



Andrea Truncali, MD, MPH

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Greetings Colleagues!

Even with therapies and medication, we have a long way to go in helping people with alcohol use disorder (AUD) to cut back or quit. There is an early but growing body of evidence^{1,2} suggesting that “digital interventions” may be helpful in this regard. Before widespread smartphone access, most were text message-based interventions, but smartphone apps open the possibility for more varied and interactive formats, while holding the potential to reach people that traditional treatment does not. However, knowledge of what makes such tools effective is still in its infancy, I.e., Is it helpful simply to track one’s use? What are the features of effective messages? How does it work among people who binge drink versus those with dependence?

To take a dive into this literature, reviewed here is a recent study that tested an intervention with otherwise healthy alcohol dependent adults in Sweden, comparing a drink-counting app versus a breathalyzer-based app in addition to usual treatment at a specialty clinic. The punch line: the breathalyzer app seemed to have a benefit. Patients in that group reduced heavy drinking days by a third compared to usual care. There was no effect for the drink counting app. Though study limitations merit continued observation before a wholesale embrace of this technology, it is worth keeping in mind that options like this exist and that we can expect to learn and see more about them over time.

Read on for more study details, including a description of these innovative approaches to helping patients change their use of alcohol.

Andrea Truncali, MD, MPH

Title: A breathalyzer app reduced self-reported heavy drinking days in healthy people with moderate alcohol use disorder compared to usual treatment.

Citation: Östh J, Lundin A, Wennberg P, Andréasson S, Danielsson A-K. The effectiveness of a drink counting and a breathalyser-coupled smartphone application for reduced heavy drinking among alcohol-dependent adults in Sweden: A randomized controlled trial. *Addiction*. 2025; 120(5):905–18.
<https://doi.org/10.1111/add.16769>

Link: <https://onlinelibrary.wiley.com/doi/epdf/10.1111/add.16769>

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METHODS

This was a three-arm randomized controlled trial among adults with alcohol use disorder (AUD) in Sweden, occurring Sept 2020 to June 2023. The intervention lasted 12 weeks. Patients were recruited from a specialized outpatient clinic treating patients with AUD. Included were adults without drug use,

'social problems' or psychiatric disorders. Patients had to meet ICD 10 for alcohol dependence and have had 5 or more heavy drinking days (HDDs) in the past 8 weeks. Excluded were those with physical or psychiatric disorders, pregnancy, or treatment for alcohol problems in the past 2 yrs.

All patients received treatment as usual (TAU) which includes one-hour therapy sessions once every 2-4 weeks for 12 weeks and a then 26-week follow-up visit as well as pharmacotherapy (ie naltrexone, disulfiram, and acamprosate) if desired. Most care was conducted remotely due to COVID19. One arm received only TAU, a second arm TAU+ a drink counting app, and a third received TAU + a breathalyzer-based app.

The drink counting app (Glasklart) instructed patients to enter data at least daily including all drinks at the time of consumption. 30 minutes after registering any drink, patients would receive a notification to register any additional drinks. Data could also be added in retrospect. The app provided instructions on how to count standard drinks **and** is connected to an online portal which clinicians could use for feedback during sessions. In addition, the article supplement describes that the app allowed for monitoring of "cravings, company, mood, and location". The app also allowed goal setting and tracking of "emotional consequences". Participants got positive feedback for non-drinking days and could review their outcomes in relation to self-identified goals.

The breathalyzer (iBac Pro) prompted patients to check their BAC three times/day and hourly during drinking occasions. It also provided feedback to clinicians and allowed tracking of emotional consequences and use over time.

Patients nor assessors were blinded. **The primary outcome was self-reported past 4wk HDDs (4 or more drinks/day) at 26 weeks post randomization (thus 14 weeks after cessation of intervention).** Secondary outcomes looked at HDD at 12wks (past week and past month), AUDIT-C, Peth (blood test for alc use) and alcohol dependence severity.

