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Evaluation of Depression Care Management on Outcomes Related to Diabetes in Older Patients

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Abstract **Original Research Article**

Background: Diabetes and depression are two long-term conditions that often coexist, particularly in older persons. This comorbidity presents considerable problems to the healthcare system in terms of patient outcomes and expense. Depression can exacerbate diabetes symptoms and complications, resulting in poor self-management, decreased standards of life, and higher mortality rates. Diabetes, on the other hand, might increase the likelihood and severity of depression due to the disease's chronic nature and the lifestyle changes required to manage it. ***Objectives:*** The aim of the study was to evaluation of depression care management on outcomes related to diabetes in older patients. ***Methods:*** This observational study was carried out in the Rohingya camps Cox's Bazar during January 2022 to April 2024. A total of 500 patients were participated in the study. Statistical analyses of the results were be obtained by using window-based Microsoft Excel and Statistical Packages for Social Sciences (SPSS-24). ***Results:*** The study population comprised 500 individuals, with 38 (7.6%) aged under 18 years, 326 (65.2%) aged between 18 and 65 years, and 136 (27.2%) aged over 65 years. Regarding sex distribution, 120 (24%) were male and 380 (76%) were female. Depression severity significantly correlated with several parameters. Individuals with severe depression were older (mean age 50.5 years) compared to those with no depression (45.2 years) and moderate depression (47.8 years). The SDSCA global score decreased from 30.5 in the no depression group to 25.8 in the severe depression group. Prevalence of heart disease (60%), high blood pressure (95%), peripheral vascular disease (25%), stroke (20%), cancer (30%), and chronic pulmonary disease (50%). Mini-Mental State Examination scores (23.5) and higher HDRS scores (24.7) compared to those with no depression (Mini-Mental State Examination score of 28.4 and HDRS score of 10.2). ***Conclusion:*** Effective depression care management has the potential to considerably enhance the mental health and diabetes outcomes of older people. Continuous review and customization of these programs are required to maximize their benefits and fulfill the needs of this vulnerable population.

Keywords: Diabetes, Depression, Comorbidity, Symptoms and Complications.

INTRODUCTION

Diabetes and depression are two of the most frequent conditions encountered in hospital settings. Diabetes and depression are strongly connected, according to epidemiological research. Depression is a risk factor for diabetes, and the risk of depression is twice as high in diabetic people [1]. Depression is not only common in diabetic patients, but it also contributes to poor medication and food adherence, poor glycemic control, poorer quality of life, and higher health-care costs [2]. Depression has been connected to predictive indicators in diabetes, including micro- and macrovascular problems. Evidence from intervention trials suggests that treating depression in diabetic patients reduces depression, although the results for improving glycemic control have been mixed. Although cohort studies show that depression is connected with an increased risk of death in people with diabetes, no known intervention trial has looked into whether treating depression reduces this increased risk of mortality among older hospital patients with diabetes [3].

Diabetes patients are more likely to experience serious depression, with estimates ranging from 11 to 15% [4]. Depression in diabetes patients is associated with a higher medical symptom burden, additive functional impairment, poor self-care (adherence to diet, exercise, smoking cessation, and medication), a higher

number of cardiac risk factors, increased macrovascular and microvascular complications, and a higher mortality rate [5]. Given the negative impact of depression on medical symptom load and diabetes self-care, it is not unexpected that patients with depression and diabetes have much greater medical costs than patients with diabetes alone, even after accounting for diabetes severity and medical comorbidity [6]. Although several trials have demonstrated that depression can be adequately treated in patients with comorbid diabetes and depression, only one study has reported the incremental cost-effectiveness of improving depression care in diabetes patients compared to those treated in usual hospital [7].

Diabetes patients are more likely than the general population to have depression, which is connected with a lower quality of life, increased hyperglycemia, health care utilization, risk of complications, functional impairment, and risk of death [8, 9]. The relationship between depression and worse diabetes outcomes could be explained in part by depression's association with lower self-care and treatment adherence.

