

**YOUNG ADULTS' AWARENESS AND EXPERIENCE OF TINNITUS: A SURVEY OF
A SAMPLE OF STUDENTS AT A UNIVERSITY IN KWAZULU-NATAL**

BY

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DECLARATION

The Registrar (Academic)

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Dear Sir / Madam,

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Hereby declare that the dissertation, which is submitted to the University of KwaZulu-Natal for the degree of Master of Communication Pathology (Audiology), entitled:

**YOUNG ADULTS' AWARENESS AND EXPERIENCE OF TINNITUS: A SURVEY OF
A SAMPLE OF STUDENTS AT A UNIVERSITY IN KWAZULU-NATAL**

Represents my own work in conception and execution. The descriptive study performed for this dissertation was under the guidance and supervision of Dr. Lavanithum (Neethie) Joseph.

The study is the work of the author and has not been submitted in any form to another University or Tertiary Institution. Where use was made of the work of others, it is duly acknowledged in the text.



V.V.P. Bagwandin

13/03/2015

Date

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ABSTRACT

The focus of this study was the awareness and experience of tinnitus in young adults. Historically, most literature focused on tinnitus in the older population group. However, recent studies have revealed that tinnitus has become more prevalent in young adults. This has resulted in an increased interest and need for research regarding tinnitus in this young age group. Current studies have raised awareness that young adults are at risk of acquiring tinnitus because of their exposure to causes such as excessive noise. However, despite this risk young adults seem to still continue in risk-taking behaviours because of social norms and the lack of awareness of tinnitus. Thus the aim of this study was to describe young adults' awareness and experience of tinnitus with regards to their awareness of the existence, causes, effects and management of tinnitus.

A descriptive study design was employed. A purposive sampling method was used. The study sample consisted of 75 university students who volunteered to take part in the study. Participant's age range was between 18 and 30 years. Participants were required to complete an online survey, developed by the researcher, which they accessed from the university notice system.

The results obtained revealed that the majority (69.23%) of participants were not aware of tinnitus. Most of the participants did not know about the causes or effects of tinnitus. Only a few participants experienced tinnitus; 10 (13.89%) participants experienced it themselves and 9 (12.50%) participants knew someone who suffered from tinnitus. The majority of the participants requested further information about tinnitus.

These results have implications for health care professionals who need to be aware of the rising prevalence of tinnitus in the young adult population. This will impact on the manner in which

audiologists approach young adults with regards to assessment and management. Awareness programmes about the association of noise to tinnitus, and its implications should be fostered through promotion programmes.

Key words: Tinnitus, knowledge, young adults, prevalence, awareness, excessive noise exposure, effects of tinnitus, causes of tinnitus, hearing-protection devices, personal listening devices.

CHAPTER ONE

INTRODUCTION AND RATIONALE

1.1 Introduction to the chapter

This chapter will outline the rationale and background of the study. In doing so, the statement of the problem, significance of the study and research question will be highlighted. A definition of terms, abbreviations and an outline of the chapters which comprise the study will also be included.

1.2 Study background

There is a perceived association of tinnitus with only the elderly population due to the fact that tinnitus is generally known to accompany hearing impairment. Unfortunately, this perception may prevent health professionals from identifying and managing tinnitus in young adults (British Tinnitus Association [BTA], (2011). In addition, young adults may not associate themselves with tinnitus at an early age.

While it is evident that many studies have been being conducted on older adults (Nondahl, Cruikshanks, Wiley, Klein, Klein, Chapell, & Tweed, 2010; Gopinath, McMahon, Rochtchina, Karpa, Mitchell, 2010), a survey of the literature shows that there are limited studies which focus on tinnitus in young adults. There does not appear to be many studies focused specifically on young adults' experience with tinnitus, despite evidence in the literature which shows that there is an increase in the prevalence of tinnitus among this population group.

In the past 20 years, the prevalence of tinnitus in young adults has increased from 6.7% to 18.8% (Sliwinska-Kowalska & Davis, 2012), recently urging researchers to focus on possible reasons for this increase in this population group. Some studies have revealed that

young adults, in general, have limited awareness regarding tinnitus (Gilles, Van Hal, De Ridder, Wouters & Van de Heyning, 2013; Landälv, Malmström & Widen, 2013). This may be attributed to the fact that tinnitus is not viewed as life-threatening as other health issues. However, it is also commonly known that tinnitus is usually a sign of early hearing loss (Meikle, 2002). Therefore, it is important to detect the existence of tinnitus early in young adults to facilitate identification of a hearing loss and to institute management for the tinnitus.

In the older adult, the causes of tinnitus can range from impacted cerumen to a tumour on the auditory nerve (Singh, 2013). Similarly, young adults can also be exposed to these causes, however, excessive noise has been found to be the most common cause of tinnitus in this population group (Salvago, Ballacchino, Agrifoglio, Ferrara, Mucia, Sireci, 2012).

1.3 Rationale for the study

Although there is an increase in the prevalence of tinnitus in young adults, it is clear that they are not aware of it. Therefore, young adults may benefit from being educated about tinnitus, its causes and effects (Chung, Roches, Catherine, Meunier & Eavey, 2005). It is crucial for them to be educated about tinnitus as this will minimize their exposure to the causes of tinnitus. One of the most common documented causes of tinnitus in young adults is exposure to excessive noise. Although they are also prone to the other causes of tinnitus as older adults, excessive noise seems to be the key cause.

Young adults indulge in risk-taking behavior such as frequently attending nightclubs, using personal-listening devices or are involved in some form of recreational noise which puts them at risk of developing tinnitus (Mostafapour, Lahargoue & Gates, 2009). Studies have revealed that young adults tend to use hearing protection when involved in activities such as mowing the lawn, using firearms or when operating noise generating equipment, but

not when to the harmful noise of loud music (Widen, Holmes, Johnson, Bohlin & Erlandsson, 2009). Perhaps this could be because they associated loud music with interacting with their peers and fulfilling social norms.

There is evidence in the literature that if young adults are made aware of the risks posed by excessive noise and are educated about the use of hearing-protection devices (HPDs), they are likely to take the necessary precautions (Gilles et al., 2013). On the other hand it is known that young adults will try to conform to their peers because of social pressure (Rawool & Colligon-Wayne, 2008), so they may not take such precautions despite knowing the risks involved.

Therefore, the manner in which education is provided for the young adult has to be at a personal level. Perhaps, it may be better if young adults are given information which indicates the negative effects of tinnitus on their lives, rather than informing them about how excessive noise may damage their hearing. If they are aware of these unwanted effects of tinnitus, then this may prevent them from exposing themselves to excessive noise and, ultimately, eliminate its unwanted effects.

Some of the unwanted effects of tinnitus can be severe distress, psychological disorders and, in some cases, suicide (Joos, Vanneste & De Ridder, 2012). This is a crucial consideration for the young adult as the high levels of stress caused by the tinnitus may result in a tendency towards emotional problems. This may cause fear and social withdrawal as well as impact negatively on their academic performance and social wellbeing (Gun Cho, Chi, Song, Lee & Kim, 2013). Thus, it is important that young adults are aware of tinnitus and its causes so that they can seek help should they experience it.

However, there seems to be a lack of evidence in the literature regarding help-seeking and management strategies available to young adults who suffer from tinnitus. All the

studies done thus far have found that although tinnitus is prevalent in young adults, nothing has been stated about whether the affected individuals have actually received any management for it. Literature has also indicated that awareness of tinnitus among young adults will provide them with enough knowledge to know where to seek appropriate management (Chung, Roches, Catherine, Meunier, & Eavey, 2005). Therefore, young adults are then more likely to practice caution when embarking on activities that are hazardous to their ears and hearing.

Finally, health professionals such as audiologists, ear, nose and throat specialists and psychologists have to be more aware about the existence of tinnitus in young adults. As these are the professionals who are more likely to be consulted, this may impact positively on the quality of treatment that the tinnitus sufferers receive. In addition, audiologists are required to provide promotion of healthy hearing as part of the scope of practice, according to the Health Professions Council of South Africa (HPCSA, 2009). This includes programs which promote protection against excessive noise. Audiologists have a responsibility to create awareness regarding tinnitus among young adults.

Thus the research question for this study is: “what is the extent of young adults’ awareness and experience of tinnitus?”

