A Mini-Dissertation

titled

Psychological constructs measured by the MCMI-III and 16PF5 of subjective tinnitus sufferers: An exploratory quantitative study

by

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Declaration

I hereby declare that this mini-dissertation is my own work and effort in fulfilment of the requirements for MA Clinical Psychology at the University of Pretoria. It has not been submitted anywhere for completion of a different degree. Where other sources of information are used, they are acknowledged and appropriately referenced.

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Abstract

In research on tinnitus, it is recognised that various psychological factors play a role in whether an individual is negatively impacted by the symptoms of tinnitus. In this exploratory study, through the use of descriptive statistical analysis of the data obtained from the MCMI-III and 16PF5 of tinnitus sufferers, possible psychological constructs can be identified as being present in subjective tinnitus sufferers. Scarce research on tinnitus stemming from or being exacerbated by various psychological constructs is found in South Africa. Many studies exist outside of South Africa; however, the results of these studies need to be verified in terms of the South African population. The study used previously administered protocols of the MCMI-III and the 16PF5 of subjective tinnitus sufferers in order to explore the psychological constructs in the form of test scales using descriptive statistical analysis on the protocol data. By investigating possible psychological constructs present in a sample of individuals with subjective tinnitus, the aim is to be able to make recommendations on possible focus areas for future research. The results of the study suggest the most significant finding related to the global factors of the 16PF5 is that 84.6% of the participants can be classified as *accommodating*. None of the participants can be described as *independent*, *extraverted* or *abstract*. More than half of the participants can be described as *deferential* and *shy*. None of the participants measured as *self-assured*. On the MCMI-III very few significant elevations were present. On the *Anxiety* scale 38.5% of participants fell into the insignificant and significant categories respectively. This is the only result for the MCMI-III where the insignificant score is not the highest, and thus is a noteworthy finding.

Keywords: Cognitive behavioural therapy; Millon Clinical Multiaxial Inventory-III; Psychological constructs; Sixteen Personality Factor Questionnaire; Tinnitus.

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CHAPTER 1: Overview of the Study

1.1 Introduction

The study uses previously administered protocols of the MCMI-III and the 16PF5 of subjective tinnitus sufferers in order to explore the psychological constructs in the form of test scales, which are present in this population, using descriptive statistical analysis on the protocol data.

1.2 Statement of the Problem

Tinnitus affects more than a fifth of the global population (Andersson & Larsen, 1997; Cima, Andersson, Schimdt, & Henry, 2014), resulting in significant impairment in quality of life for 1-3% of the tinnitus population (Zenner et al., 2013). Such individuals experience their tinnitus symptoms as distressing and disabling, preventing them from working, sleeping, and socialising (Belli et al., 2008). By investigating possible psychological constructs present in a sample of individuals with subjective tinnitus, the aim is to be able to make recommendations on possible focus areas for future research. By being able to assess an individual with tinnitus's psychological makeup, we may in future be able to identify potential distressed subjective tinnitus patients earlier, so that timely referral to appropriate psychological treatment can be made.

1.3 Aim of the Study

The aim of the study is to determine whether, through descriptive statistical analysis of the data obtained from the MCMI-III and 16PF5 of tinnitus sufferers, possible psychological constructs can be identified as being present in subjective tinnitus sufferers. These constructs may either be precipitating or exacerbating factors in the form of personality traits, co-morbid conditions and psychological factors which could be affecting or be affected by the tinnitus and accompanying symptoms. However, this study does not venture to determine these causal relationships.

1.4 Objectives of the Study

To fulfil the aim of the study I analysed data in the form of MCMI-III and 16PF5 protocols of individuals with subjective tinnitus. After analysing the data using SPSS, the data was summarised in tables listing the frequency, percentage of endorsement, and cumulative percentage of endorsement on items of scales in the

MCMI-III and 16PF5. The results are thus presented in the form of descriptive statistical analysis. The study is explorative in nature using the data obtained from the protocols to describe the psychological constructs as they present themselves, thus exploring possible personality traits, psychopathological conditions and personality structures within the subjective tinnitus sample. The study does not attempt to explain how these constructs are related or what their causes might be. The resulting information contributes to the substantial amount of international literature on the topic of tinnitus to aid in the development of psychological interventions suited to the possible shared psychological constructs of subjective tinnitus patients in the South African context. Recommendations for future research on the topic of tinnitus and psychological constructs, as measured by these tests, are made.

The structure of this dissertation is as follows: Chapter 2 is focused on the theoretical perspective used in this study as well as the literature review with regards to subjective tinnitus and psychological constructs. A more detailed outline of the research design and methodology is provided in Chapter 3. The results of the study are outlined in Chapter 4. These results are then discussed in Chapter 5, where after recommendations and limitations of the study are mentioned. Relevant appendixes are attached after the reference list.

1.5 Research Question

What psychological constructs, as measured by the MCMI-III and 16PF5, present themselves in patients with subjective tinnitus?

1.6 Significance of the Study

Scarce research on tinnitus stemming from or being exacerbated by various psychological constructs is found in South Africa. Many studies exist outside of South Africa; however, the results of these studies need to be verified in terms of the South African population. For this reason, this study is beneficial in providing research on psychological constructs, as identified by the two tests, which may have some influence on tinnitus distress. It is acknowledged that the negative impact of tinnitus symptoms on the individual is modulated by psychological processes (Kröner-Herwig, Zachriat, & Weigand, 2006) and that in most cases the only real treatment available for subjective tinnitus is advice and counselling (Andersson &

Larsen, 1997). In current international tinnitus research, the focus is being shifted to understanding why some people suffer from tinnitus and others do not; a major challenge in clinical practice (McKenna, Handscomb, Hoare, & Hall, 2014).

For this reason, it may be important to determine which psychological constructs are present in tinnitus sufferers so that effective psychological treatment can be developed. Providing definitive guidelines for treatment is not the aim of this study, however, it will serve as an indication of potential future research focus areas. Thus, the current study is explorative in nature, describing the statistical analyses while abstaining from drawing conclusions or identifying correlations.

A review of the literature has not shown much previous research on the topic of tinnitus using the MCMI-III nor the 16PF, although a study in 1990 by Briner, Risey, Guth, and Norris explored findings on the MCMI-III with tinnitus patients in the United States of America. In the discussion chapter, the findings of this study could be compared to Briner et al. (1990) to determine whether a South African population obtains similar results. For this reason, it is valuable to explore which scales are elevated on these specific tests as it generates new knowledge in the field of tinnitus and the psychological understanding thereof.

1.7 Operational Definition of Terms

Tinnitus.
A symptom experienced as a noise or ringing in the ears or head with no external physical noise or stimulation present (Martinez-Devesa, Perera, Theodoulou, & Waddell, 2010).

Objective tinnitus.
Tinnitus symptoms resulting from noise generated by structures in or near the ear (Martinez-Devesa, 2010).

Subjective tinnitus.
Perception of sound in the absence of an acoustic stimulus and is heard only by the individual (Wallhäusser-Franke, Delb, Balkenhol, Hiller, & Hormann, 2014).

Psychological constructs.

Personality constructs describe a set of behavioural traits that display stability through an individual's life (Welch & Dawes, 2008). In this study, psychological constructs refer to personality constructs as well as other constructs measured as per the 16PF5 and the MCMI-III. These include primary factors, global factors and validity scales in the 16PF5, and clinical personality patterns, severe personality patterns, clinical syndromes and severe clinical syndromes in the MCMI-III. Refer to Appendix A (16PF5) and Appendix B (MCMI-III) for a detailed outline or the psychological constructs measured in the study.

Distress.

Distress typically refers to extreme anxiety, sorrow or pain (Distress, n.d.). In this study, it refers specifically to distress with regards to subjective tinnitus; the distress leading to insomnia, depression, anxiety, auditory and perceptual dysfunction, concentration difficulties and an overall impaired quality of life and functioning (McKenna et al., 2014).

Cognitive Behavioural Therapy (CBT).

CBT is typically a goal-directed, short-term psychological therapy in which the goal is to challenge and change ways of thinking and behaving that maintain people's difficulties (Cima et al., 2014; Kröner-Herwig et al., 2006).

1.8 Conclusion

The study uses protocols of the MCMI-III and 16PF5 to explore the psychological constructs present in individuals with subjective tinnitus. The study is exploratory and uses descriptive statistical analysis to analyse the data and provide points of discussion. It is anticipated that the results of this study will allude to future areas of research with regards to the subjective tinnitus experience in the South African individual.

CHAPTER 2: Theoretical Perspective and Literature Review

2.1 Theoretical perspective

The influence of psychological factors in tinnitus distress has been the topic of research throughout the last three decades (Langenbach, Olderog, Michel, Albus, & Kohle, 2005; McKenna et al., 2014; Unterrainer, Griemel, Leibetseder, & Koller, 2003). Some research and theories have focused on the cognitive aspects such as lack of habituation or selective attention (Hallam, Rachman, & Hinchcliffe, 1984). As well as being exacerbated by psychological factors, severe tinnitus may also result in complaints of depression, insomnia, anxiety, auditory perceptual disturbances and problems with concentration (McKenna et al., 2014). Thus, a vicious cycle of perpetuating and interacting psychological and physiological factors contribute to the maintenance of tinnitus distress. Previous models of the psychological aspect of tinnitus focused primarily on the cognitive processes in the perception of tinnitus and its subsequent treatment (Hallam et al., 1984; Lee, Kim, Hong, & Lee, 2004). According to this model treatment would then focus on "reducing levels of autonomic nervous system arousal, changing the emotional meaning of the tinnitus, and reducing other stresses" (McKenna et al., 2014, p. 2), all in a bid to promote habituation. Later models focused on operant conditioning mechanisms, specifically related to avoidance behaviour as a result of tinnitus (Kröner-Herwig, Frenzel, Fritsche, Schilkowsky, & Esser, 2003). The role of selective attention and monitoring, which exacerbates the perception of tinnitus, was also added to the understanding of psychological factors' influence on tinnitus (Andersson, 2002).

McKenna et al. (2014) saw a need for a more structured cognitive-behavioural model wherein all these factors and more can be included and their interrelationships can be explored. Cognitive-behavioural models developed in explaining difficulties such as chronic pain (Sharp, 2001), insomnia (Harvey, 2002) and anxiety (Salkovskis, 1996) lend some insight into a possible model for tinnitus. Harvey (2002) proposed the interplay between negative cognitive activity, avoidance behaviours and beliefs as maintaining symptoms of insomnia. This model assisted McKenna et al. (2014) in developing a model for tinnitus distress which is consistent with current theories and research in other areas of emotional distress. The model proposes that regardless of the original cause of tinnitus, cognitive and behavioural

processes influence both the development and subsequent maintenance of distressing tinnitus (McKenna et al., 2014).

In the following section, I will be referring primarily to the model proposed by McKenna et al. in their 2014 article. Little research has subsequently been conducted on the model and thus the McKenna et al. (2014) article serves as the primary source of information on this cognitive-behavioural model of tinnitus.

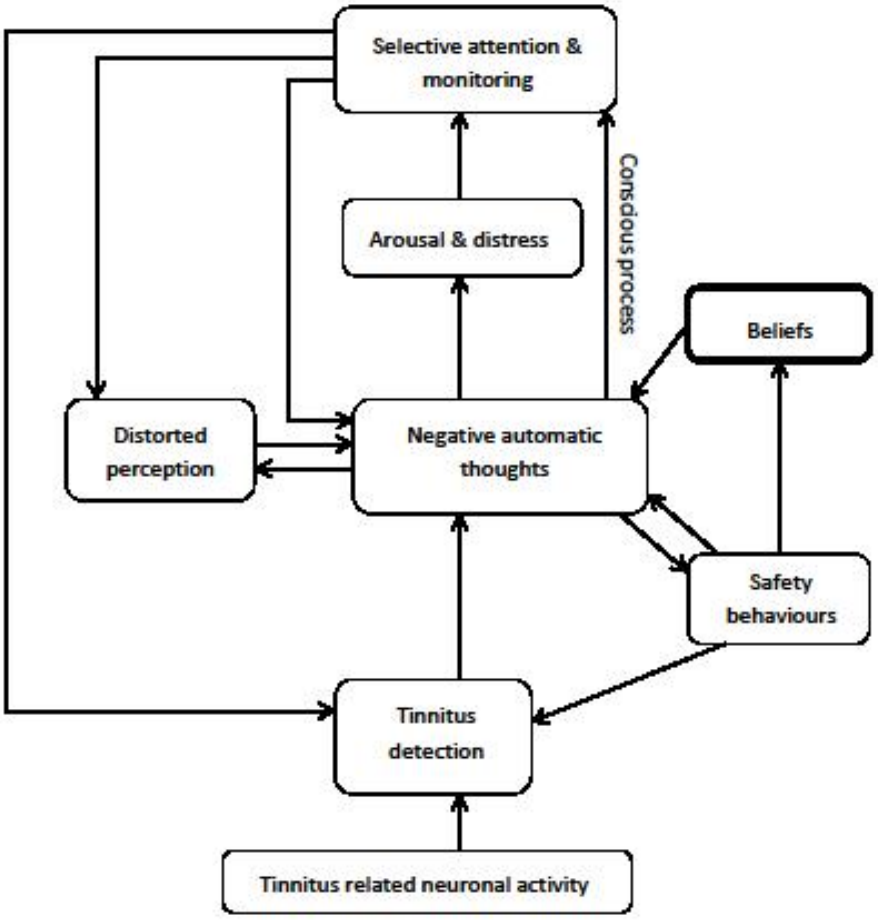

Figure 1: Cognitive-behavioural model of tinnitus, by McKenna et al., 2014, p. 3.

