



Diabetes, A Culprit Against Quality of Life?

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ABSTRACT

Quality of life (QoL) is a very contemporary domain of modern health care practices. Though it has no clear or concise definition, its impact of it is huge for an individual living with diabetes mellitus. Yet, the mention of QoL is restricted to majorly four common domains, such as physical, psychological, social, and environmental, which excludes the major areas that lead to poor QoL among diabetic individuals in rural India, such as, indefinite food restriction and seclusion from the family dining menu or isolation from festivals largely focused on food. Work and role limitation in the Indian setting is also a prevalent precursor to poor QoL, for example, the consciousness of frequent bathroom visits due to polyuria, unaffordability of proper storage of insulin in the workplace, and increased absenteeism for doctor visits. The focus on the vague ideas of QoL needs to be changed towards more individualistic, as it is a subjective measure. Nonetheless, the assessment of QoL is non-existent in the treatment protocols of diabetes in rural India, mostly because of the non-availability of specialized institutions, resources, and services. Moreover, as diabetes is a silent disease, the effects of self-care are not immediate, even though, long-term benefits have been proven, leading to poor motivation added to inaccessibility of healthcare services, creating an environment for detrimental quality of life. Thus, an individualist approach toward QoL is warranted with mandatory evaluation of QoL in every area of the diabetic therapeutic regime.

Keywords: Type 2 Diabetes, Quality of life, Diabetic Complications, Emotional Depression

INTRODUCTION

The term Quality of Life is very ambiguous in nature and complex to define. It is very subjective and unique like finger prints to each single individual. The multi-faceted human life and distinctiveness of each human being pose a greater difficulty in crafting the definition of quality of life.¹ WHO (World Health Organization) defines: the QOL is, "An individual's perception of their position in the life in the context of the culture in which they live and in relation to their goals, expectations, standards and concerns."² The QOL is more remained lucid with human's experience and perception. Surprisingly, biological health was not a factor of individual's QOL but it solely depends on the individual's perception of wellbeing.³

In medical practice, diagnosis and attenuation of symptoms are considered as the crucial milestone to measure therapeutic efficacy. Even though, these are the indispensable part of contemporary medicine but

role of non-health related domains like happiness, perception of wellbeing, life satisfaction, family etc. on disease process cannot be overlooked.⁴ Moreover, QOL encompasses a wide range of human experience and it can better describe as patient's perception towards his/her own health or perception of (his/her) functional status and wellbeing.⁵ Therefore, the medical literature on Quality of Life has grown exponentially, in last two decades. Recently, the QOL has viewed as an important health outcome and considered as the utmost highest goal of all health interventions in patient suffering with chronic diseases.^{2,6} Diabetes is omnipresent, and considered as a major public health catastrophic of 21st century. Owing to the pervasiveness of diabetes and rapid up surging propensity, it is positioned as one of the fourth among other NCDs, universally. Currently, more than half billion individual living with diabetes and the number may surpass 25% by 2030 and 51% by 2045.⁷

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The review is intended to describe the effect on the quality of life; which the author believes to be a major component for evaluation in regard to changes caused by any major chronic disorders, especially among people living with diabetes mellitus. The review points to the area that depression as well as other psychological issues are also very much relevant as quality of life, and that clinicians need to focus on these aspects while managing symptoms. A literature review has been undertaken with the view to study the impact of diabetes mellitus in the daily lives of individuals and real-life strategies for dealing with it.

METHODOLOGY

This narrative review summarizes the impact of diabetes mellitus on the quality of life and the strategies to deal with it, and the control of various NCDs in India. We browsed PubMed, and Google scholar databases using the keywords "Quality of life AND diabetes mellitus AND adults" "Quality of life AND diabetes mellitus AND coping strategies AND adults." Reference lists of all the selected articles were screened to find out relevant articles. Research studies with quantitative/qualitative research approach, evidence-based, full text, written in English language, published during the last 20 years were included. A total of 3894 relevant articles were retrieved. From databases. Out of these 3894 articles, 297 duplicate articles were excluded and the rest 3597 articles were screened. After further review, more articles were excluded because of the non-availability of full text and few of them were conference proceedings. 44 articles were included in the final results of the review. All these articles were thoroughly read and evaluated. The narrative review is being arranged under broad themes of engaging quality of life among diabetes mellitus adult patients.