1.4 Definition of terms

Hearing-protection devices: A hearing-protection device is a product which is worn to reduce the amount of noise reaching the ears (Berger & Casali, 2007).

Tinnitus: Tinnitus can be defined as a sound in the ears and/or head without an external source (Alam, Katarkar, Shah, Jalvi, Jain, Shah, 2012).

Young adult: A young adult is an individual who is in the early years of adulthood between the ages of 18 and 30 years (Ornstein, n.d.)

1.5 Abbreviations

Hearing-Protection Device: (HPD)

Personal-Listening Devices: (PLD)

1.6 Outline of chapters

The outline of chapters in this study is as follows:

Chapter one: This chapter provides a rationale and background for this study. It also includes the definitions and abbreviations used in this study.

Chapter two: This chapter provides an in-depth literature review of the study. It describes general aspects of tinnitus and then how these aspects affect the young adult. The information in this chapter paves the way for the subsequent methodology of the study.

Chapter three: This chapter provides the outlines of the methodology by highlighting the procedures which were followed to achieve the aim and objectives of the study.

Chapter four: The results obtained from the survey are presented and further discussed. The findings are interpreted, explained and discussed with reference to the literature.

Chapter five: This chapter concludes the study by providing a bird's-eye view of the statement of the problem, methodology used and the results obtained. The limitations, implications and recommendations of the study for future research are also highlighted in this chapter.

1.7 Summary of the chapter

This chapter highlighted the rationale for this study regarding the awareness and exposure of young adults to tinnitus and the need and importance for young adults to be aware of tinnitus and the effects it can have on the quality of their lives. This study will strive to describe the awareness and experience of young adults with regards to the causes of tinnitus, if they have experienced it, and if they are seeking any help for it.

CHAPTER TWO

TINNITUS IN YOUNG ADULTS

2.1 Introduction to the chapter

This chapter will provide in-depth information regarding the pathophysiology, causes, effects and management of tinnitus, while outlining how these aspects affect the young adult. It will also provide a description of the impact of tinnitus on the young-adult population, while presenting and critically discussing information from other studies in the field.

2.1.1 Definition and pathophysiology of tinnitus

Tinnitus can be defined as a sound perceived in the ears and/or head without an external sound source (Alam et al., 2012). This can be an annoying and sometimes frightening experience (Eggermont, 2012). The intrusive nature of tinnitus can interfere with the lifestyle of the affected individual, irrespective of age, gender, race and socioeconomic status (Henry, Dennis & Schechter, 2005). Thus, there have been several studies conducted which postulate the site-of-lesion so that better care can be provided for individuals experiencing tinnitus.

Some of the discussions pertaining to the anatomical origins of tinnitus are controversial since tinnitus can originate from anywhere in the auditory pathway. Earlier research has postulated the cochlea as the site-of-lesion because tinnitus often accompanies a loss in hearing. However, it has been indicated that the auditory nerve may also be involved (Langguth, Kreuzer, Kleinjung & De Ridder, 2013), while others studies have suggested the involvement of the auditory central nervous system (Sheppard, Hayes, Chen, Ralli & Salvi, 2014). This may be plausible as one can have tinnitus without a hearing loss, therefore, suggesting the auditory central nervous system as a possible origin of tinnitus. Also, it is

possible to obtain normal hearing thresholds on a puretone audiogram for an individual with tinnitus (Langguth et al., 2013). Other origins of tinnitus may involve the non-auditory areas of the brain such as the anterior cingulate cortex, amygdala, dorsolateral prefrontal cortex and the parahippocampus (Sheppard et al., 2014).

There seems to be conflicting information regarding the origin of tinnitus and, therefore, the research regarding the pathophysiology of tinnitus is ongoing. Perhaps, it can be concluded that there are multiple sites-of-lesions as there are different types of tinnitus which might be dependent on the site-of-lesion. For example, tinnitus originating from the auditory nerve may have a different sound compared to tinnitus which originates from the central nervous system.

2.1.2 Prevalence of tinnitus

Generally, tinnitus can become permanent as age increases, but recent research has shown that the prevalence of permanent tinnitus has also increased in young adults (Vogel, van de Looij-Jansen, Mieloo, Burdorf & de Waart, 2014). While the older adult is at risk of developing tinnitus due to the natural aging process, young adults are also at risk simply because of them being exposed to the causes.

According to Henry, James, Owens, Zaugg and Porsov (2009), the prevalence of chronic tinnitus is between 10% and 15% in the adult population. However, recent studies have shown that approximately 18% of young adults between the ages of 18 and 25 also experience tinnitus (Degeest, Corthals, Vinck & Keppler, 2014). It has been suggested that an increase in the prevalence of tinnitus among the young-adult population may be attributed to their lifestyle and exposure to the causes of tinnitus (Roberts, Hal Martin & Bosnyak, 2011).

2.1.3 Types and characteristics of tinnitus

Tinnitus can be classified into two broad categories based mostly on the site-of-lesion i.e. objective and subjective (Ahmad & Seidman, 2004). This distinction is important, especially when deciding on the appropriate management strategy as it will provide the health professional with additional insight regarding the possible generation site.

Objective tinnitus is usually generated by the body and sometimes can be heard externally by a physician or anyone else. Although this type of tinnitus is rare, it has an identifiable cause and can most likely be treated. However, subjective tinnitus is the most common type of tinnitus which is heard only by the individual and is usually more difficult to treat.

The other distinctions which can be made are that of the existence of temporary and chronic tinnitus. Temporary tinnitus normally lasts for a short time and is usually reversible, whereas chronic tinnitus is permanent and requires intensive management strategies to help the individual to cope and habituate with it (Eggermont, 2012). Individuals may be affected by either of these types of tinnitus which can be perceived in one or both ears and sometimes individuals may report that sound is emerging from their head (Langguth et al., 2013). Since there are many types of tinnitus which can originate from any part of the auditory system, the condition may present differently to affected individuals.

To some, the tinnitus may sound pulsatile because it coincides with their heartbeat and is usually the result of a vascular cause (Holmes & Padgham, 2011). There may be a problem with the flow of blood to the vessels in the ear, resulting in pulsatile tinnitus. Other characteristics of tinnitus can be described as buzzing, clicking, whistling, sea-shore, ringing, chirping or humming sounds (Ahmad & Seidman, 2004). Tinnitus which is present during the early stages of Meniere's disease may sound similar to that of a low-pitch roar, whereas

tinnitus originating from the auditory nerve may sound like ‘bacon frying.’ Irrespective of what type and characteristic of tinnitus is present, it provides the health professional with a suggestion towards a possible cause.

Recent studies have found that young adults can experience tinnitus in either one or both ears (Degeest, Corthals, Vinck and Keppler, 2014). In addition, studies have found that the majority of young adults experienced tinnitus which lasted more than two days (Gilles et al., 2013). In another study, researchers found that 5.4% of young adults reported permanent tinnitus while 39.7% reported temporary tinnitus (Landalv, Malmstrom & Widen, 2012).

These characteristics may provide an insight into the site-of-lesion of the tinnitus which is particularly important when trying to establish a cause for the tinnitus. From the literature analysed, there does not seem to be a significant association with regard to the characteristic of tinnitus and age. It seems that young adults may possibly experience either of the characteristics mentioned above, dependent on the site-of-lesion. However, a study conducted by Tucker et al., (2005) found that the majority of young adults (64%) complained of a ringing sensation.

2.1.4 The causes of tinnitus

There are many causes of tinnitus which can include illness, medication, head-and-neck injury, surgery and exposure to excessive noise(Nondahl et al., 2010). Tinnitus is often also present with a loss of hearing; however, it is a symptom and not the cause of hearing loss. The causes of tinnitus can also be classified according to the objectivity and subjectivity of the tinnitus.

Objective tinnitus can be caused by vascular issues, temporomandibular complications or a patulous Eustachian tube (Lee, Kim, Sung & Nam, 2013).

Subjective tinnitus, which is the most common type, usually arises from inner-ear abnormalities such as presbycusis, ototoxicity and noise trauma (Holmes & Padgham, 2011). In rare cases, it may be caused by neurological disorders such as multiple sclerosis, viral infections and tumours of the auditory nerve (Holmes & Padgham, 2011).

