# The Effect of TBI on Depression and Psychosis in Individuals Who are Homeless or Precariously Housed

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## Introduction

- Homelessness is a public health concern, with over 235, 000 Canadians experiencing homelessness yearly [5]
- The lifetime prevalence of traumatic brain injuries (TBI) in this population is approximately 4 and 10 times higher than the general population for mild and severe TBI, respectively [6].
- The prevalence of mood and psychotic disorders are also overrepresented in this population [4], and TBI has been associated with the development of both disorders [2,3]
- **OBJECTIVE:** To evaluate whether symptoms of depression and psychosis increase after TBI in individuals who are homeless or precariously housed.

## Methods

**Participants *(n = 170)***

- Participants were from UBC and SFU's longitudinal Hotel Study.
- Community based sample recruited from single-room occupancy hotels in Vancouver's Downtown Eastside, the Downtown Community Court, and St. Paul's hospital
- Assessment of substance abuse and psychiatric diagnosis was collected at baseline [4]
- Participants completed further clinical assessments in monthly visits

**TBI Screening**

- Participants were screened for TBI in monthly visits using the Ohio State University TBI Identification Method Interview Form
- TBI was defined as head trauma causing at least one of: loss of consciousness, post-traumatic amnesia, or feeling dazed/confused

**Beck Depression Inventory (BDI)**

- Self reported questionnaire with 21 items measuring depressive symptom severity [1]
- Rating scale: 0 (not at all) – 3 (extreme)
- Score range: 0 - 63

**Positive and Negative Syndrome Scale (PANSS)**

- Standardized clinical interview rating the severity of psychosis symptoms
- The summed score of 5 key items were used: Delusions, Conceptual Disorganization, Hallucinatory Behaviour, Suspiciousness/Persecution, Unusual Thought Content [4]

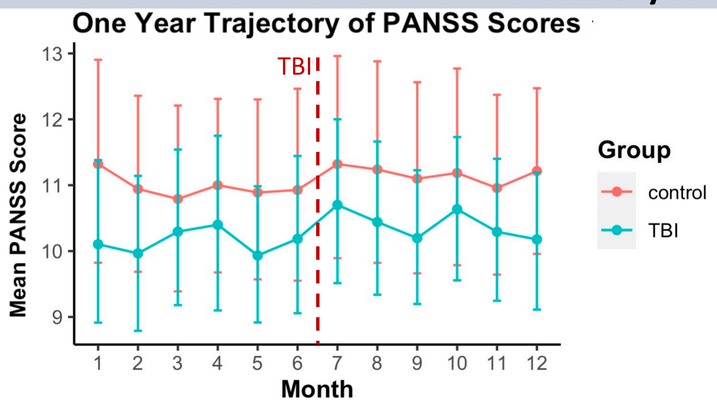
  Item rating scale: 1 (absent) – 7 (extreme)

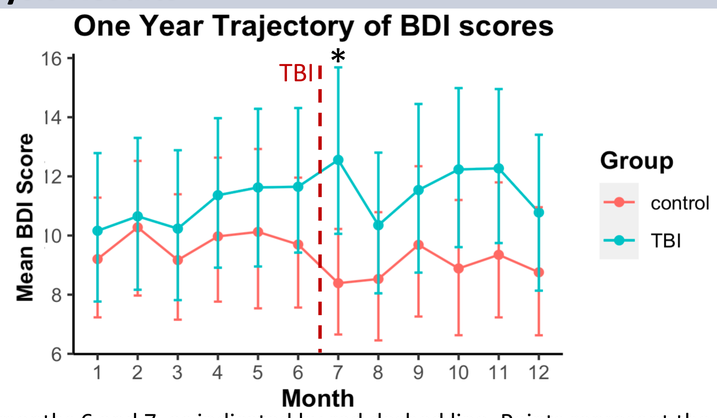
  Score range: 5 – 35

**Statistical Analyses**

- Calculated a change score for the BDI and PANSS as 1 month post injury score – 6 month pre injury avg. score
- Completed a multiple linear regression to predict change scores based on presence of a TBI, tested for interactions with baseline substance abuse and psychiatric diagnosis

