

Does Virtual Reality have potential for the assessment and treatment of deliberate firesetting?

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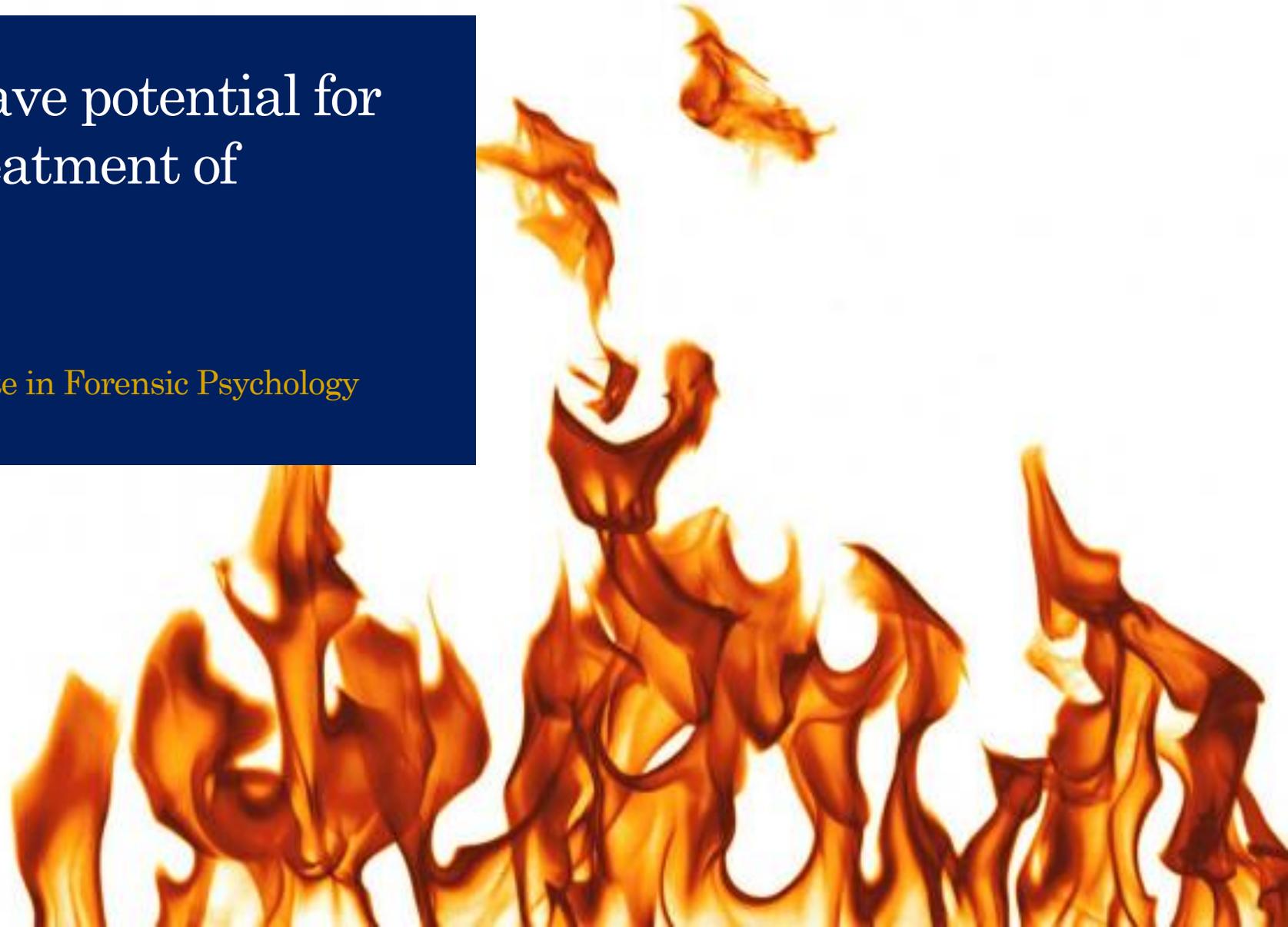
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Deliberate Firesetting

- All acts of intentionally setting a fire, that may or may not have been legally recorded as arson (Gannon & Pina, 2010)

In 2019/20:

- 69,859 deliberate fires
- 55 fatalities
- 1,024 casualties

(Home Office, 2021)



