Length of stay and re-admissions in community mental health centers in rural American adults with suicidality

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Introduction

Approximately 49,000 people died by suicide in the United States in 2022 (CDC, 2023). Rural communities have higher suicide rates than urban communities (Barnhorst et al., 2021). This disparity may be due to unique risk factors, including lack of access to mental healthcare, stigma, increased substance use, poverty, and access to firearms (George et al., 2021; Kalesan et al., 2020).

Community mental health clinics (CMHCs) play an important role in maintaining the health of rural populations, however, they are frequently the target of budget cuts. Our research group is a community-university partnership that seeks to generate data-driven messaging that rural CMHCs can use in advocacy efforts to policymakers. The purpose of this analysis was to determine if CMHCs are responsive to the needs of people who attempt suicide.

With input from our community partners, we hypothesized that people who reported a suicide attempt would have a longer time in treatment, reflecting a person-centered approach. Secondly, we hypothesized that a person who attempted suicide would have more readmissions, suggesting that a CMHC was able to respond to a reemergence of emotional distress.

An *a priori* sensitivity analysis with 1:1 matching was planned to assess the robustness of findings.

Table 1. Descriptive Characteristics of All Patients Stratified by Suicide Attempts

Characteristic	All patients (n=10627)	Suicide attempts: Yes (n=114)	Suicide attempts: No (n=10513)	P-value*
Age (years)	38.5 ± 18.3	31.8 ± 16.1	38.6 ± 18.3	<0.01
Male	4888 (46%)	53 (47%)	4835 (46%)	0.11
Follow-up time (years)	3.77 ± 3.63	2.79 ±2.69	3.78 ± 3.63	<0.01
Death	76 (0.7%)	1 (0.9%)	75 (0.7%)	<0.01
Readmission counts	0.24 ± 0.60	0.75 ± 1.23	0.24 ± 0.58	<0.01

* P-values were obtained by analysis of variance (ANOVA) for continuous variables and chi-square tests for categorical variables.

Figure 2. Cumulative curves for all patients

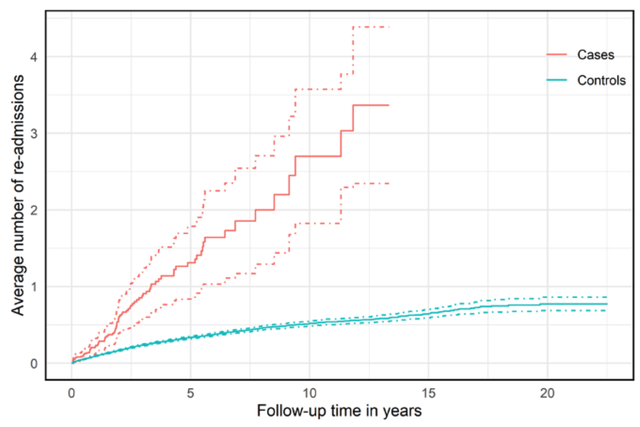
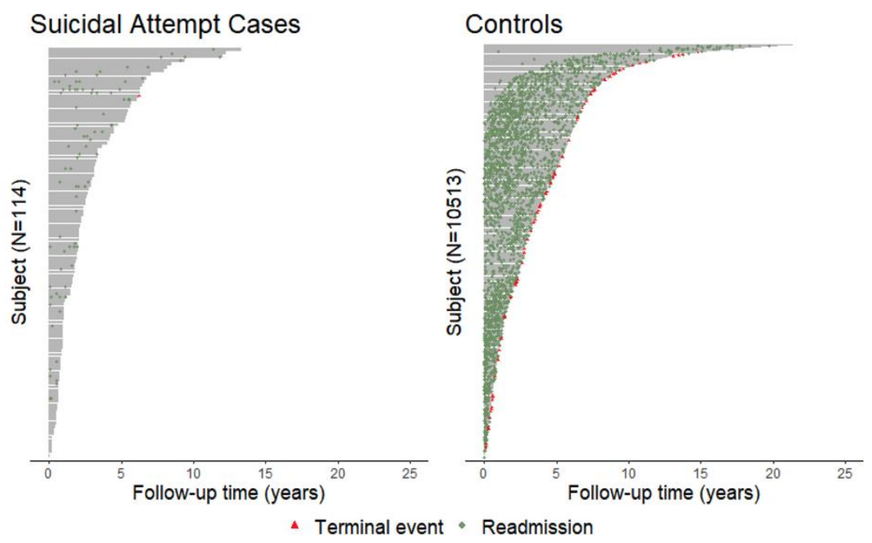


Figure 1. Event plots for all patients



Methods

Electronic health records (EHR) were sourced from two CHMCs from rural counties in the U.S. Data contained baseline demographics, admission and discharge dates, and self-reported suicide attempts. Cox proportional hazards models evaluated the influence of suicide attempts on re-admissions and time in treatment.

A 1:1 matching technique without replacement was implemented to create balanced cohorts for the sensitivity analysis.

Results

Out of 10,627 total clients, 114 (1.07%) had documented suicide attempts. People with a suicide attempt spent 1.5 months longer in treatment (p=.02) and had 3 times as many (p< .01) admissions as those who did not have an attempt.

Conclusions

CMHCs are responsive to people who attempt suicide but there is room for improvement. In an ideal world, findings would be confirmed by a prospective study with robust case matching. However, analyses with EHRs are comparatively quick and far less expensive, permitting policymakers to make data-driven decisions in less time.

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