



The Moderation Effect of Mental Health Indicators (MHIs) on the Efficacy of Brief Alcohol Interventions

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Introduction

Brief interventions for curbing alcohol abuse are among the top ranking of preventative services available since the preventable burden of alcohol misuse is comparable to obtaining vaccinations for influenza or screening for hypertension and colorectal cancer (Solberg, Maciosek, & Edwards, 2008). It has been found that acute alcohol use is associated with suicide and that high rates of positive blood alcohol concentrations have been found in those who committed suicide (Hufford, 2001; May et al., 2002). Hien et al. also described a high prevalence of post-traumatic stress disorder (PTSD) among subjects with co-occurring substance abuse (2010). While many studies have examined and determined the effectiveness of brief interventions in medical setting few have explored the effects of PTSD and suicidal tendencies on the efficacy of the interventions. Investigating the efficacy of brief alcohol interventions on patients who exhibit PTSD symptoms or suicidal tendencies is thus crucial, and could serve as a valuable resource to future interventions.

Methods

Purpose

This study aims to detect if a moderation effect of mental health indicators (MHIs) such as PTSD and suicidal tendencies exists on the efficacy of brief interventions aimed at curbing alcohol abuse.

Procedure

- 596 study participants were recruited from three Level 1 trauma centers in the state of Texas: Baylor University Medical Center (Dallas), Methodist (Dallas), and University Medical Center Brackenridge (Austin).
- Patients who sought treatment for intentional injuries, unintentional injuries such as falls, motor vehicle collisions and violence-related injuries such as assaults and weapon-related wounds were eligible to participate in the study.
- 200 patients were randomly assigned to the Brief Advice (BA) group, 203 to the Brief Motivational Intervention (BMI) group, and 200 to the Brief Motivational Intervention with a Telephone Booster (BMI-B) group.
- Telephone follow-ups were conducted by staff blind to the treatment assignments at 3, 6, and 12 months. Field et al. (2014).

Measures

- Drinking outcomes:
 1. Average number of drinks consumed in a week (ADW)
 2. Maximum number of drinks on a drinking occasion (MAX.D)
 3. Percent of days of heavy drinking (PDH)
- PTSD : PTSD was used as a binary variable in the study. 318 patients showed PTSD symptoms in this study.
- Suicidal Tendencies: Four questions were asked to patients which related to their level of suicidal tendencies/ ideations. If they answered no to all questions, they were considered as not having any suicidal tendencies.
 1. Ever thought one was better off dead (n=167)
 2. Ever thought about committing suicide (n=179)
 3. Ever made a suicide plan (n=88)
 4. Ever intentionally hurt oneself (n=92)
- Heavy Drinking (Dawson, Grant, & Li, 2005):
 1. Male: Consuming more than 4 standard drinks in a drinking episode
 2. Female: Consuming more than 3 standard drinks in a drinking episode.