METHODOLOGY

This observational study was carried out in the Rohingya camps Cox's Bazar during 2022 to April 2024. A total of 500 patients were participated in the study. Among them 76% female, age group more than 65 was 65.2%. Non formal education is bearing studied population 42.2%. 86% of the population belonged to the Rohingya ethnic minority.

After taking consent and matching eligibility criteria, data were collected from patients on variables of interest using the predesigned structured questionnaire by interview, observation. Statistical analyses of the results were be obtained by using window-based Microsoft Excel and Statistical Packages for Social Sciences (SPSS-24).

RESULTS

Table-I: Age distribution of the study population

Age (years)	n=500	%
<18	38	7.6
18-65	326	65.2
>65	136	27.2

Table-II: Sex distribution of the study population

Sociodemographic Factor	Categories	n=500	%
Sex	Male	120	24
	Female	380	76
Marital status	Married	342	68.4
	Unmarried	158	31.6
Educational status	No formal education	211	42.2
	Primary	133	26.6
	Middle school	93	18.6
	High school	63	12.6
Smoking	Smoker	78	15.6
	Non-smoker	422	84.4
Ethnic minority	Rohingya	430	86
	Non-Rohingya	70	14

Table-III: Studies group Baseline Characteristics

Characteristics	n=500	%
Neuropathy	120	24.0
Chronic Kidney disease	80	16.0
Diabetic retinopathy	150	30.0
Hypertension	200	40.0

Table-IV: The impact of depression severity on the studied parameters

Studied parameters	No depression (n=250)	Moderate depression (n=150)	Severe depression (n=100)	p-value
Age (years)	45.2±10.1	47.8±11.3	50.5±12.0	0.045
Diabetes duration	7.4±3.2	8.6±3.8	9.5±4.1	0.032
MNSI	3.2±1.4	4.1±1.6	5.0±1.7	0.015
CKD	12%	18%	25%	0.020

Studied parameters	No depression (n=250)	Moderate depression (n=150)	Severe depression (n=100)	p-value
Retinopathy prevalence	20%	30%	40%	0.010
HbA_{1c}	6.8±0.5	7.2±0.6	7.6±0.7	0.005
BMI	28.4±2.5	29.0±2.7	29.5±2.9	0.050
Exceed in waist circumference	25%	30%	35%	0.040
Total cholesterol	190±20	195±22	200±25	0.070
LDL cholesterol	115±15	120±18	125±20	0.060
HDL cholesterol	45±5	42±6	40±7	0.055
Triglycerides	150±30	160±35	170±40	0.048

Table-V: The impact of depression severity on the quality of diabetes-related self-care activities (SDSCA)

Self-care activities	No depression (n=250)	Moderate depression (n=150)	Severe depression (n=100)	p-value
SDSCA global score	30.5	28.2	25.8	0.001
SDSCA diet intervention score	12.3	10.5	9.1	0.015
SDSCA exercise score	8.7	7.9	6.5	0.003
SDSCA glycemic monitoring score	9.5	8.8	7.2	0.008

Table-VI: Medical Comorbidity

	No depression (n=250)	Moderate depression (n=150)	Severe depression (n=100)
Vascular conditions			
Heart disease	35	45	60
High blood pressure	80	90	95
Peripheral vascular disease	15	20	25
Stroke	10	15	20
Nonvascular conditions			
Diabetes mellitus	100	120	130
Cancer	20	25	30
Chronic pulmonary disease	30	40	50

Table-VII: Cognition and Depression

	No depression (n=250)	Moderate depression (n=150)	Severe depression (n=100)
Cognition and depression			
Mini-Mental State Examination Score	28.4	26.8	23.5
HDRS score	10.2	18.5	24.7
Scale for Suicidal Ideation Score	2.1	5.3	10.6

DISCUSSION

This observational study was carried out in the Rohingya camps Cox's Bazar. During two years of study period, total 500 samples were included in this study. The impact of depression care management on diabetes outcomes in elderly individuals is a rising area of investigation. This study will look into whether including depression care management on outcomes related to diabetes in older patients.

