

4CPS-276 - A qualitative theoretical exploration of the use of immersive technology in pharmacy practice



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Background

Immersive technology is a fast-evolving technology that allows interactive experience for users. Its use has recently expanded to include multiple specialties in healthcare system; of special importance its use in supporting medication adherence, management of anxiety and pain, potentially leading to better health outcomes. Yet, evidence of employment in pharmacy practice is limited.

Aim

This study aims to explore stakeholders' perspectives on using immersive technologies in pharmacy practice, evaluating the current status, future perspectives, possible challenges to implementation and potential outcomes.

Methodology



Research tool

Semi-structured online interviews, Conducted through Microsoft Teams. February 2024 – April 2025.



Interview schedule

informed by Non-adoption, Abandonment, Scale-up, Spread and Sustainability (NASSS) framework and literature review.



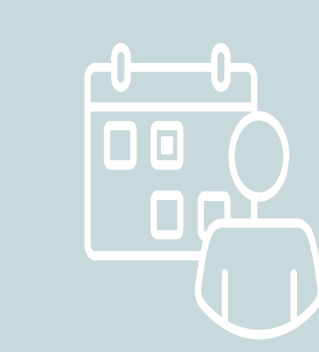
Participants

Three groups of UAE stakeholders: informatics vendors, pharmacists with informatics experience and practicing pharmacist with no informatics experience.



Recruitment

The study employed purposive and snowball sampling to choose relevant individuals from LinkedIn's professional network and recruited them until data saturation was reached.



Data management

Audio recorded, transcribed verbatim and anonymised. Transferred to NVIVO software – facilitate data management and visualisation.



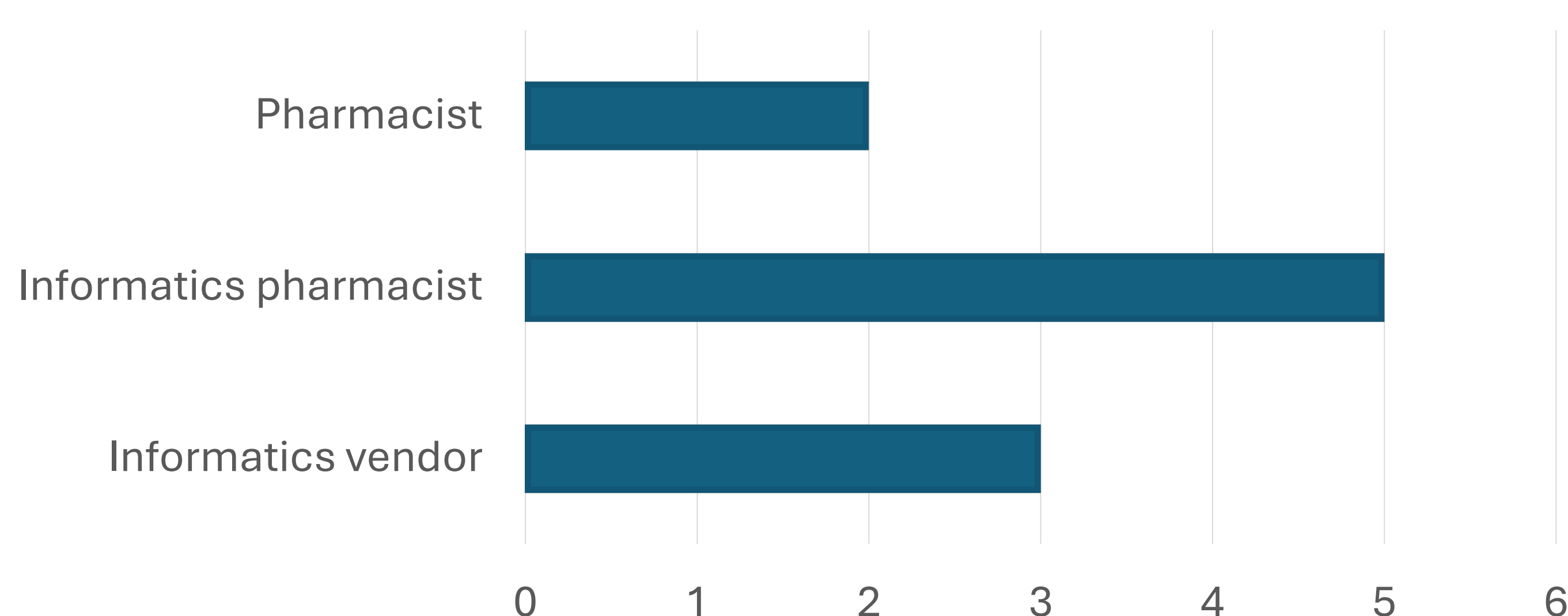
Data analysis

Independently analysed by two researchers both deductively (based on NASSS) and inductively (based on emerging themes).