In this study, the above-mentioned model by McKenna et al. (2014) is used as a theoretical departure in understanding the possible influence of the psychological constructs measured in the 16PF5 and MCMI-III. Each part of this model is briefly discussed and focus falls on the role of *beliefs* which is most suited to *psychological constructs* which is the focus of this study.

Negatively toned cognitive activity.

Different people have different thoughts about similar events, however in the case of tinnitus distress and other problems, the CBT understanding of the thoughts "associated with distressing emotional states are considered overly negative" (McKenna et al., 2014, p. 3). This means that even if a situation is challenging, the distress starts and is maintained by the person interpreting things as worse than they are. Thus, in the case of tinnitus, a person may be experiencing intrusive thoughts that are overly negative when they first notice the tinnitus symptoms (McKenna et al., 2014). For example, negative assumptions are made about the tinnitus likely escalating, the bizarreness of it, the interference thereof and the person's ability to cope (McKenna et al., 2014). Catastrophic thoughts such as *my tinnitus will result in me having a nervous breakdown* add to tinnitus distress and have been associated with unsuccessful coping and depression symptomology (Budd & Pugh, 1996).

Arousal and distress.

Leading from these negative thoughts, emotional distress and autonomic arousal become manifest (McKenna et al., 2014). However, this also works in a reciprocal way in that individuals with tinnitus have negative thoughts about minor changes in arousal, resulting in cognitive distortions regarding their tinnitus and the distressing effects thereof (Heinecke, Weise, Schwarz, & Rief, 2008). This speaks to a general sensitivity to anxiety, which has been determined to be an important predictor of the level of distress related to the tinnitus (McKenna et al., 2014). This part of the model also lends itself to explaining the prevalence of anxiety and depression symptoms in previous tinnitus (Belli, et al., 2008; Langenbach et al., 2005; Langguth, et al., 2007; Wallhäusser-Franke et al., 2014). From the point of view of this cognitive model, the increased arousal and distress experienced by individuals with tinnitus lead to selective attention and monitoring (McKenna et al., 2014). However, as will be discussed later, all the factors in this model have reciprocal relationships and it is not yet clear exactly how they are interrelated.

Selective attention and monitoring.

It has been found that when emotionally distressed, an individual is likely to focus on the reason for the distress or the experience thereof (Williams, Matthews, & McLeod, 1996). As a result, in combination with increased arousal, the perception of tinnitus is heightened and exacerbated, increasing the threatening nature of the

tinnitus and establishing a self-maintaining cycle (McKenna et al., 2014). Thus, the phenomenon of selective attention plays a maintaining role in the model, effectively orienting the person with tinnitus toward the specific stimulus of the perceived noise, while suppressing the perception of other stimuli in the environment (Peterson & Posner, 2012). In the case of monitoring, the orientation towards a specific stimulus, in this case the symptoms of tinnitus, is more sustained and can be described as hypervigilance (Posner & Peterson, 1990).

Distorted perception.

McKenna et al. (2014) assert that if their model is accurate, individuals with tinnitus should also present with a distorted perception of the symptoms. In previous seminal research by Fowler (1942) it was suggested that individuals with tinnitus experience an exaggerated perception regarding the timbre and loudness of their tinnitus, resulting in it being experienced as an unbearably distressing noise. It has been found that the self-rated loudness of tinnitus often surpasses all psychoacoustic measures thereof, thus suggesting a distorted appreciation of the noise (McKenna et al., 2014). Within this cognitive-behavioural model the distorted perception leads back to negative thinking and negative automatic thoughts (McKenna et al., 2014).

Beliefs.

While the belief system associated with tinnitus has seldom been the topic of research, a substantial body of research centres on personality factors in individuals with tinnitus (Langenbach et al., 2005; Langguth, et al., 2007; Reich & Johnson, 1984; Wallhäusser-Franke et al., 2014). The constructs of beliefs and personality are not necessarily related; however, research regarding personality and tinnitus may allude to how individuals with tinnitus perceive the world and subsequently, their symptoms (McKenna et al., 2014). While previous studies have mostly found that individuals with tinnitus as a group present with normal personality profiles (Vallianatou, Christodoulou, Nestoros, & Helidonis, 2001), some studies have suggested that specific personality traits measured by the MMPI correlate with more tinnitus distress, including traits of hypochondriasis, hysteria and depression (Bayar, Oguzturk, & Koc, 2002). Other studies indicated a link between tinnitus, anxiety sensitivity (Hesser & Andersson, 2009) and perfectionism (Andersson, Airikka, Buhrman, & Kaldo, 2005): traits which may lend themselves to beliefs related to rigid

ways of doing things and catastrophising the meaning of symptoms (McKenna et al., 2014). Bartels et al. (2010) established a link between Type D personalities, characterised by high negative emotion and social inhibition, and more severe tinnitus distress. Such an individual will have negatively slanted thoughts and feelings about life in general and may engage in little social interaction, impeding any form of social support. Beliefs are also informed by constructs such as *locus of control*, in that personal control was determined to be a significant predictor of tinnitus distress and subsequent adaptation (Scott, Lindberg, Melin, & Lyttkens, 1990).

Thus, as these findings show, individuals who tend to foster more negative beliefs about the world and themselves are more likely to find their tinnitus symptoms distressing, making beliefs an important part of the cognitive-behavioural model of tinnitus (McKenna et al., 2014). Individual psychological constructs such as personality, and one could venture the constructs measured by the 16PF5 and MCMI-III, thus influence and inform these beliefs, which in turn affect the model at various points. In this way personality and other psychological constructs may not influence tinnitus distress directly, but are "mediated by cognitive variables such as dysfunctional thoughts, particularly catastrophi(s)ing" (McKenna et al., 2014, p. 9).

Safety behaviours.

An unfortunate effect of tinnitus distress is avoidance or safety behaviours, where the individual takes specific actions to avoid the feared consequences of an event or situation (Salkovskis, 1991). The cycle is thus further perpetuated by the individual not realising the excessive negativity of their thoughts due to the avoidance behaviour, preventing the feared consequence from occurring (McKenna et al., 2014). The person is then unable to disconfirm their thoughts and beliefs.

Causality.

As previously mentioned, although some interrelationships within this model can be theorised or seem to be easily inferred, it is still unclear exactly how the factors in the model influence and inform each other. There is sufficient evidence to support most of the individual components of the model, however evidence is still lacking in support of the proposed links between the components or factors (McKenna et al., 2014). These causal relationships are unlikely to be simple and one-directional, however the proposed model is based on the latest research in

areas of chronic pain and insomnia, indicating causality as we currently understand it (McKenna et al., 2014).

Thus, the key components of this model and theoretical departure includes negative thinking, arousal, distress, selective attention, monitoring, erroneous beliefs, counterproductive safety behaviours, and a distorted perception of tinnitus (McKenna et al., 2014). It is recommended that the role of avoidance behaviours and beliefs, informed by personality and other psychological constructs, be further investigated in future research (McKenna et al., 2014).

2.2 Literature review

Tinnitus.

Tinnitus is a condition of auditory perception that is defined as sound experienced in the ear or head, without external acoustic stimulation being present (Martinez-Devesa et al., 2010). These perceived noises are mostly described as a ringing; however, it can also manifest as buzzing, humming, whistling, hissing, ticking, clicking, roaring, crickets-like noises, beeping, songs and tunes (Belli et al., 2008). Research suggests slightly varying prevalence of tinnitus in the general population. Cima et al. (2012) report that around 21% of adults will develop a form of tinnitus in their lifetime, while Andersson and Larsen (1997) report the occurrence in the adult population to be between 8% and 17%. Regardless of the exact percentage, it is clear that tinnitus causes significant distress in a substantial proportion of the population. It is not always experienced as disturbing, but when it is, it is considered to be amongst the most debilitating and troubling of audiological problems (Cima et al., 2012). In 1-3% of the tinnitus population, significant impairment of quality of life is observed (Zenner et al., 2013), where the individuals experience their tinnitus symptoms as distressing and disabling, preventing them from working, sleeping and socialising (Belli et al., 2008).

We can distinguish between objective and subjective tinnitus. In the case of objective tinnitus, the cause of tinnitus can be accurately identified by a physician using listening aids such as a microphone or stethoscope (Martinez-Devesa et al., 2010) and can for the most part be improved by removing the physiological defect. In the case of subjective tinnitus, an internal sound results from the abnormal activation within the individual's auditory system (Wallhäusser-Franke et al., 2014) which causes significant distress and functional difficulties for 10-20% of the tinnitus

population. This one tenth of the tinnitus population may have identifiable physiological causes for their symptoms, or they may not, however in both cases the tinnitus symptoms have a major negative effect on their lives (McKenna et al., 2014). Individuals who suffer from their tinnitus symptoms complain of insomnia, depression, anxiety, auditory and perceptual dysfunction as well as concentration difficulties (McKenna et al., 2014). Thus, the qualifying criterion for subjective tinnitus is the distress experienced due to the symptoms whether there is an overt physical cause or not. The terms tinnitus and subjective tinnitus will be used interchangeably throughout the rest of the mini-dissertation.

Tinnitus may be linked to other auditory problems such as benign tumours of the vestibulo-cochlear nerve (Philips & McFerran, 2010) and general cochlear damage resulting in injury to the auditory receptors (Bartels, 2008). The definite physiological causes of tinnitus remain unknown (Belli et al., 2008), however it has been found in numerous studies that psychological factors play an important role in modulating and shaping the individual's perception and report of distress caused by tinnitus symptoms (Langguth et al., 2007). This refers to the way in which an individual's psychological makeup influences their reaction to tinnitus symptoms and their ability to cope with it. When looking at psychological factors that predispose individuals to experience severe distress in response to tinnitus symptoms it is unclear what exactly these factors are (Langenbach et al., 2005). An important focus of current tinnitus research is to ascertain possible psychological characteristics that distinguish those who have successfully adjusted to tinnitus from those who have struggled to adjust (Budd & Pugh, 1996) and who subsequently find their symptoms distressing.

Subjective tinnitus symptoms are difficult to treat and treatment often consists of prolonged processes involving several disciplines (Cima et al., 2012). This may include collaboration between mental health professionals, audiologists and other medical professionals to try and manage the symptoms (Langguth et al., 2007). In the long-term the results are relatively poor and individuals with tinnitus continue to experience the distressing symptoms which affect many aspects of their lives (Jastreboff & Hazell, 1993).

If tinnitus is co-diagnosed with hearing impairment, an individual might benefit from a hearing aid in the management of tinnitus symptoms (Martinez-Devesa et al., 2010). Other pharmacological interventions include antidepressants, although

research has resulted in little evidence of tricyclic antidepressants having any beneficial effect (Philips & McFerran, 2010) in lessening symptoms of tinnitus. In general, medical interventions are unable to eliminate subjective tinnitus symptoms and also fail in modifying the harmful psychological consequences (Kröner-Herwig et al., 2006). For this, psychological therapies have become the treatment of choice for subjective tinnitus (Cima et al., 2014).

When looking at psychological interventions for distressing subjective tinnitus symptoms, cognitive-behavioural therapy has proved beneficial in numerous studies (Andersson & Larsen, 1997; Cima et al., 2012; Martinez-Devesa et al., 2010). The chronic nature of subjective tinnitus requires a treatment option that focuses on techniques to help individuals control their annoyance and habituate to the perceived sounds (Andersson & Kaldo, 2004). Cognitive-behavioural therapy typically centres on modifying dysfunctional beliefs and behaviours and includes relaxation, psychoeducation, behavioural reactivation, exposure techniques, and mindfulness training (Cima et al., 2012). These short-term therapies address psychological mechanisms like dysfunctional appraisal, in which the individual perceives the sound to be more intrusive than it is, selective attention, in which the tinnitus sufferer focuses exclusively on the annoying noise, and avoidance behaviour which influences the individual's daily functioning as they learn to stay away from situations and environments in which their tinnitus symptoms become more pronounced (Kröner-Herwig et al., 2006). In general, it is important for individuals with subjective tinnitus to maintain their emotional well-being as it may be indicative of their future tinnitus-related impairment (Wallhäusser-Franke et al., 2014).

Psychological factors.

As previously mentioned, psychological constructs play a role in the perceived severity of tinnitus symptoms and its resulting debilitating effect. Research on the topic has also shown that the perceived severity of tinnitus and its impact on physical, emotional and social functioning may be influenced by personality characteristics (Bartels, 2008). For the purpose of this study, psychological constructs include all factors measured on the scales and subscales of the MCMI-III and 16PF5. Thus, when psychological constructs are discussed it refers to all the personality traits, psychopathological conditions and personality structures as measured by the MCMI-III and the 16PF5.