Impact of Diabetes on various domain of Quality of Life

Diabetes is one of such a chronic disease, which is not only negatively impact health but also ruined the life in many ways. For example, with respect to living with diabetes means, one has to follow prescribed exercise routine, eating healthy food with all the restrictions, taking care of feet and taking medicines daily without fail.⁸ In addition, regular blood glucose monitoring and follow-up visit to doctor also have to be taken care. So, this accountability towards diabetes self-management may restrict a person's life which could blow away one's emotional and social well-being. De facto, diabetes has a subjective impact on individual's psyche. More precisely, its mere presence crumbled individual's physical functioning as well as mental functioning-that is quality of life.^{9,10}

From plethora of research, it is established that diabetes causes a profound deterioration in QOL in diabetic patient compare to non-diabetic. These findings

are similar across the world with varying in intensity. It is evident that, duration of diabetes, type of diabetes, number of complications present along with diabetes, physical dependency, polypharmacy and low accessible health care facilities etc. may linked to shattered quality of life among diabetes patient.^{11,12} Other than that various demographic factors like age, gender, socioeconomic status, literacy, marital status, and family support are to blame for poor QOL.¹³

Demographic factors like age and gender were considered to independent predictor of substandard QOL along with other parameters to blame were duration of diabetes, CHD, frequency of hypoglycaemia, macro vascular & micro vascular complications. Increased age is associated with poorer QOL in diabetics and it's inversely proportionate. This might be due to old age ailment, physiological alteration, physical & functional limitations, presence of pain & discomfort, other chronic diseases etc.¹⁴ But some research studies reported that QOL get better with age, as older people are excellent in coping and acceptance compare to younger ones and they attribute their limitations to aging. In addition, younger people have more fear of future complications.¹⁵ It was noticed that, there was a gender differences present in disruption of QOL in diabetics. Female diabetic patients tend to have poor QOL compare to male. It might be due to gender disadvantages, because most of the time, females were responsible for household chore and remained inside. So, accessibility to health care services, recreational facilities were very low and lack of family & social support in this matter was also evident.¹⁶

Food restriction or no freedom to eat your favourite food is the domain of quality of life, which is adversely affected by diabetes. The restrictions in food choices, especially in choosing their favourite food or preferred food choices subsequently affect their QOL leading to negative psychological impact.¹⁷ India is land of festivals, festivals which is predominantly focused on food especially sweet dishes. Side-lining a member of the family in a festival or not including in the customary activities which would usually be the eldest member of the family would not be probable in most of the families.

The second most affected quality of life domain is physical activity.¹⁴ Every one wishes to be without any physical shortcomings in normal daily life? Fatigue is the most common physical limitation among diabetes patient. Every year 1.5 million Australian visits doctors with the complain of diabetes related fatigue.¹⁸ Evidence shows that diabetes related fatigue adversely affects QOL of diabetic patient and diminish their self-management abilities towards diabetes and experienced physical difficulties like body pain, weakness in lower extremities, functional muscle loss, poor reflexes etc. Though, the link between fatigue and diabetes is not yet completely understood.^{19,20}

Apart from freedom to eat and physical activity do-

mains of QOL, diabetes also revealed its significant negative affect on other domains like psychological, environmental and social relationship.¹⁴ Among all domains of QOL, social relationship domain was less distressed by the diabetes. Tietjen et al in 2021, stated that restriction on free eating QOL was the most affected domain among all followed by physical health domain.²¹ But Gebremedhin et al in 2018, reported that all domains of health related QOL were manifested type II diabetes among diabetes patient and physical health domain was most affected one with average score 49.10 ± 18.14 .¹⁴

