Original Article

Impact of Diabetes Mellitus Type-II on Patient's Quality of Life in Sindh, Pakistan

Diabetes Mellitus Type-II on Patient's Quality of Life

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ABSTRACT

Objective: To evaluate the impact of type II diabetes mellitus on patient's quality of life visiting tertiary care hospital in Hyderabad, Sindh, Pakistan.

Study Design: Descriptive Cross-sectional study.

Place and Duration of Study: This study was conducted at the Liaquat University Hospital, Hyderabad, from August 2019 to January 2020.

Materials and Methods: A sample size of 168 was obtained and participants were selected by using Non-probability convenient sampling technique and all Patients between the ages 25 years and 40 years, known cases of type2 diabetes mellitus, belongs to either sex, gave consent of participation, visited the outpatient department of diabetes/ medical clinics at Liaquat University Hospital during the study duration were included. Patient's information related to etiological factors of disease and its symptoms was collected using written questionnaire. Quality of life in type-II diabetics was evaluated through a World Health Organization D-39 Questionnaire. Data was analyzed using SPSS version. 23.

Results: Total 168 type -II diabetic patients were included in the study**.** Findings of the study were depicting the mean QoL score of type- II diabetics as 52.1. Score of various domains indicating the QoL in type-II diabetics was classified as 55% in physical, 47% in psychological, 55% in social and 50% in environmental domain of QoL. Overall domain wise scoring revealed an average QoL.

Conclusion: Type-II diabetes significantly affects the quality of life in physical domain along with psychological domain. QoL is badly affected in type-2 diabetic patients. Diabetes has an adverse influence on all the aspects of life in affected patient.

Key Words: Psychological domain, Quality of Life, Type-II diabetes mellitus

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INTRODUCTION

Diabetes mellitus (DM) is a metabolic disorder affected over 422 million people worldwide. Regardless of the efforts of the World Health Organization (WHO) to impede this rise, the prognosis is not very promising that results in skyrocketing of DM related chronicity and complications.[1,2] In Pakistan, prevalence of diabetes is estimated to 6.9% or roughly 7 million populations. While, approximately, 3 million cases supposed undiagnosed that makes DM to be considered as the one of the top and major non communicable disease-causing mortality in the country.[3,4]

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Quality of life (QoL) is considered as an important construct as an individual think according to one's own cultural patterns and customs based on culture related value system, life targets, cultural opportunities and credentials.[5] As a chronic incapacitating illness, it may substantially affect the QoL causing impairment in all physical, social and psychological aspects of patient. Complexities related to Type II DM may result in higher burden of disease related disability that may further posed serious impact on the patient's QoL.[6,7] This QoL of a Type II diabetic may devastated by impairment in their dietary habits and nutritional deficiencies. Moreover, it also has an effect on psychological functioning of patients resulting in disturbing self-concept as well as thinking process. Furthermore, feelings of being a diabetic mentally upset a person resulting in social isolation and poor relations.[8] These malfunctioning are associated with further upsurge in the burden of diabetes linked complications and co-morbidities. This situation demands a need of need to modification of behaviors through a comprehensive management programmers to enhance QoL of diabetic patients.[9] These related effects could be combated by maintaining proper bodily functions, improved self-concept and

better relationships.[8,10] Moreover, to prove the negative consequences related to the QoL among type-II diabetics there is a need to emphasize on its outcomes by health care providers due to increasing rate of its complications. Keeping it in view, the present study was designed with an objective to evaluate the impact of type II diabetes mellitus on the quality of life in patients visiting tertiary care hospital in Liaquat university hospital, Hyderabad, Pakistan.

