The Relationship between Suicidal Behavior and Cancer History

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Introduction

- Suicide is the 11th leading cause of death in the US and the second leading cause of death for people ages 10-34. (NIMH, 2026) Global lifetime rates for suicidal ideation is 9.2% (Klonsky et al., 2026).
- Current literature suggests rates of suicide and suicidal ideation is even higher for those diagnosed with cancer, especially within the first year of diagnosis (Abdel-Rahman et al., 2020).
- This association appears to be stronger in patients who are socioeconomically vulnerable, without social support, in high amounts of pain, or in patients with less favorable prognosis. Multiple studies show that patients who are older (60+) are more vulnerable to this relationship (Kinslow et al., 2024) (Kolva et al., 2020).
- Whether being a cancer survivor increases the risk of suicidal behavior is less clear, with one study finding that cancer survivors 4 years out have no greater risk. (Hwang et al., 2022) However, others suggested that young adult cancer survivors have an increased risk of suicidal ideation and death by suicide compared to final populations (Giberson et al., 2021) (Yang et al., 2021).This relationship increases when the young adult cancer survivor is white, unmarried or who had metastatic cancer (McGrady et al., 2024).

Methods

Sample

- Sample included 56,938 participants aged 12 and older who completed the National Survey on Drug Use and Health from the year 2024. Participants were selected through randomized housing addresses.

Measures

- **Cancer History** was self reported as either no history of diagnosis, current cancer diagnosis within the last 12 months, or a past cancer diagnosis.
- **Suicidal Behavior** is a dichotomous variable with yes suicidal behavior encompassing suicidal ideation, suicide plans and suicide attempts.
- **Age** was categorized into bins by the study representing different age groups
- **Sex** is a dichotomous variable, coded as male/female
- **Marital Status** is sorted into the following groups: Married, Widowed, Divorced, Never Married
- **Insurance** is a binary response variable indicating if someone has any type of health insurance

Research Questions

1. How do the prevalence rates of suicidal ideation and behavior differ among the general population, individuals currently diagnosed with cancer, and cancer survivors?
2. How do patients' age, sex, marital status and insurance status control this relationship?

Results

Univariate

- A total of 8.57% of the population reported some form of suicidal behavior or ideation.

Bivariate

- Logistic regression showed that the predicted probabilities for suicidal behavior was significantly lower for those with a current cancer diagnosis and cancer survivors compared to people who have never had it. This suggests that cancer acts as a protective factor against suicidal behavior.
- Current cancer patients have 36% lower odds of suicidal behavior than those without cancer. Cancer survivors had 43% lower odds. See Figure 1.

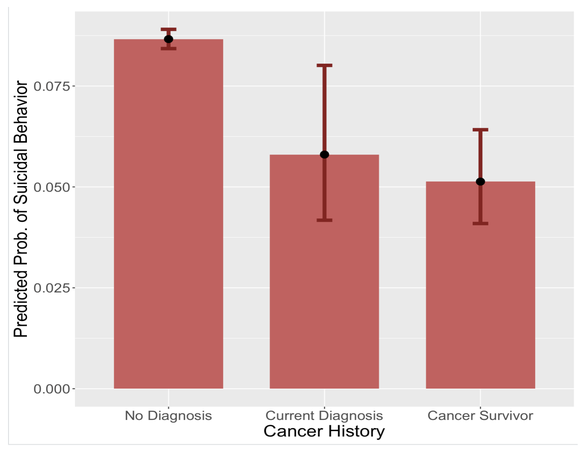

Figure 1. *Predicted Probabilities of Suicidal Behavior based on Cancer History through Bivariate Logistic Regression*

Multivariate

- When accounting for age, this relationship reverses. Both a current cancer diagnosis and having had cancer are significant risk factor for suicidal behavior. Increasing age acts as a protective factor with $p < 0.001$. See Figure 2.
- Insurance acts as a moderator with a significant interaction. When holding age, sex and marital status constant, a cancer patient with insurance has 1.4 times the odds of suicidal behavior compared to a healthy uninsured person. Without insurance, a cancer patient has 35.3 times the odds of suicidal behavior compared to a healthy uninsured person. See Figure 3.
- Being widowed, unmarried, divorced, or female all are independent risk factors that increased risk of suicidal behavior.

