Chapter 12
Virtual Reality and Forensic Mental Health

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ABSTRACT

This chapter provides an overview of virtual reality (VR) treatment and rehabilitation for mentally ill patients who have committed a crime or are at risk of relapse. The authors focus on the forensic mental health field since this area relates to any individual dealing with a psychiatric condition that is in trouble with the law, whether they be inpatient offenders, outpatient offenders, or inmates at a regular prison. Virtual reality (VR) and its current uses, as well as its benefits and barriers, are presented as a successful and individualized eHealth treatment. In addition, some examples of VR studies that were recently done with these individuals will be presented to show the results of their current approaches, demonstrate their limitations, and figure out possible ways of improvement.

INTRODUCTION

Technology is an area in constant growth and development. With the creation of this chapter, the authors present a synopsis of Virtual Reality technology employed in the treatment, rehabilitation, and reintegration of Forensic Mental Health in and outpatients.

Although the first application of VR in this field takes us back to 1960, only a short time ago there has been observed a significant evolution and blooming in virtual reality, both in general and in this

DOI: 10.4018/978-1-7998-8634-1.ch012

target population. The studies carried out in this area are reduced, but enough to show its importance and how much this technology can raise the effectiveness of mental health treatment for those who have shown deviant behavior or are at risk of it.

The main goal of this paper is to assemble a brief context of Virtual Reality technology and Forensic Mental Health and, after some research, provide an overview of the studies already made in this area. Furthermore, with the purpose of reinforcing the utility of VR in forensic psychiatry, the authors present the advantages and the barriers of this application, in addition to future recommendations to overcome them.

BACKGROUND

Even though there are some assessment tools we can use with VR, which can help measure different needs and responsivity issues for offenders, no tool is able to predict violence or reoffending at 100 percent. VR offers new possibilities to improve current evaluations and inform on upcoming correctional rehabilitation strategies (Ticknor, 2018).

Virtual reality allows us to generate an immense variety of safe, cost-efficient, and simple-to-control environments (Ticknor & Tillinghast, 2011). These environments are computer-generated simulations that incorporate the world in a three-dimensional (3D) visualization, allowing user interaction through transmission devices (Ticknor, 2011) with various sensory modalities. Some authors consider that VR began based on fictional and fantasy thoughts of scientists. However, presently, this type of technology can be more representative of real environments than the traditional technics that usually rely on people's memory and imagination. (Marques et al., 2008; Ticknor & Tillinghast, 2011; Smeijers & Koole, 2019). Additionally, it presents us an opportunity to manipulate the circumstances according to each patients' specificities (Marques et al., 2008; Ticknor & Tillinghast, 2011; Smeijers & Koole, 2019).

Researchers imply the need to understand two essential aspects to ensure the quality of this technological approach: immersion and presence (Cisneros et al., 2019; Dores et al., 2012; Ticknor & Tillinghast, 2011). The first concept contemplates the perception of reality while in VR. Ticknor (2011) suggests three types of perception: fully immersive, semi-immersive, and non-immersive. The term presence describes the notion of being physically present in a virtual environment while in a different location (Dores et al., 2012; Ticknor, 2018).

This technology can be supplemented with other devices and, while doing so, more valuable information might be provided (Benbouriche et al., 2014). For example, with physiological response measurement, the investigators can assess the participants' heart rate, perspiration, muscular tension, and blood pressure (Benbouriche et al., 2014; Ticknor, 2018). Despite this, it is important to keep in mind that not every participant reacts well to VR technology. Some people might experience certain physiological responses, for instance, cybersickness. Its symptoms can include eye strain, headache, paleness, sweating, mouth dryness, disorientation, and vertigo (Ticknor, 2018). Some individuals might also experience nausea and mild pain from the head-mounted device's weight or shape (Greg & Tarrier, 2007).

Besides that, the quality of the graphics, frames per second, and response time can also impact the participants' engagement in the VR simulation (Greg & Tarrier, 2007). To confirm VR's effectiveness, the scenario must guarantee enough information so that the participant can understand the background of the simulation. It should be manageable enough to ensure a response in the simulation so that participants' involvement is reinforced and their decision-making is conscious and educated.