# Correlation of Psychiatric Diagnoses and Recurrent Emergency Department Visits Following Implementation of Inpatient Street Medicine Consult Service

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# Introduction

- Due to significant barriers in accessing consistent, preventive, and primary healthcare, persons experiencing homelessness (PEHs) oftentimes utilize the emergency department (ED) as a primary source of healthcare
- Homelessness often correlates with mental health diagnoses
- Mental health diagnoses are associated with higher volumes of ED visits
- Preliminary results of studies on Street Medicine show a reduction in ED visits following implementation of the program…

# Research Question

...However, are mental health diagnoses a potential confounding variable?

# Methods

- Retrospective chart review using Epic and Care Everywhere at a Chicagoland Level 1 Tertiary Care hospital of PEHs over 18 years old
- Data collected from March 2022 to May 2025
  - Only included patients who were at least one year post consult (n=91)
- Collected information on:
  - Patient demographics
  - Yearly totals of ED visits
  - Psychiatric diagnosis
    - Anxiety
    - Depression
    - Bipolar Disorder (I or II)
    - Post-Traumatic Stress Disorder
    - Schizophrenia spectrum
    - “Mood” Disorder
    - Suicidal Ideation

# Methods

- Statistical Analysis
  - Association between time period (i.e. pre or post consult) and mental illness was modeled using generalized estimating equations with a negative binomial distribution and log link function
  - Within subject correlation was accounted for using an unstructured correlation matrix
  - Results are shown as incidence rate ratios with a 95% confidence interval
  - All final analyses are two-sided with an $\alpha<0.05$
  - Analyses were conducted via Stata v.19 (StataCorp LLC, College Station, TX)

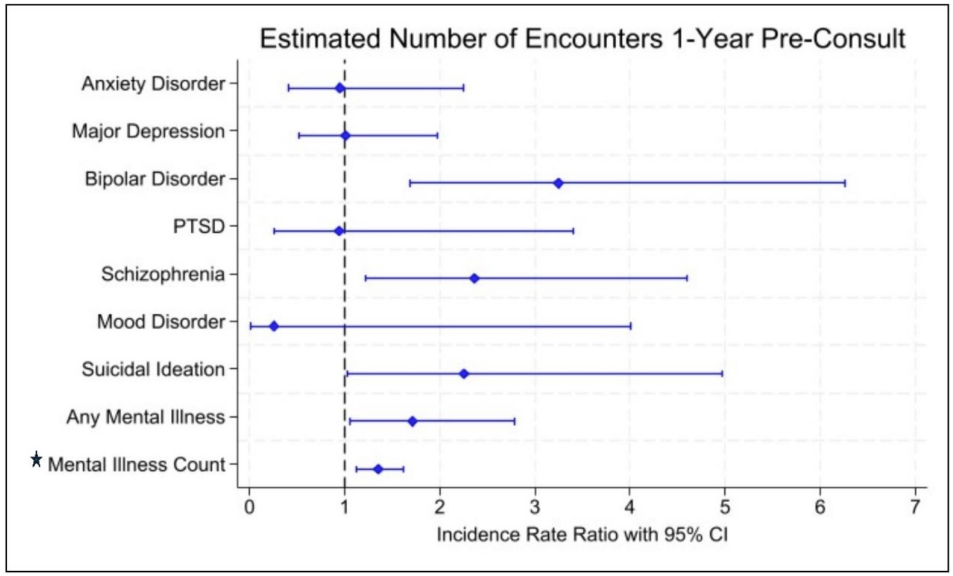
# Patient Demographics

| | | Mean (sd) |
|---|---|---|
| Patient Age (years) | | 49.5 (13.2) |
| Number of Encounters Within 1 year Prior to Initial Consult | | 3.9 (5.5) |
| | | N (%) |
| Sex | Female | 17 (19%) |
| | Male | 74 (81%) |
| Gender | Woman | 13 (14%) |
| | Man | 62 (68%) |
| | Other/Not Listed | 16 (18%) |
| Race | Black/AA | 43 (47%) |
| | Hispanic | 17 (19%) |
| | Multi | 1 ( 1%) |
| | Native HI/PI | 1 ( 1%) |
| | Prefer not to say | 4 ( 4%) |
| | White | 25 (27%) |

