



## HEALTH RELATED QUALITY OF LIFE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: AN INSTITUTIONAL CROSS-SECTIONAL DESCRIPTIVE STUDY IN EASTERN INDIA

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### ABSTRACT

**Background:** India is regarded as the “Diabetes Capital” of the world owing to the existence of the largest number of people with diabetes in this country. Diabetes is a serious public health problem that has a strong negative impact on the health-related quality of life (HRQoL).

**Objective:** To know the quality of life (QoL) of in patients with type 2 diabetes mellitus attending routine out-patient diabetes clinics in tertiary care hospitals in Kolkata.

**Materials and Methods:** 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 June 2018 to 31st October 2018. All patients who matched our study eligibility criteria were interviewed by diabetes care providers using a structured questionnaire namely WHO-Bref QoL consisting of 26 items. It evaluates the individual's perception in relevance of their cultures, beliefs and value systems with regards to their personal goals as well as standards and concerns. There are five responses to each item varying from 1 (very dissatisfied) to 5 (extremely satisfied).

**Results:** The present study has shown that the physical domain, psychological, emotional and social domain of QoL was significantly affected in diabetic persons with majority of the patients having being reported very poor quality of life.

**Conclusion:** The present study has shown that the physical domain, psychological, emotional and social domain of QoL was significantly affected in diabetic persons. So, apart from taking regular medications and health checkup, there is a need to address other components of physical, psychological emotional as well as social domain so that their QoL will improve. While it might not be easy to modify clinical outcomes with good services and support, it might be much more effective in bringing a change in health related QoL.

**KEYWORDS :** Quality of Life, Type 2 diabetes mellitus, WHO BREF QoL, Eastern India

### INTRODUCTION:

In the twenty-first century, we see more globalization and industrialization, longer life spans, and changes in lifestyles worldwide. A consequence of these changes will be shifts in the patterns of disease, with chronic diseases such as diabetes becoming more prevalent.[1] Data published by the WHO in 2014 indicated that the global prevalence of diabetes was close to 10% among adults aged 18 years and older.[2] India is regarded as the “Diabetes Capital” of the world owing to the existence of the largest number of people with diabetes this country. The International Diabetes Federation estimated that the number of diabetic patients in India has doubled between 1995 and 2005, and, by 2025, it would reach a figure of about 70 million.[3,4] Recently published data reveal that the age-standardized prevalence of total diabetes (previously diagnosed and previously undiagnosed diabetes) ranges from 8% to 18% in urban India and 2.4% to 8% in rural India.[5] The WHO defines quality of life (QoL) as “an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns.”[6] In measuring QoL, therefore, the WHOQoL group takes the perspective that it is significant to be aware of how contented or disturbed people are by essential features of their life, and this analysis will be a highly individual matter.

### MATERIALS AND METHODS:

A cross-sectional study of successive type 2 diabetes patients attending routine out-patient diabetes clinics in tertiary care hospitals in Kolkata, India from 1<sup>st</sup> June 2018 to 31<sup>st</sup> October 2018. All patients who matched our study eligibility criteria were interviewed by diabetes care providers using a structured questionnaire WHO-Bref QoL.

**WHOQOL-BREF instrument:** It is a health related QOL questionnaire consisting of 26 items. It evaluates the individual's perception in relevance of their cultures, beliefs and value systems with regards to their personal goals as well as standards and concerns. There are five responses to each item varying from 1 (very dissatisfied) to 5 (extremely satisfied).

**Study Area** –Patients who are attending the tertiary care center in central part of Kolkata over a period of 20 weeks.

**Study Period** – June 2018 to December 2018

**Research Approach** – Empirical, Interpretative, Interventionist, Descriptive, Naturalistic.

**Research Design** – Experimental pre-test post-test design with a control group.

**Sample Design** – Data was collected from consecutive patients attending the clinic who gave consent for the study and was included as study participants. Patients and patients' relatives were fully explained by their mother language (Bengali) about the study. After getting informed consent from them, participants were recruited in the study accordingly to the inclusion & exclusion criteria as mentioned previously. The data was captured based on the validated questionnaires as described vide-supra by the proper interview technique and the pro-forma was accordingly filled. The response was coded appropriately, and the collected data was compiled using Microsoft excel software in a master sheet. Further statistical analysis of the compiled data would be done with the help of SPSS Version 20 for windows and SAS version 9.1 for windows.

