

## Chapter 21

# Exploring the Risk Factors of Interactive E-Health Interventions for Digital Addiction

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### **ABSTRACT**

*Digital Addiction refers to a problematic usage of digital devices characterised by being excessive, compulsive, impulsive and hasty. It is often associated with negative life experience such as anxiety and depression. To combat Digital Addiction, interactive e-health intervention applications started to appear to aid users adjust their usage style. The present study aims to understand the risks related to such e-health interventions. The authors conducted an empirical research to investigate such risks from users' perspectives through a diary study. Fourteen participants were recruited and asked to install popular "digital diet" applications and use them for two weeks and record their significant moments. The authors then interviewed the participants to discuss their experience. Self-governed interactive e-health intervention for digital addiction could lead to adverse side effects such as lower self-esteem, misconception of the healthy usage and creating an alternative addictive experience. Thus, there is a need for theory-based development and rigorous testing for such e-health solutions.*

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## 1. INTRODUCTION

Digital Addiction (DA) is a term used to denote particularly problematic usage of digital media, often associated with negative consequences such as distraction, lack of sleep and reduced social skills. While there is still no authoritative definition for this condition, DA has been argued to include various sub-types such as internet addiction, gaming addiction, cyber-relationships addiction, and information overload (Young & de Abreu, 2011). Although DA is not yet formally classified as a mental disorder in the 5th and most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) (American Psychiatric Association, 2013), it does acknowledge pathological internet gaming as an emergent phenomena and possible disorder which requires additional research. This somewhat ambiguous status within the DSM is a reflection of ongoing debate on whether extensive internet use is an issue for concern (Yellowlees & Marks, 2007) or just a new lifestyle, i.e. “highly promoted tool” (Young & Rodgers, 1998). However, regardless of clinical status the phenomenon is becoming a recognised global concern with a growing need to provide effective and accessible health interventions for users to at least re-gain control (Montag & Reuter, 2015).

The introduction of software-based solutions to health interventions has provided a potential template to promote effective management of digital life. Some studies and initiatives, such as Ko, Choi, Yang, Lee, & Lee (2015a), Ko et al. (2015b), and Lee, Ahn, Choi, & Choi (2014), have made an attempt to generate technological opportunities to shift from traditional web-mediated interventions to more intelligent systems utilizing recent innovations such as gamification and persuasive technology.

Despite the potential benefits of facilitating technology in delivering interactive, real-time, and intelligent interventions, there is still a stark lack of credible knowledge-base of such solutions. For instance, software-based mental health interventions, such as the ones in NHS library (NHS, 2015), are argued to fail in providing clinical evidence of a long-term change (Leigh & Flatt, 2015). One of the reasons for this failure could be the lack of robust integration of these technologies with traditional health care systems, coupled with the poor application of psychological theories such as self-regulation (Leigh & Flatt, 2015).

Peer support groups have been recognized as an effective treatment approach in rehabilitation programs for addictive behaviours (Bassuk, Hanson, Greene, Richard, & Laudet, 2016). Individuals are gathered together with peers who share similar experience and conditions to engage in activities that involve mutual help, social interaction and emotional support to improve psycho-social wellbeing and to re-integrate them to their communities (Sarrami-Foroushani, Travaglia, Debono, & Braithwaite, 2014). These groups revolve around social participation and interactions under the supervision of addiction counsellors, e.g. trained ex-addicts, to eliminate any deviant behaviours that may arise, such as introducing other addictive behaviours by peers or minimising the perceived risk of others. E-health intervention systems can apply this approach as well as reacting intelligently to any negative side-effects that may appear in group communication, such as social loafing and compensation (Simms & Nichols, 2014). Yet, it is still ambiguous how to translate what works in face-to-face social groups to virtual environments that mediate positive behavioural change. This is due to the unique aspects of online social structures and associated dynamics, e.g. the online disinhibition effect and its factors which include anonymity, asynchronicity, solipsistic introjection, dissociative imagination, and minimisation of authority (Suler, 2005).

E-health intervention systems need to be enhanced in terms of evaluating their target audience in order to offer the right treatment options. For example, gamifying systems could be risky for individuals with Attention Deficit Hyperactivity Disorder (ADHD). ADHD, which is a group of behavioural symptoms

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