Analysis of the mechanisms of efficacy of a motivational intervention for alcohol intoxicated young adults admitted to the Emergency Department

Summary

Harmful alcohol use among young adults is a major public health concern. In Switzerland, Emergency Department (ED) admissions for alcohol intoxication have increased substantially over the past decade, particularly among adolescents and young adults. Brief motivational interventions (BMI) for young adults conducted in the ED have shown promising but inconsistent results. Recent research on intervention mechanisms has provided valuable insights on which mechanisms may be related to better outcomes and we developed a new motivational intervention model for young adults admitted in the ED with alcohol intoxication and tested its efficacy using a randomized controlled trial. This trial, supported by the Swiss National Science Foundation, was completed in 2020. We included 344 patients between 18 and 35 years old who were randomized to BMI or control group (minimal structured brief advice). Findings indicate that BMI significantly predicted more favorable trajectories of heavy drinking days over 12-month follow-up. BMI also increased the likelihood of initiating specialized alcohol treatment. *The next phase of this project will be to evaluate the mechanisms of these intervention effects.*

The proposed analyses will investigate

- moderators of the effect (i.e. under which circumstances the effect is observed), and
- mediators of the effect (i.e. how the effect is translated into actual behavior change).

Several dimensions such as readiness to change, self-efficacy, alcohol expectancies, alcohol problems severity, cognitive discrepancy, or satisfaction with treatment were measured at baseline, after the intervention, and at 1-, 3-, and 6-month follow-up. 290 interventions (85%) were audio-recorded and have been coded using validated psycholinguistic instruments to derive within-session therapists' behaviors and patients' change language.

In addition, we will conduct analyses using new technology to assess therapists' relational competences. Automated coding of vocal mean fundamental frequencies (mean F0) has been proposed as a cost-effective alternative to the very time-consuming behavioral coding. Recent research used computerized extractions of mean F0 to model empathy during MI sessions and found that session-level synchrony was higher (r = .80) in sessions rated as high-empathy. In a recent study, we failed to replicate this finding but found that synchrony in mean F0 was significantly related to patient-reported satisfaction, consultation's quality, and trust in physician. Further investigation of this measure is warranted as interpersonal synchrony has also been related to other aspects of the relation such as therapeutic alliance. To test these hypotheses, high-quality recordings are available and mean F0 will be extracted every 0.25 seconds using phonetics software. Synchrony between clinician and patient F0 will be analyzed using multilevel models and be compared to relational factors derived from behavioral coding.

The proposed research is innovative and timely, since it addresses a major public health issue using a design combining a randomized trial and a prospective evaluation of the mechanisms of alcohol BMI outcomes, in line with recent recommendations for behavioral intervention trial design. Findings will provide information for practice at several levels such as efficacious clinical strategies, implementation caveats, implications for clinicians' training, and need for adaptation of given strategies to given patients. The proposed study will have both theoretical and practice implications leading to improvements in alcohol BMI efficacy and, by extension, significant impact on public health.