Moreover, some evidences have shown that, work function domain was also negatively affected by diabetes and it was the third most affected domain after physical health and freedom to eat. Like medication compliance was disrupted in work place, more precisely if patient is on insulin, the design of work place is not supportive either for storage of insulin or privacy for administration. This increases chances of compliance towards diabetes management. Routine visits to doctor also disturb their work routine. Diabetic patients believe that their diabetic symptoms one way or other affected their work and working abilities. For example, frequent urination is flared up if the office is air conditioned and cold, they fill urge of urination very frequently and it is disturbing.^{14,17,21}

Diabetic complications, a greater influencer on Quality of Life

Diabetes's awful impact on QOL gets accelerated, when diabetic related complications came into existence in diabetic patient's life. The degradation in QOL due to diabetes related complication was multidimensional and persistent across all the domain of QOL, physical & mental.¹³ Both the macro vascular and micro vascular complication is correlated with poorer QOL in diabetes. Individual with diabetes and its sequelae present with 2-3 folds of more risk for death and have two to four times' higher risk of hospitalization compare to non-diabetic.²² In fact, the complications were so common that, you will find at least one complication among 76.4% diabetes patients.²³ The presence of nephropathy had the highest extreme impact on QOL (11.4% reduction) amid all the complications followed by hypoglycaemia (9.1% reduction) and neuropathy (7.8% reduction).²⁴ Along with above mentioned complications, severe retinopathy was associated poorer QOL in domain like general health, physical functioning, mental health and social role limitation. Further, comorbidities like coronary artery disease, hypertension and stroke impacted the physical functioning domain.²⁵ So, diabetes related complications and comorbidities were declared as the important predictor of distressed QOL in diabetic. This might be due to prolong duration of treatment, extra medications & therapies, increased chances of hospitalization, which ultimately lead to more mental & financial burden of a diabetic patient.²⁶

Diabetes and Depression

In addition, co-existence of depression in diabetes has been found to be associated with poorer QOL.²⁷ Further to its implications, both the comorbidities not only impair diabetes self-care and macro/micro vascular complications but also deteriorate quality of life to a great extent.²⁸ Diabetes is a very tough & demanding disease to live with, but when it is accompanied with complications, it become even tougher to handle. Many people feel overwhelmed, annoyed and exhausted by daily endless self-care demand of diabetes and its management, likely leading to emotional distress, anger, guilt, anxiety, irritation, hopelessness.^{25,29} This condition is known as 'Diabetes distresses. The Diabetes Attitudes, Wishes and Needs (DAWN2™) was used to study the benchmarking of psychosocial outcomes for people with diabetes in 17 countries with 16000 participants, and stated that 13.8% (6.5%-24.1%) and 44.6% (17.2%-67.6%) of diabetic patients were likely to suffer from depression and diabetes related distress respectively, and 12.2% (7.6%-26.1%) of participants have quoted 'poor' or 'very poor' overall quality of life.³⁰

The association between diabetes and depression is multifaceted. Indeed, diabetes increases the risk of depression two times among diabetic patient compare to non-diabetic individual. On other hand, depression shattered the daily self-care activities (diet, exercise, blood glucose monitoring, treatment adherence), which is very crucial to glycaemic control and to halt and prevent the onset of diabetes related complications.^{8,31,32,33} One in five diabetic patients is living with depression, whereas one third of diabetic patient are facing the burden of diabetes distress. Depression and diabetes distress can coexist together; about 4.5% of diabetic patients diagnosed positive for both.³³ Richardson et.al conducted a longitudinal study over 4 years, reported about the effect of depression on glycaemic control. There was a longitudinal significant association between depression and glycaemic control and regularly HbA1c level was higher over the span of time. The self-care activities are essential for good glycaemic control as well as appropriate long- and short-term diabetes outcomes.³⁴ Another study reported by Gonzalez et al, proposed that depressive symptoms are the good instigator of poor self-care activities particularly in noncompliance to dietary regimen, regular physical activities and medication.³⁵ Consequently poor compliance to self-care activities ended up with diabetic complications.^{31,32} A longitudinal study conducted over 5 years included 4623 type 2 diabetes mellitus participants concluded that there was a significant association between depressive symptoms with both micro vascular and macro vascular complications as hazard ratio (HR) were 1.36; 95% CI,1.05-1.75 and 1.24; 95% CI,1.0-1.54 respectively after adjustment of other factors like earlier complications and certain demographics, self-management behaviors.²⁸