Studies have also revealed that some medications such as quinine and aspirin, which are ototoxic, can cause tinnitus (Holmes & Padgham, 2011). Certain medical conditions may also contribute causing tinnitus such as anaemia, hyper/hypothyroidism and hyperinsulinemia (Holmes & Padgham, 2011).

Psychological disorders may also contribute to tinnitus with some research finding that individuals with anxiety or depression may experience symptoms of tinnitus. However, other research has found that individuals who experience tinnitus may suffer from depression and isolation as a result of the tinnitus (Langguth, Kreuzer, Kleinjung, De Ridder, 2013). This still seems to be controversial as it is not clear whether anxiety and depression cause tinnitus or whether it is an effect of it.

Studies have found that infections, illness, stress and exposure to noise seem to be some of the causes of tinnitus in young adults (Raj-Kosiak, Bartnik, Skarzynski, Pilka, Fabijanska, & Borawska, 2008). These causes also affect older adults as well (Gopinath, McMohan, Rohtchina, Karpa, & Mitchell, 2010). However, chronic noise exposure has been reported as the main cause of tinnitus in young adults who expose themselves to extremely loud noise which can be in the form of personal-listening devices, recreational activities or attending nightclubs (Gilles et al., 2013; Salvago et al., 2012). This puts them at risk of acquiring tinnitus as well as hearing loss. Similar findings also show that young adults between the ages of 18 and 25 expose themselves to loud noise while participating in leisure activities (Degeest et al., 2014).

Young adults who frequent nightclubs have reported that they experienced temporary tinnitus (Johnson, Andrew, Walker, Morgan & Aldren, 2014). However, if this becomes a frequent occurrence, these young adults are at risk of eventually developing permanent tinnitus caused by irreversible damage to the cochlear hair cells (Johnson et al., 2014). Unfortunately, it seems that unlike excessive noise in the workplace, which may not be due to choice, young adults voluntarily expose themselves to leisure noise. Therefore, they are at great risk of developing tinnitus and hearing loss because the exposure can last for several hours at a time (Gilliver, Beach & Williams, 2013). Researchers believe that young adults may attend nightclubs and listen to excessively loud music while trying to fulfil social norms and expectations (Levey, Fligor, Ginocchi & Kagimbi, 2012). Therefore, it is suggested that young adults are educated about the harmful effects of excessive noise and the advantages of using hearing-protection devices (Gilles et al., 2013)

Although studies have found an increase in the use of hearing-protection devices following informational campaigns, it was suggested that because social norms dictate the risk-taking behaviour of the young adult, they may not be likely to pursue the use of hearing-protection devices. Therefore, it may be more beneficial to strive to change the attitudes of young adults (Gilles et al., 2013). However, in some instances, young adults seemed more concerned about permanent tinnitus than temporary tinnitus. These young adults were more likely to use hearing-protection devices than those who were not concerned about the temporary tinnitus (Gilles et al., 2013). This is worrying as tinnitus may worsen as the exposure to the noise continues and, eventually, it may reach a point when it is too late to rectify the problem.

Another study found that a third of young adults admitted that they participated in activities which produced excessive noise, such as firearm shooting and car racing (Roberts et al., 2011). However, only a few of these participants said that they used hearing-protection

during the times they were exposed to the noise generated by these activities. Thus it can be deduced that awareness campaigns have to be conducted, focusing on the awareness of tinnitus and its indicator as a precursor to noise-induced damage, including hearing-protection devices (Gilles et al., 2013). It appears that, despite the high prevalence of tinnitus and hearing loss in the young-adult population, there is still a lack of knowledge about hearing-protection devices and the impact of excessive noise on the ears. Thus it seems that young adults are at risk of acquiring tinnitus during recreational activities and by using personal-listening devices and other sources of loud music (Vogel et al., 2014).

2.1.5 The effects of tinnitus

The effects of tinnitus can include difficulty in falling asleep, emotional reactions, anger, irritability, inability to concentrate and, in some extreme cases, suicidal thoughts (Holmes & Padgham, 2011). These factors may impact drastically on an individual's life and can result in the isolation of the individual.

Approximately 80% of individuals habituate and adapt to the tinnitus (Holmes & Padgham, 2011), however, habituation to the tinnitus may not always be related to the severity of hearing loss or loudness of the tinnitus. Most times individuals may find it difficult to habituate to the tinnitus because of other factors such as psychosocial, environmental and personality effects (Wallhäusser-Franke, Brade, Balkenhol, D'Amelio Seegmüller & Wolfgang, 2012). One study showed that individuals who went to seek help for tinnitus felt it much worse than what it actually was, with more than half of those individuals thinking that they had a life-threatening medical problem (Henry, Dennis, & Schechter, 2005). An individual may not have very severe tinnitus but may report more discomfort than those who actually have severe tinnitus. This could be due to emotional factors such as stress, anxiety, frustration, anger and depression (Wallhäusser-Franke al.,

2012). Thus it seems that the habituation is a predicting factor of the effect of the tinnitus rather than the severity of the tinnitus.

As in older adults, young adults may also experience the negative effects of tinnitus in their daily lives. This is an important consideration because young adults who experience severe tinnitus may also suffer from other accompanying symptoms such as hearing loss, hyperacusis, depression, anxiety and sleep disorders among others (Alam et al., 2012). Some of the most common effects of tinnitus reported in young adults are difficulty in falling asleep, feeling depressed, irritability, interference in social activities, hearing difficulty, feeling confused and disruption of daily activities and jobs (Zeman, Koller, Langguth & Landgrebe, 2014). According to the World Health Organization, health is described as total mental and physical fitness which allows the individual to participate in daily life (WHO, 2007). If young adults experience the unwanted effects of tinnitus such as trouble falling asleep, concentration difficulties and psychological complications, this may negatively impact on their daily life including social interactions and academic and vocational progression.

Similar studies have suggested that there may be a relationship between tinnitus, anxiety, depression and, perhaps, suicide in tinnitus sufferers. Therefore, the same relationship may be evident among young adults also (Gun et al., 2013). One such study revealed that at least 10% of 973 young individuals reported depression and suicidal thoughts after experiencing tinnitus and hearing loss (Vogel et al., 2014).

A study conducted by Holgers & Juul (2006) showed that anxiety and high-frequency hearing loss are some of the predisposing factors for tinnitus. One possible way to identify and prevent these tendencies and emotional factors is to use a tinnitus handicap inventory which should highlight issues of depression and anxiety associated with the condition

(Langguth et al., 2011). The other possible option, as mentioned earlier, would be to create more awareness and educational programmes to prevent them from exposing themselves to developing tinnitus.

It seems that young adults may suffer more from the effects of tinnitus than older adults. The reason for this could be that young adults have not yet gained adequate mechanisms and strategies that are needed to cope with tinnitus (British Tinnitus Association, 2011). It appears that these factors may impact the young adult's life drastically and have negative consequences such as social withdrawal and academic difficulties. However, literature has revealed that awareness about the harmful effects of tinnitus appears to be limited in this population group (Gilliver, Beach, & Williams, 2013). This lack of awareness may lead to young adults to expose themselves to loud noise to fulfil social norms (Levey et al., 2012). For those who are still students, this may cause them to experience difficulties in studying and could lead to academic failure. Thus it is imperative that young adults are adequately educated that the effects of tinnitus are identified as early as possible.

2.1.6 Management of tinnitus

Currently, there is no known cure for tinnitus and, thus, management strategies are employed which facilitate habituation, masking and acceptance of tinnitus (Langguth et al., 2013). Treatment for tinnitus is complex as each individual may present with different causes and characteristics which make suitable treatment challenging (Landgrebe, Zeman, Koller, Eberl, Mohr, Reiter, Staudinger, Hajak, & Langguth, 2010). Individuals may be required to undergo a thorough assessment to determine the cause before an appropriate management strategy is determined.

Individuals are usually urged to seek medical help as soon as possible should they experience a sudden onset of tinnitus with hearing loss, pulsatile tinnitus which appears

suddenly and tinnitus that is accompanied by difficulty to walk or talk. The latter is especially crucial as it could be linked to a possible stroke (Cunha, 2014).