Analytic Approach

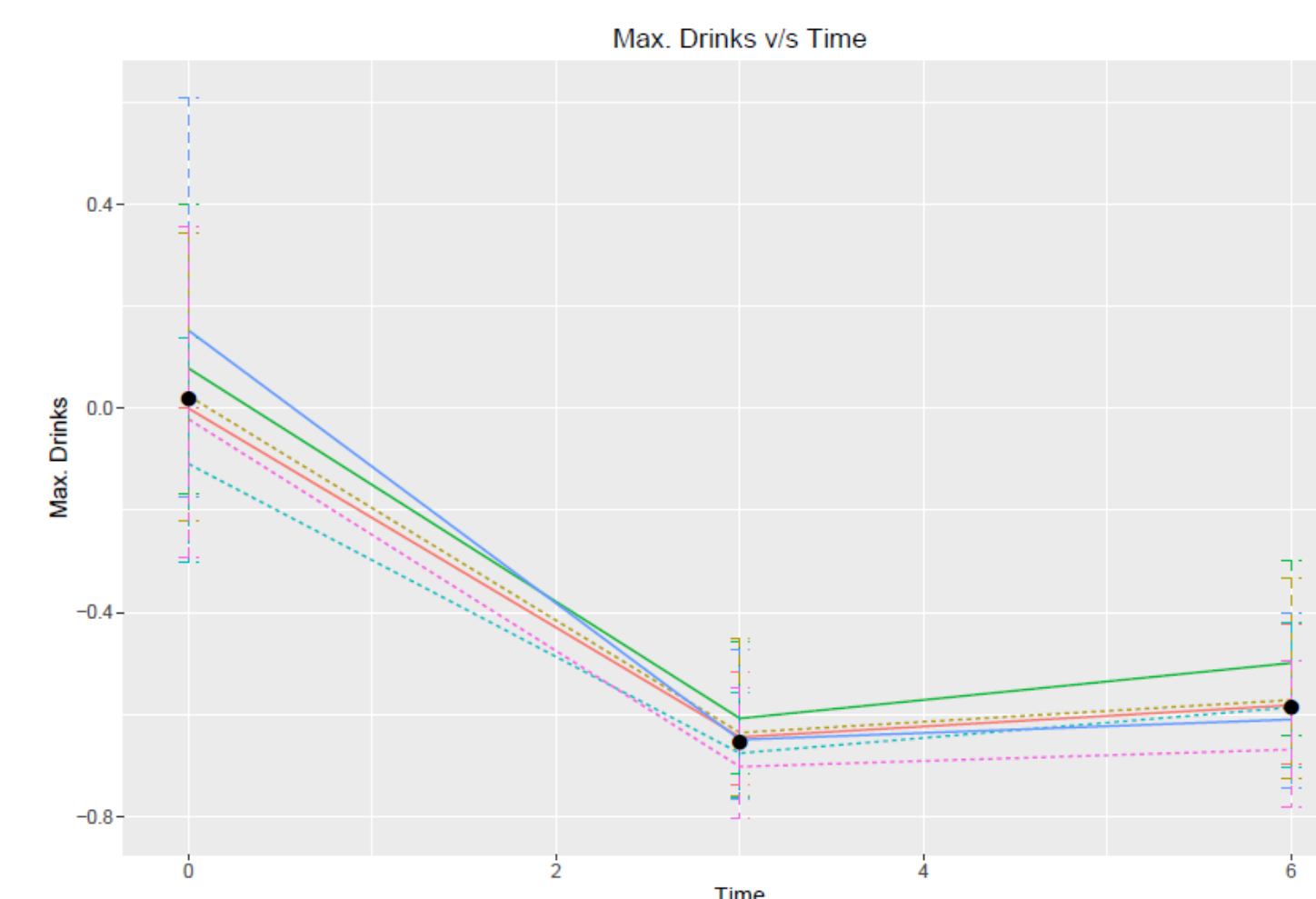
- Generalized Estimating Equations (GEEs) with an assumed exchangeable (compound symmetric) correlation structure were used to model the data.
- GEEs are a population-averaged approach to mixed effect modeling, which use an assumed correlation structure for the within-subject variance instead of modeling it subject-specifically.
- Since the estimates are asymptotically normally distributed, classical Wald-type inferences can be used for GEEs.