When looking at psychological constructs in the form of psychopathological conditions, depression and anxiety seem to be linked to tinnitus distress (Belli et al., 2008). It is still unclear whether depression is a precipitating factor to perceived tinnitus severity or whether tinnitus symptoms cause depression. Many of these studies are retrospective in nature with regard to data and thus report on the effects of tinnitus rather than possible predisposing influences (Langenbach et al., 2005). Although the contributory roles of depression and anxiety have been demonstrated, research is lacking in the identification of personality-specific risk factors (Langguth et al., 2007). It is important to determine if a link exists as it may lead to timely referral to cognitive-behavioural therapists to assist the individual in the process of adaptation to their tinnitus symptoms (Bartels, 2008). Belli et al. (2008) refer to a tinnitus personality and explain that such an individual may be “totally intolerant of their complaint, dwell upon the symptom far beyond its usual significance, and are consequently resistant to treatment” (p. 280). Tinnitus severity has also been linked to personality disorders, however once again it is impossible to say which precedes which until further research is done (Reich & Johnson, 1984).

Personality has an influence on perceived symptom severity in its manifestation of a personality-driven tendency to be more aware of the symptoms, subsequently influencing the persistence of the symptoms and the way they are dealt with (Wallhäusser-Franke et al., 2014). This means that individuals with debilitating tinnitus symptoms may be more sensitive to the symptom or be unable to ignore its presence, resulting in distress and impairment. According to Wallhäusser-Franke et al. (2014) some personality characteristics associated with distressing tinnitus are increased ‘neuroticism’ and decreased ‘extraversion’ as well as reacting primarily with fear to any perceived bodily signs of arousal. This will result in an individual being emotionally labile and anxious. Another complaint that is often given by tinnitus patients is that of other somatic symptoms which have been associated with personality traits of negative affectivity and neuroticism (Wallhäusser-Franke et al., 2014). In whatever way tinnitus and personality influence each other, it is clear that tinnitus-related distress has a potentially harmful effect on personality (Reich & Johnson, 1984) and that personality and other psychological constructs play a significant role in the perception and description of the distress associated with tinnitus symptoms (Langguth et al., 2007).

Previous research.

Numerous research articles on psychological constructs associated with tinnitus have reported similar findings. In 2008, Belli et al. published an article in which they investigated psychiatric comorbidities in tinnitus sufferers. The findings showed that somatoform disorders and anxiety disorders were significantly higher in tinnitus patients when compared to control subjects (Belli et al., 2008) and suggested that psychiatric symptoms and disorders should be seen as indicative of possible tinnitus severity.

A study by Langenbach et al. (2005) investigated whether there are personality predictors of tinnitus-related distress in 48 tinnitus patients. The results indicated that patients who presented with psychological difficulties and sleeping problems shortly after tinnitus onset are at greater risk of developing tinnitus-related distress (Langenbach et al., 2005). They suggested that prompt psychosocial intervention in individuals at risk may prevent chronic psychologically distressing tinnitus from developing (Langenbach et al., 2005) and thus it is necessary to identify these patients based on possible shared psychological constructs. The study used, amongst other tests, the Symptom Checklist-90-Revised (SCL-90-R) in which the results revealed that the sample of individuals with tinnitus scored higher in scales of somatisation, anxiety, and psychoticism (Langenbach et al., 2005) when compared to normal samples.

Unterrainer et al. (2003) investigated various factors in tinnitus patients in order to determine which of these factors are important in perceived severity of tinnitus symptoms. They paid attention to the individuals' perception of tinnitus as an ailment, scores on locus of control, comorbidity, depression, length of time since the commencement of tinnitus symptoms, and the loudness and pitch of tinnitus sounds (Unterrainer et al., 2003). They determined that having an internal locus of control is a predictor of perceived tinnitus severity in that individuals who perceived themselves to be responsible for their health displayed less handicap than those presenting with an external locus of control (Unterrainer et al., 2003). They found a positive correlation between tinnitus severity and depression.

A significant positive correlation between tinnitus severity and depression was also found in a 2007 study by Langguth et al. which set out to investigate tinnitus severity and its relation to depression and the big five personality trait model. The results of the study showed that there are significant correlations between tinnitus

severity, depression and two specific personality dimensions (Langguth et al., 2007). The two personality traits are low 'Agreeableness' and high 'Neuroticism' according to the big five personality trait model (Langguth et al., 2007). A person who is low in 'Agreeableness' would "be highly competitive, self-centred, and more susceptible to anger" (Langguth et al., 2007, p.223). Scoring high on 'Neuroticism' would be indicative of an individual who tends to experience more anxiety, sadness, fear, guilt, and embarrassment (Langguth et al., 2007).

Wallhäusser-Franke et al. (2014) conducted research on the role of the personality characteristic 'resilience' in perceived tinnitus severity. They hypothesised that resilience as a personality trait has an important influence on an individual's reaction to tinnitus (Wallhäusser-Franke et al., 2014). Resilience is a personality characteristic associated with the ability to adapt to stressful chronic health conditions such as tinnitus. An individual who is resilient will display emotional stability and a behavioural inventory that permits them to manage adversity and stress while maintaining their emotional balance (Wallhäusser-Franke et al., 2014). Higher resilience is also related to an internal locus of control as indicated in the previous study. The study results indicated that higher resilience scores were associated with lower levels of anxiety, depression, somatic symptoms and tinnitus-related distress (Wallhäusser-Franke et al., 2014).

The previously mentioned study by Briner et al. (1990) investigated elevated scales of the MCMI-III after administering the psychometric test to 41 patients with tinnitus. The aim of their study was to determine whether certain personality disorders were present in individuals with tinnitus (Briner et al., 1990). The results indicated that up to 70% of the participants demonstrated a personality disorder and 24% presented with severe anxiety (Briner et al., 1990). In their recommendations, Briner et al. (1990) emphasised the importance of administering a psychometric tool such as the MCMI-III as standard procedure to all tinnitus sufferers as it might improve treatment outcome by "bringing into focus the important psychological factors found in each patient" (p. 334).

Overall, the body of research previously conducted on the topic of individual psychological constructs and tinnitus is substantial, especially with regard to studies outside of South Africa. However, to the researcher's knowledge, no comprehensive study of tinnitus sufferers and psychological constructs exists in South Africa and

thus it will be valuable to explore whether the abovementioned research results can be replicated in the South African context, albeit using different psychometric tests.

2.3 Conclusion

From the literature review it is evident that various studies using different psychometric measures have been conducted in an attempt to better understand the individual psychological makeup and experience of individuals with tinnitus. Only in 2014 did McKenna et al. propose a comprehensive cognitive-behavioural model in furthering the understanding of subjective tinnitus and possible psychological factors. This study seeks to provide some information on the psychological constructs as measured by the 16PF5 and MCMI-III in a South African sample, adding to the local and international body of research.

CHAPTER 3: Methodology

3.1 Research Design

The mode of inquiry is quantitative with an exploratory purpose. An exploratory research design is used when preliminary investigations are made into relatively unfamiliar areas of inquiry (Terre Blanche, Durrheim, & Painter, 2006). An exploratory research design is well-suited to the current study as to current knowledge, no subjective tinnitus studies pertaining to psychological constructs have been conducted in South Africa. Thus, the topic and possible correlations between traits and tinnitus severity is still unknown in the South African context, making hypotheses and predictions difficult. Instead, an exploratory stance is taken which may lead to new questions, speculative insights and possible hypotheses (Terre Blanche et al., 2006).

In some instances, exploratory studies are viewed as simplistic or a small part of a larger process in research inquiries (Jupp, 2006). Exploration has also been interchangeably used as a synonym for qualitative research in general (Jupp, 2006). However, even though an exploratory research design does not necessarily follow any set formula, it allows the researcher to be flexible while engaging in a thorough research process (Jupp, 2006). When engaging with exploratory research, the ultimate aim may be the development of new theory from data (Jupp, 2006) or simply a motivation and desire to explore a specific phenomenon (Weathington, Cunningham, & Pittenger, 2010). Data collection in explorative studies should be done without preconceived notions to allow the researcher the opportunity of exploring the topic without depending on personal experience in understanding the phenomena in question (Weathington et al., 2010). In adherence to this, in the current study, no direct contact was made with the participants and the data was provided to the researcher without preconceived notions having formed from meeting the participants in person.

For the researcher, taking an explorative stance means undertaking a broad-ranging, systematic, purposive and prearranged process intended to maximise the unearthing of generalisations in the process of ultimately describing and understanding an area of psychological life (Stebbins, 2001). Doing exploratory research also requires of the researcher to develop a pervasive personal identification as an explorer (Stebbins, 2001), engaging in inquiry without knowing what to expect.

3.2 Participants

A study housed in the Department of Communication Pathology at the University of Pretoria, supervised by Prof Bart Vinck, is currently in the process of investigating collaborative psychological intervention on individuals with tinnitus, in conjunction with Dr Linda Eskell Blokland in the Department of Psychology. This study is the primary study of the Department of Communication Pathology of which the aim is to determine the effect of psychological and audiological intervention methods for tinnitus patients, each as a single approach on tinnitus severity, compared to the combination of these interventions within the same patients. The individuals with subjective tinnitus are referred to the Department of Psychology for psychological assessment and intervention. The psychological intervention forms part of the data collection for the study in the Department of Communication Pathology. The study also involves administering psychological assessments to the participants. The process of selecting the participants for this study is detailed in the ethics application for that study and approval was given by the Ethics Committee (see Appendix C). Also refer to Appendix D and E for Informed Consent forms in Afrikaans and English. During the psychological evaluation, a clinical interview is conducted and thereafter the MCMI-III and 16PF5 is administered. Thirteen participants are included in the study. Thus, the current study uses protocols already available, making the study secondary to the primary study of the Department of Communication Pathology.

The participants referred to the Department of Psychology adhere to the following criteria: bilateral or unilateral bothersome tinnitus as measured by the Tinnitus Handicap Inventory (THI); above the age of 18; literate in Afrikaans or English; and the ability to come for assessments at the University of Pretoria. Thus, in the primary study the participants were selected based on a non-probability quota sampling method as they had to conform strictly to certain criteria in order to be included in the study. In this current secondary study, purposive sampling is used as the study focuses on these specific individuals' protocols with symptoms of tinnitus with the presence of psychological distress, chosen by me because of the applicability to the research question. Purposive sampling is a form of non-probability sampling in which participants are chosen by the researcher based on specialised knowledge on the topic or participant willingness to partake in the study (Jupp, 2006). In the current study a specific population group is targeted and the distress experienced by these subjective tinnitus sufferers needs to be significant enough to

be referred to the Department of Psychology. For this reason, these participants are selected by the researcher due to availability and willingness to participate in the study while simultaneously experiencing distress due to tinnitus symptoms, a requirement in the study.

3.3 Instruments

Sixteen Personality Factor Questionnaire-5 (16PF5).

The instruments for data collection in the current study consist of two self-report scales. The Sixteen Personality Factor Questionnaire (16PF5) is an all-inclusive measure of non-pathological personality (Boyle, Matthews, & Saklofske, 2008). It is effective in a variety of settings and helpful when an in-depth assessment of an individual is required, especially with regards to personality traits. Translation to Afrikaans and English, as spoken in South Africa, was completed in 2004 (Van Eeden, Taylor, & Prinsloo, 2013). Subsequently, a working adult norm group was established in 2009 providing norms for the Afrikaans and English South African version of the 16PF5 (Van Eeden, Taylor, & Prinsloo, 2013). The study looks at the sixteen primary factors and five global factors of the 16PF5, as listed in the Appendix A.

When looking at reliability in psychometric tests we are alluding to the dependability and consistency of a measure (Jopie van Rooyen & Partners, n.d.*a*). Ultimately the reliability scores inform “whether the measure will yield the same approximate results when administered repeatedly under similar conditions” (Jopie van Rooyen & Partners, n.d.*a*, p. 28). The test-retest reliability calculates the consistency of scores over time (Jopie van Rooyen & Partners, n.d.*a*). This is done by determining the correlation between scores obtained from two administrations of the measurement, providing information on how stable the instrument scores are over time. The test-retest reliability of the 16PF5 was high and similar to the fourth edition (Jopie van Rooyen & Partners, n.d.*a*).

Pearson Product-Moment correlations were calculated over a two-week and two-month period (Jopie van Rooyen & Partners, n.d.*a*). The primary scales of the 16PF5 show test-retest reliabilities ranging between 0.69 and 0.87 with an average of 0.80 over a two-week period (Cattell & Mead, 2008). Over a two-month period the test-retest reliability ranged between 0.56 and 0.79 with an average of 0.70 (Cattell &

Mead, 2008). The test-retest reliability of the five global scales or factors was higher due to a larger number of items per scale (Cattell & Mead, 2008). Over a two-week interval, the average was 0.87, ranging between 0.84 and 0.91 (Cattell & Mead, 2008). The test-retest reliability of the global scales over a two-month interval ranged between 0.70 and 0.82 with an average of 0.78 (Cattell & Mead, 2008). Similar results were found for international versions of the 16PF5 (Cattell & Mead, 2008).