There are different types of management strategies such as psychological, technological or non-technological based, medical and surgical and traditional/alternative methods (Folmer, 2002). Technological strategies, such as hearing aids and tinnitus maskers, may help those with or without a hearing loss (Henry et al., 2005). Non-technological methods, such as acoustic therapy, are crucial for those wanting to reduce the annoyance of tinnitus in their everyday lives (Folmer, 2002). Some individuals may resort to traditional or herbal methods to help them to alleviate the symptoms of tinnitus (Smith, Romanelli-Gobbi, Gray-Karagrigoriou, Artz, 2013).

However, counselling should be provided to individuals with tinnitus as much as possible to assist them to accept that they suffer from tinnitus and to cope with management strategies. It may, more importantly, alleviate some of the emotional complications of the tinnitus such as sleep difficulties, irritability and loss of concentration (Langguth et al., 2013).

Although there are various methods of managing tinnitus, such as the use of hearing aids, counselling, acoustic therapy, relaxation methods, pharmacological and surgical approaches (Sweeto, 2013), young adults may not always be aware that there are management strategies for tinnitus and as a result may not seek help. Therefore, it is plausible that they will not be aware of any management strategies that are available.

It is suggested that since young adults do not consider tinnitus as an important health problem, as there is no associated pain, they may not seek any help for it (Roberts et al., 2011). A study by Vogel et al., (2014) found that 10% of 973 young adults sought relief for their hearing-related symptoms. Although this seems to be a very small number, it further shows the lack of awareness of management for tinnitus in young adults.

Also, it seems that young adults who experience tinnitus may require more counselling in conjunction with relevant information about the condition. Therefore, health professionals need to be aware of this so that they can modify the management strategies to suit the needs of young adults; and consider health promotion programmes for this age group.

2.1.7 Awareness of tinnitus in young adults

Studies revealed that young adults found it socially acceptable to have an iPod or other such personal-listening device (Levey et al., 2012). However, a study conducted by Muchnik, Amir, Shabtai & Kaplan-Neeman (2012) showed that although the majority of young adults (88%) were aware of hearing loss, only 25% were actually concerned about their own hearing. One possible reason for this could be that hearing loss is generally associated with the elderly. Young adults would not expect to suffer a hearing loss at an early age and, therefore, lack concern.

Similarly, young adults may not be concerned or aware of tinnitus because it is usually related with the elderly and not considered life-threatening when compared to other health problems (Roberts et al., 2011). One study which supports this revealed that the majority of young adults seemed to be more concerned with health issues such as infections and heart conditions while only a few considered hearing loss as a problem (Chung et al., 2005). This proves that even though young adults experience tinnitus, they may not take appropriate steps to limit their exposure to excessive noise.

Therefore, it is clear that education has to be provided to young adults regarding tinnitus. However, it may be more beneficial to inform them about the effects of tinnitus on their lives rather than focus on how hearing loss and tinnitus occur (Roberts et al., 2011). If young adults are aware of how this affects them personally, they are more likely to take precautions. This stance is supported by Landalv et al., (2012), who state that young adults

are able to perceive and understand risks involved with exposing themselves to detrimental situations only if it emerges from their own personal experiences.

2.2. Summary of the chapter

This chapter provided an in-depth discussion on the pertinent aspects of tinnitus and how it related to young adults. It is known that there is already a high prevalence of tinnitus in the older-population group related to the aging process and other factors. However, although the prevalence of tinnitus in young adults seems to be escalating, it appears that this population group has been underserved because of limited studies on young adults that make awareness of this subject challenging.

Although, the causes of tinnitus appear to be the same in older and young adults, young adults are also at risk from exposure to excessive noise due to lifestyle. Literature has indicated that tinnitus has intrusive and negative effects on the daily life of the young adult just as much as it affects the older adult. In fact, these unwanted effects may be more detrimental to the young adult in that it may affect their academic studies. This will have a ripple effect by increasing the failure and drop-out rates at learning institutions and also prevent the young adult from obtaining employment.

While it is clear that there are methods for management of tinnitus, young adults in general, may not seek help due to their lack of awareness of tinnitus, which supports the need for awareness of tinnitus in young adults.

CHAPTER 3

METHODOLOGY

3.1 Introduction to the chapter

This chapter will highlight the methodology used to achieve the aim and objectives of the study. It will include the study design, participants, data collection method, ethical considerations as well as reliability and validity.

3.2 Aim and objectives

3.2.1 Aim

The aim of this study was to describe young adults' awareness and experience of tinnitus. To realise the above aim, the following objectives were formulated.

3.2.2 Objectives

- To describe young adults' awareness regarding the causes of tinnitus and its effects.
- To describe young adults' experience of tinnitus, both personal and in general.

3.3 Research design

To conduct this study, a quantitative descriptive survey design was used. This type of study design, according to Leedy & Ormrod (2013), aims to investigate a problem without changing the outcome of the study. A descriptive survey aims to report on a large population (by using a sample of that population) to base the study on. It also serves as a means of describing attitudes, beliefs and opinions of individuals. This type of survey was applicable in the current study as it aimed to describe the participant's awareness and experience. A quantitative design makes use of a fixed way to obtain the required data, making use of

statistical methods to analyse the data collected. By the use of a questionnaire, the researcher is able to collect information on phenomena such as awareness and views and represent this as numeric values (Muijs, 2011). In the current study, the data was obtained by means of a self-administered questionnaire which was distributed electronically on the University of KwaZulu-Natal's (UKZN) notice system and then analysed using statistical methods. An electronic survey was chosen as it was a cost-effective manner to obtain responses. It also facilitated data collection by allowing the researcher to obtain several responses in a short time (Hunter, Corcoran, Leeder & Phelps, 2013). It was also considered to be a viable method to communicate with young adults.

3.4 Sampling method

Non-probability purposive sampling was the most appropriate design as participants were selected according to their age range and college (Levy & Lemeshow, 2013). Therefore, the probability of being chosen to participate in this study was limited as specific criteria for selection looked at the age of the participant and also if they were currently registered at the university. The participants were also selected because they were easily accessible to the researcher (Leedy & Ormrod, 2013). This ensured that the larger population group was represented by a similar smaller sample population (Leedy & Ormrod, 2013). It also ensured that the study was valid and accomplished the objectives accurately.

3.5 Participant selection

The sample of participants comprised undergraduate and postgraduate students in 2013 from the School of Management, IT and Governance in the College of Law and Management Studies at the University of KwaZulu-Natal (UKZN) Westville campus. Only the College of Law and Management studies was chosen for this study as it was a convenient location for the research and would have contributed to a more homogenous sample. This

college had the most number of registered students and was recommended via personal communication with a statistician. The researcher had an indication of the details regarding the population group targeted. In the School of Management, IT and Governance, there were 1769 students between the ages of 18 and 25 and 421 students between the ages of 25 and 30. This provided the researcher with information about how many students there were in the selected age range. Therefore, during data collection the researcher was aware of the number of participants who responded. Knowledge of this information allowed the researcher to know whether the sampling was a true representation of the population or not which also assisted in commenting on the validity of the study with regards to the general population.

A minimum of 400 participants from a total of 4179 students were required for the study to be reliable and valid. This sample size was also suggested by a statistician. If the population exceeds 1500, a sample size of 400 is appropriate to represent that population (Leedy & Ormrod, 2013). The age group 18 to 30 was chosen for this study because it represented a young-adult population (Agrawal, Platz & Niparko, 2008; Mostafapour, Lahargoue & Gates, 2009). All the participants for this study were screened against the following criteria:

3.5.1 Inclusion Criteria

- a) All participants had to be between the ages of 18 and 30.
- b) All participants had to be currently registered as students in the College of Law and Management Studies at UKZN, Westville campus.

3.5.2 Exclusion Criteria

- a) Participants who were not between the ages of 18 and 30.
- b) Participants not currently registered as students in the College of Law and Management Studies at UKZN Westville Campus.

There was no secure method to confirm the age and registration of the students. The School of Management, IT and Governance could not provide the researcher with any identification of the students due to confidentiality purposes. Participants were required to confirm their age and registration on the consent form. It was assumed that students at university would most likely be between the ages of 18 and 30. Widen, Holmes, Johnson, Bohlin & Erlandsson, (2009) as well as Chung et al., (2005) are two of several studies conducted on university students who were between the ages of 18 and 30.