Results

Significant Effects of PTSD on Interventions

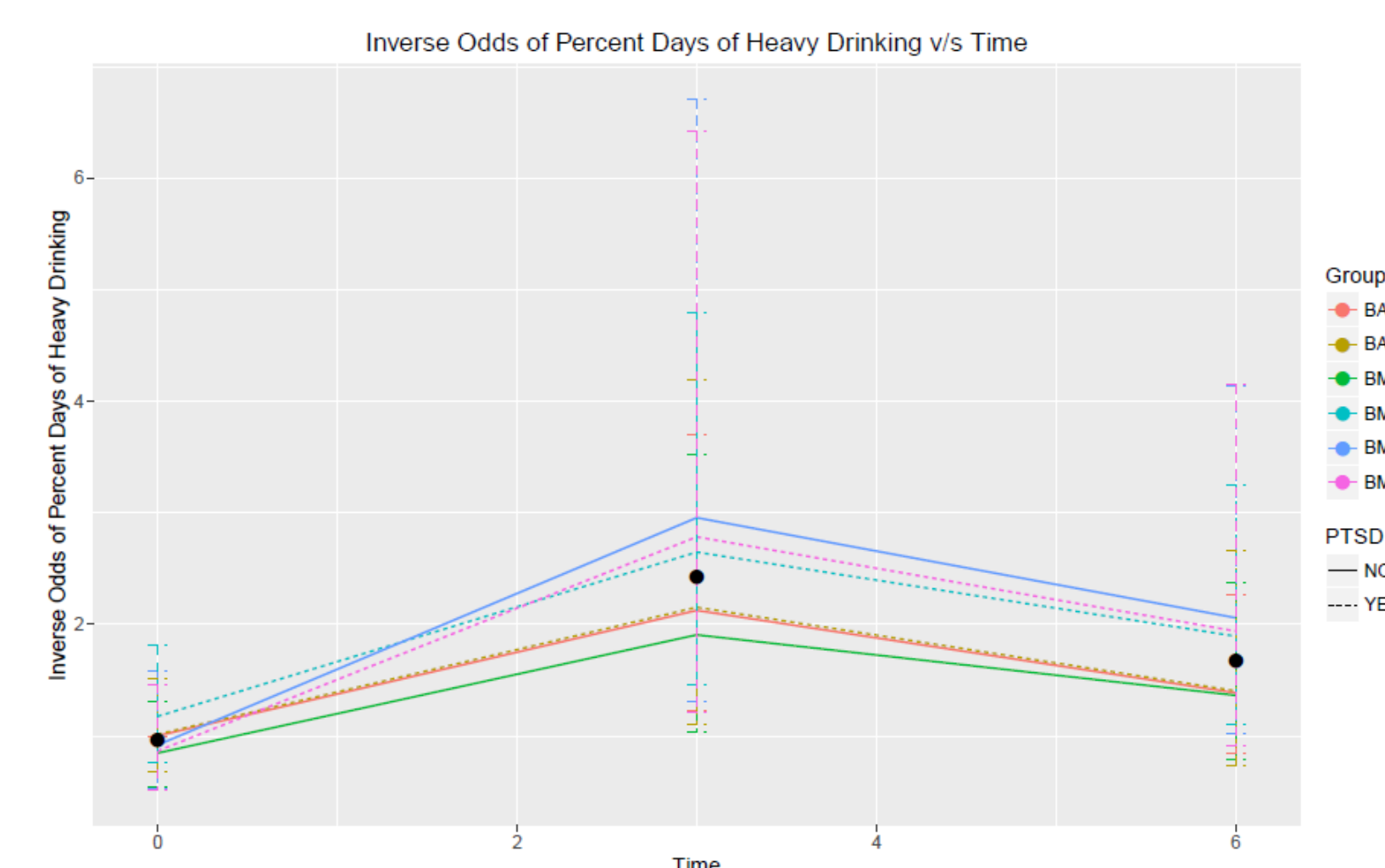
Maximum Drinks Per Drinking Day

- Best model chosen included gender and number of prior injuries as covariates.
- Significant negative interaction ($z=-1.84$) was observed between PTSD and the BMI group.
- Significant reductions in MAX.D values from the control group (patient in BA at baseline with no PTSD) were observed for all treatments at 3 months and 6 months.