Results

A. Participants' demographics (Figure 1)

PARTICIPANTS' SPECIALITY (N=10)



References:

- Birrenbach, T., Bühlmann, F., Exadaktylos, A. K., Hautz, W. E., Müller, M., & Sauter, T. (2022). Virtual Reality for Pain Relief in the Emergency Room (VIPER) – a prospective, interventional feasibility study. *BMC Emergency Medicine*, 22(1). Retrieved October 23, 2023, from <https://doi.org/10.1186/s12873-022-00671-z>
- Greenhalgh, T., & Abimbola, S. (2019). The NASSS Framework - a synthesis of multiple theories of technology implementation. *PubMed*, 263, 193–204. <https://doi.org/10.3233/shti190123>

Results

B. Research findings applied to NASSS Framework

1- The condition or illness

- Immersive technology is not widely used in pharmacy practice yet.
 - There is potential for implementation to improve patient safety and education.
 - Potential uses include pharmacist education, automation support, and patient counselling.
 - It can be used to create “virtual wards” for remote patient care.
- Currently, it is not being implemented in the pharmacy. It could be something in the future.” [Participant 1]*

2- Value proposition

Benefits:

- Reduces pharmacy operation costs and errors.
- Enables pharmacists to access clinical information swiftly.
- Enhances patient understanding and experience.
- Provides access to educational videos anytime, anywhere.

Economic Impact:

- High initial costs justify investment.
 - Mass production reduces costs.
 - Reduction in pharmacist numbers through technology implementation leads to significant cost savings.
- “We will have a reduction in the number of pharmacists. Economic, it is going to save a lot of cost for the patient.” [Participant 5]*

3- The adopted system

Training, Support, and Knowledge:

- Comprehensive training programs and leadership support needed.
- Ongoing training and vendor support needed.

Workflow Integration:

- Integration of immersive technology into existing pharmacy workflows.

Readiness for Technology Change:

- Some UAE hospitals are ready to adopt immersive technology.
- Awareness campaigns and management involvement vital for successful implementation.

“You need some kind of training within the hospital. For this reason, we are trying to create an automation academy within C to teach anybody from outside.” [Participant 1]

4- The wider context

UAE's Trends and Initiatives for Immersive Technology Adoption

- Immersive technology aligns well with UAE's vision on adopting new technologies in healthcare and its achievable
 - Government initiatives support technology adoption, creating a conducive environment for healthcare.
 - Caution advised to avoid risking patient safety and impacting pharmacy profession.
- “UAE vision is always related to implementing innovative technologies as well as the transparency of the information and how this will be reflected on the patient's health and on the well-being of all people living in UAE.” [Participant 9]*

5- Embedding and adaptation over time

In Pharmacy Technology:

- User-friendly interfaces are necessary to bridge the technology gap for elderly patients, ensuring broader user adoption.
- User feedback will drive further improvement of the technology, leading to more accessible metaverse and ensures technology durability and sustainability.
- Recommendations include making virtual reality glasses more compact and portable.

“There should be a demo period or a trial period to see the feedback from the end user and from the patient. The feedback will impact the sustainability and durability of such a solution.” [Participant 6]

Conclusion

Using immersive technology in pharmacy practice can have a great positive impact on the profession's development, allowing more time for the pharmacist to conduct clinical tasks and support pharmacist training at work. It also has a huge positive impact on patient experience and involvement in self-management of their medical conditions.

The future holds great prospects for the use of technology in pharmacy practice.

Immersive technology uses in healthcare are expected to expand. This is specifically achievable in UAE, given the country's vision to improve healthcare system including the use of up-to-date technologies.