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Relationship between cognitive anxiety level and client variables at initial consultation for adults with hearing impairment

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ABSTRACT

The purpose of this study was to use the Cognitive Anxiety Scale (CAS) to investigate relationships between state-anxiety level (cognitive anxiety) and audiometric variables in adults with hearing impairment at their initial consultation. Thirty-five adults with hearing impairment who consulted an audiologist for the first time participated in this study. An interview to obtain information about cognitive anxiety was conducted prior to the audiological assessment. The results indicated that cognitive anxiety was significantly related to an ability to understand speech in noise. Further, cognitive anxiety and ability to understand speech in noise significantly contributed to the classification of hearing aid adopters and non-adopters.

These results indicate that the measure of cognitive anxiety may have clinical applications in the future.

Learning outcomes: The reader will be able to: (1) discuss the relationship between anxiety and hearing impairment; (2) define cognitive anxiety; (3) state the relationship between cognitive anxiety and audiometric variables; (4) state the relationship between cognitive anxiety and the decision to adopt hearing aids; (5) identify signs of cognitive anxiety in adults with hearing impairment.

1. Introduction

1.1. Hearing impairment

With the ageing population, hearing impairment is a growing health issue in today's society with 364 million people worldwide estimated to have a mild hearing impairment, and a further 278 million people estimated to have a disabling hearing impairment (World Health Organization, 2006). Hearing impairment has been found to impact on an individual in a multitude of ways, including decreased participation in social activities (Helvik, Jacobsen, Wennberg, et al., 2006; Hickson et al., 2008), reduced quality of life (QoL: Dalton et al., 2003; Hallberg, Hallberg, & Kramer, 2008; Hickson et al., 2008) and difficulties at work (Jennings & Shaw, 2008; Sataloff, Sataloff, Virag, Sokolow, & Luckhurst, 2006). Measurement of the impact of hearing impairment, and in particular hearing handicap, is an important part of the audiological assessment and can signal

Abbreviations: CAS, Cognitive Anxiety Scale; HHIE, Hearing Handicap Inventory for the Elderly; HHIA, Hearing Handicap Inventory for Adults; PCT, Personal Construct Theory; QoL, quality of life.

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to the audiologist whether the client is ready for amplification or other rehabilitation strategies (Chang, Ho, & Chou, 2009; Fischer et al., 2011; Garstecki & Erler, 1998; Gopinath et al., 2011; Helvik, Jacobsen, Wennberg, et al., 2006; Hogan et al., 2001). Studies have demonstrated the positive effect of hearing aids, such as increased QoL following fitting (Kochkin, 2011; Öberg, Marcusson, Nägga, & Wressle, 2012), and better relationships at home and at work (Kochkin, 2011).

Along with the effects mentioned above, individuals with hearing impairment may also experience increased levels of anxiety. While some research has supported this argument (Kent & La Grow, 2007; Mehta et al., 2003), others have not demonstrated this relationship (Nachtegaal et al., 2009) or have shown anxiety to be a factor only for a certain type of hearing impairment (Tambs, 2004). Thus, there is conflicting information relating to anxiety in the hearing impaired population. Research relating to other variables such as age (Nachtegaal et al., 2009; Tambs, 2004), gender (Andersson & Green, 1995; Garstecki & Erler, 1999; Hallberg et al., 2008; Helvik, G. Jacobsen, & Hallberg, 2006; Nachtegaal et al., 2009), and QoL are scarce and results also mixed.

The aim of the current study is to investigate the relationship between a measure of anxiety, called cognitive anxiety, and audiometric variables in adults with hearing impairment who consulted for services for the first time. Anxiety has been conceptualised as either a trait or a state (Spielberger, 1972). Trait anxiety refers to a latent disposition to respond with certain reactions which are difficult to change over time. In contrast, state anxiety refers to overt reactions to events that can be transient and change over time. Cognitive anxiety is seen as a transient state and is drawn from tenets of Kelly's (1955) Personal Construct Theory (PCT). Cognitive anxiety occurs when people encounter a situation which does not lie within their personal construct system (Viney & Westbrook, 1976). As a result, they may experience anxiety as they are unable, or only partially able, to interpret situations meaningfully and are therefore unable to judge the implications of them.