Percent of Days of Heavy Drinking

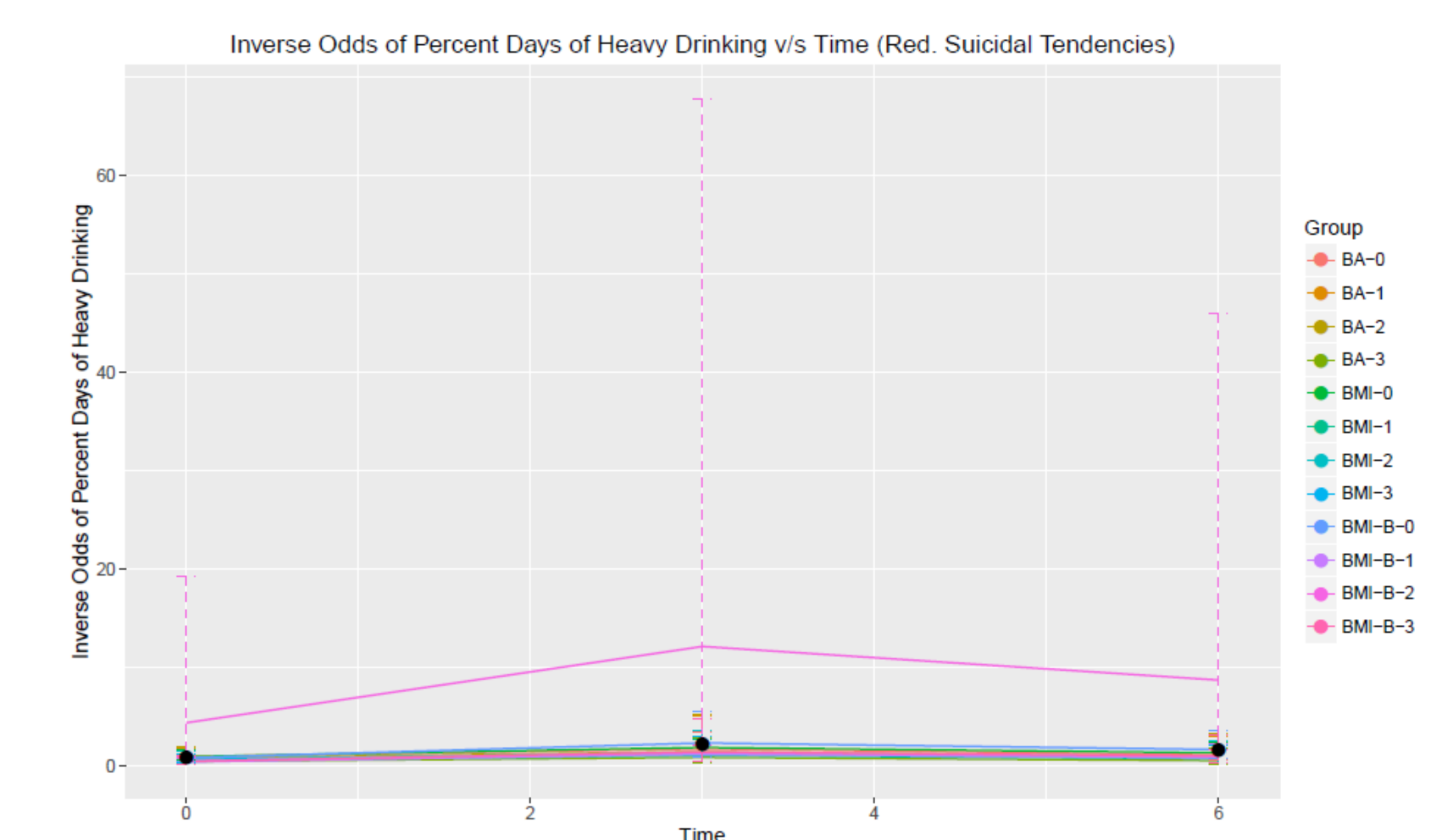
- Best model chosen included gender and number of prior injuries as covariates.
- Significant negative interaction ($z=-1.71$) was observed between PTSD and the BMI group.
- Significant inverse odds showing reductions in PDH when compared to the control group, were observed for all groups at 3 months, while at 6 months odds showing reductions in PDH were observed for BMI patients with PTSD and for BMI-B patients with no PTSD.



Significant Effects of Suicidal Tendencies on Interventions

Percent of Days of Heavy Drinking

- Best model chosen included gender, ethnicity, and number of prior injuries as covariates.
- Significant negative interaction ($z=-3.32$) was observed between BMI-B and suicide level 2 (Patients who ever thought about committing suicide).
- When compared to the control group, at baseline a patient in the BMI-B group at suicide level had significant odds of reducing PDH. At 3 months, patients in the BMI and BMI-B group with no suicidal tendencies and BMI-B at suicide level 2 showed significant odds of reducing PDH. At 6 months, patients in the BMI-B group at suicide level 2 showed significant odds of reducing PDH.



Conclusions

- To our knowledge this is the first study carried out to investigate the moderation effects of PTSD and suicidal tendencies and ideations on the efficacy of brief interventions aimed to curb alcohol abuse.
- Patients who showed signs of PTSD and were assigned to the BMI group drank significantly less maximum number of drinks on a drinking occasion (MAX.D) than those who did not.
- Patients who showed signs of PTSD and were assigned to the BMI group also had significant odds of engaging in heavy drinking on less number of days over a 30 day period (PDH) than those who did not.
- Patients who ever thought about committing suicide (suicide level 2) and were assigned to the BMI-B group had significant odds of engaging in heavy drinking on less number of days over a 30 day period (PDH) than those who did not.
- Thus, careful consideration should be given to the treatment assignment of patients who show symptoms of PTSD or suicidal tendencies when choosing interventions to help curb their alcohol abuse.

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