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## **Abstract Suicide Risk in Patients with Type II Diabetes**

**Title:** Suicide Risk in Diabetic Patients

**Authors:** Ruthzaine Lopez, MD<sup>1</sup>; Michael Machiorlatti<sup>2</sup>

1 UTRGV School of Medicine, (Psychiatry department)

2 UTRGV School of Medicine, Department of Population Health and Biostatistics

### **Intro:**

The comorbidity of mental and physical disorders represents a major challenge for health care worldwide. The comorbidity of depression and diabetes can be seen as a prototypical example of mental/physical comorbidity. The prevalence of both conditions is growing, with depression twice as frequent in people with diabetes compared with those without diabetes. [1] The prevalence of depressive disorders in diabetics is the general range of 10% to 15%, which is approximately twice as high as the prevalence of depression in non-diabetics. [1] For instance, diabetic patients, and during the course of the disease, are most likely to experience depressive symptoms that might ultimately lead to suicidal ideation or suicide.[2] Insulin therapy, DM of long duration, and unsatisfactory glycemic control were identified as risk factors for SI in Type 1 (T1DM) and Type 2 (T2DM). [3] Among others, suicide risk includes also gender, developmental, and substance abuse determinants. [3] A meta-analysis done by Anderson RJ et al., (2001) indicated that on average 27% of women with diabetes developed depressive disorders, which was roughly one-third higher than for men with diabetes, of whom 18% developed depression. The higher rates for women was partially due to women experiencing more negative life events, significant hormonal changes during the perinatal period. Migration is also associated with higher rates of depression, higher rates of diabetes, and higher rates of comorbidity of depression and diabetes in migrants.[1]

Freeman et al. (2017), showed a significant association between suicide intent and gender where 'Serious Suicide Attempts' (SSA) were rated significantly more frequently in males than females. Economic crises resulting in unemployment and decreased personal income have been correlated with increases in suicide, particularly in males. [4, 5] Other factors include: Living alone, high introversion, traumatic events in adulthood, interpersonal stressors, loss/bereavement, extreme hopelessness, helplessness and worthlessness, or defeat and entrapment, which may result from depressive psychopathology. [4]

Continuing with prior studies examining depression and comorbid conditions, the aim of this study is to explore the association of suicidality and contributing risk factors in patients with uncontrolled type II diabetes in a sample from the Rio Grande Valley, represented mostly by Mexican-Americans and Hispanics.

**Methods:** The Salud y Vida program is one based in Cameron County focused on assisting patients with type 2 diabetes. The Salud y Vida program holds as its vision that underserved participants with type 2 diabetes mellitus will achieve improved self-management and health following participation in the Chronic Care Management Program. Using a sample of 501 participants from the SYV cohort, chi-square analysis and logistic regression was performed to explore the association between the risk factors and suicidality. Significance was determined using a p-value of 0.05 along with a clinically relevant finding. Suicidality was assessed using the PHQ-9 (Patient Health Questionnaire-9). As no non-diabetic patients were involved with the program, years of living with diabetes was categorized in quartiles, with Q1 serving as the reference group. The distribution of diabetes years for all included patients was Q1 10-34 yrs.; Q2 35-40 yrs.; Q3 41-48 yrs.; Q4 49 -65 yrs.

**Results:** The average age of patients was 50.6 years with a range of 20 to 75. Roughly 70% of patients were between 40 and 59. Females made up 371 (74.1%) of the patients, with 92% (n=458) of all patients self-reporting as Hispanic. About 92% of patients were classified as overweight (n=142; 28.9%) or obese (n=307; 62.5%). The majority of patients also reported a monthly income \$4000 or less (n=422; 87.7%). Before adjustment age, BMI, depression within the last 2 weeks and years of diabetes were associated with suicidal ideation. After adjustment, an interaction between age and diabetes years was found. For males, those in Q2 for diabetes years had 6.8 times the odds of suicidal ideation (OR = 6.8, 95% CI 1.26 – 36.7, p = 0.0260), with no difference for Q3 and Q4. For females however, the opposite trend was found with those in Q4 having a reduction of 63% of suicidal ideation relative to those in Q1 (OR = 0.37, 95% CI 0.13 – 1.04; p = 0.0587). Both M and F displayed a similar result with depression and suicidality with those reporting more depression having higher odds of suicidal ideation. Females also displayed a slight age affect with women 50 to 59 having 2.74 times the odds of suicidal ideation relative to those 60+ (p = 0.0428).

**Discussion:** Our study is consistent with prior findings with depression being strongly linked to suicidal ideation. Consistent with previous research of Gomez-Peralta et al., we also found that age and years of diabetes was also influential with suicidal ideation. Gomez-Peralta et al. a high prevalence of suicidal behavior in patients with type 2 diabetes that were younger, had depression and normal BMI were found to be risk factors of suicide attempt in these patients. However, our study found that there was a difference with how M and F responded with only one age grouping in women displaying higher odds of suicidality (50 to 59) when comparing age groups. We also found that yrs. of diabetes was associated with greater odds of suicidal ideation for males, while the effect is reversed in females. Our study is limited in that non-diabetic patients were not included and females are over represented.

**Conclusion:** Our study supports that M and F with diabetes display patterns with suicidal ideation consistent by age and depression. However, we found that the number of years of being diabetic attenuated suicidality for females, while seemed to exacerbate the condition in females.

Future direction should explore this topic in a larger and potentially more diverse group demographically to explore if this finding persists.

Resources:

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