The internal consistency reliability indicates the extent to which test items stem from a unitary domain (Jopie van Rooyen & Partners, n.d.*a*). It is a good estimate of the reliability for "narrowly defined scales" (Cattell & Mead, 2008, p. 145) as it measures the homogeneity of items in a scale. This informs the level of confidence one can have in the test score interpretation (Jopie van Rooyen & Partners, n.d.*a*). If the internal consistency reliability score is high it means that there is high inter-correlation between the items a scale is comprised of, indicating unitary constructs (Jopie van Rooyen & Partners, n.d.*a*). With the 16PF5 the internal consistency reliability scores were higher than the fourth edition, indicating a more homogenous scale composition (Jopie van Rooyen & Partners, n.d.*a*). The Cronbach Alpha Coefficients were calculated on the primary scales of the 16PF5 (Jopie van Rooyen & Partners, n.d.*a*). The internal consistency reliability scores on the primary scales were derived from a diverse sample of 4660 participants (Cattell & Mead, 2008). Scores obtained ranged between 0.66 and 0.86 with a mean of 0.75 (Cattell & Mead, 2008). The global scales are not homogenous as they consist of weighted composites of the primary scales, and thus normal internal consistency estimates are not applicable (Cattell & Mead, 2008).

A sample of first-year university students were used to determine the psychometric properties of the South African version of the 16PF5 (Van Eeden et al., 2013). The sample was made up of 42% white students and 36% black, with the rest comprising of Indian and coloured students (Van Eeden et al., 2013). The reliability scores were slightly lower than the US version, with the coefficients ranging between 0.60 and 0.70 (Van Eeden et al., 2013). This was however higher than any previous versions in South Africa (Van Eeden et al., 2013). In particular, factor Q1 showed a lower correlation, a result similar to other research in South Africa regarding scales measuring openness (Jopie van Rooyen & Partners, n.d.*a*).

When considering the validity of a psychometric measure we are looking at the usefulness, appropriateness and meaningfulness of inferences made from the

score that was obtained (Jopie van Rooyen & Partners, n.d.*a*). Criterion validity refers to the ability of the measure to predict behaviour (Jopie van Rooyen & Partners, n.d.*a*). The 16PF5 has shown good behavioural prediction in areas such as adjustment, interpersonal skills, creative potential, empathy, marital compatibility, attributional style, self-esteem and leadership ability (Cattell & Mead, 2008; Jopie van Rooyen & Partners, n.d.*a*). The test should however be used with caution by trained professionals, as personality tests are limited in predictive value, mostly due to the multitude of other factors that influence behaviour (Jopie van Rooyen & Partners, n.d.*a*). For this reason, it is advised that the 16PF5 be used as part of a test battery.

Construct validity scores inform on the extent to which items of a test capture the trait or construct it was intended to measure (Jopie van Rooyen & Partners, n.d.*a*). In the 16PF5 the construct validity of the instrument indicates that it measures 16 separate personality traits (Jopie van Rooyen & Partners, n.d.*a*). To determine construct validity the primary and global factor scales were compared to four other broad measures of normal personality (Personality Research Form- Form E (PRF); California Personality Inventory (CPI); Neo Personality Inventory-Revised (NEO PI-R); Myers-Briggs Type Indicator (MBTI)) (Jopie van Rooyen & Partners, n.d.*a*). These measures were developed using different scale construction methods and so the correlations would avoid contamination due to having similar scale construction (Jopie van Rooyen & Partners, n.d.*a*). Thus “correlational, regressional and component analyses results showed that each of the global scales were related to several measures from comparison inventories” (Jopie van Rooyen & Partners, n.d.*a,* p. 37).

For the South African version of the 16PF5, most of the factors were clearly defined, indicating high construct validity (Jopie van Rooyen & Partners, n.d.*a*). High Apprehension and low Emotional Stability correlated to the extent that Apprehension (O) did not exist as a separate factor, however this did not affect test validity and should be considered when interpreting results (Van Eeden et al., 2013).

In standardising and norming the South African version of the 16PF5, Form S Research Version was used with an increased number of items on each scale (Jopie van Rooyen & Partners, n.d.*a*). The process of adaption began in 2002 where minor grammatical and language changes were made to the US version (Jopie van Rooyen & Partners, n.d.*a*), adding up to changes to 37 of the 185 items (Van Eeden

et al., 2013). The overlap with items of the original US version is high (Van Eeden et al., 2013). When translations into Zulu and Afrikaans were commenced, it seemed a perfect opportunity to create the Form S Research Version as the intent was to use the same items for all three translations (Jopie van Rooyen & Partners, n.d.*a*). The important changes included grammatical modifications in contractions, idioms and scoring direction (Jopie van Rooyen & Partners, n.d.*a*). The Zulu version was ultimately discontinued due to translation difficulties, and the translation of the English and Afrikaans trial versions were administered to a group of 3189 students in 2003 (Jopie van Rooyen & Partners, n.d.*a*) of which 41,5% were men and 55,3% were women (Van Eeden et al., 2013). One hundred protocols were removed from the sample as they had missing data (Van Eeden et al., 2013). Demographically the sample consisted of 17,8% black, 4,3% coloured, 6,2% Indian, and 68,5% white participants. Changes were made by the end of 2004 and the final Afrikaans and English versions were administered to a student norm group in 2005 (Jopie van Rooyen & Partners, n.d.*a*). The working adult norm sample is made up of individuals from various sectors across South Africa and the population demographically comprises of black (N=152), white (N=122), Indian (N=124) and coloured (N=72) individuals (Van Eeden et al., 2013). The sample size was considered suitable for an itinerant norm group, with additional data to be added as the measure is used (Van Eeden et al., 2013).

Millon Clinical Multiaxial Inventory-III.

The next test of relevance to this study is the Millon Clinical Multiaxial Inventory-III (MCMI-III) which is a self-report questionnaire consisting of 175 questions. The results of the test provide information on personality styles and clinical disorders (Briner et al., 1990). According to Millon's theory, personality consists of the individual's enduring style of coping, behaving, relating, thinking and feeling (Patel & Laher, 2013). Millon argues that there is no obvious line between normal and abnormal behaviour, and rather views all these concepts on a continuum (Patel & Laher, 2013) as is evident in the MCMI-III. In the current study, the aim is not to diagnose the individuals but to identify the psychological constructs present as described in the scales. Previous studies on personality types and tinnitus using the MCMI-II determined that many tinnitus sufferers present with either a narcissistic or dependent/submissive personality (Briner et al., 1990) and some present with

various forms of anxiety. Again, the study will focus on the psychological constructs as per the eleven clinical personality pattern scales, three severe personality pathology scales, seven clinical syndrome scales and three severe clinical syndrome scales.

In general, the MCMI-III is considered to be a well-constructed psychometric measurement tool (Groth-Marnat, 2009). Internal consistency is a comprehensive measure of the extent to which the items in a scale intercorrelate (Millon, Millon, Davis, & Grossman, 2006). The internal consistency of the MCMI-III shows alpha-coefficients of more than 0.80 for 20 of the scales, the highest being 0.90 for Major Depression, and the lowest 0.66 for Compulsive (Groth-Marnat, 2009; Millon, et al., 2006). Cronbach's alpha is a statistic which calculates the "mean of all possible half-split reliabilities" (Millon, et al., 2006, p. 57). Higher alphas are preferred, however when they get too high it might suggest that the scale consists of items that are repetitive (Millon, et al., 2006).

The MCMI-III test-retest reliabilities range from moderate to high with a median of 0.91 over a 5-14-day interval (Groth-Marnat, 2009; Jopie van Rooyen & Partners, n.d.*b*). Over a four-year interval, the test-retest reliability remained high, ranging from 0.73 for Passive-aggressive to 0.59 for Dependent (Groth-Marnat, 2009). The MCMI-III has moderately high scale-intercorrelations due to the item overlap in the individual scales (Jopie van Rooyen & Partners, n.d.*b*). Scale intercorrelations range from -0.80 to +0.85; however, most are more modest at -0.50 to +0.50 (Jopie van Rooyen & Partners, n.d.*b*).

The positive predictive power of a psychometric measure refers to its ability to diagnose a condition more accurately than a chance occurrence as indicated by base rate scores (Groth-Marnat, 2009). Thus, it signifies the probability of a test score accurately indicating the presence of a disorder or trait (Groth-Marnat, 2009). Positive predictive power is also the most clinically relevant way of determining concurrent validity as it "represents the likelihood that the disorder is present when the test score is elevated" (Jopie van Rooyen & Partners, n.d.*b*, p. 27). Concurrent validity refers to the ability of the instrument to predict the present status of an individual (Jopie van Rooyen & Partners, n.d.*b*). The positive predictive power of the MCMI-III scales ranged from 0.30 (Masochistic) to 0.81 (Dependent) (Groth-Marnat, 2009). Moderate to high levels of sensitivity were found for most personality scales with five of them having a sensitivity score higher than 70% (Millon & Meagher,

2004). In general, there has been an upward trend in the MCMI's sensitivity and positive predictive power from the original MCMI through to the current MCMI-III (Jopie van Rooyen & Partners, n.d.*b*).

There are no official South African standardisations or norms for the MCMI-III. In the development of the MCMI-III a 325-item measure was developed and the PTSD and Depressive scales were added (Groth-Marnat, 2009). The DSM-IV no longer recognised Sadistic and Self-defeating personalities as diagnoses; however, the MCMI-III retained these scales (Groth-Marnat, 2009). From the MCMI-II, 90 of the 175 items were changed in the MCMI-III, however these changes related mostly to "increasing the severity of the symptom" (Groth-Marnat, 2009, p. 298) expressed in the item in the hope of increasing the predictive value. The optimum cut-off scores indicating pathology were determined by administering the measure to a sample of 1079 clinical patients from various backgrounds (Groth-Marnat, 2009). Base rate (BR) scores where developed by comparing both the scores on the MCMI-III of patients in the normative sample, as well as their clinical diagnoses (Weiner & Craighead, 2010). A BR of 60 denotes the median raw score, or the 50th percentile (Weiner & Craighead, 2010). A BR score of 75 was assigned to the minimum raw score of individuals who met the criteria for a disorder, pattern or syndrome (Weiner & Craighead, 2010). A BR score of 85 and above was assigned to the minimum raw score of individuals who "were judged to have a particular disorder or condition as their primary problem" (Weiner & Craighead, 2010, p. 1000). In this study a score of 75 and more was described in data analysis as *significant*; not to be confused with the statistical term *significant*. A score of 85 or more was termed a *diagnosis.*

Two normative samples exist for the MCMI-III. The first (N=998) consisted of 490 men and 508 women who were all psychiatric patients in the United States and Canada (Weiner & Craighead, 2010). This sample was used to standardise scores for the use of the MCMI-III in all applications, except when assessing prisoners (Weiner & Craighead, 2010). The psychiatric normative sample was divided into two groups; 600 patients were used in creating the scales, and 398 were used to verify and cross-validate the standardised scores' accuracy (Weiner & Craighead, 2010). The normative sample consisted of 86% white, 8% black, 2% Hispanic and 4% other minorities (Weiner & Craighead, 2010). Most of the patients in the sample had completed high school (82%), with 18% having a college degree (Weiner & Craighead, 2010). Furthermore 80% of the sample was between the ages of 18-45

(Weiner & Craighead, 2010). The second sample (N=1676) consisted solely of inmates, providing standardised scaled scores for the incarcerated population (Weiner & Craighead, 2010).

The MCMI-III was renormed in 2008 using a sample of 753 patients with the demographic composition of 76% white, 11,1% black, 9,3% Hispanic and 1,5% Asian individuals (Jopie van Rooyen & Partners, n.d.*b*). Of the participants 52,8% were female, while 47,2% were male (Jopie van Rooyen & Partners, n.d.*b*). These are the norms used in the current study. The psychometric properties of the MCMI-III are summarised in the Table 1 below.

Table 1: Summary of the psychometric properties of the MCMI-III

Symbol	Scale	No. of items	Cronbach's Alpha (Internal consistency)[a]	Test-retest reliability[b]	Positive Predictive Power (%)[c]	Sensitivity (%)[d]
Modifying Indices (Validity scales)						
V	Validity Index	4	NA			
X	Disclosure Index	NA	NA	.94	-	-
Y	Desirability Index	21	.85	.92	-	-
Z	Debasement Index	33	.95	.82	-	-
Clinical Personality Patterns						
1	Schizoid	16	.81	.89	67	56
2A	Avoidant	16	.89	.89	73	65
2B	Depressive	15	.89	.93	49	57
3	Dependent	16	.85	.89	81	54
4	Histrionic	17	.81	.91	63	74
5	Narcissistic	24	.67	.89	72	59
6A	Antisocial	17	.77	.93	50	61
6B	Sadistic (Aggressive)	20	.79	.88	71	71
7	Compulsive	17	.66	.92	79	73
8A	Negativistic (Passive-aggressive)	16	.83	.89	39	44
8B	Masochistic	15	.87	.91	30	58
Severe Personality Patterns						
S	Schizotypal	16	.85	.87	60	82
C	Borderline	16	.85	.93	71	60
P	Paranoid	17	.84	.85	79	92
Clinical syndromes						
A	Anxiety disorder	14	.86	.84	75	64
H	Somatoform disorder	12	.86	.96	39	24
N	Bipolar disorder: Manic	13	.71	.93	58	64
D	Dysthymic disorder	14	.88	.91	81	65
B	Alcohol dependence	15	.82	.92	88	80

T	Drug dependence	14	.83	.91	93	82
R	Posttraumatic stress disorder	16	.89	.94	67	88
Severe clinical syndromes						
SS	Thought disorder	17	.87	.92	52	100[e]
CC	Major depression	17	.90	.95	66	84
PP	Delusional disorder	13	.79	.86	33	50

[a] Cross-validation sample (N=398)
[b] Test-retest interval= 5-14 days (n=87)
[c] Statistics calculated using disorder judged by clinician as most prominent (primary diagnosis)
[d] Statistics calculated using disorder judged by clinician as most prominent (primary diagnosis)
[e] Only 12 thought-disordered patients participated in study

Note: MCMI-III psychometric properties compiled from Groth-Marnat (2009), Jopie van Rooyen & Partners, (n.d.*b)*, Millon & Meagher (2004), and Millon et al. (2006).