### RESULTS:

- With regards to the general quality of life measure, 142 (28.4%) of the patients reported that they have very poor quality of life.
- With regards to the overall general health, 128 (25.6%) of the patients reported of very poor health, 146 (29.2%).
- With regards to pain and discomfort, 108 participants (21.6%) of the patients reported of very poor pain and discomfort.
- With regards to physical dependence on medication usage, 106 (21.4%) participants reported of very poor physical dependence and medication.
- In the physical domain, in terms of energy level and fatigue level, 126 (25.2%) participants reported of very poor energy and fatigue level.
- In the physical domain, in terms of mobility level, 134 (26.8%) participants reported of very poor mobility level.

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- In the physical domain, in terms of sleep and rest level, 152 (30.4%) participants reported of very poor sleep and rest, in terms of activities of daily living, 120 (24%) participants reported of poor activities of daily living; in terms of working capacity, 140 (28%) participants reported of poor working capacity.
- In the psychological domain, in terms of working capacity, 106 (21.2%) participants reported of poor positive feelings, in terms of spiritual, religious and personal belief, 106 (21.2%) participants reported of very poor spiritual, religious and personal belief; in terms of thinking, learning, memory and concentration, 142 (28.4%) participants reported of very poor spiritual, religious and personal belief; in terms of self-esteem, 112 (22.64%) participants reported of very poor self-esteem, in terms of body image, 118 (23.64%) participants reported of very poor body image. in terms negative feelings, 110 (22%) participants reported of very poor with regards to negative feelings.
- In the social relationship domain, in terms of personal relations, 128 (25.6%) participants reported of very poor with regards to personal relations, in terms of sex life, 144 (28.8%) participants reported of very poor with regards to sex life, in terms of practical social support, 124 (24.8%) participants reported of very poor with regards to practical social support.
- In the environmental safety domain, in terms of safety, 142 (28.4%) participants reported of very poor with regards to safety, in terms of home environment, 120 (24%) participants reported of very poor with regards to home environment, in terms of financial resources, 120 (24%) participants reported of very poor with regards to financial resources.

**Table 1: Overall general health-General QOL in Study Participants**

		Number of patients	Percent
General QoL	1 (Very poor)	142	28.4
	2 (Poor)	136	27.2
	3 (Average)	112	22.4
	4 (Good)	110	22.0
	Total	500	100.0

With regards to the general quality of life measure, 142 (28.4%) of the patients reported that they have very poor quality of life followed by 136 (27.2%) patients who reported poor quality of life, 112 (22.4%) reported as having average quality of life and 110 (22%) reported as having good quality of life.

**Table 2: Overall general health-General Health**

		Number of patients	Percent
General Health	1 (Very poor)	128	25.6
	2 (Poor)	146	29.2
	3 (Average)	118	23.6
	4 (Good)	108	21.6
	Total	500	100.0

With regards to the overall general health, 128 (25.6%) of the patients reported of very poor health, 146 (29.2%) reported of poor health, 118 (23.6%) reported of average health and 108 (21.6%) reported of good health.

**Table 3: Overall general health-Physical - Pain and Discomfort**

		Number of patients	Percent
Pain and Discomfort	1 (Very poor)	108	21.6
	2 (Poor)	134	24.8
	3 (Average)	130	26.0
	4 (Good)	138	27.6
	Total	500	100.0

With regards to pain and discomfort, 108 participants (21.6%) of the patients reported of very poor pain and discomfort, 134 (24.8%) reported of poor pain and discomfort, 130 (26%) reported of average pain and discomfort and 138 (27.6%) reported of good with respect to pain and discomfort.