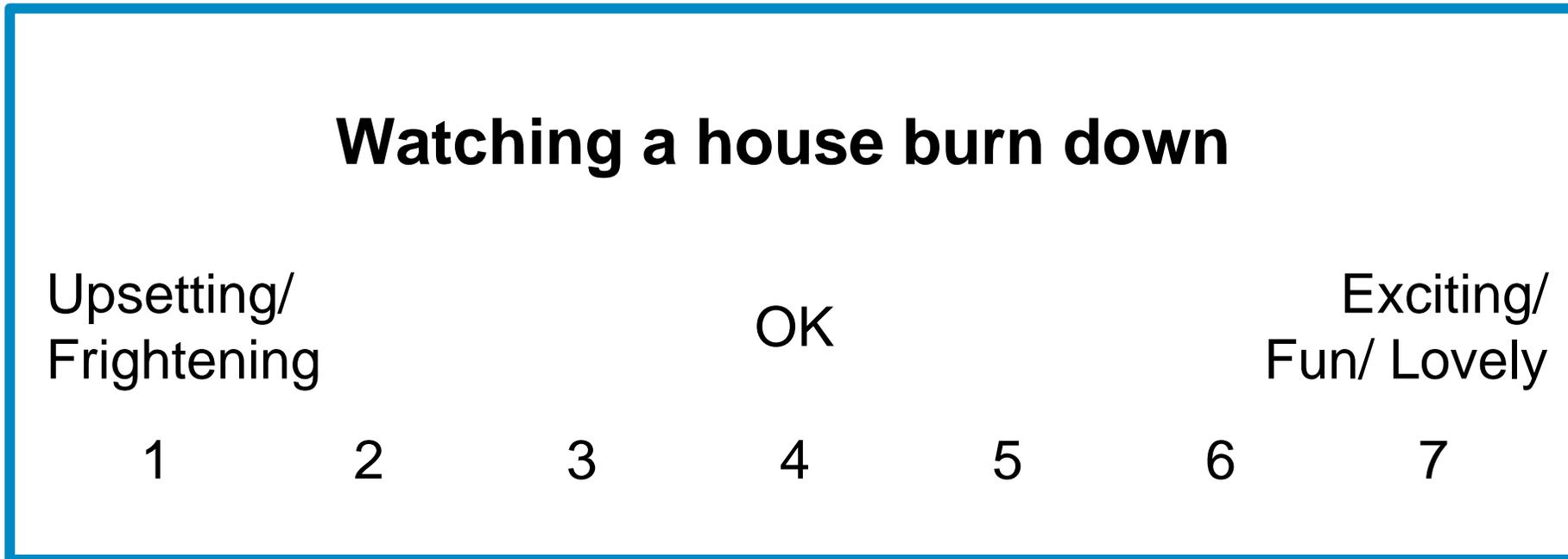
Inappropriate Fire Interest



- Key psychological vulnerability associated with firesetting (Gannon et al., 2015)
- Important in distinguishing between firesetting and non-firesetting offenders (Gannon et al., 2013)
- Appears to be the largest unique predictor of repeat firesetting
 - ❖ Mentally disordered firesetters who had an interest in fire 15 times more likely to have set multiple fires (Tyler et al., 2015)

Current Assessments of Fire Interest

- The Four Fire Factor Scales use items from the Fire Interest Rating Scale:



Potential for Virtual Reality









In Vivo Fire Assessment



- Heart rate
- Interaction with items
- Movement
- Verbalisations

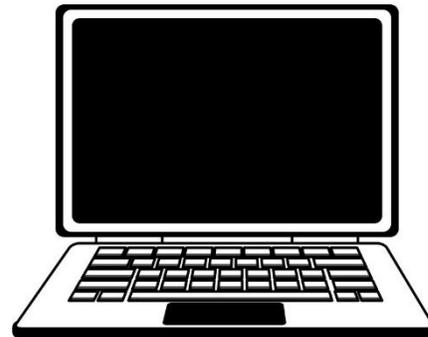
Does VR optimise the assessment of fire interest?

Virtual Reality
(VR)



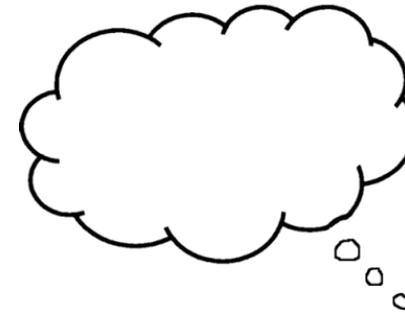
vs.

2D Televised
(TV)



vs.