The MCMI-III and 16PF5 are both based on the DSM-IV and thus some diagnostic differences may have taken place with the release of the DSM-5. However, the psychological constructs used in these tests have not changed and the study is not focused on diagnoses. The tests are still in use and provide information on valid and reliable psychological constructs.

3.4 Procedure

Data was obtained through a survey research design in the form of standardised psychometric tests or surveys namely the MCMI-III and 16PF5. The questions within these tests are carefully structured to obtain self-reported answers on personality characteristics and psychological constructs, as is the case in surveys (Gravetter & Forzano, 2012). The data was tabulated and entered into the Statistical Package for the Social Sciences (SPSS) computer program (Gravetter & Forzano, 2012) version 23. The program assists in the statistical analysis of data to provide information that can be engaged with descriptively (Gravetter & Forzano, 2012). Thus, descriptive statistical analysis was used, reporting on statistical entities of possible contributing psychological constructs in subjective tinnitus sufferers who find their symptoms distressing. Each construct from the 16PF5 and MCMI-III was considered a variable in this study.

A descriptive analysis on each of these variables enabled us to look at the frequency distributions of the variables for the 16PF5 and the MCMI-III in order to

identify which variables occur the most for this sample. Descriptive analysis furthermore aided in providing data on the mean, median, mode and standard deviation of the variables under investigation (Pallant, 2013). From the descriptive analysis, we were able to identify which psychological constructs appeared frequently, which could serve as a possible indication of which constructs could be related to subjective tinnitus sufferers in general. It is important to note that this study is explorative in nature, and therefore no correlations were made. The purpose of this study was purely to identify possible psychological constructs which could potentially, through further investigation, be correlated with subjective tinnitus sufferers.

3.5 Ethical Considerations

Consent was obtained from all participants to participate in the study and make assessment results available. In the primary study housed in the Department of Communication Pathology the option of continuing in therapy was made available to all participants should they feel the need after the assessment, which forms part of the primary study. The participants were given feedback on their assessment results individually.

I did not have contact with any of the participants. When I was accessing their protocols the personal and identifying details were erased and thus in the secondary study anonymity was maintained. In this way, I only worked with data and not directly with the participants.

3.6 Conclusion

Methodologically the study is explorative, using descriptive statistical analysis facilitated by SPSS version 23. As discussed in this section the 16PF5 and MCMI-III are widely used psychometric measures with satisfactory reliability and validity scores. This secondary study was completed without direct contact with participants and so anonymity was maintained.

CHAPTER 4: Results

4.1 Data Analysis

In analysing the data, the help of a research psychologist was sought as I have little experience with SPSS and statistics. A research psychologist from the University of Pretoria assisted by analysing the data obtained from the 16PF5 and MCMI-III protocols. The two psychometric measures were analysed separately, as well as each of the scales pertaining to the two assessment measures. In this way, data is provided on each scale separately, and reported as such. The SPSS version 23 was used to determine the frequency, percentage item endorsement, and cumulative percentage of item endorsement in each of the scales. This is presented in tabular form in this chapter, with the discussion of results following in the next chapter.

4.2 Presentation of Results

16PF5 global factors.

The most significant finding related to the global factors of the 16PF5 is that 84.6% of the participants fell into the *accommodating* category of the Accommodating-Independent scale. None of the participants fell into the *independent* category. Furthermore, none of the participants fell into the *extraverted* category (within the Introverted-Extraverted scale).

Table 2
Global Factor: Introverted-Extraverted

Scale categories	*f*	%	Valid %	Cumulative %
Introverted	7	53.8	53.8	53.8
Average	6	46.2	46.2	100.0
Total	13	100.0	100.0	

On the Introverted-Extraverted scale 53.8% of the sample fell in the *introverted* category, while 46.2% fell in the *average* category. None of the participants fell into the *extraverted* category.

Table 3
Global Factor: Accommodating-Independent

Scale categories	*f*	%	Valid %	Cumulative %
Accommodating	11	84.6	84.6	84.6
Average	2	15.4	15.4	100.0
Total	13	100.0	100.0	

A total of 84.6% of the sample can be categorised as *accommodating*, which can be seen as a significant finding. Only 15.4% of the sample fell into the *average* category, while none of the participants fell into the *independent* category.

Table 4
Global Factor: Receptive- Tough minded

Scale categories	F	%	Valid %	Cumulative %
Receptive	3	23.1	23.1	23.1
Average	4	30.8	30.8	53.8
Toughminded	6	46.2	46.2	100.0
Total	13	100.0	100.0	

For the Receptive-Tough minded scale, 46.2% were classified as *tough minded*, while 30.8% were classified as *average*. Finally, 23.1% of participants fell into the *receptive* category.

Table 5
Global Factor: Unrestrained- Self-controlled

Scale categories	F	%	Valid %	Cumulative %
Unrestrained	3	23.1	23.1	23.1
Average	6	46.2	46.2	69.3
Self-controlled	4	30.8	30.8	100.0
Total	13	100.0	100.0	

The scores for the Unrestrained- Self-controlled scale seem to be spread out in close proximity. The highest scoring category is *average* with 46.2% of participants. Secondly the *self-controlled* group represented 30.8% of the participants. Finally, 23.1% of participants fell into the *unrestrained* category.

Table 6
Global Factor: Low anxiety- High anxiety

Scale categories	*f*	%	Valid %	Cumulative %
Low anxiety	3	23.1	23.1	23.1
Average	7	53.8	53.8	76.9
High anxiety	3	23.1	23.1	100.0
Total	13	100.0	100.0	

The *average* category (53.8%) represents the largest group of participants. This is followed by the *low anxiety* and *high anxiety* categories which both scored 23.1%.

16PF5 primary factors.

Notable findings for this section were that for the Concrete-Abstract scale, none of the participants fell into the *abstract* category. The majority of participants (61.5%) were categorised as *average*. It is noteworthy that for the Deferential-Dominant scale of the 16PF5, none of the participants fell into the *dominant* category. The majority of participants (69.2%) could be categorised as *deferential*, while 30.8% were categorised as *average*. The findings for the Serious-Lively scale indicated that 7.7% of participants could be classified as *lively*, while 53.8% were classified as *serious*. The remaining 38.5% were classified as *average*. A significant finding for the Shy-Socially bold scale is that 69.2% of participants fell into the *shy* category, while only 15.4% respectively fell into the *average* and *bold* categories. A noteworthy finding for the Self-assured-Apprehensive scale is that 61.5% of participants fell into the *average* category, while 38.5% fell into the *apprehensive* category. None of the participants were categorised as *self-assured*.

Table 7
Primary Factor: Reserved- Warm (A)

Scale categories	*f*	%	Valid %	Cumulative %
Reserved	4	30.8	30.8	30.8
Average	7	53.8	53.8	84.6
Warm	2	15.4	15.4	100.0
Average	13	100.0	100.0	

More than half of participants fell into the *average* category (53.8%), followed by 30.8% of participants who fell into the *reserved* category. Finally, only 15.4% of participants fell into the *warm* category.

Table 8
Primary Factor: Concrete- Abstract (B)

Scale categories	*f*	%	Valid %	Cumulative %
Concrete	8	61.5	61.5	61.5
Average	5	38.5	38.5	100.0
Total	13	100.0	100.0	

The majority of the participants fell into the *concrete* category (61.5%), followed by 38.5% of participants who fell into the *average* category. None of the participants fell into the *abstract* category.

Table 9
Primary Factor: Reactive- Emotionally stable (C)

Scale categories	*f*	%	Valid %	Cumulative %
Reactive	4	30.8	30.8	30.8
Average	6	46.2	46.2	76.9
Emotionally stable	3	23.1	23.1	100.0
Total	13	100.0	100.0	

The investigation into the Reactive-Emotionally stable scale indicated that 46.2% of participants could be classified as *average*. This is followed by 30.8% of participants who were classified as *reactive* and 23.1% who were classified as *emotionally stable*.

Table 10
Primary Factor: Deferential- Dominant (E)

Scale categories	*f*	%	Valid %	Cumulative %
Deferential	9	69.2	69.2	69.2
Average	4	30.8	30.8	100.0
Total	13	100.0	100.0	

It is noteworthy that for the Deferential-Dominant scale of the 16PF5, none of the participants fell into the *dominant* category. The majority of participants (69.2%) could be categorised as *deferential*, while 30.8% were categorised as *average*.

Table 11
Primary Factor: Serious- Lively (F)

Scale categories	*f*	%	Valid %	Cumulative %
Serious	7	53.8	53.8	53.8
Average	5	38.5	38.5	92.3
Lively	1	7.7	7.7	100.0
Total	13	100.0	100.0	

The findings for the Serious-Lively scale indicated that a mere 7.7% of participants could be classified as *lively*, while 53.8% were classified as *serious*. The remaining 38.5% were classified as *average*.

Table 12
Primary Factor: Expedient- Rule-conscious (G)

Scale categories	*f*	%	Valid %	Cumulative %
Expedient	3	23.1	23.1	23.1
Average	3	23.1	23.1	46.2
Rule-conscious	7	53.8	53.8	100.0
Total	13	100.0	100.0	

The findings indicated that the majority of participants fell into the *rule-conscious* category, while 23.1% respectively fell into the *expedient* and *average* categories.

Table 13
Primary Factor: Shy- Socially bold (H)

Scale categories	*f*	%	Valid %	Cumulative %
Shy	9	69.2	69.2	69.2
Average	2	15.4	15.4	84.6
Socially bold	2	15.4	15.4	100.0
Total	13	100.0	100.0	

A noteworthy finding for the Shy-Socially bold scale was that 69.2% of participants fell into the *shy* category, while only 15.4% respectively fell into the *average* and *bold* categories.

Table 14
Primary Factor: Utilitarian- Sensitive (I)

Scale categories	*f*	%	Valid %	Cumulative %
Utilitarian	3	23.1	23.1	23.1
Average	7	53.8	53.8	76.9
Sensitive	3	23.1	23.1	100.0
Total	13	100.0	100.0	

A total of 53.8% of participants fell into the *average* category, while 23.1% respectively fell into *utilitarian* and *sensitive* categories.

Table 15
Primary Factor: Trusting- Vigilant (L)

Scale categories	*f*	%	Valid %	Cumulative %
Trusting	3	23.1	23.1	23.1
Average	6	46.2	46.2	69.2
Vigilant	4	30.8	30.8	100.0
Total	13	100.0	100.0	

The investigation into the Trusting-Vigilant scale indicated that 46.2% of participants could be classified as *average*. This is followed by 30.8% of participants who were classified as *vigilant* and 23.1% who were classified as *trusting*.

Table 16
Primary Factor: Grounded- Abstracted (M)

Scale categories	*f*	%	Valid %	Cumulative %
Grounded	6	46.2	46.2	46.2
Average	4	30.8	30.8	76.9
Abstracted	3	23.1	23.1	100.0
Total	13	100.0	100.0	

The investigation into the Grounded-Abstracted scale indicated that 46.2% of participants could be classified as *grounded*. This is followed by 30.8% of participants who were classified as *average* and 23.1% who were classified as *abstracted*.

Table 17
Primary Factor: Forthright- Private (N)

Scale categories	*f*	%	Valid %	Cumulative %
Forthright	2	15.4	15.4	15.4
Average	7	53.8	53.8	69.2
Private	4	30.8	30.8	100.0
Total	13	100.0	100.0	

Most participants fell into the *average* category (53.8%), while 30.8% fell into the *private* category. Finally, 15.4% fell into the *forthright* category.

Table 18
Primary Factor: Self-assured- Apprehensive (O)

Scale categories	*f*	%	Valid %	Cumulative %
Average	8	61.5	61.5	61.5
Apprehensive	5	38.5	38.5	100.0
Total	13	100.0	100.0	

A noteworthy finding for the Self-assured-Apprehensive scale is that 61.5% of participants fell into the *average* category, while 38.5% fell into the *apprehensive* category. None of the participants could be categorised as *self-assured*.

Table 19
Primary Factor: Traditional- Open to change (Q1)

Scale categories	*f*	%	Valid %	Cumulative %
Traditional	6	46.2	46.2	46.2
Average	4	30.8	30.8	76.9
Open to change	3	23.1	23.1	100.0
Total	13	100.0	100.0	

The findings indicated that most participants fell into the *traditional* category (46.2%), while 30.8% fell into the *average* category and 23.1% into the *open to change* category.