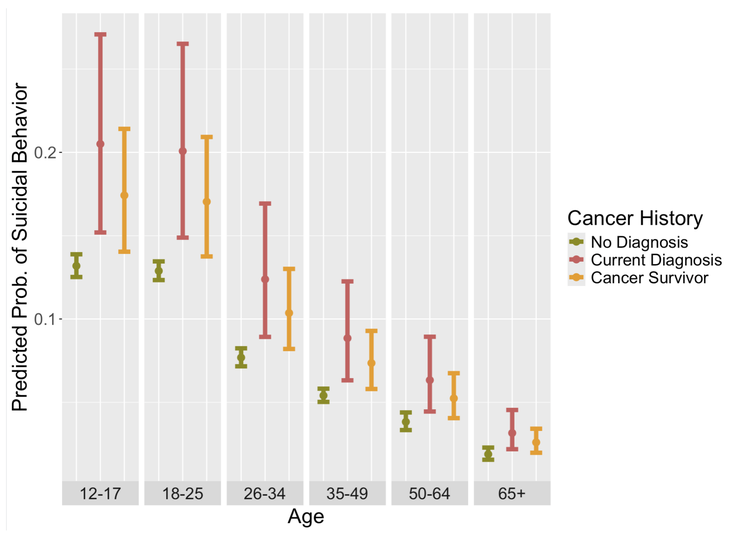

Figure 2. *Logistic Regression Predicted Probabilities of Suicidal Behavior and Cancer Status separated by age group*

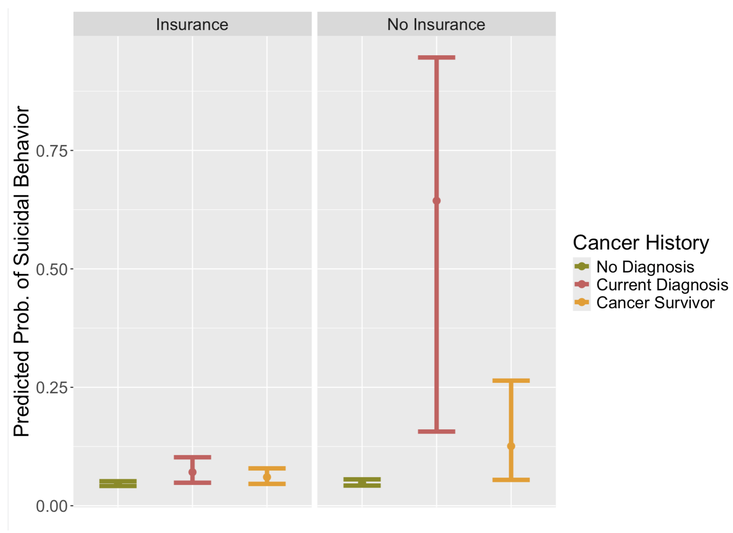

Figure 3. *Regression of Suicidal Behavior Separated by Insurance Status with Age held constant*

Discussion

- The original explanation for the bivariate analysis results was that facing a potential terminal illness increased peoples desire to live, which explained both current cancer diagnosis and past cancer diagnosis as a protective factor for suicidal behavior.
- Cancer was ultimately found to be a risk factor for increased suicidal behavior, which is can be explained by the stress, trauma, pain and financial burden of facing severe and potentially terminal illness. It is important to understand the mental health risks that a cancer diagnosis brings to provide comprehensive care. Since cancer survivors remain at higher risk for suicidal behavior, it is important that this support remains constant, and does not end when a patient is declared cancer free.
- Access to health insurance reduces the odds of suicidal tendencies in cancer patients by over 95%. The large amount of uncertainty in the probability of suicidal behavior for those uninsured can be explained by the smaller sample size (n = 5370, 9.5%).
- Since this sample was was chosen through randomized housing addresses, it does not include those who are homeless or have unstable housing situations, which are also groups much more likely to be uninsured. It also excludes cancer patients too sick to take the survey, and includes a survivorship bias, as it does not account for people who have already successfully taken their own life.

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