

Patterns of Alcohol Detection Across Measures Within a Contingency Management Procedure

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INTRODUCTION

- While Transdermal Alcohol Monitors that provide continuous Transdermal Alcohol Concentration (TAC) measurements may not be suitable in real world settings due to stigma (Villalba et al., 2020), they are still a reliable tool for detecting alcohol consumption (Marques, P. R., & McKnight, A. S. 2007, 2009 ; Van Egmond et al., 2021).
- Remote breath alcohol monitoring that measure Breath Alcohol Concentration (BrAC) are equipped with facial recognition software and remote capabilities that make them useful in clinical settings (Koffarnus et al., 2021). However, drinking may go undetected that occurs outside of breath sample testing windows.
- Another alcohol monitoring method, Timeline Followback (TLFB), utilizes retrospective self-report measures (TLFB; Sobell & Sobell, 1992). These methods are susceptible to recall bias especially in settings where drinking is influenced by monetary incentives (Kaplan & Koffarnus, 2019).

PURPOSE

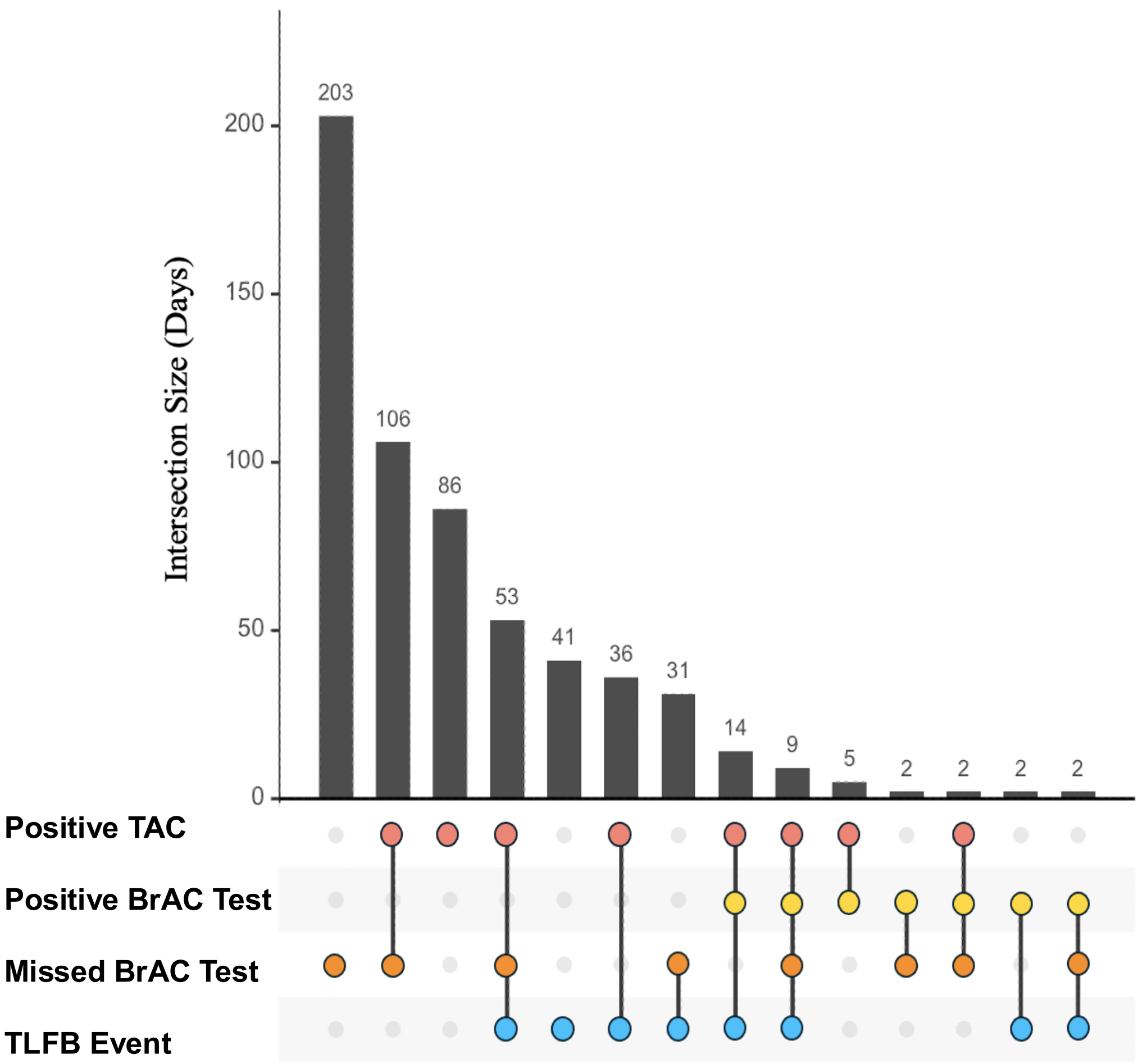
- To assess which measure (TLFB, Positive & Missed BrAC test) most reliably detects alcohol consumption when TAC confirms a drinking event.