Table 20
Primary Factor: Group-oriented- Self-reliant (Q2)

Scale categories	*f*	%	Valid %	Cumulative %
Group-oriented	5	38.5	38.5	38.5
Average	4	30.8	30.8	69.2
Self-reliant	4	30.8	30.8	100.0
Total	13	100.0	100.0	

The findings indicated that the largest proportion of participants fell into the *group-oriented* category (38.5%), while 30.8% respectfully fell into the *average* and *self-reliant* category.

Table 21
Primary Factor: Tolerates disorder- Perfectionistic (Q3)

Scale categories	*f*	%	Valid %	Cumulative %
Tolerates disorder	3	23.1	23.1	23.1
Average	6	46.2	46.2	69.2
Perfectionistic	4	30.8	30.8	100.0
Total	13	100.0	100.0	

The findings indicated that most participants fell into the *average* category (46.2%), while 30.8% fell into the *perfectionistic* category and 23.1% into the *tolerates disorder* category.

Table 22
Primary Factor: Relaxed-Tense (Q4)

Scale categories	*f*	%	Valid %	Cumulative %
Relaxed	3	23.1	23.1	23.1
Average	7	53.8	53.8	76.9
Tense	3	23.1	23.1	100.0
Total	13	100.0	100.0	

The findings indicated that more than half of participants fell into the *average* category (53.8%), while 23.1% respectively fell into the *relaxed* and *tense* categories.

MCMI-III personality patterns.

The majority of the findings indicated that for most constructs measured, no noteworthy elevation was present. These scores indicated that participants fell within

the *insignificant* category. While these findings may not indicate which psychological constructs could possibly be correlated with tinnitus sufferers, it gives an indication of which psychological constructs are possibly not related to tinnitus (least likely to be related to tinnitus sufferers).

The modifying indexes were all within normal range and all protocols were deemed valid. The majority of participants (76.9%) had *insignificant* scores for the Schizoid scale. 15.4% fell into the *significant* category, while only 7.7% received a *diagnosable* for the Schizoid scale. In the Depressive scale a total of 84.6% of participants fell into the *insignificant* category. 7.7% respectively fell into the *significant* and *diagnosable* categories. On the Histrionic scale 76.9% of participants were categorised as *insignificant*. A further 15.4% fell into the *significan*t category, while only 7.7% were classified as *diagnosable*. The Narcissistic scale produced scores in which 76.9% of participants were categorised as *insignificant*, while 15.4% fell into the *significant* category and only 7.7% were classified as *diagnosable*. The majority of participants (92.3%) were classified as *insignificant* for the Antisocial measure. Only 7.7% were classified as *significant* and none of the participants fell into the *diagnosable* category. All participants (100%) scored *insignificant* on the Sadistic measure. On the Negativistic scale 76.9% of participants were categorised as *insignificant*. A further 23.1% fell into the *significant* category, while none were classified as *diagnosable*. The Masochistic scale produced results in which 76.9% of participants' scores were categorised as *insignificant*. A further 23.1% fell into the *significant* category, while none were classified as *diagnosable*.

The highest scores for the *significant* category were: Masochistic, Negativistic, Dependent and Avoidant at 23.1% each and Compulsive at 30.8%. The Compulsive category had the highest score, but this is not a statistically significant finding. The highest scores for the *diagnosable* category were for 23.1% on the Dependent scale. This is also not statistically significant.

On the severe personality pattern scales, 100% of participants fell into the *insignificant* category for the Schizotypal scale. On the Borderline scale 84.6% fell into the *insignificant* category, while 7.7% respectively fell into the *significant* and *diagnosable c*ategories. On the Paranoid scale 84.6% fell into the *insignificant* category with 7.7% respectively having fallen into the *significant* and *diagnosable* categories.

Table 23
Clinical Personality Pattern: Schizoid (1)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	10	76.9	76.9	76.9
Significant	2	15.4	15.4	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

The majority of participants (76.9%) had *insignificant* scores for the Schizoid scale. 15.4% fell in the *significant* category, while only 7.7% received a *diagnosable* for the Schizoid scale.

Table 24
Clinical Personality Pattern: Avoidant (2A)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	9	69.2	69.2	69.2
Significant	3	23.1	23.1	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

Most participants (69.2%) had *insignificant* scores on the Avoidant scale. 23.1% fell into the *significant* category, while only 7.7% received a *diagnosable*.

Table 25
Clinical Personality Pattern: Depressive (2B)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	11	84.6	84.6	84.6
Significant	1	7.7	7.7	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

84.6% of participants fell into the *insignificant* category for the Depressive scale, with 7.7% respectively having fallen into the *significant* and *diagnosable* categories.

Table 26
Clinical Personality Pattern: Dependent (3)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	9	69.2	69.2	69.2
Significant	1	7.7	7.7	76.9

Diagnosable	3	23.1	23.1	100.0
Total	13	100.0	100.0	

On the Dependent Scale 69.2% of participants were categorised as *insignificant,* while a further 23.1% fell into the *diagnosable* category and 7.7% were classified as *significant*.

Table 27
Clinical Personality Pattern: Histrionic (4)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	10	76.9	76.9	76.9
Significant	2	15.4	15.4	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

76.9% of participants were categorised as *insignificant* for the Histrionic scale. A further 15.4% fell into the *significant* category, while only 7.7% were classified as *diagnosable*.

Table 28
Clinical Personality Pattern: Narcissistic (5)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	10	76.9	76.9	76.9
Significant	2	15.4	15.4	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

On the Narcissistic scale 76.9% of participants were categorised as *insignificant*. A further 15.4% fell into the *significant* category, while only 7.7% were classified as *diagnosable*.

Table 29
Clinical Personality Pattern: Antisocial (6A)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	12	92.3	92.3	92.3
Significant	1	7.7	7.7	100.0
Total	13	100.0	100.0	

The majority of participants (92.3%) were classified as *insignificant* for the Antisocial scale. Only 7.7% were classified as *significant*.

Table 30
Clinical Personality Pattern: Sadistic (6B)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	13	100.0	100.0	100.0
Total	13	100.0	100.0	

All participants (100%) scored as *insignificant* on the Sadistic scale. None of the participants fell into the *significant* or *diagnosable* categories.

Table 31
Clinical Personality Pattern: Compulsive (7)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	8	61.5	61.5	61.5
Significant	4	30.8	30.8	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

On the Compulsive scale, 61.5% of participants were categorised as *insignificant*. A further 30.8% fell into the *significant* category, while only 7.7% were classified as *diagnosable*.

Table 32
Clinical Personality Pattern: Negativistic (8A)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	10	76.9	76.9	76.9
Significant	3	23.1	23.1	100.0
Total	13	100.0	100.0	

76.9% of participants were categorised as *insignificant* on the Negativistic scale. A further 23.1% fell into the *significant* category, while none were classified as *diagnosable*.

Table 33
Clinical Personality Pattern: Masochistic (8B)

Scale categories	F	%	Valid %	Cumulative %
Insignificant	10	76.9	76.9	76.9
Significant	3	23.1	23.1	100.0
Total	13	100.0	100.0	

On the Masochistic scale 76.9% of participants were categorised as *insignificant*. A further 23.1% fell into the *significant* category, while none were classified as *diagnosable*.

Table 34
Severe Personality Pathology: Schizotypal (S)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	13	100.0	100.0	100.0
Total	13	100.0	100.0	100.0

On the Schizotypal scale, 100% of participants fell into the *insignificant* category.

Table 35
Severe Personality Pathology: Borderline (C)

Scale categories	F	%	Valid %	Cumulative %
Insignificant	11	84.6	84.6	84.6
Significant	1	7.7	7.7	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

84.6% fell into the *insignificant* category on the Borderline scale, while 7.7% of participants respectively fell into the *significant* and *diagnosable* categories.

Table 36
Severe Personality Pathology: Paranoid (P)

Scale categories	F	%	Valid %	Cumulative %
Insignificant	11	84.6	84.6	84.6
Significant	1	7.7	7.7	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

On the Paranoid scale, 84.6% of participants fell into the *insignificant* category, while 7.7% respectively fell into the *significant* and *diagnosable* categories.

MCMI-III clinical syndromes.

All participants fell into the *insignificant* category on the Somatoform scale. The majority (92.3%) of participants scored in the *insignificant* category for Bipolar: manic, while only 7.7% scored high enough for a *diagnosable*. The majority (92.3%) of participants scored in the *insignificant* category for Dysthymia, while only 7.7% scored enough for a *significant* categorisation. The majority (92.3%) of participants scored in the *insignificant* category for Alcohol dependence, while only 7.7% scored enough for the *significant* category. The majority (92.3%) of participants scored in the *insignificant* category for Drug dependence, while only 7.7% scored enough for a *significant* categorisation. The majority of participants (84.6%) fell into the *insignificant* category for Post-traumatic Stress, while 7.7% respectively fell into the *significant* and *diagnosable* categories. All participants (100%) fell into the *insignificant* category on the Thought Disorder scale. 76.9% of participants fell into the *insignificant* category for Major Depression, followed by 15.4% *significant* and 7.7% *diagnosable*. All scores on the Delusional disorder scale were *insignificant*.

On the MCMI-III Anxiety scale 38.5% of participants fell into the *insignificant* and *significant* categories respectively. This is the only result for the MCMI-III where the *insignificant* score is not the highest, and thus is a noteworthy finding.

Table 37
Moderately Severe Clinical Syndrome: Anxiety (A)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	5	38.5	38.5	38.5
Significant	5	38.5	38.5	76.9
Diagnosable	3	23.1	23.1	100.0
Total	13	100.0	100.0	

On the Anxiety scale, 38.5% of participants fell into the *insignificant* and *significant* categories respectively. This is the only result for the MCMI-III where the insignificant score is not the highest.

Table 38
Moderately Severe Clinical Syndrome: Somatoform (H)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	13	100.0	100.0	100.0
Total	13	100.0	100.0	

All participants fell into the *insignificant* category for Somatoform.

Table 39
Moderately Severe Clinical Syndrome: Bipolar: manic (N)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	12	92.3	92.3	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

The majority (92.3%) of participants scored in the *insignificant* category for Bipolar: manic, while only 7.7% scored enough for *diagnosable*.

Table 40
Moderately Severe Clinical Syndrome: Dysthymia (D)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	12	92.3	92.3	92.3
Significant	1	7.7	7.7	100.0
Total	13	100.0	100.0	

The majority (92.3%) of participants scored in the *insignificant* category on the Dysthymia, while only 7.7% scored enough for a *significant* categorisation.

Table 41
Moderately Severe Clinical Syndrome: Alcohol Dependence (B)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	12	92.3	92.3	92.3
Significant	1	7.7	7.7	100.0
Total	13	100.0	100.0	

The majority (92.3%) of participants scored in the *insignificant* category for Alcohol dependence, while only 7.7% scored enough to be categorised as *significant*.

Table 42
Moderately Severe Clinical Syndrome: Drug Dependence (T)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	12	92.3	92.3	92.3
Significant	1	7.7	7.7	100.0
Total	13	100.0	100.0	

The majority (92.3%) of participants scored in the *insignificant* category for Drug dependence, while only 7.7% scored enough for a *significant* categorisation.

Table 43
Moderately Severe Clinical Syndrome: Post-traumatic Stress (R)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	11	84.6	84.6	84.6
Significant	1	7.7	7.7	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

The majority of participants (84.6%) fell into the *insignificant* category for Post-traumatic Stress, while 7.7% respectively fell into the *significant* and *diagnosable* categories.

Table 44
Severe Clinical Syndrome: Thought Disorder (SS)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	13	100.0	100.0	100.0
Total	13	100.0	100.0	

All participants (100%) fell into the *insignificant* category for Thought Disorder.

Table 45
Severe Clinical Syndrome: Major Depression (CC)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	10	76.9	76.9	76.9
Significant	2	15.4	15.4	92.3
Diagnosable	1	7.7	7.7	100.0
Total	13	100.0	100.0	

On the Major Depression scale 76.9% of participants fell into the *insignificant*, 15.4% fell into the *significant* category, and 7.7% fell into the *diagnosable* category.

Table 46
Severe Clinical Syndrome: Delusional Disorder (PP)

Scale categories	*f*	%	Valid %	Cumulative %
Insignificant	13	100.0	100.0	100.0
Total	13	100.0	100.0	

All participants were classified as *insignificant* on the Delusional Disorder scale.

Thus, in summary, the results of the study suggest the most significant finding related to the global factors of the 16PF5 is that 84.6% of the participants can be classified as *accommodating*. None of the participants can be described as *independent*, *extraverted* or *abstract*. More than half of the participants can be described as *deferential* and *shy*. None of the participants measured as *self-assured*. On the MCMI-III very few significant elevations were present. On the *Anxiety* scale 38.5% of participants fell into the insignificant and significant categories respectively. This is the only result for the MCMI-III where the insignificant score is not the highest, and thus is a noteworthy finding.

