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Title: Associations between alcohol use and adverse posttraumatic neuropsychiatric sequelae in the early aftermath of trauma.

Study objectives: Adverse posttraumatic neuropsychiatric sequelae (APNS) symptoms are common after traumatic events such as motor vehicle collision (MVC). Alcohol use is also common after MVC and may influence the development of APNS. We sought to better understand the relationships between APNS and alcohol use in the early aftermath of MVC by examining the association between alcohol use in the first 2 weeks after MVC (F2WkpostMVC) and 4-8 weeks after MVC (4-8WkpostMVC) and the trajectories of 10 common APNS symptoms. We chose these time periods because the first 8 weeks after trauma is a key period in which individuals transition to recovery versus APNS symptom persistence.

Methods: The AURORA study is a ~40-million-dollar multisite longitudinal cohort study of individuals who present to the ED for care after a traumatic life experience. Participants were enrolled in the ED; follow-up assessments included brief smartphone-based flash survey assessments of 10 common APNS symptoms (pain, depression, sleep, nightmares, avoidance, re-experiencing, anxiety, hyperarousal, somatic, and mental/fatigue) during the first 2 months after trauma (each symptom assessed 6 times in first 2 months). Alcohol use during the above time periods was assessed using the PhenX tool kit (quantity, frequency, PROMIS7a). Latent growth curve modeling was used to characterize the intercept and slope of each outcome trajectory, and mixture modeling was used to cluster symptom outcomes.

Results: Among participants (n=2,626, 62% female, mean age 35.7 (13.1)) alcohol use was common in the F2WkpostMVC (46%) and 4-8WkpostMVC (59%). There was substantial variation in drinks consumed weekly (Median inter-quartile range in F2WkpostMVC =5 (2, 12) and 4-8WkpostMVC = 9 (3, 25) at 8 weeks). Alcohol use was significantly correlated with number of APNS symptom trajectories, both 2 and 8 weeks after MVC (e.g., 2 Week with PROMIS score with posttraumatic trajectory intercepts for depression, nightmares, anxiety, hyperarousal, and mental fatigue trajectories).

Conclusion: These analyses suggest complex/intertwined etiologic relationships between APNS trajectories/outcomes and alcohol use after ED discharge. More detailed results will be presented at the conference. Funded by NIMH U01MH110925, the US Army Military Operational Medicine Research Program, The One Mind Foundation, and The Mayday Fund.