Aggression and Violence De-escalation Training using Virtual Reality Technology for Frontline Healthcare Professionals and Students

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Introduction

- Aggression and violence (A&V) towards frontline healthcare professionals (FHPs) occurs daily, placing increasing strain on Australian healthcare systems[1].
- Traditional face-to-face A&V de-escalation training can be difficult to resource and lacks consistency[2].
- There is a need to explore alternative effective training solutions in early aggression identification and de-escalation techniques.

Previous studies suggest immersive virtual reality (IVR) can provide comparable training experiences to live training formats in some settings[3]. Benefits of IVR education include:

- Ensures standardised learning[4].
- Lowered long-term resource investment[5].
- Higher flexibility in training delivery[6].
- Maintains the ability to edit or design new educational content as needed.

Methods

This project designed and evaluated a novel A&V de-escalation training solution for Emergency Department (ED) healthcare professionals using IVR technology.

The project comprised of four phases:

(1) Qualitative focus groups gathering perspectives of ED clinicians, hospital work health safety professionals, and hospital A&V working group leaders, on appropriate learning objectives, scenarios, game mechanics, and perceived barriers to implementation.

(2) Formative research results and feedback from an expert clinical advisory group was synthesised with corresponding literature to inform a comprehensive game design document.

(3) The education resource was developed through an iterative review process leveraging the expertise of the Edith Cowan University Simulation and Immersive Digital Technology Group.

(4) A pilot evaluation of the IVR training program was undertaken with 50 student paramedics, 70 student nurses, and 130 ED FHPs with representation from all three of Perth's metropolitan health services.

Data was collected through self-report questionnaires investigating participant confidence, task difficulty, perceived satisfaction, and system usability.

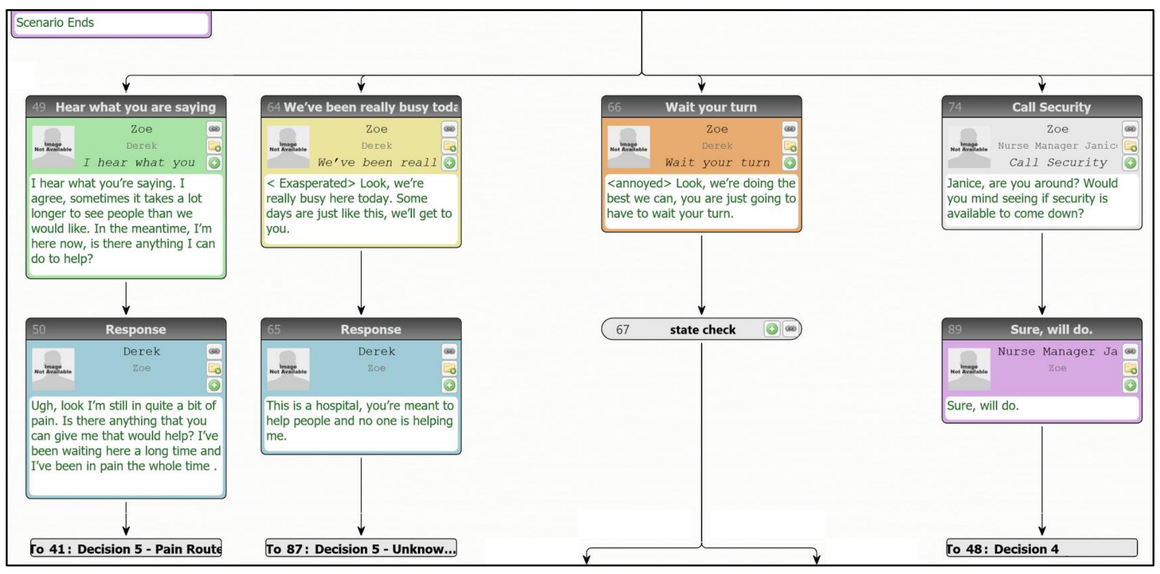

Figure 1. A small section of the training program narrative map, showcasing the branching nature of the scenario

Results

Results from the formative qualitative focus groups revealed four key themes:
1. Aggression and violence is becoming more frequent and difficult to manage.
2. Strategies in place to manage aggression and violence are perceived to be insufficient.
3. Systemic issues exacerbate the consequences of aggression and violence.
4. Staff feel inadequately equipped to manage the impact of aggression and violence on their own wellbeing.

