

**THOMAS
MORE** | UNIVERSITY
OF APPLIED
SCIENCES



Low-Cost Virtual Reality to support imaginal exposure within PTSD treatment

**A case report study within
a community mental
healthcare setting**

**31 August 2023, 7th ESRII conference
Tom Van Daele, John D'Arcy,
Adam Elliot, & Paul Best**



VR Photoscan



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PTSD & VR

Primarily military focus

Limited uptake in routine care

New production workflow
& integration in treatment protocol to stimulate uptake

First published single subject case study design with VR Photoscan

Case

Mr A, 38-year-old single male

Bouncer at a nightclub

Assaulted two years ago at a nightclub by three men

Two years out of work,
frequent reliving & suffering



Session 1

Psycho-education with focus on physiological responses to danger

Nervous throughout, no discussing regarding VR Photoscan & standard TF-CBT protocol

Session 2

Psycho-education with focus on trauma memory and cognitive model

Filing cabinet analogy

Homework: complete a written narrative of the assault & identify any areas that are particularly painful or emotional.



Session 3

Reviewed trauma narrative

Explored site using Google Streetview

Discussing importance of reliving and introducing client to Meta Quest 2.

Mix of apprehension & curiosity

Homework: expand on written narrative



Session 3 - VR Photoscan Protocol

- Step 1** Descriptive data relating to scene where trauma took place
- Step 2** Site visit by clinician
- Step 3** Images securely uploaded
- Step 4** Sculpting in Blender
- Step 5** APK

VR Photoscan



DoorUpdated

DoorUpdated

Transform

Location X	0 m
Y	0 m
Z	0 m
Rotation X	90°
Y	0°
Z	0°
Mode	XYZ Euler
Scale X	1.000
Y	1.000
Z	1.000

Delta Transform

Relations

Collections

Instancing

Motion Paths

Visibility

Viewport Display

Custom Properties



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Session 4

90-minute session including VR reliving

5 to 10 minutes orientation in safe space

30 minutes actual reliving with pauses

Initial SUDS 10/10 → minor drop to 9

Homework: listen to audio recording

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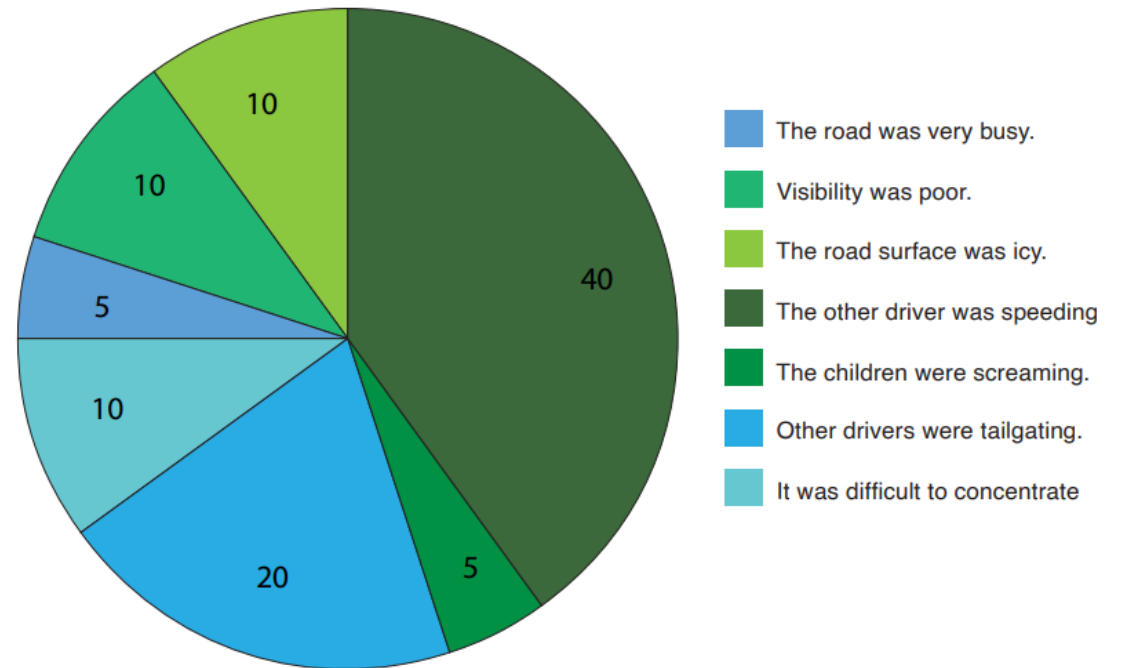
Session 5-7

Hotspots, challenging appraisals and updating trauma memory.

Including 'standard' TF-CBT techniques & interview with martial art experts.

Reduced belief 'he was going to die'.

Gradual lowering of belief rating and changes in appraisals consolidated in VR.



Session 8

Stimulus discrimination in VR

Breaking the experience
to ground himself

SUDS from 8/10 → 3/10

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Session 9 & 10

Relapse prevention & site visit

VR intended, but not required to prepare

Semi-structured interview

A photograph of a semi-structured interview taking place in a virtual reality environment. Two men are standing in an office-like setting. The man on the left is wearing a dark suit and is looking towards the man on the right. The man on the right is wearing a black t-shirt and a VR headset, and is looking away from the interviewer. The room features a desk with a laptop, a green office chair, and a window with blinds. The ceiling has a yellow circular light fixture and a square recessed light fixture.

“Valuable addition to treatment”

*“Limited ability to move
around as a downside,”*

“Emotional salience > realism”

Limitations

Manual labour still required

Highly biased and lack
of generalizability

Difficult to isolate added value of VR

Conclusion

Feasible as added component within cognitively oriented TF-CBT treatment protocol for PTSD.

High level of acceptability by client & minor reported barriers.

Initial evidence showed PTSD symptoms reduced after 10 sessions of treatment.

Further research needed with larger samples to verify overall effectiveness.





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Reference

Best, P. Kupeli-Holt, S., Elliot, A., Duffy, M., D'Arcy, J., & Van Daele, T. (in press). [Low-cost virtual reality to support imaginal exposure within PTSD treatment: A case report study within a community mental healthcare setting.](https://doi.org/10.1016/j.cbpra.2023.03.003) *Cognitive and Behavioral Practice*. <https://doi.org/10.1016/j.cbpra.2023.03.003>