2019

Evaluation of a new trauma-related drinking to cope measure: Latent structure and heritability

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Posttraumatic stress disorder (PTSD) and alcohol use disorder (AUD) commonly co-occur, share latent genetic risk, and are associated with many negative public health outcomes. Via a self-medication framework, trauma-related drinking to cope (TRD), an unexplored phenotype to date, may help explain why these two disorders co-occur, thus serving as an essential target for treatment and prevention efforts. This study sought to create a novel measure of TRD and to investigate its indirect influences on the association between PTSD and AUD, as well as its potential shared molecular genetic risk with PTSD in a genetically-informative study of college students.

TRAUMA RELATED DRINKING TO COPE (TRD)

How often do you drink alcohol to cope with symptoms including

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Always</td>
</tr>
<tr>
<td>Some of the time</td>
<td>Most of the time</td>
</tr>
</tbody>
</table>

1) Repeated, disturbing, unwanted memories, dreams, or feelings about the stressful experience.
2) Avoiding memories, thoughts, feelings, or external reminders of the stressful experience.
3) Strong negative beliefs about yourself or the world; feelings of blame, shame, or guilt; loss of interest in activities you used to enjoy; feeling distant or cut off from other people; or trouble experiencing positive feelings.
4) Irritability, anger, risk-taking, alertness, jumping, difficulty concentrating, or difficulty sleeping.

How does TRD relate to the commonly used DMQ-Cope?

The TRD and DMQ-Cope latent factors were correlated (r = .757).

How well does each TRD item relate to each PTSD symptom cluster?

Overall, each of the four PCL-5 common factors significantly predicted their analogous TRD items (e.g., the intrusion PCL factor predicted the TRD item summarizing intrusion symptoms), with the exception of the avoidance factor, which did not significantly predict any of the four TRD items.

IS THERE A COMMON FACTOR OF TRD?

Yes (χ²(26) = 299.077, p < .001; CFI = .989; RMSEA = .075), thereby providing support for the use of a TRD common factor in the subsequent validation models.

HOW DOES TRD RELATE TO ALCOHOL?

The PCL-5 arousal factor alone predicted the TRD common factor. TRD significantly predicted alcohol consumption and related problems while accounting for the effects of the PTSD factors and the covariates of sex and lifetime trauma load.

WHO CARES?

Findings show support for the use of TRD as a more refined screener of trauma-related coping drinking motives compared to the current gold-standard, DMQ-Cope, and that TRD could serve as a useful tool for understanding and possibly disrupting the self-medication process.

WHY MIGHT THIS SUCK?

Limitations include lack of evidence for external validation of the TRD avoidance factor and high correlations between the PCL-5 and AUDIT factors. Genetic analyses were extremely underpowered and therefore uninterpretable.

WHAT & WHY?

Evaluation of a new trauma-related drinking to cope measure: Latent structure and heritability

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Life Experiences and Alcohol Use Study

1,896 undergraduate students recruited from Spit for Science (S4S) with a history of trauma and alcohol use provided genotypic data and completed an online assessment battery mean = 19.47, SD = 1.75; 70% female; 49.3% White, 20.0% Black, 16.4% Asian, and 14.3% Other (included American Indian/Native Alaskan, Hispanic/Latino, Native Hawaiian/Other Pacific Islander, more than one race, and unknown)

OTHER MEASURES

<table>
<thead>
<tr>
<th>Measure</th>
<th>Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUDIT</td>
<td>Alcohol consumption and problems</td>
</tr>
<tr>
<td>DMO-4</td>
<td>General coping-related drinking motives</td>
</tr>
<tr>
<td>TLEQ</td>
<td>Comprehensive trauma history</td>
</tr>
<tr>
<td>PCL-5</td>
<td>DSM-5 PTSD symptoms</td>
</tr>
</tbody>
</table>

IS TRD HERITABLE?

Super-population Covariates h² (SE) F-value

PTSD 0.361 (0.012) 3.029 .050
AMR 0.143 (0.046) 3.000 .080
EAS 0.199 3.000
EUR 0.999 0.754 .500
SAS 0.999 3.029 .100

Phenotype h² (SE) r with TRD (SE) F-value

TRD 0.704 (1.423) .999
PCL PTSD .061 (0.012) -.343 (0.515) .505
PCL AUD .143 (0.046) .039 (0.570) .945

PCL Factor 1: Intrusion

PCL Factor 3: Consumer

PCL Factor 2: Avoidance

PCL Factor 4: Arousal

PCL Factor 1: Intrusion

PCL Factor 2: Avoidance

PCL Factor 3: Consumer

PCL Factor 4: Arousal

PCL Factor 1: Intrusion

PCL Factor 2: Avoidance

PCL Factor 3: Consumer

PCL Factor 4: Arousal

PCL Factor 1: Intrusion

PCL Factor 2: Avoidance

PCL Factor 3: Consumer

PCL Factor 4: Arousal

PCL Factor 1: Intrusion

PCL Factor 2: Avoidance

PCL Factor 3: Consumer

PCL Factor 4: Arousal

PCL Factor 1: Intrusion

PCL Factor 2: Avoidance

PCL Factor 3: Consumer

PCL Factor 4: Arousal

PCL Factor 1: Intrusion

PCL Factor 2: Avoidance

PCL Factor 3: Consumer

PCL Factor 4: Arousal

PCL Factor 1: Intrusion

PCL Factor 2: Avoidance

PCL Factor 3: Consumer

PCL Factor 4: Arousal

PCL Factor 1: Intrusion

PCL Factor 2: Avoidance

PCL Factor 3: Consumer

PCL Factor 4: Arousal

PCL Factor 1: Intrusion

PCL Factor 2: Avoidance

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