Participatory development of Virtual Reality to coach forensic psychiatric patients

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The role of eHealth in Dutch mental healthcare is increasing and has shown a lot of potential with respect to improving effectiveness, quality of care, and self-management. However, the use of eHealth in Dutch forensic psychiatry is lagging a bit behind [1]. The main difference with regular mental healthcare is that forensic psychiatry's main goal is to prevent recidivism instead of improving or curing psychological disorders. Therefore, it is a specific domain of mental healthcare: most patients are low in treatment motivation, have low literacy and suffer from multiple, complex psychiatric disorders [2, 3]. Also, its main goal is preventing recidivism instead of improving or curing psychological disorders. It is deemed essential that an eHealth technology addresses these specific characteristics of the patients and the forensic context [1].

Virtual Reality (VR) is a technology that has a lot of potential for forensic psychiatry [4] because of the following reasons. First, studies on the use of VR in general mental healthcare have shown that it is effective for a broad range of disorders, also present in forensic psychiatric patients [5]. Also, VR technologies can be tailored by adapting it to the characteristics of a patient and by increasing the degree of difficulty of the scenario [6], making it suitable for the large differences within this target group. Finally, VR provides a realistic environment in which psychological skills can be observed and coached without requiring a high amount of literacy [7], which suits most forensic psychiatric patients. However, at this point in time, little research on the use of VR in forensic psychiatry has been done [4]. This means that it is not possible to implement an existing, evidence-based VR technology specifically focused on forensic psychiatry. Consequently, VR technologies that seamlessly fit the forensic patient and his or her context have to be developed. A method that supports eHealth developers in achieving this is participatory development [8]. Participatory development can be defined as the involvement of users and other stakeholders during each phase of the eHealth development process [9]. The CeHRes Roadmap provides a guideline for participatory development, implementation and evaluation of eHealth technologies such as VR, in order to ensure a good fit between technology, context and people [10]. The goal of this poster is to describe a multimethod participatory development process of a persuasive VR technology in forensic psychiatry by means of the CeHRes Roadmap.

This VR project mainly involves on the first three phases since the focus lies on a proper development process. Implementation across the organization and summative evaluation are beyond the scope of the project. The relevant phases and their accompanying methods are described below.

Contextual inquiry

The main goals of the contextual inquiry are to provide an overview of the current situation, its issues, and relevant stakeholders. The following methods were used in the VR project: a literature review on the use of VR in forensic psychiatry; desk research to find out about stakeholders, current treatments and protocols within forensic psychiatry, and rules and guidelines on the use of VR; and interviews and focus groups with therapists and patients to find out about issues and points of improvement of the current treatments. Preliminary results of this will be presented.

Value specification

The main goals of the value specification phase are to find out about the needs and wishes of relevant stakeholders concerning the technology, and the specific requirements of this technology. In the current project, focus groups with both forensic psychiatric patients and therapists to gather their ideas about possible applications of VR have been held. Furthermore, semi-structured interviews with patients and therapists will be conducted to discuss concrete VR scenarios that are based on the aforementioned focus groups. Finally, a focus group with both patients, therapists and researchers will be held to define requirements for the VR application, based on the results of the previous methods.

Design

In the design phase, requirements are used to develop several prototypes that are evaluated with stakeholders and lead to the technology that will be implemented in practice. Also, persuasive elements and behaviour change theories are added to the technology. In the current VR project, multiple theory based lo-fi prototypes with persuasive elements will be developed together with patients, therapists, researchers, VR developers and other stakeholders. Several usability tests of these prototypes will be conducted with stakeholders to find out about their opinions and possible points of improvements of the design. The final VR technology will be pilot tested in several treatments.

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