**Table 4: Quality of life-Physical - Dependence & medication**

		Number of patients	Percent
Dependence & medication	1 (Very poor)	106	21.2
	2 (Poor)	140	28.0
	3 (Average)	114	22.8

	4 (Good)	140	28.0
	Total	500	100.0

With regards to physical dependence on medication usage, 106 participants reported of very poor physical dependence on medication, 140 (28%) reported of poor physical dependence on medication, 114 (22.8%) reported of average physical dependence on medication and 140 (28%) reported of good physical dependence on medication.

**Table 5: Quality of life-Physical - Energy and fatigue:-**

		Number of patients	Percent
Energy and fatigue	1 (Very poor)	126	25.2
	2 (Poor)	110	22.0
	3 (Average)	136	27.2
	4 (Good)	128	25.6
	Total	500	100.0

In the physical domain, in terms of energy level and fatigue level, 126 (25.2%) participants reported of very poor energy and fatigue level, 110 (22%) reported of poor energy and fatigue level, 136 (27.2%) reported of average energy and fatigue level and 128 (25.6%) reported of good energy and fatigue level.

**Table 6: Quality of life: Physical-Mobility**

		Number of patients	Percent
Mobility	1 (Very poor)	134	26.8
	2 (Poor)	120	24.0
	3 (Average)	112	22.4
	4 (Good)	134	26.8
	Total	500	100.0

In the physical domain, in terms of mobility level, 134 (26.8%) participants reported of very poor mobility level, 120 (24%) reported of poor mobility level, 112 (22.4%) reported of average mobility level and 134 (26.8%) reported of good mobility level.

**Table 7: Quality of life: Physical - Sleep and rest**

		Number of patients	Percent
Sleep and rest	1 (Very poor)	152	30.4
	2 (Poor)	120	24.0
	3 (Average)	112	22.4
	4 (Good)	116	23.2
	Total	500	100.0

In the physical domain, in terms of sleep and rest level, 152 (30.4%) participants reported of very poor sleep and rest, 120 (24%) reported of poor sleep and rest, 112 (22.4%) reported of average sleep and rest level and 116 (26.8%) reported of sleep and rest level.

**Table 8: Quality of life-Physical - Activities of daily living**

		Number of patients	Percent
Activities of daily living	2 (Poor)	120	24.0
	3 (Average)	126	25.2
	4 (Good)	122	24.4
	5 (Very Good)	132	26.4
	Total	500	100.0

In the physical domain, in terms of activities of daily living, 120 (24%) participants reported of poor activities of daily living, 126 (25.2%) reported of average activities of daily living, 122 (24.4%) reported of good activities of daily living level and 132 (26.4%) reported of very good activities of daily living.

**Table 9: Quality of life-Physical -Working capacity**

		Number of patients	Percent
Working capacity	2 (Poor)	140	28.0
	3 (Average)	126	25.2
	4 (Good)	92	18.4
	5 (Very Good)	142	28.4
	Total	500	100.0

In the physical domain, in terms of working capacity, 140 (28%) participants reported of poor working capacity, 126 (25.2%) reported of average working capacity, 92 (18.4%) reported of good working capacity and 142 (28.4%) reported of very good working capacity.

**Table 10: Quality of life-Psychological - Positive feelings**

		Number of patients	Percent
Positive feelings	2 (Poor)	106	21.2
	3 (Average)	156	31.2
	4 (Good)	122	24.4
	5 (Very Good)	116	23.2
	Total	500	100.0

In the psychological domain, in terms of working capacity, 106 (21.2%) participants reported of poor positive feelings, 156 (31.2%) reported of average positive feelings, 122 (24.4%) reported of good positive feelings and 116 (23.2%) reported of very good positive feelings.