3.6 Description of participants

Only 103 participants from 4179 students responded, producing a response rate of 2.46%. From the 103 participants who responded only 75 had completed the questionnaires therefore 28 questionnaires were discarded bringing the response rate to 1.79%. Thus, 75 questionnaires were used to analyse the results of this study.

From 75 participants, 49 (65.33%) were between 18 and 20 years, 23 (30.67%) were between 21 and 25 years, 3 (4.00%) were between 26 and 30 years. Only 74 (98.6%) participants confirmed their gender, of which 24 (32.43%) were males and 50 (67.57%) were females.

3.7 Data collection instrument

The data collection instrument which was used in this study was a structured, self-administered questionnaire which was compiled using the study by Chung et al., (2005) as a base reference and guide. To fulfill the aim and objectives of the study, the questionnaire comprised a series of closed-ended, open-ended, single-response and Likert-scale questions which probed various areas relating to the participants' awareness and experience of tinnitus, including specific sections on awareness and experience. Closed-ended questions gave participants a choice to explain responses categorized as "other."

The questionnaire comprised three sections i.e. section A, section B and section C. Section A consisted of questions pertaining to the biographical details of the participant and section B comprised questions pertaining to the awareness of the participant regarding tinnitus. In section B, the participant was able to express their beliefs and knowledge about the causes and effects of tinnitus. Section C consisted of questions pertaining to the participant's experience of tinnitus. In this section, the participant was required to provide information on their own experience of tinnitus as well as the experience of tinnitus of someone known to them.

The questions provided the participant with an opportunity to express their opinions and experience of tinnitus in an easy, yet comprehensive, manner and also provided the researcher with information to achieve the aim and objectives of the study. The questionnaire was adapted for online format for Survey Monkey software. Table 1 outlines the questions and the motivation for including the questions in the questionnaire.

Table 3.1

Description of the questionnaire

SECTION	TYPE OF QUESTIONS	INFORMATION OBTAINED	RATIONALE
SECTION:A Biographical Details	In this section the participant was required to provide their age and gender.	Age and gender of the participant.	The age of the participant was important, as it had an impact on the inclusion criteria of the study.
SECTION:B Awareness of tinnitus Questions 6-20	<p>Questions consisted of five “yes” and “no”, two multiple choice and eight Likert scale questions. These questions explored whether the participants were aware that tinnitus existed, where they obtained this knowledge from and also if they had knowledge about the causes of tinnitus.</p> <p>Question six determined if the participant knew whether tinnitus existed. Question seven investigated the source of learning. To know what their source of learning was, would facilitate information sharing in this population group.</p> <p>Question eight described the participant’s awareness on the effects of tinnitus. The five Likert scale questions on the causes of tinnitus were based on the literature,</p>	<p>Information was obtained about whether participants were aware of tinnitus, its causes and effects.</p> <p>Information was also obtained about where participants heard of tinnitus from. Participants indicated whether they had exposure to excessively loud noise and also if they may have had any medical conditions which could contribute to tinnitus.</p> <p>Information was obtained about what difficulties the participants may experience daily as a result of the tinnitus such as concentration, social and</p>	<p>These questions were included as it served to describe the level of awareness of tinnitus and its effects. Previous research has shown that young adults do not seem to have adequate awareness on tinnitus and its causes and therefore may put themselves at risk for acquiring tinnitus at a young age (Chung et al., 2005).</p> <p>Literature has shown that if young adults were aware of the effects of tinnitus then they were more likely to be cautious about protection of</p>

which described the various causes for tinnitus (Crummer & Hassan, 2000). sleeping difficulties. their hearing (Chung et al., 2005).

There were six questions which focused on noise exposure. Literature states that noise exposure maybe the key cause of tinnitus in this population group (Chung et al., 2005).
 Questions regarding illness, medication, injury and ear infections were included so that the questionnaire was not biased towards noise exposure.

SECTION:C

Experience of

tinnitus

Question 21-36

This section consisted of eight “yes” and “no” and eight multiple choice questions. The questions included in this section focused on the participant’s experience of tinnitus. Information was obtained regarding how many participants experienced tinnitus. Obtaining this information fulfilled the second objective of the study as well as the main aim that tinnitus is being experienced at a much

younger age (Eggermont, 2004). Questions on types of tinnitus as well as management of it served to determine whether young adults had access to management. It also served to find out whether their experience of tinnitus caused anxiety, fear, social and/or academic difficulties (Erlandsson et al., 2008).
 Question 21 required the participant to state whether they had experienced tinnitus through a family or friend. Participants stated whether someone they knew had tinnitus such as a close family member or friend. Participants also provided details about how they were related to the person who had tinnitus.

Questions focused on the participant’s experience with their tinnitus which investigated the type, characteristics and possible causes of the ailment. It also focused on treatment of tinnitus as well as the effects that tinnitus had on their life, which had

implications for its management.

Question 37 asked participants if they required additional information on tinnitus.

Participants stated whether they wanted more information on tinnitus and what areas of tinnitus they would like to know more about.

This question served as a basis to determine how many participants are interested in gaining more awareness on tinnitus. It also provided awareness on tinnitus, its causes, effects and management.

Refer to appendix A for the questionnaire

3.8 Pilot study

A pilot study was conducted to ensure that the questionnaire was clear and that participants had understood all questions. It also provided clarity on the reliability of the electronic survey and assisted in determining whether the questions were appropriate, unbiased and provided an idea of possible analysis of the results. The pilot study was conducted on a different campus, UKZN Howard College campus. The sample population included all students in a module in the School of Law in the College of Law and Management Studies. According to a statistician 20 students were required for the pilot study.

After receiving ethical approval and permission from the registrar of UKZN, an invitation was placed on the university's notice system specifically for students registered in the School of Law. The potential participants were able to click on the link provided which allowed them to access the information document and consent form which informed participants about risks involved in the study and the ethical issues. The student was required to provide consent by clicking either "yes" or "no", prior to having access to the questionnaire. If they did not complete the consent form or did not provide approved consent, then they were not able to access and complete the questionnaire. Potential participants were also informed that they had to be between 18 and 30 years to take part and were required to state this in the consent form.

However, they were still able to access the informational pamphlet provided on tinnitus, irrespective of whether they completed the questionnaire. This still provided awareness to the students regarding tinnitus. The pamphlet included contact information of the audiology clinic at UKZN and if participants experienced any tinnitus or ear-related

problems, they were informed that they could call the department to make an appointment for an assessment. Only 11 responses were obtained from 2478 students. Participants in the pilot study were not included in the main study. The amendments to the questionnaire are presented in Table 3.2 below.

Table 3.2

Pilot study

OBJECTIVES	PROCEDURES	RESULTS	RECOMMENDATIONS
1. To assess the viability of an online questionnaire.	A multiple response questionnaire was formulated. Thereafter, uploaded to a survey site and a link was then sent out to potential subjects. A short invitation was sent out to students in the School of Law. Viability was assessed based on responses from subjects.	Few initial responses were obtained. Only 11 responses were obtained from 2478 potential participants.	The letter of invitation was modified so that it was more appealing to the target population. The researcher reminded students about the survey to help increase the response rate.
2. To evaluate the clarity of questions.	The researcher ensured that all audiological terminology and words which may appear confusing to the participants were changed.	Following feedback from participants, it was clear that all respondents understood the questions. However, some participants were unsure of certain answer choices.	Minor modifications were made to the answer choices so that it was easier for participants to understand.
3. To assess the structure and order of the questionnaire.	The questionnaire included multiple-choice questions and elaboration to ensure ease of completion. It allowed participants to merely click on the choice of answer. Questions were ordered in a manner such that each question was linked to the next. Skip logic was applied to certain questions so that respondents answered only those questions which pertained to them.	Respondents appeared to have followed the questionnaire to the end with ease. However, it was noted that when they had passed over questions which did not pertain to them, the question numbering did not follow in sync.	Additional instructions were provided to participants so that they understood the different question numbering. Participants were instructed that they are at that particular question because they did not need to complete the previous ones.