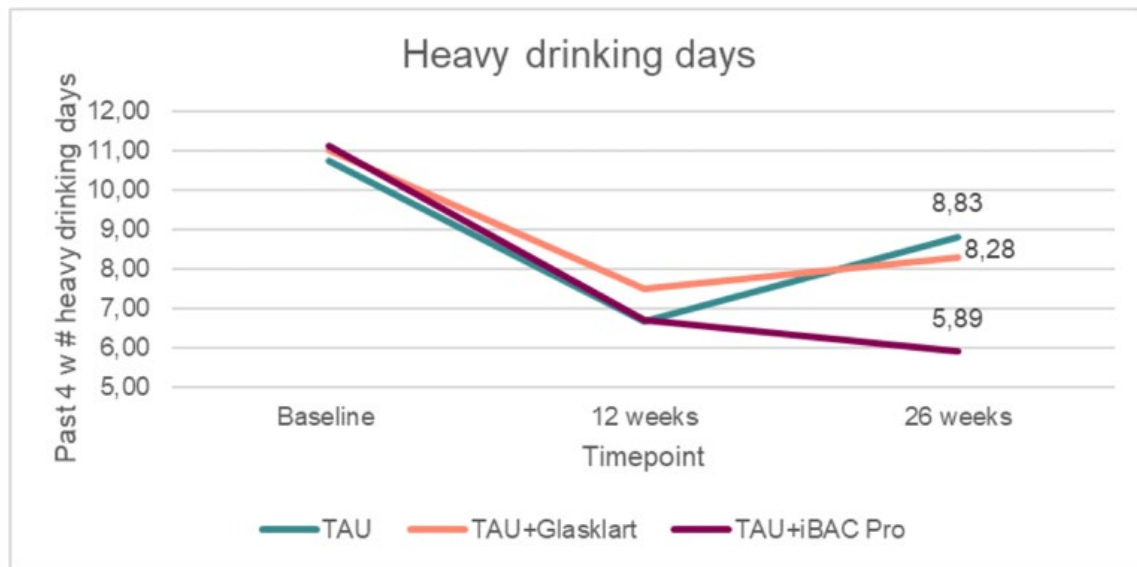
Investigators recruited only 162 of the intended 375 due to Covid 19. This made for a power of 70% rather than 80 % to achieve a small to medium effect size of 2.72 HDD/month. Two analyses were conducted. The main analysis assumed that missing data was missing at random, and a sensitivity analysis assumed it was not at random and assigned the same value as baseline.

MAIN RESULTS

45% of those assessed for eligibility were excluded, with n=175 being randomized. Retention was 94% at 12 weeks and 86% at 26wks with no differences in rates across groups. Adherence to the drink counter was 81% and 69% to breathalyzer, which was delayed by mailing.

The group was an even mix of men and women and average age was 50yrs. Patients were generally highly educated (67% university) and 78% were employed. 70% had never been in treatment before. Drinking parameters showed 13 HDD/month with 24 standard drinks in the past week; 3.9 of six ICD10 criteria for AUD were fulfilled and Peth values were at the upper end of moderate use. 90% identified a goal of cutting down and only 5.9% desired abstinence.

There was a 33% lower rate of HDD/month in the breathalyzer group compared to the TAU in the primary outcome. However, this was only supported in only one of the secondary outcomes (past week consumption at week 12). All three groups reduced use from baseline to 26 weeks as indicated here:



CONCLUSION

Among a highly educated group of Swedish people with moderate alcohol dependence who engaged in specialty treatment aiming to cut down but not abstain, use of a breathalyzer app in addition to usual treatment reduced heavy drinking days more than treatment as usual. The use of a drink counting app did not differ from TAU. Additional data from less homogenous populations and in larger number is warranted before investing heavily in this technology.

COMMENTARY

Internal validity (*how likely are the study results what they appear to be for the study group*)

This study has limitations including the use of self-report, which has been shown to lead to underreporting but may have been differentially affected by the intervention. One might venture that intervention would make assessment more accurate and thus hidden a difference. Because of low recruitment, the study may have been underpowered to detect differences (i.e., in the secondary outcomes), however it is unlikely to have missed large ones. Patients could not be blinded which may have affected behavior or reporting.

External validity (*can these results be applied beyond the study*)

This was a high functioning and otherwise healthy population compared to the average person seeking specialty SUD treatment. However, it may better represent the vast majority of people with mild to moderate AUD who present to non-specialty settings – or do not present at all. This data does not inform effectiveness in those circumstances.

In addition, the two apps communicated results to a treatment provider. Whether this would work similarly without the clinician feedback element or without the TAU described is not demonstrated in this study.

Practically speaking, a TID breathalyzer is a difficult adherence request. And using it during drinking episodes may not feel socially acceptable, potentially limiting application. The pandemic may have influenced this trial in myriad ways – perhaps recruiting people new to heavy drinking and changing the environment in which recovery would take place.

Bottom Line

Given these limitations, this intervention does not have enough evidence to support routine recommendation but for a patient with interest and/or a similar profile to those studied, it is reasonable to consider its use. These apps and devices are commercially available. (The breathalyzer cost was \$200 at ibac.com with an optional monthly monitoring fee of \$25-30 - not more than a visit to the doctor. And, I have no disclosures (!))

Our patients see us for a brief moment relative to the many hours of the day in which AUD affects their thoughts and decisions. Wouldn't it be great if we could send them out with something to support their expressed motivation to reduce drinking that could link back to the visits with a provider. I'll keep my eyes peeled for more, and in the meantime, recognize that objective data from a breathalyzer employed this way seems to have benefit above usual care that is not demonstrated with drink counting technology.

References

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