

DynamiCare Health: Preliminary Results from NIAAA SBIR Phase I RCT on Alcohol Use Disorder at Gosnold

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Sixty participants engaged in usual care treatment in the Gosnold treatment system were enrolled in a 12-week clinical trial, funded by the National Institutes of Health through a Small Business Innovation Research grant (Phase I). Participants were randomly assigned to receive treatment-as-usual (TAU) alone or TAU supplemented with use of the DynamiCare app. Those assigned to the app were prompted on a random schedule 3-10 times per week to self-conduct a breath and/or saliva test using equipment provided by the study. Participants used their smartphone to video themselves taking the tests. Breathalyzer test results were automatically transmitted via Bluetooth while saliva results were presented as part of the video. DynamiCare staff viewed the videos and if negative results were verified, transferred money directly onto participants' smart debit cards. Abstinence incentive rewards were delivered under a variable probability schedule in which values escalated over time with consecutive negative samples. Testing frequency was adjusted up or down based on recent outcomes and resets to lower earning values occurred in the case of missed or positive samples; up to \$600 could be earned during the 12 weeks depending on random testing schedule and test results.

The study sample was primarily white (87%), 60% male and had an average age of 40 years. With regard to insurance, 51% had Medicare or Medicaid, 38% private insurance and 11% were self-pay; 38% had undergone a detox prior to entering the outpatient program and 46% reported using drugs in addition to alcohol. Treatment groups did not differ significantly on any of the demographic or drug use variables.

We examined group differences using the clinically relevant measure duration of treatment participation (days in treatment) as the main outcome. This was measured from the first treatment session attended after study randomization to the last session attended within the 90-day study intervention timeframe. Participants assigned to use DynamiCare spent a significantly longer time in treatment compared to usual care (mean of 49 versus 32 days; $t(59)=2.20$, $p=.03$).

Total Treatment vs. Control Categorical Retention

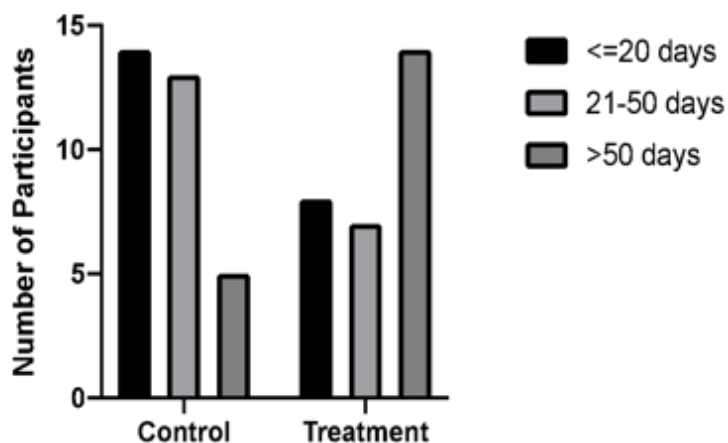


Figure 1 legend. *Number of participants remaining in outpatient treatment for short (≤ 20 days), intermediate (21-50 days) and long (>50 days) durations. Distributions are shown separately for control (N=32) and treatment (N=28) groups. Distribution is shifted to longer durations for the treatment group.*

Figure 1 (above) shows the distribution of time in treatment for DynamiCare versus TAU participants. Importantly, 46% of DynamiCare versus 16% of usual care remained in treatment for 50 days or longer. At the other end of the distribution, 29% of DynamiCare versus 44% of usual care remained in treatment for 20 days or less. Distributions were significantly different for the two groups ($\chi^2(2) = 7.57, p = .02$).

Urine testing for confirmed abstinence was attempted for both groups at 1, 2, 3 and 4 months post-randomization. The DynamiCare group had a consistently higher assessment completion rate at all time points, compared to the TAU group. Average assessment completion rate was 41.4% for DynamiCare versus 22.7% for TAU. There were four alcohol-positive ethylene glycol urine results, all from the control group, and none in the DynamiCare group. The confirmed abstinence rate for alcohol was 41.4% for DynamiCare vs. 19.5% for controls. Confirmed abstinence for drugs was 31% for DynamiCare vs. 16% for controls (most positives were for THC).

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