MATERIALS AND METHODS

A Cross-sectional study was conducted at department of medicine, Liaquat University Hospital, Hyderabad from August 2019 to January 2020. Patients between the ages 25 years and 40 years, diagnosed as having type II diabetes mellitus for over 6 months, belongs to either sex, gave consent of participation, visited the outpatient department of diabetes/ medical clinics at Liaquat University hospital during the study period were included. While patients below and above the age limit (<25 and >40 years), suffering from type 1 diabetes mellitus, pregnant women and those diagnosed for the first time in this visit during the study were excluded from the study. Non-probability convenient sampling technique was used for the selection of participants while sample size was calculated using the formula: N=4pq/L2. By keeping 5% margin of error and considering 15% of non-compliance[6], the total sample size of **168** was drawn. Patient's information related to etiological factors of disease and its symptoms was collected using written questionnaire. Quality of life in type-II diabetics was evaluated through a World Health Organization D-39 Questionnaire. It is a multi-dimensional scale comprised of total 39 questions for assessing the Health-related quality of life (HRQoL) of a type II diabetic patient.[11,12] The D-39 tool comprises of questions about the five different domains linked with diabetic patient's life: 1- Energy and mobility (15 items), Diabetes control (12 items), Anxiety and worry (4 items), Social burden (5 items) and Sexual functioning (3 items). Collected information was entered and analyzed using SPSS ver. 23.

RESULTS

Out of 168 type II diabetic patients, majority participants belonged to the age group 36-40 years followed by participant age group 25-30 years and 30-35 years. Gender wise distribution a male predominance was observed compared with their counterparts. Over half of the participant had a cigarette smoking history while over two third of them don't have any alcohol intake history. History of exercise was very limited among the participants as shown in table 1. The overall score related to QoL of type II diabetic patients was that majority 95(56.6%) reported the low quality of life followed by 55(32.7%) of patients with an average QoL while 18 (10.7%) of patients reported their QoL. There was a statistically significant difference ($p<0.05$) in quality of type II diabetic patients. Table 2 is presenting the category based findings of QoL mean scores of type II diabetic patients with general perception of QoL. Higher scores of the five domains were associated with the perception of lower QoL and higher severity of disease.

Table No.1: Demographic details of study participants (n=168)

Demographic Variables	n	%
Age groups (Years)		
25-30	36	21.5
30-35	53	31.5
36-40	79	47.0
Gender		
Male	104	62.0
Female	64	38.0
History of cigarette smoking		
Present	96	57.0
Absent	72	43.0
History of alcohol intake		
Present	21	12.5
Absent	147	87.5
Regular Exercise		
Present	49	27.2
Absent	122	72.6
Family history of diabetes		
Present	50	29.8
Absent	118	70.2

Table No.2: Categories based findings of QoL scores of type 2 diabetic patients with general perception of quality of life (n=168)

Domain	QoL of Diabetic Patients		p-value
	Good	Low	
Diabetes Control	41.8±20.1	54.2±18.7	0.007*
Anxiety & Worry	52.7±23.8	70.2±21.1	0.001*
Social Burden	30.4±17.6	31.8±14.5	0.57
Energy & Mobility	46.8±19.8	60.7±28.5	0.008*
Sexual Functioning	42.8±24.7	64.5±28.3	0.031*

Table No.3: Domain wise type-2 diabetic patient's QoL scoring and perception of disease severity (n=168)

Domain	Perception of disease severity		p value
	High	Low	
Diabetes Control	58.8±18.4	33.1±18.3	0.003*
Anxiety & Worry	68.2±19.8	44.3±22.4	0.000*
Social Burden	28.2±17.8	24.2±11.7	0.001*
Energy & Mobility	61.7±17.4	40.8±29.3	0.001*
Sexual Functioning	50.9±21.3	47.2±29.3	0.352

There was a statistically significant ($p<0.05$) difference of domain of diabetes scale-39 with the perception of disease severity. Domain wise patient's QoL scoring is mentioned in Table 3. Among study participants gave poor results. In physical domain of QoL, the mean score was very low. There was a statistically significant difference ($p<0.05$) between the mean domain scoring among patients as shown in Table 3.