3.9 Data collection procedures

The following procedures were followed:

- Ethical clearance was obtained from the Ethics Committee for Human and Social Sciences at the University of KwaZulu-Natal (HSS/0497/013M) (Refer to Appendix B).
- Permission to conduct the study was then obtained from the Academic Registrar of University of KwaZulu-Natal (Refer to Appendix C)
- Once permission was granted by the registrar, the information document, consent form, questionnaire and information pamphlet were placed on the University online notice system, for all students registered in the School of Management, IT and Governance. This was done with the assistance of the Information Technology department at UKZN (Refer to Appendix D).
- Participants who were willing to participate in the study could then follow a link to an information sheet electronically which provided information about the study (Refer to Appendix E).
- Participants were able to complete a consent form online prior to completing the questionnaire. Depending on their decision to participate, they had to indicate either “yes” or “no” on the consent form. Only those participants who provided informed consent were able to access the questionnaire. Potential participants were also informed that they had to be between 18 and 30 years and currently registered in the School of Management, IT and Governance in order to participate. They were required to confirm this information in the consent form. If they did not provide informed consent, they were not able to access the questionnaire. (Refer to Appendix F).

- A reminder was sent via each module to remind students about the survey which contributed to the response rate.
- Participants were able to access an informational pamphlet on tinnitus, irrespective of whether they completed the questionnaire or gave consent (Refer to Appendix G). For those students completing the questionnaire, access to the informational pamphlet was granted only after completion of the questionnaire.
- The consent forms and questionnaires were returned to the researcher electronically once it was completed.
- Data was coded and then analyzed with the assistance of a statistician.

3.10 Reliability and Validity

The following efforts ensured the reliability and validity of the study:

- The pilot study ensured that the questionnaire and procedures followed were reliable.
- The questionnaire consisted of questions which probed information applicable to each objective and aim. This, therefore, also ensured validity of the study. The questionnaire strategically incorporated questions which focused on the main objectives of the study and the research question. According to Cohen (2009) the researcher needs to have a good link between the research question and the answer. Therefore, this questionnaire addressed specific areas related to the awareness of tinnitus in terms of the causes and experience of tinnitus so that it fulfilled the objectives of the study. This, in turn, assisted to answer the research question.
- The questionnaire consisted of questions which were simple and minimally time consuming to respond to, and, thereby, encouraging participants to provide reliable responses (Leedy & Ormrod, 2013). The questionnaire also included closed and open

ended questions. Simple and unambiguous language was used to structure questions so that participants provided answers which focused on the response intended (Leedy& Ormrod, 2013). Clear instructions had also been provided to make it easier for participants to answer the relevant questions.

3.11 Data analysis

According to personal communication with a statistician, the data was analysed using descriptive statistical procedures such as frequency and proportions based on the type of questions being addressed. This allowed the researcher to make comments and analyse the results based on the percentages obtained. This is because the study was a descriptive survey and, thus, required this type of analysis to report on the data obtained.

Results for awareness and knowledge, experience of tinnitus and noise exposure, were analysed by using frequency counts and percentages. Mean average scores were used to analyse the average number of responses for the causes of tinnitus. No Inferential statistic results were possible due to the low response rate. Results were presented in tables and graphs.

3.12 Legal and ethical considerations

The declaration of Helsinki (2013) was considered in this research study. Gatekeeper permission was obtained from the registrar of UKZN and potential participants were informed of the following:

- The purpose of the study
- Confidentiality and anonymity was maintained as no identification information was collected.

- Participation was voluntary and potential participants were given the choice to opt out of the study by non-completion of the questionnaire with no adverse implications.
- Participants were still able to access the informational pamphlet irrespective of whether they completed the questionnaire or not.
- There was no liability of any cost to the subjects.
- Participants, who experienced tinnitus and/or hearing loss or any other auditory problems, were given an option to make a follow-up appointment at the UKZN audiology clinic for further assessment.
- The researcher completed the UKZN online ethics course.

The research proposal was submitted to the Human and Social Science Ethics Committee for approval prior to commencement of this study. No changes were made to the research protocol after approval of the proposal from the Ethics Committee

- Data is stored in a locked cabinet in the researcher's office and will be destroyed after five years by shredding. Data that is on a memory stick or on a computer hard drive will be deleted after 5 years.

3.13 Summary of chapter

This chapter has detailed all the procedures involved in the process of the study. The study design and sampling method ensured reliability of the study while facilitating the aim and objectives of the study. Information obtained from the pilot study assisted the researcher in improving on certain aspects which contributed to the reliability of the main study. The electronic questionnaire allowed the researcher to easily facilitate the data collection procedure. This data collection procedure together with analysis allowed the researcher to obtain reliable results which is presented and discussed in the following chapter

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

The results obtained from the study were interpreted closely to the aim and objectives of the study. Objective one of the study aimed to describe young adults' awareness of tinnitus with regard to its causes and effects, whereas objective two related to their experience of tinnitus, both personal and in general. Results were analysed using the latest SPSS software (version 21). The data is reflected and explained in this chapter with the use of tables and figures.

4.2 Awareness of tinnitus

4.2.1 The awareness of the existence of tinnitus

All participants in this study were asked if they had heard of tinnitus. Results were obtained from a total of 73 participants. Overall, the majority of the participants in this study were not aware of tinnitus as 51 (69.86%) stated that they had not heard of tinnitus.

Low levels of awareness have also been observed in other studies. A study by Mostafapour et al., (2009) found that 16% of the participants were aware of what tinnitus and a hearing loss were as opposed to 30.14% in the current study. Further, participants in the present study were much more aware of tinnitus and hearing loss only after being educated about them. These results concur with a study by Danhauer, Johnson, Dunne, Young, Rotan, Snelson, Stockwell, & McLain (2012) who found that the young adults in their study needed to be more aware of hearing loss and tinnitus in order for them to take precautions to protect

their hearing. One has to question why the majority of these young adults have not heard of tinnitus.

Chung et al., (2005) revealed that young adults seemed more concerned about life-threatening health conditions such as infections, heart conditions etc. They did not consider complications of the ears as life threatening and, therefore, did not have much concern about tinnitus and hearing loss. This may, perhaps, be one of the main reasons that the majority of young adults in this study had not heard of tinnitus. Also, since there is a higher prevalence of tinnitus in older adults, young adults may not expect to experience tinnitus at an early age and therefore, they may lack awareness of it. One can only assume from these findings then that if young adults experience tinnitus, it may have a negative effect on their lives since they may not seek any help for it, due to their lack of awareness.

These results must be interpreted with caution however, considering the low number of responses obtained in the survey. It is important, however, to determine how young adults had heard of tinnitus i.e. the source of information of the existence of tinnitus so that it may be used as a platform for education.

4.2.2 Source of information on the existence of tinnitus

The following table depicts results of how the participants had heard of tinnitus. Although only a few participants stated that they had heard of tinnitus, it was still important to find out how they had heard of it.

Table 4.1

Source of information on the existence of tinnitus

Source	Number (n=25)	Percentage
Internet	8	32.00
Friends and Family	8	32.00
General Practitioner	4	16.00
Books and Magazines	7	28.00
Experience of tinnitus	1	4.00
Other	4	16.00

In Table 4.1, although 22 participants in the previous question answered ‘yes’, a number of participants who did not answer that question, answered this question, thus the *n* value is higher. A total of 25 participants answered this question. However, some individuals identified more than one answer choice, thus the number of responses in the table is more than 25.

From the results obtained in this study, it was observed that about a third of the participants i.e. eight (32.00%), had heard of tinnitus from friends, family and the internet. Only one respondent was aware of tinnitus through his/her own experience. It may be assumed that the participants who heard about tinnitus from family and friends may have heard about it because their family or friend may have had tinnitus. Recent research studies have shown that awareness of health topics should be presented to young adults in various ways so that they may be more likely to take advice (Dell & Holmes, 2012; Henderson et al., 2010). The information obtained may assist professionals in using these resources to make young adults aware of tinnitus. It would be fruitless if sources that were utilised were unpopular among the young-adult population.

Previous studies have also found that young adults seem to be more receptive to awareness provided by medical personnel such as a nurse or a doctor (Henderson, Testa, Hartnick, 2010). However, this study revealed that young adults may be more likely to hear of tinnitus from family, friends and the internet. Hopefully, young adults can receive the appropriate awareness via these avenues so that they may be aware of tinnitus and, thus, prevent its negative effects.