Measures to assess Quality of Life of Diabetes Patient:

As we are seeing from above discussions, the impact of chronic diseases like diabetes is huge on quality of life. Though the primary focus of standard care for diabetes is to achieve glycaemic control and its maintenance, beyond that some associated issues like Quality of life, diabetes related distress, depression etc. need to be addressed under standard care protocol of diabetes. Since, they are the common factor, which could deteriorate the diabetes further. So instead of symptom focused approach, we need to adapt holistic approach to curb the diabetes. Numerous psychometric tools are available to measure quality of life. Most commonly used tools were

The Diabetes Quality of Life Measure (DQOL): This scale was mainly assessed four aspects of diabetes impact, such as treatment impact, satisfaction, anxiety for complications and social issues.³⁶

The EQ-5D: This tool comprised of two parts. First part measuring five dimensions like self-care, mobility, usual activity, pain and depression and the second part is a visual analogue scale based on perceived/imaginable health state.³⁶

The Audit of Diabetes-Dependent Quality of Life (ADDQoL): It is a diabetes specific instrument curated to measure condition specific outcome both for Type I & II diabetes. It is a seven-point scale consists of 18 items.³⁶

SF36: This is a generic tool, designed to measure general health status over eight domains. It has two components, i.e., PCS-Physical Component Summary & MCS-Mental Component Summary.³⁶

The Problem Areas in Diabetes (PAID): It is mostly intended to measure diabetes related distress. It covers across four dimension, overall emotional, interpersonal, treatment-related, and physician-related distress.³⁶

The Appraisal of Diabetes Scale (ADS): It is a diabetes centric tool, curated to assess individual's coping mechanism in relation to diabetes.³⁶

Diabetes Health Profile (DHP): It is constructed to measure psychosocial angle of occurrence of diabetes and living with diabetes.³⁶

Strategies to improve quality of life with diabetes:

Optimum diabetes control can be achieved by religiously following self-care behaviour like, regular blood sugar monitoring, daily exercise, regular medication, lifestyle adjustment, foot care and coping with psychological challenges.³⁷

Diabetes is a silent disease with very limited symptoms in day-to-day life, until the complications occur. Thus, silent nature of diabetes impedes the sustenance of above said health behaviours. The instant reward for adherence to diabetes self-care activities

are not much visible but the actual reward, in terms of mitigating diabetes related complications in long run, considered as a very distant event emphasizing the everyday life diligence needed for optimal management.³⁸

Notably, a growing body of scientific literature has been emerged with numerous strategies and interventions to improve QOL among diabetic patient. A study on global mapping of strategies for improvement of quality of life, which reutilized seven hundred research papers from 1990-2018 revealed that, most repeated categories were community and family-based interventions focused on betterment of self-efficacy and self-management, followed by lifestyle modification intervention (daily exercise, diet) for diabetes and using digital technologies as intervention. Along with these three categories, interventions for diabetes patient with comorbidities are also on rise.³⁹

In a study from 2017 by Aikaterini et al, identified interventions like organizational change, SMS reminder for patient and provider, diabetes educational program for care provider and patient, promotion of self-management, follow up and feedback and financial incentives were most used strategies to improve QOL among diabetes patient.²⁵