# Patient Demographics

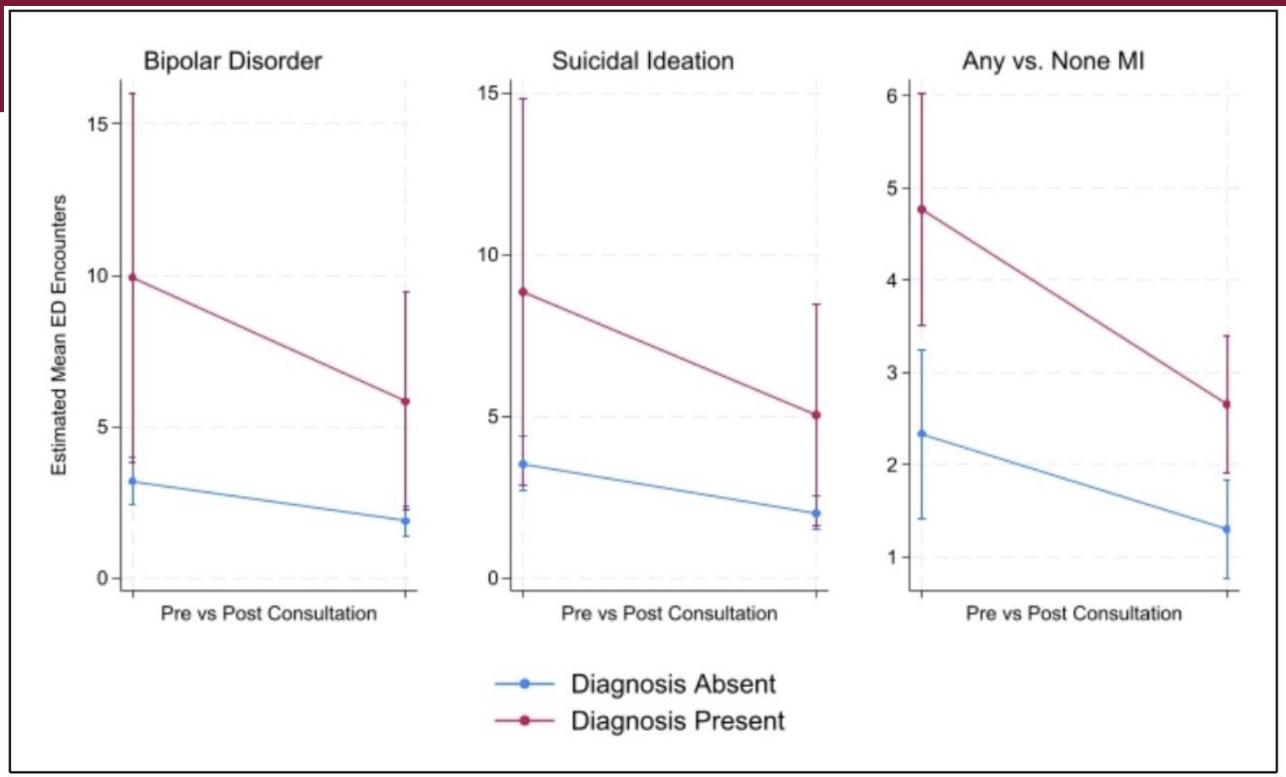
| **Substance Use Disorders** | **N (%)** |
|---|---|
| SUD | 37 (41%) |
| Alc UD | 28 (31%) |
| **Mental Illnesses** | **N (%)** |
| Any Mental Illness | 31 (34%) |
| GAD | 7 ( 8%) |
| MDD | 12 (13%) |
| Bipolar | 9 (10%) |
| PTSD | 3 ( 3%) |
| Schizophrenia | 10 (11%) |
| Mood Disorder | 1 ( 1%) |
| Suicidal Ideation | 7 ( 8%) |

# Pre-Consult Data




| | | |
|---|---|---|
| **Substance Use Disorders** | | |
| SUD *(vs None)* | 1.18 (0.74, 1.87) | 0.490 |
| Alc. UD *(vs None)* | 1.47 (0.91, 2.38) | 0.116 |
| **Mental Illnesses** | | |
| GAD *(vs None)* | 0.95 (0.40, 2.25) | 0.909 |
| MDD *(vs None)* | 1.01 (0.51, 1.98) | 0.982 |
| Bipolar *(vs None)* | 3.25 (1.68, 6.26) | <0.001 |
| PTSD *(vs None)* | 0.94 (0.26, 3.40) | 0.926 |
| Schizophrenia *(vs None)* | 2.36 (1.22, 4.60) | 0.011 |
| Mood Disorder *(vs None)* | 0.25 (0.02, 4.01) | 0.331 |
| Suicidal Ideation *(vs None)* | 2.26 (1.02, 4.97) | 0.044 |
| Any Mental Illness *(vs None)* | 2.35 (1.51, 3.65) | <0.001 |
| Number of Mental Illnesses *(per 1 increase)* | 1.58 (1.22, 2.06) | 0.001 |

# Post-Consult Data & Results




| Covariates | IRR (95% CI) | p-value | IRR (95% CI) | p-value | IRR (95% CI) | p-value |
|---|---|---|---|---|---|---|
| Bipolar *(vs None)* | 3.10 (1.63, 5.92) | 0.001 | | | | |
| Suicidal Ideation *(vs None)* | | | 2.52 (1.26, 5.04) | 0.009 | | |
| Any Mental Illness *(vs None)* | | | | | 2.04 (1.31, 3.18) | 0.002 |
| Post-Consultation *(vs Pre-Consult)* | 0.59 (0.46, 0.75) | <0.001 | 0.57 (0.44, 0.74) | <0.001 | 0.56 (0.43, 0.73) | <0.001 |

# Discussion

- Overall, the street medicine inpatient consult service demonstrates a significant decrease in ED utilizations
- Data show that bipolar disorder and SI display significant influence over ED utilization, while controlling for the effect of time (here defined as pre- versus post-consultation)
- While holding the effect of time constant, patients diagnosed with bipolar disorder or SI display increased ED Utilization in the post-consultation period compared to patients without these diagnoses (IRR: 3.1, $p<0.001$; IRR: 2.5, p:0.009, respectively)
- Recommendations for future research include: expanding the sample size, “measuring” chief complaints of return ED visits, and including a Street Psychiatry implementation for comparison
- Street medicine programs can be an important intervention for PEHs with mental health comorbidities

# Further Reading / References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