METHODS

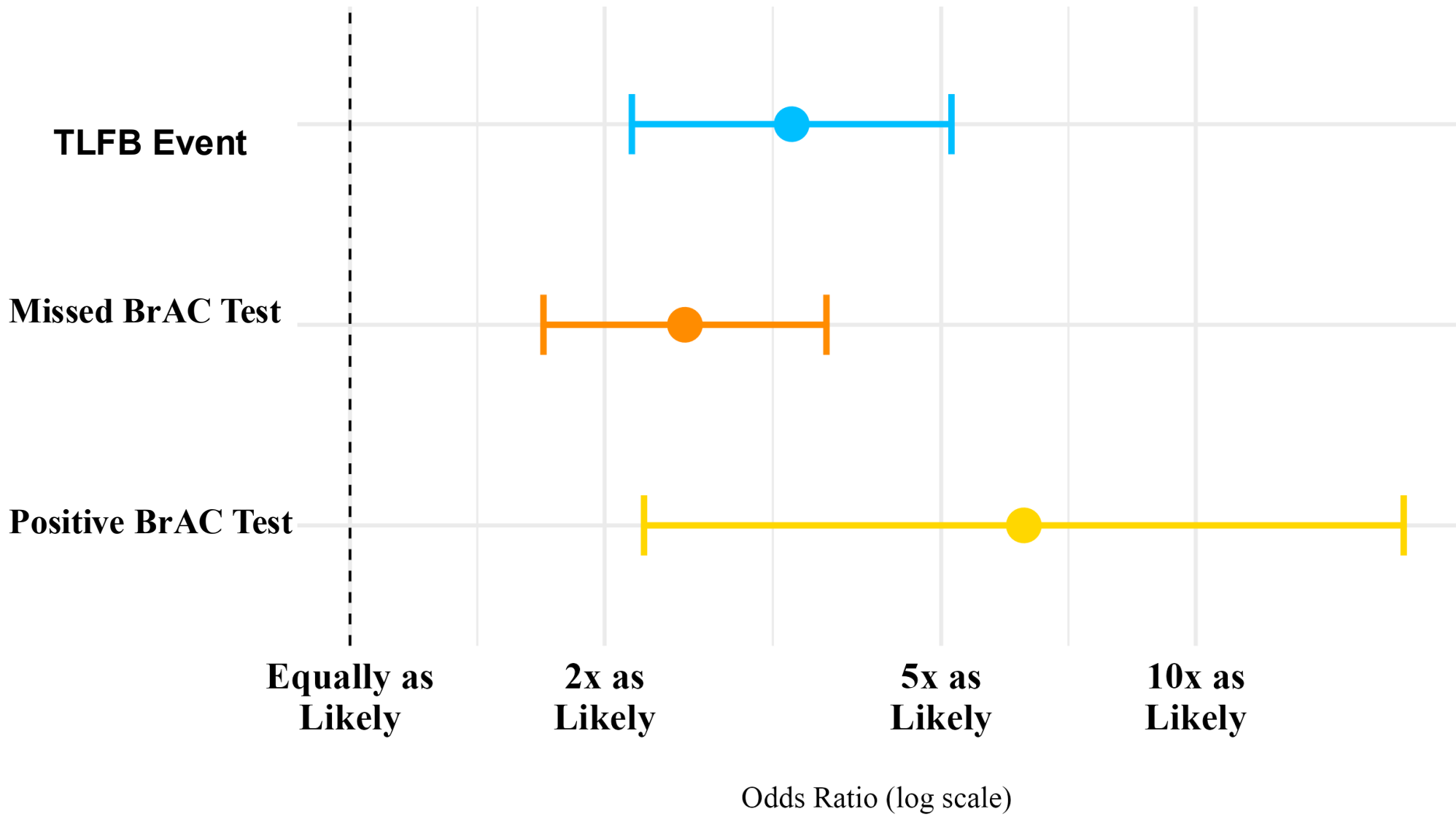
- Across 4 weeks, 39 participants were instructed to submit four identity verified compliant BrAC (≤ 0.02 g/dL) samples within a chosen testing window (e.g., 7am, 12pm, 5pm, 11pm) via Soberlink Connect Breathalyzer devices and were given text reminders before submissions.
- Participants were compensated \$10 per day for compliant BrAC submissions.
- Soberlink devices were set up through participants smartphones and submitted samples via the Soberlink App.
- Participants were administered a Secure Continuous Remote Alcohol Monitor (SCRAM CAM) that detected alcohol use 24 hr./day, 7 days/week via TAC measurements ~30 minutes
- The TLFB interview was completed in person after study completion.

