

THE EFFECTIVENESS OF VIRTUAL REALITY TECHNOLOGY AND MINDFULNESS TRAINING IN PROMOTING EMOTIONAL WELLBEING AMONGST NHS STAFF

AUTHORS

Laura Fleetwood
Bethan Huffstickler (Jones)

AFFILIATIONS

Cwm Taf Morgannwg University Health Board
Rescape Innovation Ltd.

INTRODUCTION

Mindfulness interventions have been found to increase the wellbeing of healthcare professionals (Lomas et al., 2017; Burton et al., 2016). However, lack of time to attend mindfulness-based interventions is a barrier for staff (Byron et al., 2014). Previous research has demonstrated the effectiveness of using VR Headset technology to enhance mindfulness (Navarro-Haro, et al., 2017) and to provide beneficial relaxation interventions for healthcare staff (Michael et al., 2019). However, 91% of staff expressed a difficulty in accessing VR sessions during breaks in work (Michael et al., 2019). Less data is available on the use of VR technology to enhance mindfulness in healthcare staff at home. Healthcare staff may have an increased risk of experiencing secondary traumatic stress due to the nature of their work (Orrù et al., 2021). Whilst there is a growing evidence base supporting the use of exposure-based VR technology in treating PTSD (Kothgassner et al., 2019), there is less data exploring the use of VR technology to support healthcare staff experiencing secondary traumatic stress.

AIMS

1. Do participants experience an improvement in depression, anxiety, stress, sleep and professional quality of life (compassion satisfaction, burnout and secondary traumatic stress) after 8 weeks of mindfulness and relaxation intervention?
2. Are there any differences in clinical effectiveness depending on the intervention participants received ?
3. What long-term impact, if any, is there for each intervention? How does this differ?
4. How do staff experience relaxation/mindfulness as taught by a head set or a course – teaching/training technique?
5. Are there any differences in demographics (e.g. gender, age, job role, etc.) or selection reasons between the interventions

METHODOLOGY

The following quantitative measures are collected pre and post intervention:

- Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995)
- Insomnia Severity Index (ISI; Morin, 1993)
- Professional Quality of Life Scale (ProQOL; Stamm, 2009)

Data analysis of these measures will consist of a series of ANOVAs.

All participants will also be asked to provide qualitative feedback via feedback forms at baseline and the end of the intervention. The data from these feedback forms will be analysed using Grounded Theory.

Participants are all employees of Cwm Taf Morgannwg University Health Board. Participants are recruited when signing up for the VR headset service or MBLC, via the Employee Wellbeing Service.

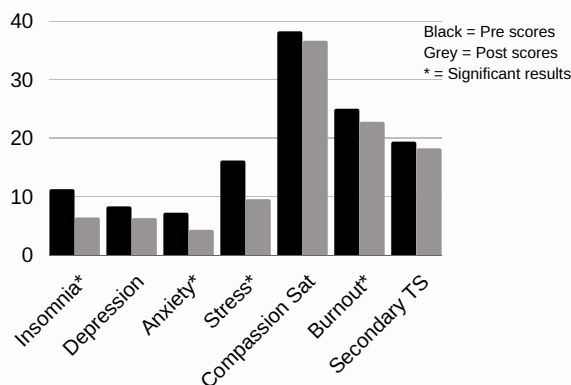
DISCUSSION

Preliminary analysis demonstrates significant differences in pre and post VR intervention scores for insomnia, anxiety, stress and burnout. Whilst the small sample size limits the conclusions drawn from these results, early analysis provides a promising indication that VR technology has the potential to be a useful intervention for improving the wellbeing of NHS staff.

Current results may be impacted by limited sample sizes for both VR and MBLC. Ongoing data collection will address sample size issues in preparation for the final analysis.

RESULTS

Preliminary results were drawn from 13 participants in the VR intervention group. Paired samples t-tests demonstrated significant decreases in post-intervention scores for insomnia ($p < .001$), anxiety ($p = .022$), stress ($p < .001$) and burnout ($p = .035$). Non-significant results were found for depression, compassion satisfaction and secondary traumatic stress. Analysis from 5 MBLC participants, yielded no significant results.



REFERENCES

- Burton, A., Burgess, C., Dean, S., Koutsopoulou, G. Z., & Hugh-Jones, S. (2017). How Effective are Mindfulness-Based Interventions for Reducing Stress Among Healthcare Professionals? A Systematic Review and Meta-Analysis. *Stress and health: journal of the International Society for the Investigation of Stress*, 33(1), 3–13. <https://doi.org/10.1002/smi.2673>
- Byron, G., Ziedonis, D. M., McGrath, C., Frazier, J. A., deTorrijos, F., & Fulwiler, C. (2015). Implementation of Mindfulness Training for Mental Health Staff: Organizational Context and Stakeholder Perspectives. *Mindfulness*, 6(4), 861–872. <https://doi.org/10.1007/s12671-014-0330-2>
- Lomas, T., Medina, J. C., Itzhan, I., Rupprecht, S., & Eiroa-Orosa, F. J. (2018). A systematic review of the impact of mindfulness on the well-being of healthcare professionals. *Journal of clinical psychology*, 74(3), 319–355. <https://doi.org/10.1002/jclp.22515>
- Lovibond, S.H. & Lovibond, P.F. (1995). *Manual for the Depression Anxiety Stress Scales* (2nd. Ed.). Sydney: Psychology Foundation.
- Michael, S. H., Villarreal, P. M., Ferguson, M. F., Wiler, J. L., Zane, R. D., & Flarity, K. (2019). Virtual Reality-Based Resilience Programs: Feasibility and Implementation for Inpatient Oncology Nurses. *Clinical journal of oncology nursing*, 23(6), 664–667. <https://doi.org/10.1188/19.CJON.664-667>
- Morin, C. M. (1993). *Insomnia, psychological assessment and management*. Guilford Press: New York.
- Navarro-Haro, M. V., López-Del-Hoyo, Y., Campos, D., Linehan, M. M., Hoffman, H. G., García-Palacios, A., Modrego-Alarcón, M., Borao, L., & García-Campayo, J. (2017). Meditation experts try Virtual Reality Mindfulness: A pilot study evaluation of the feasibility and acceptability of Virtual Reality to facilitate mindfulness practice in people attending a Mindfulness conference. *PLoS one*, 12(11), e0187777. <https://doi.org/10.1371/journal.pone.0187777>
- Stamm, B. H. (2009-2012). *Professional Quality of Life: Compassion Satisfaction and Fatigue Version 5 (ProQOL)*. ProQOL. <https://proqol.org/>