Virtual Reality-Based Mindfulness Practice Improves Emotion Regulation in Patients in Substance Use Treatment

Irfan Haider, MS4. Debra Boeldt, Ph.D. Samuel Hubley, Ph.D.

National Mental Health Innovation Center; Center for Dependency, Addiction, and Rehabilitation; University of Colorado Hospital, Anschutz Medical Campus

INTRODUCTION

- 10% of population is affected by SUD every year
- Evidence-based treatments, moderately effective, 50% relapse rate
- Mindfulness practice show mixed results, partly nonadherence
- Virtual Reality increases treatment retention for exposure therapy

Primary study: valuating the feasibility and acceptability of VR in an outpatient treatment center, along with effects on cravings, emotion regulation, mindful attention, and awareness

This study: secondary analysis of the back-end application data looking at the effects of VR mindfulness practice on emotion regulation

METHODS

38 patients in Inpatient Residential Treatment
Inclusion: have a primary SUD; completed detoxification
Exclusion: history of seizures, epilepsy, vertigo; active nausea

Intervention
Offered a Virtual Reality-based headset featuring a mindfulness application, namely TRIPP, during their independent mindfulness time scheduled in their morning routine.

Measures
Participants asked the following before and after the experience:
(1) "How are you feeling right now?" on a scale of 1 "Poor" to 10 "Excellent"
(2) "What best describes your mood?" using one or multiple mood descriptor(s)

Analysis
(1) *Feeling rating scale (quantitative):* mean change before and after the mindfulness practice on a per use and per day basis

(2) *Mood descriptors (qualitative):* word cloud weighted by frequency

RESULTS

Feeling
Mean change before and after the mindfulness experience

Per Use: +0.95 (SE=0.08)
Per Day: +0.93 (SE=0.10, p <0.001)

Mood

Figure 1. Word cloud weighted by the frequency of the words selected before the beginning of the mindfulness practice experience in TRIPP.

Figure 2. Word cloud weighted by the frequency of the words selected before the beginning of the mindfulness practice experience in TRIPP.

CONCLUSIONS

VR-based mindfulness intervention has the potential to aid patients with emotion regulation on the tough road to fight addiction!

Limitations
Small sample size
Study design
Single-arm study
Momentary changes
Semi-structured clinical environment

Preliminary Promises
Improves medical adherence
Can revolutionize patient education (Miller, 2014; van der, 2021).
Encouraging results in fibromyalgia, traumatic brain injury, generalized anxiety, sleep quality, and more

Need For
Larger-scale studies
Longitudinal studies
Different environments, including home
Reducing costs and increasing access

REFERENCES

Grant, S., Colaiaco, B., Motala, A., Shanman, R., Booth, M., Sorbero, M., & Hempel, S. (2017). Mindfulness-based Relapse Prevention for Substance Use Disorders: A Systematic Review and Meta-analysis. Journal of addiction medicine, 11(5), 386–396. https://doi.org/10.1097/ADM.0000000000000338

Grant, B. F., Saha, T. D., Ruan, W. J., Goldstein, R. B., Chou, S. P., Jung, J., Zhang, H., Smith, S. M., Pickering, R. P., Huang, B., & Hasin, D. S. (2016). Epidemiology of DSM-5 Drug Use Disorder: Results From the National Epidemiologic Survey on Alcohol and Related Conditions-III. *JAMA psychiatry*, *73*(1), 39–47. https://doi.org/10.1001/jamapsychiatry.2015.2132

Lappan, S.N.; Brown, A.W.; Hendricks, P.S. Dropout rates of in-person psychosocial substance use disorder treatments: A systematic review and meta-analysis. Addiction 2020, 115, 201–217

Miller KJ, Adair BS, Pearce AJ, Said CM, Ozanne E, Morris MM. Effectiveness and feasibility of virtual reality and gaming system use at home by older adults for enabling physical activity to improve health-related domains: a systematic review. Age Ageing. 2014 Mar;43(2):188-95. doi: 10.1093/ageing/aft194. Epub 2013 Dec 17. PMID: 24351549.

Rauch, S., Koola, C., Post, L., Yasinski, C., Norrholm, S. D., Black, K., & Rothbaum, B. O. (2018). In session extinction and outcome in Virtual Reality Exposure Therapy for PTSD. Behavior research and therapy, 109, 1–9. https://doi.org/10.1016/j.brat.2018.07.003

van der Linde-van den Bor M, Slond F, Liesdek OCD, Suyker WJ, Weldam SWM. The use of virtual reality in patient education related to medical somatic treatment: A scoping review. Patient Educ Couns. 2021 Dec 29:S0738-3991(21)00793-X. doi: 10.1016/j.pec.2021.12.015. Epub ahead of print. PMID: 35000833.

ACKNOWLEDGMENTS/CONTACT

Thank you to the CeDAR staff. Thank you to TRIPP, Inc.

Contact: Irfan.Haider@cuanschutz.edu