DISCUSSION

Type II DM poses a serious impact not only on the patient but also put burden on family as well as effecting the economy of the country. The disease may badly deteriorate the QoL of patients that demands a proper diagnosis and managements of disease for improving the QoL.[13]

Present study was designed with an objective to evaluate the impact of type II DM on the quality of life of patients. Majority (47.0%) participants belonged to the age group 36-40 years followed by participant age group 25-30 years and 30-35 years in this study while a male predominance (62%) was observed compared with their counterparts. Smoking is a big cause for the vascular complications. Research elaborates the concept of diabetic complication on the basis of cigarette smoking. As it is observed that cigarette smoking increases the risk for high blood pressure which interact further to raise the chances for diabetic complications like heart disease and stroke.[6] In this study over half (57.0%) of participants were smokers. Adriaanse et al in 2016 reported high involving (41.6%) of diabetics used to smoke cigarettes. Another important and significant factor for controlling the diabetes is active lifestyle, physical activity/exercise. Exercise had a close relation with diabetes control that improves the insulin levels of body.[14] It has been observed in the present study that only 27.4% type II diabetics do exercise and were physically active. A study conducted to assess the impact of type-II diabetes on QoL showed negative effects. Finding depicted strong relationships in physical and psychological domain as compared to social and environmental in type-II diabetics. Domains of QoL are indirectly related with diabetic complications. As complications increase, QoL decreases.[15-19] Results of study depict considerably low score in environmental domain of QoL which suggest the ill effects of environment on life quality of type II diabetics. Similar results were found in study of Garg et al.[20] Depicting mean score much lower in environment domain than other domains of QoL. In another study, Mahesh V. et al reported the lower scores in environmental domain than other QoL domains.[21] Domain wise QoL among study participants gave poor results, as in physical domain of QoL with a very low mean score with a statistically significant association ($p< 0.05$). A similar study conducted by Prajapati et al. that presented a domain wise result to show QoL. That study reported a good physical QoL (63%), good psychological QoL (69%), good social QoL (27%) and good environmental QoL (85%).[22] QoL further worsen as complications increase while poor quality of life in all domains showed strong negative effect of type II diabetes on QoL. Score for quality of life in our study was lower in physical domain than reported by others studies.[23,24] Whereas, the findings of present study were consistent with the findings reported by Majeed et al, Prasanth et al[6,25] This study was a single centered study conducted at the public sector hospital due to limited time and resources constrains, so there will be an issue related to generalizability of our findings.

CONCLUSION

The study concludes, that type - II DM significantly affects the QoL of diabetic patients and has an adverse influence on all aspects of patient's life quality. The physical, psychological and social domains of QoL of patients are also significantly affected by the type - II DM.

Author's Contribution:

Concept & Design of Study:	Tariq Feroz Memon
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Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Chatwin H, Broadley M, Speight J, Cantrell A, Sutton A, Heller S, et al. The impact of hypoglycaemia on quality of life outcomes among adults with type 1 diabetes: a systematic review. Diabetes Res Clin Prac 2021;174:108752.
2. Organization WH. World health statistics overview 2019: monitoring health for the SDGs, sustainable development goals. World Health Organization, 2019.
3. Chaudhury A, Duvoor C, Reddy Dendi VS, Kraleti S, Chada A, Ravilla R, et al. Clinical review of antidiabetic drugs: implications for type 2 diabetes mellitus management. Frontiers Endocrinol 2017; 8:6.
4. Adnan M, Aasim M. Prevalence of type 2 diabetes mellitus in adult population of Pakistan: a meta-analysis of prospective cross-sectional surveys. Annals Global Health 2020;86(1).
5. Akhtar S, Nasir JA, Abbas T, Sarwar A. Diabetes in Pakistan: a systematic review and meta-analysis.