1.2. Cognitive anxiety

In PCT, events are anticipated by a person through interpretation of their replications; a new event is compared and contrasted to an existing construct within the individual's construct system (Kelly, 1955). Kelly (1955) stated that there is a finite number of dichotomous constructs within a person's construct system, and that each construct is useful in the anticipation of a limited range of events only (i.e., the person's range of convenience). It is when an event falls mostly outside of this range that an individual may experience state anxiety. PCT can be applied to individuals with hearing impairment communicating in a social situation. The individuals are familiar with communicating in this situation, thus this falls within the range of the construct system. The communication partner may be an old friend with whom many conversations have occurred in the past, also occurring within the construct system. However, with the onset of a hearing impairment, concerns arise, such as the individuals questioning how they will perceive themselves if they cannot understand the friend, and how the friend will perceive them. Kelly, Neimeyer, and Wark (2011) stated that because people with hearing impairment do not have full access to speech that is communicated to them, they may experience cognitive anxiety as they are unable to anticipate and meaningfully interpret the event. Kelly et al. (2011) further stated that the individual with hearing impairment does not know when the communication breakdown will occur due to what is being missed in the conversation, thus resulting in a state of anxiety in such situations.

Viney and Westbrook (1976) noted five conditions in which cognitive anxiety could arise. First, a completely new event is encountered that has not been experienced and thus does not lie within the construct system. Second, an event requires extra constructs that are not available to the person. Next, conflict may occur in the construct system due to the occurrence of incongruous stimuli. Fourth, uncertainty may be produced by responses being unavailable to the person, and finally, interference with cognitive processes may occur such as when there is a high rate of stimulus presentation. Viney and Westbrook (1976) developed the Cognitive Anxiety Scale (CAS) as a means to measure cognitive anxiety. The CAS uses content analysis to find examples of cognitive anxiety in verbal samples.

Viney and Westbrook (1976) established normative data by examining the results from five samples. In doing so, they found those who were experiencing novel and incongruous experiences had higher levels of cognitive anxiety than those whose environment was relatively stable. Evidence for this being a measure of state anxiety, rather than trait anxiety was given in that scores were associated with measures of state anxiety, but not measures of trait anxiety, and cognitive anxiety levels were found to fluctuate over time. Several other studies have further shown the validity of the CAS as a measure of transient state anxiety (Bunn & Clarke, 1979; Viney, 1980). Finally, Viney and Westbrook (1976) noted that level of cognitive anxiety varied in terms of the individual's ability to successfully anticipate and integrate an experience.

Reliability or precision of the CAS has also been investigated. The test–retest stability/reliability of the CAS has been shown to be adequate for counselling research (Viney & Caputi, 2005). In addition, the inter-rater reliability (kappa) has been found to range from .71 to .99, depending on the population under investigation (Viney & Caputi, 2005). Inter-rater reliability for hearing impaired adults ranged from .827 to .861 (Kelly et al., 2011), indicating excellent agreement beyond chance.

Viney and Westbrook (1976) specified scoring guidelines, content categories and weights for the CAS. For this study, these will be based upon those used by Kelly et al. (2011). These were the original guidelines proposed by Viney and Westbrook but with refinements by DiLollo, Manning, and Neimeyer (2003) for the use in the field of communication disorders. The scoring guidelines, categories and weights are detailed in Section 2.

Kelly et al. (2011) employed the CAS for use with adults with hearing impairment, investigating the role of cognitive anxiety in three groups of older adults: those who were not yet seeking services for their problem, those who were consulting for the first time, and those who had been fitted with a hearing aid. They found that the initial consultation group