

# Predictive Relationship between Depression and Quality of Life among Patients with Type II Diabetes in Karachi-Pakistan

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**Abstract:** The aim of the present study was to explore the relationship between depression and quality of life among individuals with type II diabetes. On the basis of literature review it was hypothesized that a) depression will predict quality of life among patients with diabetes b) there will be negative relationship between depression and quality of life among patients with diabetes. A purposive sample of 96 people with diabetes type II diagnosed by physicians was selected from different hospitals and different organizations of Karachi, Pakistan. Their age range was between 25 to 75 years (mean age = 41.2, SD = 12.3) and they belonged to three major socioeconomic status i.e. low, middle and high. To measure the depression Salma Siddiqui Depression Scale was used and quality of life was assessed through WHO Quality of life BREF-Urdu Version. Descriptive statistics and linear regression were applied for the analysis of data. Findings revealed that there was moderately significant negative relationship between Depression and Quality of Life ( $p < .000$ ) and depression contributes 40% variance in quality of life among patients. The findings have clinical implications for general physicians and clinical psychologists as well as for the general population.

**Keywords:** Diabetes, Depression, Quality of Life, Adults.

## INTRODUCTION

Diabetes mellitus is defined as an illness that decreases the capability of the body to produce or utilize insulin [1]. Type I diabetes occurs in early period of life due to lack of insulin with a prevalence ratio of 10% among world's population while type II diabetes ensues due to insufficient production of pancreas. It has been considered as a disease of aging with a prevalence rate of 1.2% between the age of 20 to 64 and 17% at the age of 65 or older [2].

The prevalence of diabetes is alarmingly high in the world's population with mortality ratio about 3.2 million deaths a year [3]. The prevalence of diabetes in Asian countries like Pakistan was 22.04% in urban and 17.15% in rural areas [4] in Saudi Arabia its ratio has exceeded to 23.7%, in males its prevalence is 26.2% while in female is 21.5% [4].

Co-morbidity of unspecified mental health problems with chronic illnesses were found among individuals and psychological care is mandatory to cope with diabetes. Diabetes complications are enhanced because of negligence of their care due to lack of interest, stressful experiences and depression [5].

Depression is defined by [6] as a state of affects combined by hopelessness, emptiness, obvious loss of interest in pleasurable activities, excessive weeping, inappropriate guilt, weight gain or loss, cognitive

deficits as lack of concentration, poor performance, sleep and eating disturbance, self-destructive tendencies and social isolation. In his theory of learned helplessness by [7] that situations full of negative events lead towards indifference and depression. It changes the scenario of thinking pattern generating false inferences and evaluations about self, others and the world. And biologically depressive symptoms occur due to calm construction of new neurons in adult human brain [8]. These eclectic psychological symptoms i.e.; stress, depression and anxiety are prevalent among people with type II diabetes with a ratio of 12.5%, 11.5% and 30.5% respectively.

The association of depression with diabetes is prevalent in Asian countries side by side European countries inserting unhealthy influence on quality of life. The higher rate of depressive symptoms was found in Palestinians with increased ratio of 24% and 40% [9,10,11,12] directly and indirectly affecting diabetes complications and poorer subjective valuation of quality of life [10, 13,14,15], poorer physical functioning that affects compliance for treatment [16] affecting all aspects of quality of life [17] with intense severity of emotional distress [18, 19]. In Pakistan, prevalence of depression in adults with diabetes falls in 44% [20] while in India 38.8% population with diabetes had depressive symptoms ranged from 25%, 12.5%, and 1.3% with mild, moderate and severe depression respectively. On the basis of previous researches following hypothesis was formulated:

Depression will predict quality of life among patients with diabetes.

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## METHOD

### Participants

A purposive sample of 96 adults with diabetes type II diagnosed by the physicians (48 male and 48 females) with age ranges between 25 to 75 (mean age = 41.2, SD = 12.3) were taken from different hospitals of Karachi. They belonged to different socioeconomic status with minimum level of education of 5<sup>th</sup> grade. Their minimum duration of disease was 1 year and they had never gone through any psychological treatment for it. Only hypertension was considered as comorbid medical condition and other serious chronic illnesses i.e.; cancer, HIV-AIDS, and myocardial infarction etc. were excluded from the study.

### MATERIAL

#### Demographic Data Sheet

A self-developed demographic sheet was used to take information regarding age, gender, marital status, level of education, job status, family status, residence, type of disease, duration of disease, duration of treatment, comorbidity of any other physical illness, any psychological pressure or tension due to diabetes, any psychological treatment for tension or stress etc.