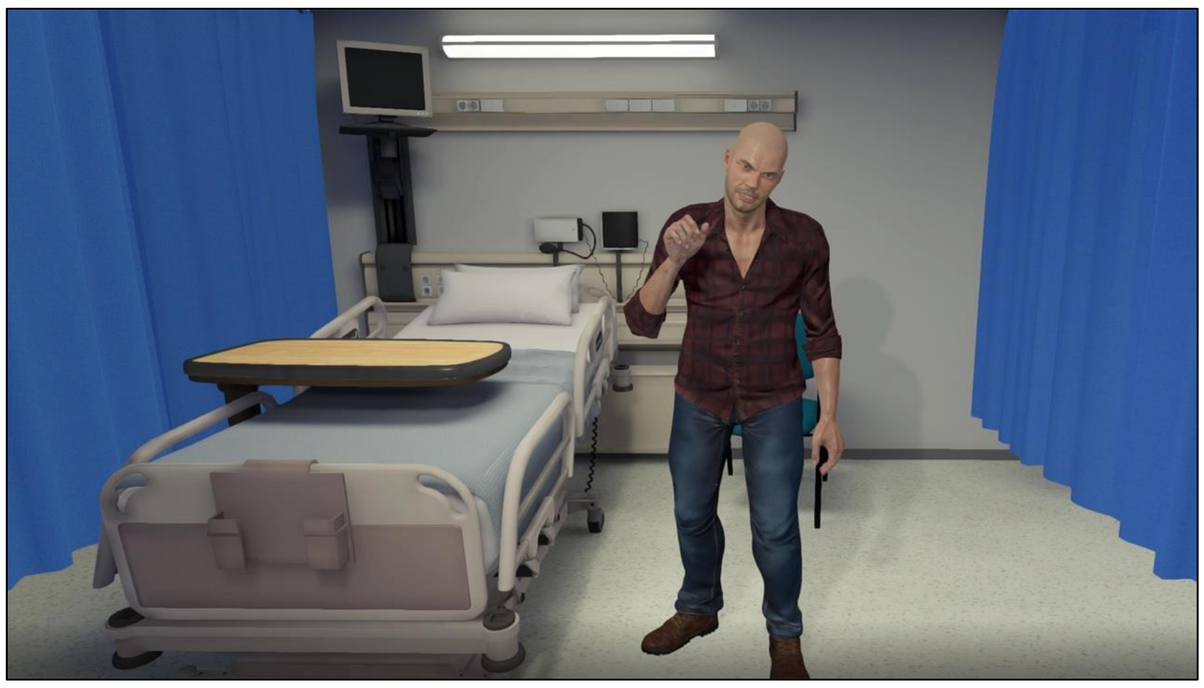

Figure 2. An image from the IVR training program, in which the user encounters an aggressive patient and is tasked with de-escalating the situation.

Analyses of results from the training program pilot evaluation with student paramedics (n=50), student nurses (n=70), and FHPs (n=130) suggested:

- Significant improvements in self-reported confidence in coping with patient aggression following completion of the IVR solution.
- High levels of resource usability across a broad range of experience levels and familiarity with IVR.
- 90% of student paramedics stated they believed the resource was applicable for paramedics.
- Nine out of ten participants stated a desire for further IVR training.

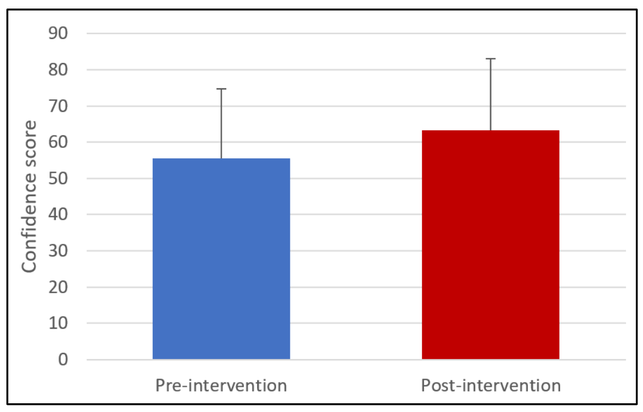

Figure 3. FHP mean pre- and post-training confidence in coping with patient aggression scores

Figure 4. A participant using the IVR training program

Discussion & Conclusion

- This pilot project provides a thorough proof-of-concept and demonstrates clear appetite amongst student paramedics, student nurses, and FHPs for further IVR A&V de-escalation training opportunities.
- IVR represents a flexible and easily accessible avenue to supplement current A&V de-escalation training practices.
- Evaluation of the IVR training program with undergraduate paramedic students suggests comparable results to ED FHPs.

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Acknowledgements

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