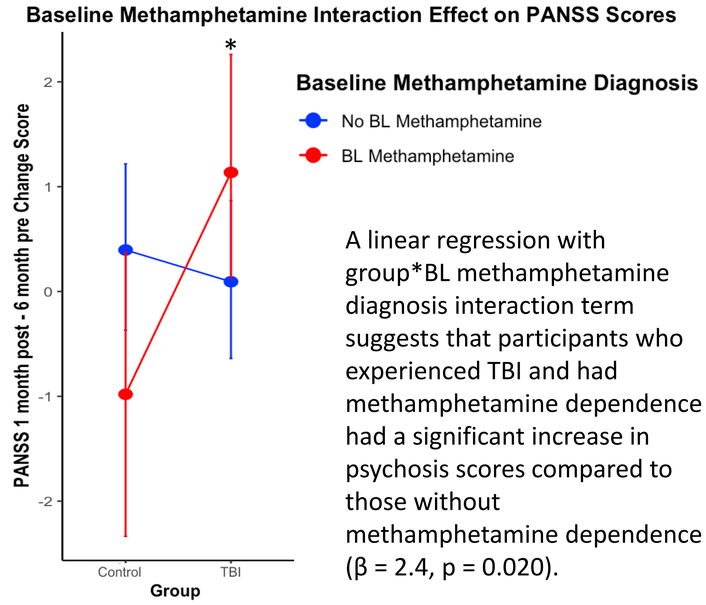
## Primary Analysis Results



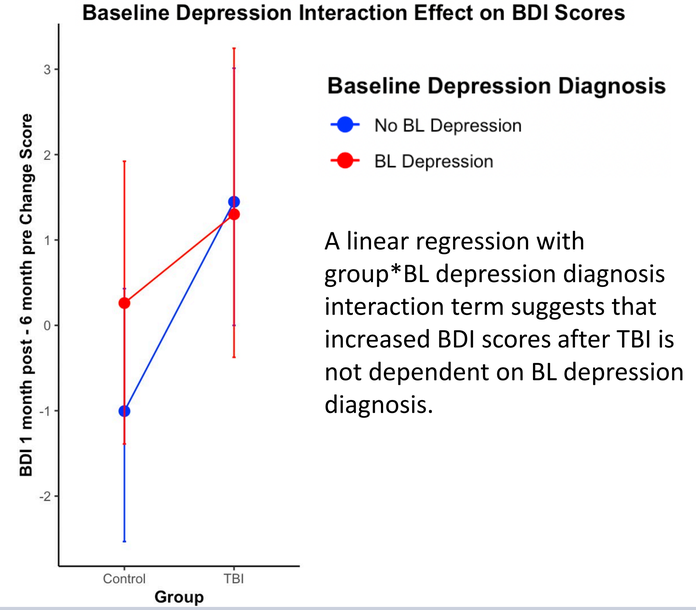




1 year trajectory of PANSS and BDI Scores with TBI occurring between months 6 and 7, as indicated by red dashed line. Points represent the mean scores for each group each month, and vertical lines represent the 95% confidence interval. Participants who experienced a TBI had higher change scores in depression symptoms compared to controls at one month post injury compared to the 6 month pre TBI average ($\beta = 2.3$, $p = 0.018$). There was no overall effect of TBI on psychosis scores.

## Secondary Analysis Results




A linear regression with group*BL methamphetamine diagnosis interaction term suggests that participants who experienced TBI and had methamphetamine dependence had a significant increase in psychosis scores compared to those without methamphetamine dependence ($\beta = 2.4$, $p = 0.020$).




A linear regression with group*BL depression diagnosis interaction term suggests that increased BDI scores after TBI is not dependent on BL depression diagnosis.

## Conclusion

- TBI is associated with an increase in depressive symptoms at one month post injury compared to the 6 month average of pre-injury scores and controls.
- Psychosis overall did not increase after TBI, except in those with baseline methamphetamine use.
- Next, we plan to look at interactions between TBI severity and monthly substance use on symptoms of depression and psychosis in TBI vs. controls.

## References

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