4.2.3 Awareness of the effects of tinnitus

From a total of 74 participants who answered this question, 41 (55.41%), which was the majority of participants, did not know what the effects of tinnitus were on a person's life i.e. the emotional and physiological symptoms that are common among people affected by tinnitus. Only two (2.79%) knew what the effects of tinnitus were. This is a very small number from a total of 74 participants. From the two participants who stated that they knew what the effects of tinnitus were, one participant reported that individuals might have ringing in the ears and decreased hearing for environmental sounds as effects of the tinnitus. However these participants may have obtained that information from the beginning of the questionnaire which gave a brief definition of tinnitus, with ringing sounds being one of the definitions. Therefore, caution should be used in the interpretation of these results.

According to the literature surveyed, the effects of tinnitus are many, ranging from physiological to emotional and psychological complications (Wallhäusser-Franke et al., 2012). It is, therefore, important for young adults to be aware of these effects so that they may understand what they are experiencing should they be affected by tinnitus. However, the results of this study showed that from the 74 participants who answered this question, the majority were not aware of the effects of tinnitus. Therefore, it can be assumed that if one had to generalise these results to a larger population, it can be assumed that young adults may

be at more risk of exposing themselves to the causes of tinnitus because they are not well educated about tinnitus, and, more specifically, its effects.

This may concur with previous studies which have shown that young adults seem to know more about other health problems in general than about hearing loss and tinnitus (Chung et al., 2005). As a result, they also placed more importance on these other health issues (Chung et al., 2005). This, in turn, may also contribute to the little knowledge that they have about the effects of tinnitus. Apart from the effects of tinnitus, awareness of the causes of tinnitus is also an important area of which young adults should be aware.

4.2.4 Awareness of the causes of tinnitus

Participants were asked to rate their agreement on a point Likert scale with regard to the causes of tinnitus. Figure 4.1 presents the responses, where one equalled strongly agree and five equalled strongly disagree.

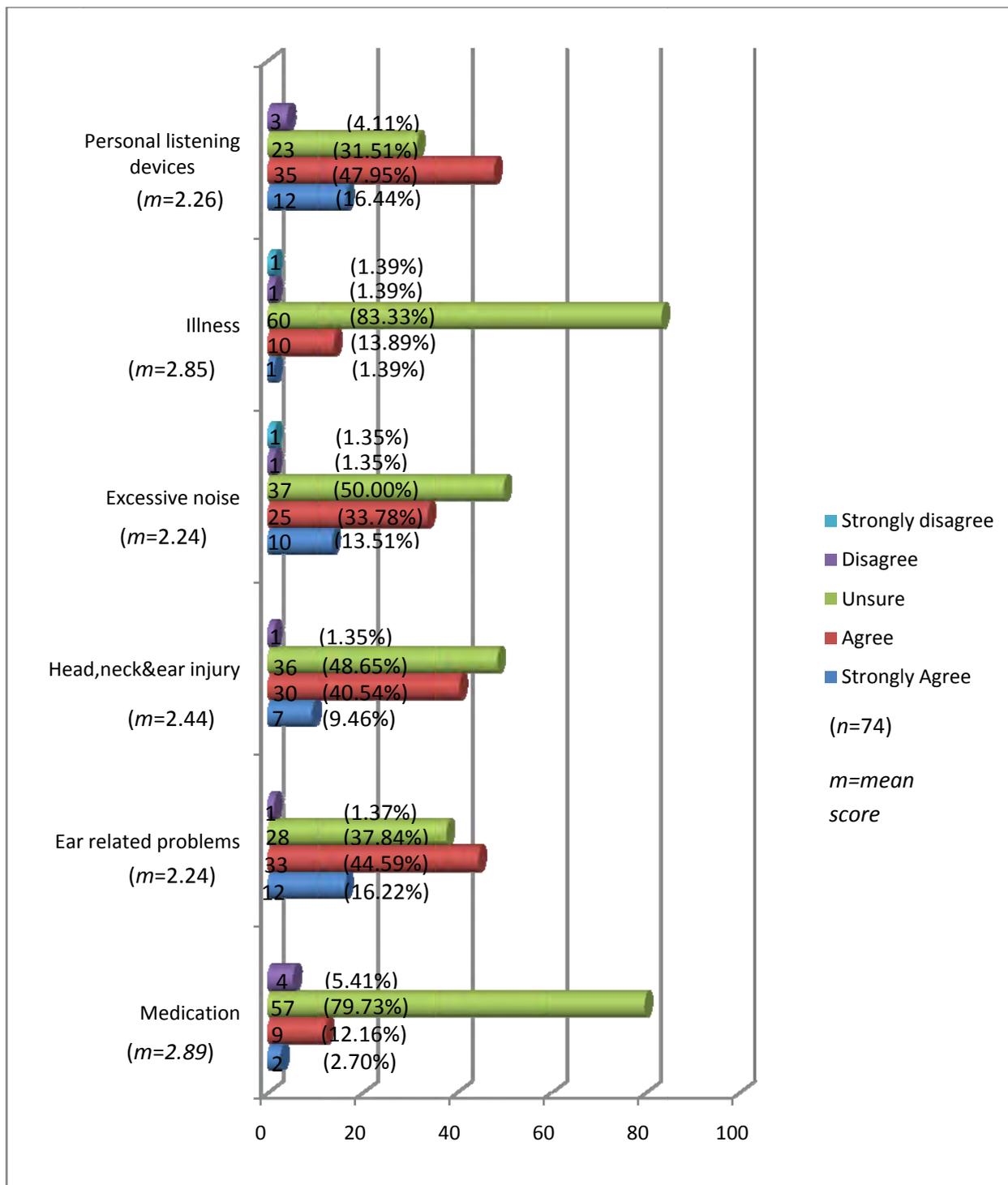


Figure 4.1 Awareness of the causes of tinnitus

When observing the mean-average scores for the causes of tinnitus, it reflects that all the scores are close to three. This correlates with the answer choice ‘unsure’ which was given a three coding in the questionnaire. The mean-average scores are in keeping with the results in Figure 4.1, where it is clear that a majority of participants were unsure of the causes of tinnitus. This shows that the participants from this study are actually not aware of what causes tinnitus.

To more fully understand responses, scores on agreement were combined to determine which causes were more fully linked to tinnitus. Results are depicted in Table 4.2.

Table 4.2

Number of participants who agreed on the causes of tinnitus

Cause	Number (<i>n</i> =73)	Percentage
PLDs	47	64.39%
Illness	11	15.28%
Excessive Noise	35	47.29%
Head, Neck & Ear injury	37	50.00%
Ear related problems	45	61.81%
Medication	11	14.86%

When examining the results from Figure 4.1, it can be seen that 47 (64.39%) agreed that PLDs (personal listening devices) cause tinnitus and another 45 (61.81%) agreed that ear related problems cause tinnitus. It is also noted here that PLDs were considered more when compared to excessive noise. This may mean that participants view PLDs as a more significant cause than excessive noise. These results are important because there are research studies which indicate similar results. A study by Gilliver et al. (2013) found that there was

an urgent need for young adults to be aware of prolonged use of PLDs. Their study concurs with results from other similar studies which found that young adults were not well educated about the causes of tinnitus and, as a result, exposed themselves to high levels of noise (Gilles et al., 2013). However, even after this awareness, they may still choose to use PLDs because of social purposes (Levey et al., 2012). Perhaps they may only limit the use of PLDs if they have tinnitus or any other ear-related problems after prolonged use. This is a difficult situation as even though awareness strategies may succeed in conveying the message, it may not necessarily have the desired end effect.

It must be noted that recreational-noise exposure and noise exposure from attending night clubs seemed to be the cause of tinnitus in young adults in most research studies apart from PLDs (Mostafapour et al., 2009). However, it has been indicated that one of the ways in which young adults can prevent this is by the use of hearing-protection devices (HPDs).

4.2.5 Awareness of hearing protection devices

Participants were asked whether they had heard of HPDs and the results showed that the majority of 65 (91.78%) who answered this question were aware of HPDs. In previous studies it was clear that the majority of young adults had limited knowledge of HPDs (Chung et al., 2005; Gilles et al. 2012). However, in the current study it seems that a difference of information was found with only 8.22% of participants not being aware of what a HPD was.

Research has shown that HPDs are important in protecting hearing and preventing associated symptoms, tinnitus in particular (Gilles et al., 2013). Since it has been established that young adults are aware of HPDs, it is important to know where they obtained this information from because in the future these platforms maybe utilised when trying to convey this information to them.