Pak J Med Sci 2019;35(4):1173.
6. Majeed I, Afzal M, Sehar S, Gilani SA, Alam MM. Quality of Life in Patients with Type-II Diabetes. Annals Punjab Medical College (APMC) 2019; 13(3):209-12.
7. Meher D, Kar S, Pathak M, Singh S. Quality of Life Assessment in Diabetic Patients Using a Validated Tool in a Patient Population Visiting a Tertiary Care Center in Bhubaneswar, Odisha, India. Scientific World J 2020;2020:1-7.
8. Abedini MR, Bijari B, Miri Z, Shakhs Emampour F, Abbasi A. The quality of life of the patients with diabetes type 2 using EQ-5D-5 L in Birjand. Health and Quality of Life Outcomes 2020;18(1):1-9.
9. Amulya Reddy P, Saravanan K, Madhukar A. A Study to Evaluate the Quality of Life of Patients with Diabetes Mellitus. J Pharm Res Int 2021; 33(47B):575-85.
10. Noubiap JJ, Nansseu JR, Endomba FT, Ngouo A, Nkeck JR, Nyaga UF, et al. Active smoking among people with diabetes mellitus or hypertension in Africa: a systematic review and meta-analysis. Scientific Reports 2019;9(1):1-11.
11. Nowakowska M, Zghebi SS, Ashcroft DM, Buchan I, Chew-Graham C, Holt T, et al. The comorbidity burden of type 2 diabetes mellitus: patterns, clusters and predictions from a large English primary care cohort. BMC Med 2019;17(1):1-10.
12. Shoukat F, Tanveer F, Shahid S, Ahmad A, Gilani SA. Effects of diabetes associated complications on quality of life in patients with type 2 diabetes. Rawal Med J 2019;44(1):28-31.
13. Huayanay-Espinoza IE, Guerra-Castañon F, Reyes-Diaz M, Lazo-Porras M, de la Cruz-Luque C, Herrera DA, et al. Quality of life and self-efficacy in patients with type 2 diabetes mellitus in a Peruvian public hospital. Medwave 2021;21(2).
14. Jankowska A, Młyńczak K, Golicki D. Validity of EQ-5D-5L health-related quality of life questionnaire in self-reported diabetes: evidence from a general population survey. Health and Quality of Life Outcomes 2021;19(1):1-11.
15. Arokiasamy P, Salvi S, Selvamani Y. Global Burden of Diabetes Mellitus: Prevalence, Pattern, and Trends. Handbook of Global Health 2021: 495-538.
16. Basit A, Fawwad A, Siddiqui SA, Baqa K. Current management strategies to target the increasing incidence of diabetes within Pakistan. Diabetes, metabolic syndrome and obesity: targets and therapy 2019;12:85.
17. Dong D, Lou P, Wang J, Zhang P, Sun J, Chang G, et al. Interaction of sleep quality and anxiety on quality of life in individuals with type 2 diabetes mellitus. Health and Quality of Life Outcomes 2020;18(1):1-7.
18. Adriaanse MC, Drewes HW, Van Der Heide I, Struijs JN, Baan CA. The impact of comorbid chronic conditions on quality of life in type 2 diabetes patients. Quality of Life Res 2016;25(1): 175-82.
19. Tavakkoli L, Dehghan A. Compare the quality of life in type 2 diabetic patients with healthy individuals (application of WHOQOL-BREF). Zahedan J Res Med Sciences 2017;19(2):e5882.
20. Garg S, Paul B, Dasgupta A, Maharana SP. Assessment of self-care activities: A study among type 2 diabetic patients in a rural area of West Bengal. Int J Med Sci Public Health 2017; 6(7):1173-8.
21. Mahesh V, Latha K, Muninarayana C, Ravishankar S. Quality of life in diabetic subjects with respect to metabolic syndrome: a case control study. Int J Community Med Public Health 2016;3(9):2393-6.
22. Prajapati VB, Blake R, Acharya LD, Seshadri S. Assessment of quality of life in type II diabetic patients using the modified diabetes quality of life (MDQoL)-17 questionnaire. Brazilian J Pharmaceutical Sciences 2018;53.
23. Jing X, Chen J, Dong Y, Han D, Zhao H, Wang X, et al. Related factors of quality of life of type 2 diabetes patients: a systematic review and meta-analysis. Health Quality Life Outcomes 2018; 16(1):1-14.
24. Puspasari S, Farera DR. Quality of Life Among Patients with Type 2 Diabetic Mellitus in Outpatient Department, General Public Hospital, West Java. KnE Life Sciences 2021:897-906.
25. Prasanth G, Yogananda R, Sree NS. Assessment of quality of life in adult diabetic patients: Pharmacological therapy and non-pharmacological therapy. World J Pharm Res 2018;7(7):748-57.