CHAPTER 5:

Discussion, Recommendations and Limitations of Study

5.1 Discussion

The findings garnered from the exploratory descriptive analysis give us some indication of areas that warrant further exploration. However, it is stressed once again that the results are in no way confirmatory or statistically significant due to sample size and the descriptive focus. Thus, for the purpose of the discussion section, the findings will be discussed with regards to the statistical aspect and some speculation regarding links may be included. These links cannot be confirmed or rejected at present, as this was not the aim of the study; however, they do introduce some topics or questions for future research.

When looking at the 16PF5 results, almost 85% of the participants can be said to be accommodating, while none were found to be independent in personality. This finding suggests that the participants may be more inclined towards harmony and not questioning others. They may be easily influenced and may feel uncomfortable in situations where self-expression and assertiveness is required (Jopie van Rooyen & Partners, n.d.*a*). Thus, the participants in the study are not likely to be domineering or disagreeable individuals (Van Eeden et al., 2013). This can be contrasted to the finding by Langguth et al. (2007) in which it was found that *low agreeableness* was significantly correlated with tinnitus severity. The difference in scores may be attributable to the differences in psychometric measures, as Langguth et al. (2007) used a measure based on the big five personality trait model, which differs from the 16PF5's theoretical underpinning.

More than half of the participants fell into the introverted category. These participants may tend to prefer spending more time in their own company and may be less outgoing and sociable (Cattell & Mead, 2008). Of particular interest is the result that no participants measured as *extraverted*, indicating a decreased inclination for socialising or seeking out interpersonal interaction (Jopie van Rooyen & Partners, 2006). This result links to research done by Bartels et al. (2010) in which social inhibition was found to be part of the Type D personality associated with tinnitus patients. Wallhäusser-Franke et al. (2014) also found *decreased extraversion* in individuals with tinnitus. This result would suggest confirmation of results in previous international studies.

The Anxiety scale is said to measure pressure management and the level of perturbability of the individual (Van Eeden et al., 2013). In previous studies, anxiety scales are generally elevated and individuals with tinnitus are known to often have co-morbid anxiety disorders or symptoms (Belli et al., 2008; Briner et al., 1990; Heinecke et al., 2008; Hesser & Andersson, 2009; Langenbach et al., 2005). However, in the current study the participants scored evenly in the 16PF5 anxiety scale, with most of the participants falling in a neutral score for anxiety. This is in contradiction to the aforementioned studies. This difference may be attributable to the small sample size, or more likely, the difference in what a scale comprises of in different psychometric tests. This phenomenon is evident even in this small study as the scores on the MCMI-III Anxiety scale were more noteworthy and indicates a heightened incidence of anxiety in this sample.

Of interest in the factor scales is that none of the participants fell into the abstract category, and more than 60% were categorised as concrete in thinking. Thus, most of the participants tend to focus more on the concrete factors of the external environment, spending less energy on the internal thought processes these may trigger (Jopie van Rooyen & Partners, n.d.*b*).

None of the participants scored as *dominant*; a result suggesting that these individuals are unlikely to exert influence over others or strive to control others' behaviour (Jopie van Rooyen & Partners, n.d.*a*). More than 70% of the participants scored as *deferential*, suggesting a tendency for these individuals to avoid conflict and be acquiescent to others' wishes or demands (Van Eeden et al., 2013). This result makes sense when taken into account with the majority of participants falling into the accommodating category in the Global factor as previously discussed.

Only one of the participants was classified as *lively*; a category describing individuals who seek excitement and tend to be spontaneous in expressing themselves (Jopie van Rooyen & Partners, n.d.*a*). More than half of the participants scored as *serious*, a result suggesting an individual who is quiet, less playful and cautious (Cattell & Mead, 2008). These individuals may be experienced by others as constricted and unentertaining, while others may describe them as mature (Jopie van Rooyen & Partners, 2006).

Almost 70% of the participants fell into the *shy* category, suggesting a tendency to be socially timid (Cattell & Mead, 2008). These individuals may find it difficult to speak in front of a group of people. Two of the participants did however

score as *socially bold* and thus may have a high level of ease in social situations (Jopie van Rooyen & Partners, n.d.*a*).

None of the participants measured as *self-assured*, while just under 40% tested as *apprehensive*. This result would suggest that none of the participants are likely to be overly confident or self-satisfied (Jopie van Rooyen & Partners, 2006). Instead, there is a tendency to be self-doubting and insecure, with a pervasive sense of worrying (Cattell & Mead, 2008). It is of interest to consider whether this pervasive apprehension or worry is more in line with the elevated anxiety scores in previous studies such as Belli et al. (2008) and Langenbach et al. (2005). To complicate the anxiety contradiction even further, the sample did not score as *tense* to a large extent. In fact, the results were evenly distributed with most participants scoring as neither *tense* nor *relaxed*. If the score on anxiety was high, one might expect the score on tension to be high as well. Thus, these scores seem to be related to each other, as both are evenly spread. Yet, as mentioned before, this contrasts with previous studies measuring anxiety in individuals with tinnitus.

The MCMI scores produced less noteworthy results, although this in itself poses many questions. In previous studies (Belli et al., 2008; Reich & Johnson, 1984) it was suggested that most of the tinnitus population tend to present with some psychopathology. Yet, in the current study there were very few clinical diagnoses in the sample as a whole, with one participant making up most of these diagnoses.

One of the scales that differed from the others was the Dependent scale. Three of the participants scored high enough to receive a diagnosis of dependent personality disorder while another scored just under this mark. Compared to the other scores, this is noteworthy. It would suggest that at least three of the participants with tinnitus exhibit personality traits pertaining to individuals who are not able to take care of themselves and mostly require someone dependable who can support and protect them (Millon, Millon, Davis, & Grossman, 2009). This finding fits well with the 16PF5 results of *accommodating* and *deferential* as these individuals are likely not assertive or independent, requiring guidance from others. Of course, this is not true for all the participants and should be investigated further before any conclusions are made.

The Compulsive scale yielded more *significant* scores than any of the other scales. This does not mean a Compulsive Personality Disorder can be diagnosed, but it suggests that compulsive symptomology is likely present. This suggests an

individual who is usually orderly and conscientious and may be prone to perfectionism (Millon et al., 2009).

Interestingly, neither the Depressive nor the Major Depressive Disorder scales were elevated to a noteworthy degree. This is in contrast with previous research finding strong correlations between tinnitus and depressive disorders or symptomology (Belli et al., 2008; Langguth et al., 2007; Unterrainer et al., 2003). In the same way, none of the participants scored at all significant in Somatoform Disorder, contradictory to previous research indicating co-morbid somatic disorders in tinnitus patients as well as suggestions of tinnitus being in part a 'somaticised' symptom (Belli et al., 2008; Langenbach et al., 2005; Wallhäusser-Franke et al., 2014).

In contrast to the 16PF results, more than 60% of the participants scored *significantly* high on the Anxiety disorder scale, with just under a quarter scoring sufficiently high to validate a *diagnosis*. In the MCMI-III, the Anxiety scale refers to individuals who may suffer from vague pervasive apprehension or full-blown phobic experiences (Millon et al., 2009). The person may be tense, accompanied by physical symptoms such as muscle tightness or trouble breathing (Millon et al., 2009). This scale is usually linked, to a degree, with the somatic scale, further complicating the low scores in that scale. What the relatively high score in the MCMI-III anxiety scale shows is that different tests understand and identify similar constructs differently, to the extent that an individual may test as *anxious* in one test, yet not in the other. This highlights the importance of using a battery of tests when diagnosing and always comparing scale specifiers as they may differ significantly.

With regards to similar research using the MCMI-III conducted by Briner et al. in 1990, the similarities are assorted. The 70% rate of personality disorder diagnoses were not replicated, however the high anxiety rate (24%) in the Briner et al. (1990) study was similar with just under 39% of the sample scoring high on the Anxiety scale of the MCMI-III. This would suggest an area for future research as high anxiety may have some influence on tinnitus distress and functioning or vice versa.

When keeping in mind the cognitive-behavioural model for tinnitus (McKenna et al., 2014), it is useful to reflect on how the heightened scales may impact on *beliefs* of an individual with tinnitus. An individual who is accommodating, deferential, shy, introverted or present with criteria for Dependent Personality Disorder may have limited social contact and be submissive to the extent that they have no emotional

support and the relationships they do have may be one-directional or they may be excessively reliant on the other person. Add to this high anxiety and a tendency to be compulsive and perfectionistic and it can be suggested that such an individual could be prone to having negatively slanted beliefs revolving around various worries and thoughts that can easily turn into ruminations and catastrophising. This could increase distress related to tinnitus, and the beliefs would mostly remain unchallenged due to limited social contact and increased safety behaviours in an attempt to lessen anxiety.

The results of the study allow one to make a tentative suggestion of what the personality profile of a typical individual with subjective tinnitus may present as. Such an individual may tend be accommodating, deferential and shy. The person may be more introverted, concrete and less independent, which may present as not feeling very sure of themselves. There is also a likelihood of the individual having some form of anxiety that likely impedes on their functioning.

All of these notions need to be researched further before any tangible correlations and links can be made. However, there seems to be some indication of psychological constructs likely to be observed in individuals with tinnitus.

5.2 Limitations of Study

The study had a small sample size (N=13), limiting the generalisations that can be made. The sample was not representative of the South African population as most of the participants were white. The study is simple in design and does not correct for any other influence that may impact tinnitus-related distress.

The measures used, although valid and reliable, must be used responsibly and is often not suited to South Africa's population. Thus, the results of this study can in no way confirm the presence of diagnoses of clinical syndromes or personality patterns in the participants. Further assessments and clinical contact would be required before such judgments can be made.

The study was merely exploratory and thus no correlations or links between psychological constructs and tinnitus can be made. The conclusions are tentative and serve to suggest future areas of research.

5.3 Recommendations

In future research on subjective tinnitus and psychological constructs it is recommended that larger and more representative sample sizes are used. This will facilitate generalisations to the general tinnitus population, regardless of racial, cultural and socioeconomic background. The current study is quite limited in this and so no generalisations or correlations can be made.

It is also recommended that larger test batteries be implemented in prospective research on this topic. An investigation could also be made into comparing similar scales of diverse psychometric measures, such as anxiety scales, to determine what the differences in definition and construct description are.

As stemming from the proposed cognitive-behavioural model of McKenna et al. (2014), research efforts in the area of tinnitus and psychology should focus on beliefs of tinnitus patients as part of the model at large. In cognitive behavioural therapy these identified beliefs can then be worked with in an attempt to break into the cycle that maintains tinnitus distress which results in impaired functioning and quality of life.

5.4 Conclusion

In this study the results indicated some differences with international research on the topic of tinnitus and various psychological constructs. It also delivered some similar results, especially with regards to anxiety as measured by the MCMI-III. The use of the MCMI-III and the 16PF5 provided a comprehensive picture of psychological functioning of the participants pertaining to personality traits, personality patterns and clinical syndromes. As an exploratory study, the information garnered has generated many future research questions and directions.

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APPENDICES

Appendix A: 16PF5 Scale Descriptions

Primary Factors			
Scale	**Factor**	**Low score descriptors**	**High score descriptors**
A	Warmth	Emotionally distant from people	Attentive and warm to others
B	Reasoning	Fewer reasoning items correct	More reasoning items correct
C	Emotional stability	Reactive, emotionally changeable	Emotionally stable, adaptive
E	Dominance	Deferential, cooperative, avoids conflict	Dominant, forceful
F	Liveliness	Serious, cautious, careful	Lively, animated, spontaneous
G	Rule-consciousness	Expedient, nonconforming	Rule-conscious, dutiful
H	Social boldness	Shy, threat-sensitive, timid	Socially bold, venturesome, thick-skinned
I	Sensitivity	Objective, unsentimental	Subjective, sentimental
L	Vigilance	Trusting, unsuspecting, accepting	Vigilant, suspicious, sceptical, wary
M	Abstractedness	Grounded, practical, solution-oriented	Abstracted, theoretical, idea-oriented
N	Privateness	Forthright, straightforward	Private, discreet, nondisclosing
O	Apprehension	Self-assured, unworried	Apprehensive, self-doubting, worried
Q1	Openness to change	Traditional, values the familiar	Open to change, experimenting
Q2	Self-reliance	Group-oriented, affiliative	Self-reliant, individualistic
Q3	Perfectionism	Tolerates disorder, unexacting, flexible	Perfectionistic, organised, self-disciplined
Q4	Tension	Relaxed, placid, patient	Tense, high-energy, impatient, driven
Global factors			
Extraversion		Introverted, socially inhibited	Extraverted, socially participating
Anxiety		Low anxiety, unperturbable	High anxiety, perturbable
Tough-mindedness		Receptive, open-minded, intuitive	Tough-minded, resolute, unempathic
Independence		Accommodating, agreeable, selfless	Independent, persuasive, wilful
Self-control		Unrestrained, follows urges	Self-controlled, inhibits urges
Validity scales			
Infrequency		Over-selection of the '?' option	
Acquiescence		Tendency to agree with items regardless of their content	
Impression management		Indicator of inflated positive impression	

(Adapted from: Van Eeden et al., 2013)