RESULTS

Overlap in Detection Across Monitoring Methods

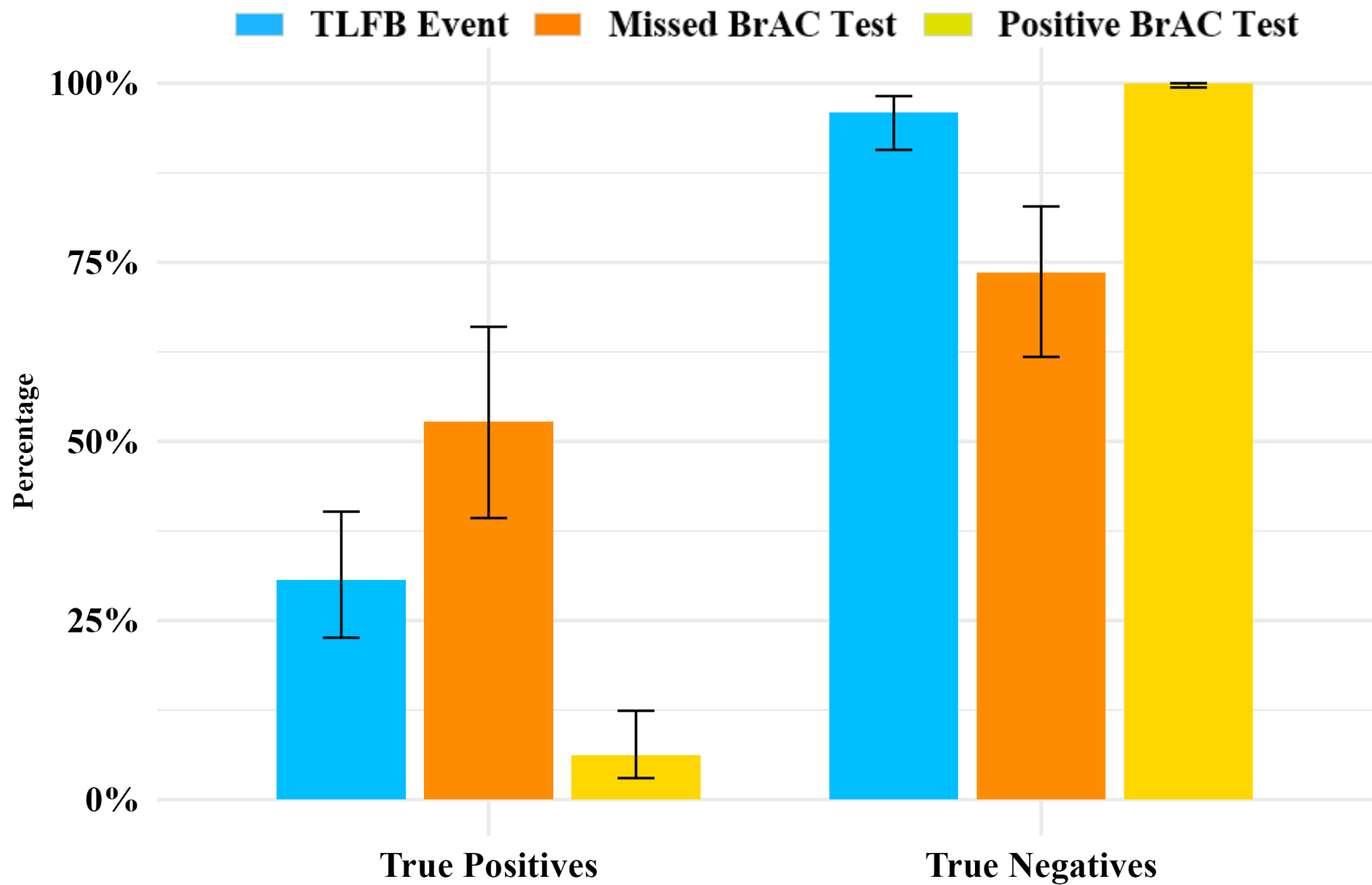


Odds of Alcohol Detection on TAC-Positive Days



- Each alcohol detection method was more likely to detect alcohol consumption on days when TAC detected alcohol consumption vs days TAC did not detect alcohol.

Detection Accuracy Compared to TAC



- Missed BrAC test submissions most reliably detected alcohol consumption (True Positives) while Positive BrAC test submissions most reliably confirmed abstinence from alcohol (True Negatives).

KEY FINDINGS

- Missed BrAC tests occurred the most days (203) with no other detection method present.
- Both Positive TAC and Missed BrAC test occurring together had the 2nd most detections of days with (106) more than Positive BrAC and TLFB.
- Positive TAC occurred by itself on 86 days across all participants
- All four methods of alcohol detection only overlapped for 9 days.
- There were 0 instances in which a Positive BrAC test occurred by itself.

CONCLUSION

- Missed BrAC test submissions aligned with TAC confirmed drinking events more than any other detection method
- The TLFB reliably confirmed abstinence from alcohol and was more likely to detect alcohol on days TAC confirmed drinking.
- Positive BrAC submissions were more likely to occur on TAC confirmed drinking days than Missed BrAC submissions.
- Missed BrAC submissions accounted for a larger portion of when drinking occurred.
- Since missed scheduled BrAC test submissions can lead to drinking, in real world settings drinking is assumed to have occurred.
- Continuous alcohol monitoring methods (i.e., TAC) may be needed in order to accurately capture when people consume alcohol as opposed to purely relying on self-report and scheduled BrAC test submissions.

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