Imagined



Hypotheses

- VR will generate **more extreme appraisals** and **higher heart rate** relative to TV and Imagined
- Individuals with higher pre-existing fire interest will demonstrate:
 - Higher heart rate
 - More movement towards the fire
 - More interaction with items
 - More positive appraisals

Community Pilot

$n = 121$

- VR will generate:
 - ✓ more extreme appraisals
 - ✗ higher heart rate
- Individuals with higher pre-existing fire interest will demonstrate:
 - ✗ Higher heart rate
 - ✗ More movement towards the fire
 -  More interaction with items
 -  More positive appraisals

Future Directions: NHS Pilot

- Can an InVivo Fire Assessment distinguish between individuals with a history of firesetting and other offenders?

Data collection
ongoing...



NHS Pilot

Common sense tells me this isn't going to hurt me, but its very much like what I went through

I do actually find that a little bit frightening... its quite realistic. I find the smoke scarier than the flames, because I know that is how most people die...The sound is quite realistic as well - the roar...It does remind me of when I set a fire in my cell in prison. Its very similar

NHS Pilot

That's quite scary isn't it...Makes me realise what I did probably wasn't the best of things to have done...

Its taking a while to catch fire properly... it looks amazing though.

Survey of Clinician's Views of VR

Current research:

- perceptions of clinicians working with individuals with a history of firesetting
- identify key areas to add value to current practice
- highlight any barriers to use



Survey of Clinicians' Views of VR: Benefits

Being able to observe the clients and their choices in situations you cannot otherwise access, and for them to practice their skills.

It is impractical to expose service users to a situation with a fire in real life so this may be of greater use than simply watching videos or pictures

Being able to assess thoughts, feelings associated with fire/the index offence in a more meaningful way

Survey of Clinicians' Views of VR: Benefits

It may be more accessible to those who would struggle to attend face to face treatment.

I think it would allow participants to explore their firesetting (e.g., walking decision chains, scenario testing) in a way that makes them feel safe.

This method may also be particularly useful for individuals who have an intellectual disability or maybe find verbal communication difficult.

Survey of Clinicians' Views of VR: Barriers

The equipment would not be allowed in UK prisons, and the cost would also be prohibitive even if it was allowed - I can't see it happening this century, we struggle to get access to any equipment to play film clips!

Cost; Potential security issues if taking on to the wards

The prison is so behind technology wise and the security is very strict

Survey of Clinicians' Views of VR: Barriers

I think that this could be too realistic and potentially re-traumatising, especially when trying to work in a trauma informed way.

Clients may disassociate the dangers of fire if they are in a VR environment where there is no risk present.

Potential increase in relation to use of fantasies around firesetting or potential re traumatisation.



Conclusions

- VR = novel technology with potential for forensic mental health
- Utility in assessment of fire interest to be determined
 - Potential impact for treatment planning and risk assessment
- Understanding staff perceptions important in identifying barriers and avenues for use

References

- Gannon, T. A., Ó Ciardha, C., Barnoux, M., Tyler, N., Mozova, K., & Alleyne, E. K. (2013). Male imprisoned firesetters have different characteristics than other imprisoned offenders and require specialist treatment. *Psychiatry: Interpersonal and Biological Processes*, 76(4), 349–364. <https://doi.org/10.1521/psyc.2013.76.4.349>
- Gannon, T. A., Ó Ciardha, C., Doley, R. M., & Alleyne, E. (2012). The Multi-Trajectory Theory of Adult Firesetting (M-TTAF). *Aggression and Violent Behavior*, 17(2), 107–121. <https://doi.org/10.1016/j.avb.2011.08.001>
- Gannon, T. A., & Pina, A. (2010). Firesetting: Psychopathology, theory and treatment. *Aggression and Violent Behavior*, 15(3), 224–238. <https://doi.org/10.1016/j.avb.2010.01.001>
- Home Office. (2021a). *FIRE0401: Deliberate fires attended by the Fire and Rescue Services*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/864156/fire-statistics-data-tables-fire0401-141119.xlsx
- Home Office. (2021b). *FIRE0402: Fatalities and non-fatal casualties in deliberate fires attended*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/883632/fire-statistics-data-tables-fire0402-141119.xlsx
- Ó Ciardha, C., Tyler, N., & Gannon, T. A. (2015). A practical guide to assessing adult firesetters' fire-specific treatment needs using the Four Factor Fire Scales. *Psychiatry*, 78(4), 293–304.
- Tyler, N., Gannon, T. A., Dickens, G. L., & Lockerbie, L. (2015). Characteristics that predict firesetting in male and female mentally disordered offenders. *Psychology, Crime & Law*, 21(8), 776–797. <https://doi.org/10.1080/1068316X.2015.1054382>