Appendix B: MCMI-III Scale Descriptions

Symbol	Scale	BR > 74 Description based on items
Modifying Indices (Validity scales)		
V	Validity Index	-
X	Disclosure Index	-
Y	Desirability Index	-
Z	Debasement Index	-
Clinical personality patterns		
1	Schizoid	Prefer to do things by themselves; don't show feelings. Little desire for close-relationships and experience little pleasure/pain from life.
2A	Avoidant	Desires for but fearful of close relationships because of possible rejection. Vigilant, self-conscious and tense in social situations.
2B	Depressive	Pervasively sad and guilty; blaming self for anything that goes wrong. Self as worthless and no hope for pleasure.
3	Dependent	Agreeable, submissive; fears rejection if they should disagree with others. Allow other to make decisions for them. Frightened of being alone without someone on whom they can depend.
4	Histrionic	Show feelings quickly and easily. Sociable, flirtatious, in search of proof of acceptance and approval from others.
5	Narcissistic	Thinking one is special or superior to others. Deserves to be envied or receive special attention. Described as selfish and not perturbed when others are taken advantage of.
6A	Antisocial	Behavioural problems and trouble with law. Not worried about what others think/feel; punishment is not deterrent. Can easily make up excuses, irresponsible, impulsive.
6B	Sadistic (Aggressive)	Criticizing, mean and rough to others who annoy them. Personal pleasure from humiliating others; place strict control on others.
7	Compulsive	Follows rules and routine. Seen as serious, reserved, and moral. Work is well-planned and organized and they keep close track of money.
8A	Negativistic (Passive-aggressive)	Often cross, angry, resistant to what others want them to do. Blaming others; ambivalence about defiance and deference to others.
8B	Masochistic	Mistreated by friends; involved in situations where they get hurt or rejected. Believe they don't deserve good things. Believe one deserves to be shamed and humiliated.
Severe personality patterns		
S	Schizotypal	Strange thoughts; feeling presence of someone not seen. Think and talk about strange/different things. Concerned that unfamiliar people may harm them and easily infers malicious intent.
C	Borderline	Feeling empty, hollow. Moods and feelings change frequently; love/hate towards others. May act impulsive to keep a person from abandoning them.
P	Paranoid	Unforgiving of insults. Vigilant; watching out for people wanting to cheat them. Feels they are not given recognition they deserve. Care taken to keep life private so as not to be taken advantage of.
Clinical syndromes		
A	Anxiety disorder	Jumpy, tense; distressing thoughts. Repeat

		behaviours to reduce anxiety
H	Somatoform disorder	Weak, tired, problems sleeping. Losing ability to feel sensations in parts of body. Difficulty with balance.
N	Bipolar disorder: Manic	Excited and cheerful at times for no reason. Too interested and excited about too many things. Talking fast. After having too much energy they enter a low mood.
D	Dysthymic disorder	Feeling guilty; like a failure. Discouraged, sad, unable to 'snap out of it'. Lost interest in most things they use to find pleasurable.
B	Alcohol dependence	Alcohol problem causing problems with functioning; drinking to excess. Drinking helps them when feeling down.
T	Drug dependence	Drug problem causing problems with functioning. Dependence on drugs to function.
R	Posttraumatic stress disorder	Upsetting experience from past relived in thoughts and nightmares. Terrified; flashbacks of traumatic events.
Severe clinical syndromes		
SS	Thought disorder	Thoughts are pervasive, won't go away. Losing touch with the world. Increased sensory experience.
CC	Major depression	Depressed and sad for no specific reason. Loss of appetite; trouble sleeping. Suicidal ideation.
PP	Delusional disorder	Beliefs regarding people spying on them, thought insertion, being plotted against. Believing someone is trying to control their minds.

(Adapted from: Weiner & Greene, 2008)

Appendix C: Ethics Approval for Primary Study (Department of Communication Pathology)

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Research Ethics Committee

29 August 2014

Dear Prof Vinck

Project:	**Collaborative audiological and psychological intervention where tinnitus, hearing loss and psychological factors co-exist**
Researcher:	**H Kroon**
Supervisor:	**Prof Bart Vinck**
Department:	**Speech-Language Pathology & Audiology**
Reference numbers:	**24037789**

Thank you for the application that was submitted for ethical consideration.

I am pleased to inform you that the above application was **approved** by the **Research Ethics Committee** on 28 August 2014. Data collection may therefore commence.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. Should the actual research depart significantly from the proposed research, it will be necessary to apply for a new research approval and ethical clearance.

The Committee requests you to convey this approval to the researcher.

We wish you success with the project.

Sincerely

Prof Karen Harris
Acting Chair:Research Ethics Committee
Faculty of Humanities
UNIVERSITY OF PRETORIA
e-mail:Karen.harris@up.ac.za

Research Ethics Committee Members: Dr L Blokland;Prof Prof M-H Coetzee; Dr JEH Grobler; Prof KL Harris (Acting Chair); Ms H Klopper; Dr C Panebianco-Warrens; Dr Charles Puttergill, Prof GM Spies; Dr Y Spies; Prof E Taljard; Dr P Wood

Appendix D: Afrikaans Informed Consent Form

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Humanities
Department of Speech-Language Pathology and Audiology

17 Junie 2014

Beste deelnemer

UITNODIGING VIR DEELNAME AAN 'N NAVORSINGSPROJEK

Ons wil u graag uitnooi om deel te neem aan 'n navorsingsprojek van die Departement Spraak-Taal Patologie en Oudiologie. Die doel van die studie is om die effekte van oudiologiese en sielkundinge intervensie metodes op die graad van tinnitus te bepaal.
Die navorsing sal plaasvind by die Departement van Spraak-Taal Patologie en Oudiologie en die Department van Sielkunde by die Universiteit van Pretoria, met die opsie om die oudiologiese gedeelte te voltooi in Centurion indien dit u beter sou pas. Voordat die data insameling aanvang kan neem moet evaluasies uitgevoer word om te bepaal of u 'n geskikte kandidaat is vir die studie. Hierdie evaluasies mag op verskillende plekke uitgevoer word. Die prosedures vir die bepaling van kandidaatskap sluit in:

Evaluering van die graad van tinnitus:	Die "Tinnitus Handicap Inventory" (THI) vraelys sal deur u voltooi word.
Diagnostiese gehoor evaluasie:	Otoskopie, (visuele inspeksie van die oor), Timpanometrie (evaluasie van middeloorfunksionering), Suiwertoon oudiometrie en woordherkenning toetsing.
Psigo-akoestiese evaluasie van tinnitus:	Toonhoogte- en luidheid passing, minimum maskeringsvlakke en residuele inhibisie.
Sielkundige evaluasie:	Psigometriese analise.
Mediese assessering:	'n Kliniese ondersoek deur 'n Oor-, Neus- en Keelarts.

Prosedures wat by die data insameling ingesluit word omvat die volgende:
Gehoorapparaat passing, oudiologiese berading oor tinnitus en gehoorverlies, herhaalde voltooiing van die THI en sielkundige intervensie in die vorm van kognitiewe gedragsterapie. Drie intervensie periodes van twee maande elk, met rusperiodes van een maand ná elke intervensie tydperk, sal van toepassing wees. 'n Intervensie periode behels óf oudiologiese hantering, óf sielkundige hantering, óf 'n kombinasie van die twee benaderings tot tinnitus. Elkeen van hierdie drie benaderings moet deur die deelnemer voltooi word vir deelname aan die studie. Die volgorde van die intervensie benaderings sal op 'n toevallige basis deur die navorser aan u toegeken word.

Die bevindinge van die navorsingsprojek sal aan u beskikbaar gestel word, sou u verkies om inligting daaromtrent te ontvang. Deelname aan hierdie navorsingsprojek is totaal vrywillig. Sou u uself uit die studie wou onttrek, is u vry om dit te doen. Vertroulikheid sal verseker word regdeur die loop van die projek aangesien 'n kode gebruik sal word om elke deelnemer te verteenwoordig. Daar is geen risiko's aan u deelname aan die projek verbonde nie en geen ongemak word voorsien nie. Die resultate sal gestoor word vir 15 jaar vandat die studie afgehandel is.

Sou u enige verdere inligting rondom die studie benodig, is u welkom om die navorser, Hannelie Kroon, te kontak by 071 681 2787. Indien u instem om aan die studie deel te neem, voltooi asseblief die toestemmingsvorm wat aangeheg is en bring dit saam met u op u eerste afspraak.

Dankie vir u belangstelling in hierdie navorsingsprojek.

Vriendelike groete,

Hannelie Kroon
Navorser

Mev. Barbara Heinze
Opsigter/Dosent

Professor Bart Vinck
Opsigter en Hoof: Departement van Spraak-Taal Patologie en Oudiologie

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INGELIGTE TOESTEMMING VIR DEELNAME AAN DIE NAVORSINGSPROJEK

Navorser: Hannelie Kroon
Kontak nommer: 071 681 2787
Epos adres: audiology@midrand-estates.co.za

Naam van deelnemer:_____

Titel van die navorsingsprojek: "Collaborative audiological and psychological intervention where tinnitus, hearing loss and psychological factors co-exist."
Doel van die studie: Om die effekte van oudiologiese en sielkundige intervensie metodes op die graad van tinnitus te bepaal.
Prosedures: Ek verstaan dat ek oudiologiese, sielkundige en tinnitus evaluasies sal ondergaan om kandidaatskap te bepaal, en oudiologiese en sielkundige intervensie gedurende die data insamelingsfase.
Risiko's en ongemak: Daar is geen bekende risiko's en ongemak geassosieer met hierdie studie nie.
Voordele: Ek verstaan dat ek kan voordeel trek uit die behandeling vir tinnitus wat voorsien gaan word. Daar is geen finansiële kompensasie vir deelname aan die studie nie.
Regte van die deelnemer: Ek verstaan dat ek ten enige tye myself mag onttrek uit hierdie studie, sonder enige nagevolge.
Vertroulikheid: Ek verstaan dat al die inligting wat van my af ingesamel word as vertroulik behandel sal word. Ek gee egter toestemming dat die inligting gebruik mag word vir navorsing en akademiese publikasies in Suid-Afrika en ander lande, en dat my identiteit nie bekend gemaak sal word nie tensy dit wetlik vereis word
Data bewaring: Ek verstaan dat alle rou data gestoor sal word vir 'n tydperk van 15 jaar in die Departement van Spraak-Taal Patologie en Oudiologie by die Universiteit van Pretoria vir argief of verdere navorsingsdoelwitte.

Indien ek enige bekommernisse oor hierdie studie of oor my deelname het, is ek vry om die navorser, Hannelie Kroon, te kontak by die kontakbesonderhede soos bo verskaf. Ek verstaan my regte as deelnemer en stem vrywilllig in om deel te neem aan die studie. Ek verstaan waaroor die studie handel en waarom dit uitgevoer word. Ek sal 'n getekende kopie van hierdie vorm ontvang.

_____ _____
Handtekening van die navorser Datum

_____ _____
Handtekening van die deelnemer Datum

Appendix E: English Informed Consent Form

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Department of Speech-Language Pathology and Audiology

17 June 2014

Dear Participant

INVITATION TO PARTICIPATE IN A RESEARCH PROJECT

We would like to invite you to participate in a research project from the Department of Speech-Language Pathology and Audiology. The purpose of this research project is to determine the effects of audiological and psychological intervention methods on tinnitus severity.
The research will take place at the Department of Speech-Language Pathology and Audiology and the Department of Psychology at the University of Pretoria, with the option to complete the audiological component in Centurion should it suit you better. Prior to the data collection, assessments to determine suitability for partaking must be performed. These assessments may be performed at different venues. The procedures that will be included in order to determine candidacy for the study are:

Tinnitus severity assessment:	Completion of the Tinnitus Handicap Inventory (THI) questionnaire.
Diagnostic hearing evaluation:	Otoscopy (visual inspection of the ear), Tympanometry (evaluation of middle ear functioning), Pure tone audiometry and Word recognition testing.
Psychoacoustic measures of tinnitus:	Pitch matching, loudness matching, minimum masking levels and residual inhibition.
Psychological Assessment:	Psychometric analysis.
Medical assessment:	A clinical examination performed by an Ear-, Nose- and Throat specialist.

Procedures involved for data collection involve the following:
Hearing aid fitting, audiological counselling about tinnitus and hearing loss, repeated completion of the THI and psychological intervention in the form of cognitive behavioural therapy. Three intervention periods of two months each, with rest periods of one month after each treatment period will apply. An intervention period will entail either audiological management, or psychological management, or a combination of both audiological and psychological treatment approaches to tinnitus. All three of these intervention periods must be completed for participation in the research project. The sequence of the intervention methods will be randomly assigned to you by the researcher.

The findings of the research project will be provided to you, should you wish to have insight into the findings. Participation in this research project is completely voluntary, therefore should you wish to withdraw, you may feel free to do so. Confidentiality will be ensured throughout the project as a code will be allocated to each participant. There are no risks involved for you to participate in the project and no discomfort will be experienced. The results will be archived for 15 years.

Should you require any further information regarding the study, please do not hesitate to contact the researcher, Hannelie Kroon at 071 681 2787. If you agree to participate in this study, please complete the consent form attached and bring with on the day of testing.

Thank you for showing interest in this research project.

Kind regards,

Hannelie Kroon
Researcher

Mrs Barbara Heinze
Supervisor/Lecturer

Professor Bart Vinck
Supervisor and Head: Dept of Speech-Language Pathology and Audiology

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