

Chapter 4

A Research Framework for Investigating the Benefits of Technology in Treatment and Management of ADHD in Tertiary Students

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ABSTRACT

This paper uses current streams in health research to identify a framework for investigating the use of technology in management of ADHD. The framework incorporates a model based on a multimodal view of treatment options and is aimed at investigating university students with ADHD. The framework includes four main factors: academic performance, symptoms, technology and impacts. A grounded theory approach is described for a potential analytical technique. This framework is intended to address the significant problems of young people with ADHD when attempting to gain professional qualifications.

INTRODUCTION

Attention Deficit-Hyperactivity Disorder (ADHD) is a neurobehavioral disorder which affect approximately 11% of university students' population (Dipeolu, 2010). It impacts these student's academic performance (Heiligenstein et al., 1999). It also interferes with these student's ability to maintain their academic load and various aspects of social life (Barkley, 1998; Quinn, 2001). Typically, individuals with ADHD are deficit in executive functions, such as Working Memory (WM) and planning (Barkley, 1997a) which is related to academic performance (Groppier and Tannock, 2009). ADHD often co-occurs

DOI: 10.4018/978-1-5225-0778-9.ch004

with learning disabilities (LD) such as difficulty in organizing time, poor reading, writing, or spelling skills, or completing tasks abilities (Mayes et al., 2000).

Today, one of the most effective approaches to treat ADHD is the multimodal framework, which includes: medication, education, therapy, and coaching (CADDRA 2011; Department of Human Services Victoria n. d.). Information Technology (IT) solutions are also growing in popularity for mental health treatments, especially young adult with mental disorders such as ADHD. IT solutions, such as the Internet and mobile devices, have the promise to improve mental health services especially by enabling early intervention and treatment for many people (Christensen et al., 2002)

The emphasis of this research framework is on the non-pharmaceutical components of the multimodal framework; coaching, therapy and education. The role for IT in each of these components is examined with the view to introduce IT into the traditional treatment context. In addition, four cases are therefore chosen to represent the key treatment components; namely, case1:- coaching and Education (Swartz et al., 2005), case2:- Working Memory Training (WMT) (Puffenberger, 2011), case3:- Cognitive Behavioral Therapy (CBT) (Ramsay, 2012), and case4:- Neurofeedback Therapy (Arns et al., 2009). Further, the role for IT in each of these cases will be examined.

This research design will not involve gathering information from patients; it involves collecting data from psychologists in the form of semi-structured interviews and a grounded theory methodology using multiple cases is adopted. The research main question guiding this study is “How can an IT solution enable mental health providers to facilitate the delivery of treatments of ADHD?”

The next section outlines the use of IT in healthcare in general, followed by a definition of e-health and the use of technology in mental health services in general, and ADHD in particular. The last part of this section introduces the relevance of ADHD in university students and what current non-medication treatments are used to treat and manage ADHD.

BACKGROUND

The IT capabilities in healthcare have the potential to assist developed and developing countries to solve many issues they are facing (Wickramasinghe et al., 2005), such as easy access to information and services, coping with changing in population health patterns and satisfaction and safety of stake holders. Healthcare is becoming technology-driven (Moumtzoglou, 2011) with the possibility of successful adoption of e-business in the form of e-health (Wickramasinghe et al., 2005). There is a wide range of e-health services (Eysenbach, 2001; Wickramasinghe et al., 2005) and E-mental health is one of them.

Even though, the use of technologies in mental healthcare is relatively new, there are positive feelings in using technologies among different age groups, for different mental illness preventions, treatments, and management (Whittaker et al., 2012). Technology has the potential to improve efficiency, accessibility and the opportunities for early intervention and treatment of for young adults (Anthony et al., 2010; Christensen et al., 2002), especially in treating young adults with ADHD (Beck et al., 2010).

IT tools and methods, such as Internet-based interventions and mobile-based application or Short Message Services (SMS) therapy are used for the treatment of people with mental illness like depression and anxiety (Whittaker et al., 2012). They also can target young adults seeking mental health attention (Christensen et al., 2002). The use of these type of technologies made Australia to be advance in e-mental health services (Christensen and Petrie, 2013).

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