#### WHO Quality of Life Brief (WHO-QOL BREF) Urdu Version [21]

Quality of life was assessed with the help of WHO-QOL BREF scale consists of 26 items. It has four domains, i.e.; satisfaction with physical functioning, psychological dimension, social dimension and satisfaction with the environment. Higher score represents high quality of life while lower score depicts low quality of life. It is a consistent and legal version to measure the QOL of Pakistani population with Cronbach alpha coefficient .88. The author found satisfactory reliability for all the four domains with Cronbach alpha coefficient is .81 for physical domain, .77 for psychological domain, .42 (low reliability, perhaps due to three items only) for social domain; and .75 for environmental domain.

#### Siddique Shah Depression Scale [22]

It is a self-report measure, which consists of thirty-six items, 12 items for each mild and moderate depression and severe depression for clinical and normal sadness. It is a four point rating scale. The scale is arranged in 4-point response options ranging

from 0 (never) to 3 (every time). The highest score on the scale indicates the presence of the symptoms of depression. It concurs well with other measures of depression and is significantly reliable and internally consistent. The participants were asked to read all statements carefully and point out the statement applied to them.

### Procedure

To collect data, the entire diabetic sample of 96 adults with diabetes was selected from Department of Medicine, Jinnah Postgraduate Medical Centre, Karachi, and Department of Diabetes, PNS Shifa Hospital, Karachi. After getting the permission from the authorities, participants were approached. They were assured of confidentiality and right to withdraw from study at any stage. After establishing rapport they were required to fill in the informed consent form and different scales such as WHO Quality of life BREF-Urdu Version and Salma Siddiqui Depression Scale were administered. Then scoring was done according to the scoring procedure of all these scales. Further for statistical analysis, descriptive statistics and linear regression were undertaken through Statistical Packages of Social Sciences. At the end of study, acknowledgement was given to the participant for their precious time, authorities of different hospitals of Karachi for their support and authors of the scales who gave permission to use the instruments.

## RESULTS

To examine relationship of depression and quality of life among adults with diabetes. Descriptive statistics and Linear Regression were used through Statistical Package for Social Sciences.

Table is showing the demographic characteristics of the whole diabetic sample including gender, age, marital status, family status, socioeconomic status and level of education.

Table below depicts the ratio that is 38.8%, 27.6%, 10.2% and 21.4% for normal, mild, moderate and severe level of depression respectively in adults with diabetes.

Table shows duration of diabetes high ratio of population is 32.3% is engulfed by diabetes since 6-10 years back, 30.2% population is having since 1-5 years, 15.6% since 11-15 years, 18.8% is suffering since 16-20 years, 1.0% since 21-25 years and 2.1% since 26-30 years.

**Table 1: Summary of Socio-Demographic Characteristics of Diabetic Sample**

Variables	Category	Frequency	Percent
Gender	Male	48	50.0
	Female	48	50.0
Education	Primary-Inter	77	80.2
	>Graduate	5	5.2
	Graduate	14	14.6
Marital Status	Unmarried	11	11.5
	Married	85	88.5
Socioeconomic status	14,000-30,000	34	35.4
	30,000-50,000	42	43.8
	>50,000	20	20.8
Age	25-35	10	10.4
	36-45	20	20.8
	44-55	42	43.8
	56-65	21	21.9
	66-75	3	3.1

**Table 2: Summary of Percentages of Level of Depression (Raw Scores) in Adults with Diabetes**

Ranges of Depression	Frequency	Percent
Normal Depression	38	38.8
Mild Depression	27	27.6
Moderate Depression	10	10.2
Severe Depression	21	21.4

**Table 3: Summary of Percentages of Duration of Disease among Adults with Diabetes**

Variables	Category	Frequency	Percent
Duration of Disease	1-5 years	29	30.2
	6-10 years	31	32.3
	11-15 years	15	15.6
	16-20 years	18	18.8
	21-25 years	1	1.0
	26-30 years	2	2.1

Table shows ratio of duration of treatment of diabetes that shows different results than initiation of this disease in the current sample. According to the below table 42.7% of population is taking treatment since 1-5 years back, 24.0% since 6-10 years, 16.7% since 11-15 years, 13.5% since 16-20 years, 2.1% since 21-25 years and 1.0% since 26-30 years.

Linear regression analysis depicts significant moderate relationship on the variable of depression and quality of life ( $R^2 = .401$ ,  $p < .000^{***}$ ) and analysis further reveals that depression contributes 40% variance in quality of life among patients.