**Table 11: Quality of life-Psychological - Spirituality, religion and personal beliefs**

		Number of patients	Percent
Spirituality, religion and personal beliefs	1 (Very poor)	146	29.2
	2 (Poor)	108	21.6
	3 (Average)	120	24.0
	4 (Good)	126	25.2
	Total	500	100.0

In the psychological domain, in terms of spiritual, religious and personal belief, 106 (21.2%) participants reported of very poor spiritual, religious and personal belief, 156 (31.2%) reported of poor spiritual, religious and personal belief, 122 (24.4%) reported of average spiritual, religious and personal belief and 116 (23.2%) reported of good spiritual, religious and personal belief.

**Table 12: Quality of life-Psychological-Thinking, learning, memory, concentration**

		Number of patients	Percent
Thinking, learning, memory, concentration	1 (Very poor)	142	28.4
	2 (Poor)	124	24.8
	3 (Average)	106	21.2
	4 (Good)	128	25.6
	Total	500	100.0

In the psychological domain, in terms of thinking, learning, memory and concentration, 142 (28.4%) participants reported of very poor spiritual, religious and personal belief, 124 (24.8%) reported of poor spiritual, religious and personal belief, 106 (21.4%) reported of average spiritual, religious and personal belief and 128 (25.6%) reported of good spiritual, religious and personal belief.

**Table 13: Quality of life-Psychological-Body image**

		Number of patients	Percent
Body image	1 (Very poor)	118	23.6
	2 (Poor)	140	28.0
	3 (Average)	110	22.0
	4 (Good)	132	26.4
	Total	500	100.0

In the psychological domain, in terms of body image, 118 (23.64%) participants reported of very poor body image, 140 (28%) reported of poor body image, 110 (22%) reported of average body image and 132 (26.4%) reported of good body image.

**Table 14: Quality of life-Psychological-Self esteem**

		Number of patients	Percent
Self esteem	1 (Very poor)	112	22.4
	2 (Poor)	118	23.6
	3 (Average)	138	27.6
	4 (Good)	132	26.4
	Total	500	100.0

In the psychological domain, in terms self-esteem, 112 (22.64%) participants reported of very poor self-esteem, 118 (23.6%) reported of poor self-esteem, 138 (27.6%) reported of average self-esteem and 132 (26.4%) reported of good self-esteem.

**Table 15: Quality of life-Psychological-Negative feelings**

		Number of patients	Percent
Negative feelings	1 (Very poor)	110	22.0
	2 (Poor)	134	26.8
	3 (Average)	136	27.2

	4 (Good)	120	24.0
	Total	500	100.0

In the psychological domain, in terms negative feelings, 110 (22%) participants reported of very poor with regards to negative feelings, 134 (26.8%) reported of poor with regards to negative feelings, 136 (27.2%) reported of average with regards to negative feelings and 120 (24%) reported of good with regards to negative feelings.

**DISCUSSION:**

Eljedi et al. analyzed the HRQoL in a sample of diabetic patients living in refugee camps in the Gaza strip in comparison with gender- and age-matched nondiabetic control persons from the same camps. Diabetes and its complications affected negatively all of the domains of the WHOQoL-BREF; however, the effects were the strongest for the physical health and psychological domains and weaker for the social relationships and environment domains, similar to this study. In this study, both groups showed particularly low scores in the environmental domain indicating the bad environmental conditions affecting HRQoL of diabetic patients and controls in a similar way, as also found by Eljedi et al. In a Danish validation study of the WHOQoL-BREF, the mean scores were considerably higher for all the domains in diabetic patients (between 70 and 76 points) when compared with our sample (58 to 63), but only slightly higher for control subjects (74 to 89 vs. 51 to 66) with the exception of the environment domain, where the score in our sample was much lower (70 vs. 41). In the Iranian study, the scores for the diabetic patients were lower than in the Danish study (55 to 65), which was almost similar to this study.

**CONCLUSION:**

The present study has shown that the physical domain, psychological, emotional and social domain of QoL was significantly affected in diabetic persons. So, apart from taking regular medications and health checkup, there is a need to address other components of physical, psychological emotional as well as social domain so that their QoL will improve. While it might not be easy to modify clinical outcomes with good services and support, it might be much more effective in bringing a change in health related QoL.

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