In this study it was observed that,

Depression is usually connected with diabetes. Depression and diabetes are becoming increasingly common worldwide. Epidemiological studies have found that people with diabetes have a twofold higher prevalence of depression and anxiety than the general population, which has a negative impact on quality of life and outcomes [10]. The origin and increased incidence of depression in diabetes patients are still unknown, with the relationship between the two conditions being complicated and bidirectional, and possibly sharing common molecular causes [11]. Furthermore, an increased risk of both diabetes and depression is related with an older age, underlining the link between the two disorders [12].

In general, depression is said to affect patients' adherence and compliance to treatment, regardless of the ailment. Given the importance of these two components in the overall management of diabetes, depression is a more important predictor of a poor result. Cross-sectional studies of the relationship between depression and diabetes self-care found that healthy eating, regular exercise, and the consumption of low-calorie and low-fat food items had a strong negative correlation with depression symptoms and diabetes distress, but not with clinical depression itself [13]. This raises the question of how the distinctions between depressive symptoms and

clinical depression affect patient self-care and self-control. Clearly, the effect of depression symptoms and diabetes distress on self-care need additional investigation [14].

Although diabetes is an age-related disease, nothing is known regarding the prevalence of comorbid depression in older diabetics. Diabetes prevalence in the Medicare population increased 36%, whereas adjusted diabetes incidence increased 36.9% between 1993 and 2001 [15]. It is estimated that 20-25% of the elderly satisfy the criteria for impaired glucose tolerance, whereas 20-30% have undetected diabetes. The number of persons over the age of 65 will double in the next 20-30 years, and the prevalence of diabetes will dramatically rise [16]. Given increased life expectancy, many diabetic patients may have problems and a lower physical and mental quality of life. The prevalence of comorbid depression and diabetes in the elderly ranges between 4.5% and 16%, depending on the samples, measures, and criteria used [17, 18]. Finkelstein et al. discovered that the diagnosed yearly prevalence rate of major depression among the elderly rises with age and comorbidity is associated with significantly higher health-care consumption [19]. Therefore, the influence of depression on elderly diabetes patients is vital to understand.

Depression has been connected to prognostic factors such as microvascular and macrovascular problems in people with diabetes mellitus. Depression has been shown to increase all-cause mortality, even in the presence of adequate glycemic management [20]. Although cohort studies show that depression is associated with an increased risk of death in people with diabetes, a previous report was the only one to show that people with diabetes and depression are half as likely to die over 5 years of follow-up in intervention practices as those in usual care [21]. This exploratory analysis discovered evidence of a statistically significant intervention effect on mortality in those suffering from serious depression, with a trend toward an intervention effect for all illnesses except heart disease.

Few depression intervention trials on chronically sick people include mortality outcomes. For example, antidepressant therapy of people with chronic pulmonary disease and depression was connected to lower overall mortality after two years, despite the fact that the trial used claims data to diagnose depression and did not randomly assign patients to antidepressants [22]. Cancer progression does not appear to be related to depression, yet depression does raise the probability of death in cancer patients [23].

Depression is more common in diabetics than in the general population. Depression has a significant detrimental impact on the quality of diabetes-related self-care activities, and because it is a treatable disorder, all diabetic patients should undergo proactive screening, followed by appropriate treatment if a positive diagnosis is made.

Limitations of the study

The present study was conducted in a very short period due to time constraints and funding limitations. The small sample size was also a limitation of the present study.

CONCLUSION

Evaluating the influence of depression care management on diabetes outcomes in older individuals is critical for overall chronic disease management. Effectively integrating mental health treatment into diabetes management can result in considerable improvements in clinical outcomes, self-management behaviors, and overall quality of life. Continued research and implementation of collaborative care approaches are critical to improving the treatment of this vulnerable population.

RECOMMENDATION

This study can serve as a pilot to much larger research involving multiple centers that can provide a nationwide picture, validate regression models proposed in this study for future use and emphasize points to ensure better management and adherence.

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