An analysis of unstandardized and standardized beta coefficient for the total diabetic population leads to

**Table 4: Summary of Percentages of Duration of Treatment among Adults with Diabetes**

Variable	Category	Frequency	Percentage
Duration of Treatment	1-5 years	41	42.7
	6-10 years	23	24.0
	11-15 years	16	16.7
	16-20 years	13	13.5
	21-25 years	2	2.1
	26-30 years	1	1.0

**Table 5: Summary of Linear Regression Analysis on the Variables of Depression and Quality of Life among Adults with Diabetes**

Predictor	R	R <sup>2</sup>	F	Sig	Durbin Watson
Depression	.633	.401	62.877	.000	1.77

**Table 6: Summary of Coefficient Correlation Analysis on the Variables of Depression and Quality of Life among Adults with Diabetes**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig
	B	St.E	B		
Constant	382.11	11.62		-32.94	
Depression	-2.453	.309	-.633	-7.93	.000*

the conclusion that a unit change in predictor variable of depression has a large effect on criterion variable of quality of life. There is a statistically moderate negative relationship ( $p < .000^{***}$ ).

## DISCUSSION

The overall findings of this study have shown that there was moderate negative relationship between depression and quality of life ( $p < .000$ ) as mentioned in Tables 5 and 6 and further analysis shows that depression contributes 40% variance in quality of life among diabetic patients.

Others contributing factors side by side depression in developing country like Pakistan are: economic burden, lack of education, lack of awareness regarding treatment and the problem, and facility of medicines in people with lower and middle socioeconomic status [23]. These factors play a vital role in developing stress, depression and ultimately poor health life style. Diabetic patients face great trials in many dimensions of quality of life as validated in another findings indicated by [17] that patients with diabetes mellitus

have significant impairment in all aspects of quality of life, not simply physical functioning and it had put a considerable burden on the affected individuals by influencing physical, psychological and social aspects of QOL.

During the clinical practice and initial interview before collecting data it was observed why people are not following the medical regimens? Majority of the population of data disclosed about side effects of medicines as some of them reported "if they take medicines for diabetes it would cause some kidney problem" this thought is depicting fear of taking medicines that creates hindrance in compliance for treatment and this approach generally exists in our culture. However, some of them very passively wished for death as they consider this disease as a curse of God as they reported "they feel themselves helpless" other felt" as their life is going to be end". They lose interest from life, develop self-pity, hopelessness and helplessness frame of thinking. According to Beck's theory of depression these type of errors in thinking are categorized as labeling and mislabeling, minimization or magnification and overgeneralization [24].

In our findings ratio of depression varies; as 38.8% diabetic adults were in the range of normal sadness, while 27.6% were with mild level of depression, 10.2% were with moderate level of depression, and 21.4% were living with severe level of depression carrying diabetes (see Table 2). Ratio of onset of diabetes is different from its treatment and this fluctuation has significance regarding the attitude as well as importance for management of this chronic disease in current population. As in Table 3 it is indicated that 32.3% population is with high ratio of suffering from diabetes since 6 to 10 years back and least ratio exist between 21-25 years that is 1.0%, similarly high ratio of taking treatment from the current diabetic sample falls as shown in (Table 4) high ratio 42.7% of them is taking treatment since 1-5 years back and least ratio is 1.0% since 26-30 years. This diverse representation might be the influenced by other factors such as unaffordability of medicines, lack of education, lack of awareness, marital status and age etc. For instance [25] explored 74.11% of adults with and without diabetes were unaware of the prolonged effects of diabetes and its impediment. And lower level of education has been considered as a major drain of diabetes with ratio of 17.2% in men and 20.1% of the burden in women by considering all age groups. Findings further revealed that in elderly with lower educational levels burden of diabetes is 22.5% to 24.5% in men and 27.8% to 32.6% in elderly women [26]. And low income level and growing age increased rate of mortality among people with type II diabetes [27].

Findings of the current study (Tables 5 and 6) were also supported by the findings of [18] that shows the more severe the emotional distress, the worse quality of life were found in every domain so emotional distress was the most important instructive factor of quality of life. They further suggested that there is a great need for health professionals to evaluate emotional distress of diabetic patients in the early stage by providing emotional support and consultation and apply empowerment strategy to promote their quality of life.

## CONCLUSION

It is concluded in our study that psychological problem like depression is directly associated with quality of life of people with diabetes. There is an immense need for mental and medical health services to alleviate hopelessness, and helplessness (prominent symptoms of depression) in managing this disease and improve quality of life in a more positive way.

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