In a Cochrane collaborated systematic review, which included thirty-three studies involving multiple interventions reporting SF-36 scale for quality of life before and after an intervention. The interventions varied from education-based behaviour modification interventions, pharmacological and/or surgical interventions. The pooled effects of studies involved with education-based behaviour modifying interventions showed significant improvement in Physical [3.4(95% CI, 0.1-6.6)], Mental health [4.2 (95% CI, 1.8-6.6)] as well as significant reduction in body pain [3.6 (95% CI, 0.6-6.7)]. These improvements in quality of life was also evident in pharmacological interventions too where insulin was used for glycaemic control (-4.6 - 27.6) or medications dealing with diabetic comorbidities (3.8 - 33.2) or diabetic complications (-2.6 - 14.6). (40)(41) The surgical interventions were used to treat either diabetic comorbidities (15.0 - 42.0) or complications (-13.0 - 37.9), which also added to the list of interventions significantly improving the quality-of-life scores.⁴²

Another systematic review, aimed at effect of interventions on QOL reported that, interventions with highest mean changes in QOL were surgical therapy, pharmacotherapy and educational intervention respectively. Surgical procedures for treating diabetes comorbidities, diabetes complications and reliving specific symptoms were significantly improved component of QOL. To achieve satisfactory level of QOL, self-care is utmost important along with health services.³⁷ Interventions focused on diabetes self-management/behaviour modification were showed positive results in improving QOL, measured by drop in hospital stays, use of emergency services and med-

ication use. Additionally, it also improved patient's self-efficacy, self-care activities and glycaemic control.^{43,44} A structured group education program was conducted by two trained professionals on 824 adults who were newly diagnosed with type II diabetes mellitus in 13 primary health centres across United Kingdom, and the results showed that the HbA_{1c} levels significantly reduced by 1.49% as compared to control group (1.21%), whereas weight loss was also significantly reduced by -2.98 kgs (96% CI, -3.54 - -2.41) in intervention group as compared to control group by 1.86 kgs (95% CI, -2.44 - -1.28). On further assessing the correlation a positive correlation was also identified with weight loss and perceived personal responsibility in 12 months' period. The study even revealed significant decrease in depression levels too [-0.50(95% CI, -0.96 - -0.04)] after the structured education program among people with diabetes.⁴⁵

Diabetic organizations recommend regular psychosocial interventions and evidence based mental health therapies for people diagnosed with diabetes. But conventional diabetes treatment cascade focused on symptomatic management instead of overall well-being and functional status. Adult living with diabetes, which is a chronic disease and unlikely to cure, the diabetes treatment should not focus to just alleviate the symptoms but it is equally important to improve the individual's overall wellbeing, functional status and ultimately QOL. But still the gap between recommendations and actual integration to psychosocial means is very low.⁴⁶ Thus, the current diabetes treatment cascade should include scientifically sound diabetes specific structured interventions, which will ensure improvement of QOL and overall wellbeing of diabetic patient along with symptom management.

CONCLUSION

In the eastern Indian rural areas of Khordha district, I have observed many subtle family behaviours which contribute to diabetic care compliance and complications. Through the prevailing patriarchy, women of rural areas are not given the same attention in health as men. Many of the symptoms in women are often ignored as menial issue, and treatment are sought when irreversible complications are set in. Women tend to hide many symptoms as well with the idea of saving money for treatment, which could eventually be spent on domestic chores. Separate diet is also not maintained for a family member with a house, and a diabetic person is exposed to restricted meals. This becomes even more grave when religious festivals come, where lot of sweet dishes are associated, and avoiding themselves from such dishes becomes more difficult. Glycemic control and self-care still are a challenging expectation in a rural community of India. Mere improvement in knowledge is not sufficient but interventions and subsequent policies, for behaviour modification is important. Quality of life in such a setting seems to

be a far-fetched idea, where basic infrastructure for diabetic care is poorly accessible.

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