activity(12). My research show that the physical

activity was poor in diabetic patients so we can suggest them to do at least their daily activities themselves and perform exercise or walking for at least 10mints per day to keep them physical active.

Another result shown that females were also discovered to be more susceptible to type 2 diabetes. In 49.3% of the patients, there was a family history of type 2 diabetes. The current study assists in determining the current prescribing pattern of oral diabetic medications with various co-morbidities in terms of diagnosis and treatment cost, as well as highlighting the need for comprehensive management of diabetic patients(13). My research shows that females were more prone to poor physical activity in association with males.

Another research shown that More-over two-thirds of the patients (74%) had inadequate glycemic control. Lack of education, poly pharmacy, and diabetes duration of 7 years were all associated with increased glycated hemoglobin. Patients who did not adhere to their diet or take their medications as directed had poor glycemic control. The researchers discovered reduced HbA1c levels in patients who received family support or had a close relationship with their doctors. Similarly, patients who were more aware about diabetes(14). My research shown that diabetic issues increase day by day but more in females then male because most of them are house wives and they do not perform any kind of physical activites to maintain their health status. This study was conducted in 2018 in this study, The responses of 456 patients (52.4% of whom were women) gave an overall mean score of 66.4 13.3. Younger age, female gender, lack of studies, and poor glycemic control were all independent predictors of poor overall health-related quality of life, with the majority of these factors having a greater impact than the dimensions negative impact of therapy on daily life, satisfaction with therapy, and diabetes-related worries(15). My research shown that 244 participants are involved in survey, 81 were

male and 163 females overall mean score is 52.9508. female gender, lack of education and poor physical activity were all the reasons of decline health status of diabetic population.

CONCLUSION

The current study concluded that the strong association of physical activity and health status in males then. So we should encourage them to engage in daily routine physical activity like walking, housework, and exercise programs within their capabilities so that they feel physically active.

LIMITATIONS

- Participants did not cooperate properly because majority people were not educated.
- Confounding factors of poor physical activity were not known.

REFERENCES

1. Prevalence and risk factors of chronic kidney disease and diabetic kidney disease in Chinese rural residents: a cross-sectional survey | Scientific Reports [Internet]. [cited 2023 Aug 11]. Available from: <https://www.nature.com/articles/s41598-019-46857-7>
2. Manne-Goehler J, Geldsetzer P, Agoudavi K, Andall-Brereton G, Aryal KK, Bicaba BW, et al. Health system performance for people with diabetes in 28 low- and middle-income countries: A cross-sectional study of nationally representative surveys. *PLOS Med*. 2019 Mar 1;16(3):e1002751.
3. Medina LAC, Silva RA, de Sousa Lima MM, Barros LM, Lopes ROP, Melo GAA, et al. Correlation between functional health literacy and self-efficacy in people with type 2 diabetes mellitus: Cross-sectional Study. *Clin Nurs Res*. 2022;31(1):20–8.
4. Kuznetsov L, Griffin SJ, Davies MJ, Lauritzen T, Khunti K, Rutten GEHM, et al. Diabetes-specific quality of life but not health status is independently associated with glycaemic control among patients with type 2 diabetes: A cross-sectional analysis of the ADDITION-Europe trial cohort. *Diabetes Res Clin Pract*. 2014 May 1;104(2):281–7.
5. Chekroud SR, Gueorguieva R, Zheutlin AB, Paulus M, Krumholz HM, Krystal JH, et al. Association between physical exercise and mental health in 1.2 million individuals in the USA between 2011 and 2015: a cross-sectional study. *Lancet Psychiatry*. 2018 Sep 1;5(9):739–46.
6. Fu X, Qi Y, Han P, Chen X, Jin F, Shen Z, et al. Relationship between physical performance and peripheral arterial diseases in different age groups of Chinese community-dwelling older adults. *J Atheroscler Thromb*. 2023;30(7):778–85.
7. Wang L, Yan N, Zhang M, Pan R, Dang Y, Niu Y. The association between blood glucose levels and lipids or lipid ratios in type 2 diabetes patients: A cross-sectional study. *Front Endocrinol [Internet]*. 2022 [cited 2023 Aug 11];13. Available from: <https://www.frontiersin.org/articles/10.3389/fendo.2022.969080>
8. Atinafu Ataro B, Argaw Z, Dugassa B, Leka YL, GebreMickael M. Glycemic Control and Self-Care Practice Among Adult Patients With Diabetes Mellitus: Cross-Sectional Study Conducted in Dawro Tercha Hospital, Ethiopia; 2020 [Internet]. Rochester, NY; 2021 [cited 2023 Aug 11]. Available from: <https://papers.ssrn.com/abstract=3770675>
9. Daya R, Bayat Z, Raal FJ. Effects of diabetes mellitus on health-related quality of life at a tertiary hospital in South Africa: A cross-sectional study. *S Afr Med J*. 2016 Oct 21;106(9):918–28.
10. Kobayashi M, Yamazaki K, Hirao K, Oishi M, Kanatsuka A, Yamauchi M, et al. The status of diabetes control and antidiabetic drug therapy in Japan—A cross-sectional survey of 17,000 patients with diabetes mellitus (JDDM 1). *Diabetes Res Clin Pract*. 2006 Aug 1;73(2):198–204.
11. Lu Y, Wang N, Chen Y, Nie X, Li Q, Han B, et al. Health-related quality of life in type-2 diabetes patients: a cross-sectional study in East China. *BMC Endocr Disord*. 2017 Jul 6;17(1):38.



12. Factors Associated With Diabetes-Specific Health-Related Quality of Life in Youth With Type 1 Diabetes: The Global TEENS Study | Diabetes Care | American Diabetes Association [Internet]. [cited 2023 Aug 14]. Available from: <https://diabetesjournals.org/care/article/40/8/1002/36773/Factors-Associated-With-Diabetes-Specific-Health>
13. Sharma A, Sharma P, Gaur A, Chhabra M, Kaur R. A Cross-Sectional Study on Diabetes Mellitus Type-2 at a Tertiary Care Hospital. *Adv Res Gastroenterol Hepatol ARGH*. 2017 Nov 21;8:1–6.
14. Badedi M, Solan Y, Darraj H, Sabai A, Mahfouz M, Alamodi S, et al. Factors Associated with Long-Term Control of Type 2 Diabetes Mellitus. *J Diabetes Res*. 2016 Dec 20;2016:e2109542.
15. Rodríguez-Almagro J, García-Manzanares Á, Lucendo AJ, Hernández-Martínez A. Health-related quality of life in diabetes mellitus and its social, demographic and clinical determinants: A nationwide cross-sectional survey. *J Clin Nurs*. 2018;27(21–22):4212–23.