

Chapter 7

A Framework for Designing and Evaluating Internet Interventions to Improve Tinnitus Care

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ABSTRACT

Tinnitus can be a debilitating hearing-related symptom. Access to evidence-based tinnitus interventions remain limited. Tele-audiology can assist by providing a clinically and cost-effective tinnitus management route. This chapter highlights how this is made possible by focusing on one form of tele-audiology, namely an internet-based intervention. Guidelines are provided for the development of such interventions. A framework outlining the various processes involved in evaluating newly developed interventions is also provided. The chapter closes by discussing factors that may facilitate or hamper the dissemination of new interventions into existing service delivery models. This well-defined outline for intervention development and evaluation can be applied and used to guide innovative intervention models by stakeholders.

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INTRODUCTION

Technological advances can assist with the provision of healthcare interventions aimed at improving the health of individuals. Utilising these developments should be explored, especially when a chronic condition or symptom exists which may require multiple complex interventions and place a substantial burden on health organisations (West, 2012). Implementing novel interventions without a systematic process of careful development and evaluation may result in them failing to reach their full potential or produce the desired outcomes (Craig et. al., 2008). The aim of this chapter is to encourage utilisation of digital healthcare in the context of an auditory-related condition known as tinnitus. It provides a comprehensive and systematic framework for the design and evaluation of these interventions. The examples and well-defined guidelines can be applied by those interested in improving service delivery models such as clinicians, scientists, researchers, students, and government based workers.

This chapter was written by a diverse range of professionals, including a clinical psychologist, audiologist, a tinnitus expert, and academic-researchers, with a common interest in helping those with tinnitus. While working in clinical settings, each noticed some recurring themes surrounding barriers to providing the quality care patients required. Many stories of unmet needs and people desperate for help were heard. The authors, therefore, pioneered models to improve interventions, which will be shared in this chapter.

The objectives of this chapter are:

1. To outline the barriers to accessing tinnitus care in current tinnitus care models
2. To highlight how inclusion of tele-audiology can improve access to evidence-based intervention for tinnitus
3. To provide a framework for the development of Internet-based interventions
4. To outline the sequential procedures required for Intervention evaluation
5. To identify key processes that aid implementation of newly developed interventions

BACKGROUND

Tinnitus is often characterised by perceiving sounds such as ringing or buzzing in the absence of an identifiable external sound source (Baguley, Andersson, McFerran, and McKenna, 2013). As one of the most distressing and debilitating hearing-related symptoms, the effects can be devastating (Cima, Vlaeyen, Maes, Joore, and Anteunis, 2011). Whether emerging gradually or suddenly, the onset is frequently a significant life event and often associated with numerous challenges and increased levels of stress (Scott et al., 2016). Those experiencing tinnitus may feel isolated, when in actual fact it is one of the most highly prevalent chronic auditory-related symptoms, affecting an estimated 10–15% of the adult population across the globe (Davis and Rafaie, 2000; Khedr et al., 2010; Michikawa et al., 2010; Shargorodsky, Curhan, and Farwell, 2010). This incidence is likely to continue to rise, due to factors such as an increase in life expectancy and recreational noise exposure (Martinez, Wallenhorst, McFerran, and Hall, 2015). Finding a cure that permanently abolishes tinnitus remains elusive due to the heterogeneous aetiology, varying individual experiences and limited understanding regarding the mechanisms and pathophysiology (Elgoyhen, Langguth, De Ridder, and Vanneste, 2015). This realisation of having to live with hearing these sounds all the time, together with the loss of silence, can result in a range of distressing emotional reactions. For those greatly troubled by tinnitus, associated adverse consequences

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