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Meditating in Virtual Reality: Psychotherapeutic Applications of VR Beyond Exposure Therapy

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Meditating in Virtual Reality: Psychotherapeutic Applications of VR Beyond Exposure Therapy

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Background

- Virtual reality (VR) → visualization of computer simulated 3D environment administered via headset
- Argued VR advantages → the 7 A's: Awareness, Anticipated Benefit, Accessibility, Availability of well-trained providers, Acceptability of seeking treatment, Adherence, and Affordability (Rizzo & Koeniq, 2017)
- Literature supports the efficacy and acceptability of VR exposure therapy (VRET) for the treatment of phobia and trauma based mental disorders
- **GAP** in research → Not all symptoms of described mental health conditions are of a phobic or avoidant nature and may not be amenable to exposure therapy → Ex.) depressive moods, anxiety, and stress are often more associated with general life circumstances (Gonçalves et al., 2012; Botella et al., 2015)
- Said symptoms may be more benefitted by increasing general psychological wellbeing through the induction of therapeutic experinces → Ex.) meditation

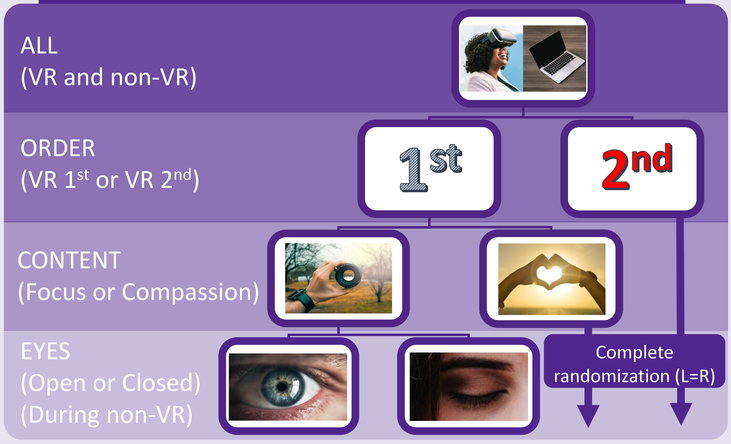
Research Question

- **GOAL** → To transition out of the VRET scope and examine self-reported psychological responses to a commercially available VR Guided Meditation application which may be potentially provocative of therapeutic experiences of relaxation, awe, and other positive affects
- **HYPOTHESIS** → Participants will self-report greater levels of positive affect and satisfaction and lower levels of negative affect after experiencing VR guided meditation in comparison to when they experience non-VR guided meditation

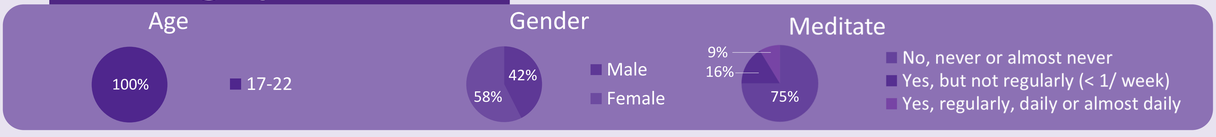
Methods

1) Participants (n=80) fill out Life Events and Well Being Questionnaires
2) 8-9 minute long VR introduction scrolling through all potential environments in which they may meditate
3) Meditation Session 1 (VR or non-VR)
4) Conduct semi-structured interview to gain feedback on positive affect (PA), negative affect (NA), satisfaction (SA), Buddhist phenomenology (BA), and Meditative experience (ME)
5) Meditation Session 2 (VR or non-VR)
6) Conduct second semi-structured interview to gain feedback on PA, NA, SA, BA, and ME

Randomized Split Plot MANOVA



Demographics



What We Found…

Figure 1: Effects of Meditation TYPE and ORDER on PA, NA, and SA

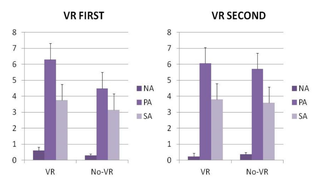


Figure 2: Psychological Symptoms and response to the VR vs. non-VR Meditations (*r*)

	POS_VR	NEG_VR	SATIS_VR	POS_VR	NEG_VR	SATIS_VR
PWB	.008	-.119	*.201	-.069	*-.296	.071
PTSD	-.011	*.205	-.140	.120	*.437	.065
DEP	-.09	*.226	-.100	.001	*.319	-.086
ANX	-.07	.076	-.034	.093	*.320	.055

Life Stress and response to the VR vs. non-VR Meditations (*r*)

	POS_VR	NEG_VR	SATIS_VR	POS_VR	NEG_VR	SATIS_VR
STRESS	.079	.145	-.021	.034	*.221	.058
TRAUMA	-.051	*.284	.043	.003	*.224	.061
ACE	-.167	.153	-.163	-.154	.046	-.057

- Significant effect of VR vs non-VR → but not after covarying for the four pre-meditation surveys for which between-group differences had been found
  - Greater PA (on all 10 items) and greater SA (on 8 out of 10 items) after experiencing the VR meditation
- Significant interaction between Meditation TYPE and Meditation ORDER → even after covarying for the four pre-meditation surveys
  - Follow-up univariate tests found to be significant → only for the dependent measures PA and SA, but not NA
    - Paired differences owing to Meditation TYPE were significant within the group that completed the VR Meditation 1st → reported greater PA and SA during the VR Meditation than during the Non-VR Meditation
    - Paired differences within the group who completed the VR Meditation 2nd revealed similar results, albeit with a lower effect size

Figure 3: Reponse to the Buddhist Phenomenology Q (Δ)

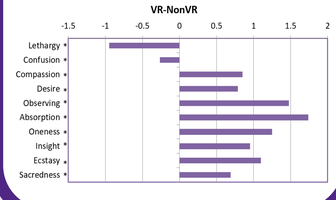
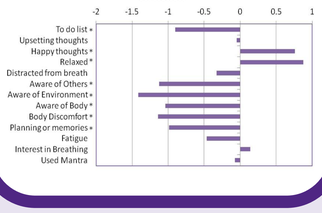


Figure 4: Response to the MEQ (Δ)



	Questionnaire	*M*	*SD*	Range(items)	Percentage(%)
Life Events	STRESS	11.45	7.01	0-36	98.7
	TRAUMA	1.53	1.98	0-10	66.2
	ACE	1.96	3.35	0-19	60.0
	PTSD symptoms	23.0	15.4	3-63	21.2 (PCL-5 ≥ 33)

Implications

- The commercially available *VR Guided Meditation* (VRGM) application has the potential to increase general positive affect in home or clinical settings, thus promoting self care

References and acknowledgements

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