Table 4.3

Source of information regarding HPDs

Source	Number (n=68)	Percentage
Internet	30	44.78%
Friends	22	32.35%
Family	27	49.71%
General practitioner	13	19.12%
Other	5	7.35%

Table 4.3 shows that 30 (44.78%) had heard of hearing-protection devices from the internet. These results are followed by 27 (49.71%) indicating that they heard about hearing-protection devices from their family. When interpreting these results with respect to the study as a whole, this seems like a similar trend when compared to their source of information about tinnitus in (Table 4.1).

From a study conducted by Henderson et al., (2010), it was felt to be more beneficial if the source of awareness came from a health professional rather than the internet. The opinion was that young adults may be more likely to heed the advice on the use of HPDs if it was provided by a health professional. However, it seems that the results from the current study were different to those from the study by Henderson et al., (2010), in that most of the participants used the internet as a source of information compared to any other source. It would seem that from the current study, perhaps young adults are more comfortable and receptive when learning about health issues on their own. Maybe it would be advisable to use a combination of awareness strategies to get the desired effect of increasing the awareness of HPDs among young adults. However, one must remember that, regardless of

the information provided and the source of the information, the individuals themselves need to view HPDs as crucial when exposed to high levels of noise.

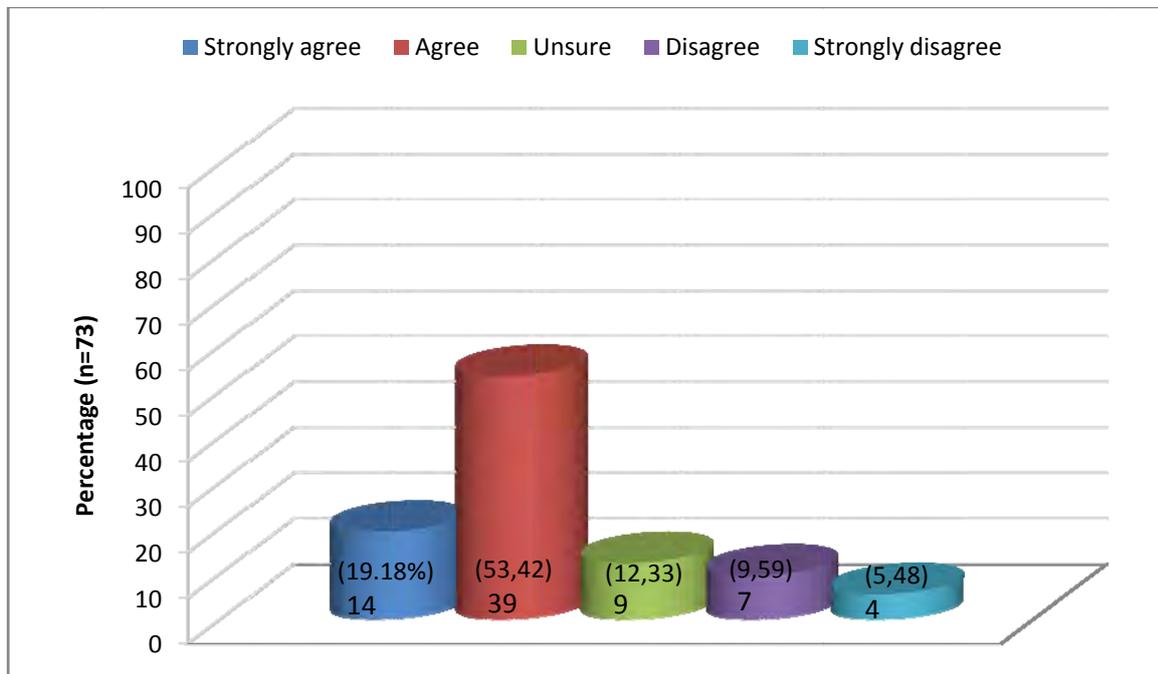


Figure 4.2 Need of HPDs during exposure to high levels of noise

The results in Figure 4.2 show that the majority, 53 (72.6%), agreed that HPDs should be used when exposed to excessively loud levels of noise. As literature has revealed that there is a relationship between exposure to excessive noise and tinnitus (National institute on Deafness and other communication disorders, 2014), it has been proved that exposing oneself to excessive noise for extensive periods of time without the use of HPDs can cause hearing loss and tinnitus. In some cases, tinnitus may be the only symptom. There is, therefore, an urgent need for young adults especially to understand the importance of the use of HPDs when exposed to loud noise. Gilles et al., (2012) mention that young adults seem to care about their hearing only if they felt that loud noise was dangerous. Therefore, if they are not aware of the danger posed by loud noise, they are unlikely to actually use HPDs.

4.2.6 Use of hearing protection devices

The results revealed that seventy-one (95.95%) stated that they do not wear HPDs during times of excessively loud noise. Despite a large number of participants agreeing in Figure 4.7, that they need to wear hearing-protection devices during activities with excessive noise, only a small percentage of three (4.05%) stated that they wore HPDs during excessive noise exposure. These results concur with other studies which have shown that the majority of participants actually do not wear hearing-protection devices, despite a large number of young adults who acknowledged their importance (Gilles et al., 2013). Perhaps it may be that since they have read about HPDs from the internet and other sources, they are, in fact, knowledgeable about the importance. However, they may not be putting this knowledge into practice due to, perhaps, peer pressure and conforming to trends that have been set by their peers. Studies have also stated that young adults are likely to behave in a certain way because they want to ‘fit into’ society i.e.in a similar way as their peers (Gilles et al., 2013).

It may be also that the participants do not have easy access to HPDs or not be aware of from where to access them, hence they do not use them. Although there are many studies which state that young adults do not use HPDs, none of these studies state whether young adults have easy access to HPDs. This needs to be considered as a possible reason why there is limited use of HPDs among young adults.

4.3 Experience of tinnitus

4.3.1 Experience of tinnitus generally

Only those participants who stated that they had experience with tinnitus either through friends, family or themselves personally provided details as depicted in the Figure 4.7.

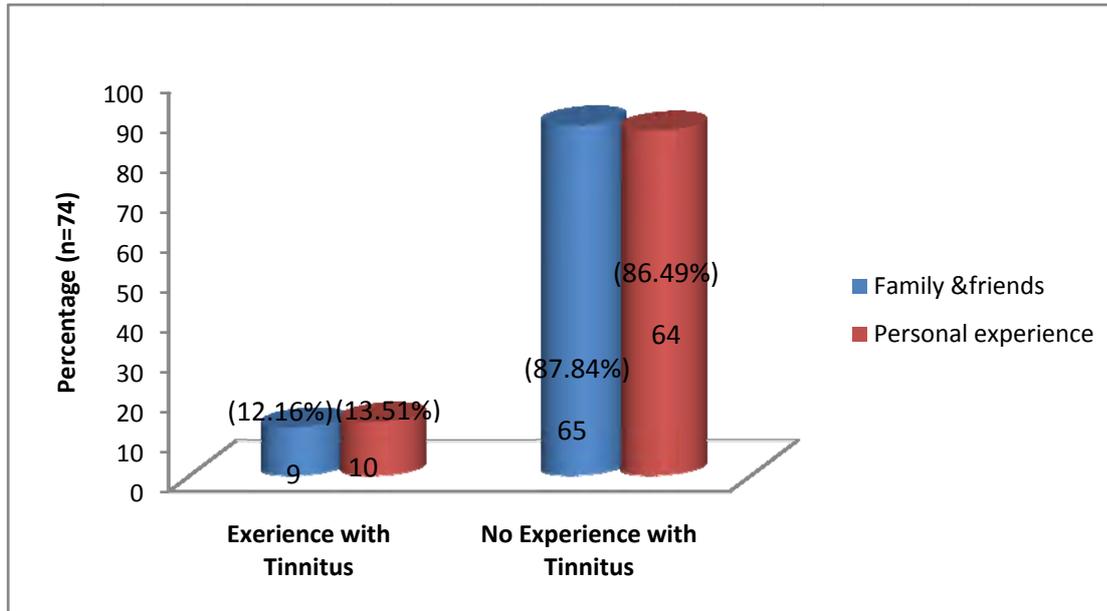


Figure 4.3 Experience of tinnitus from family & friends and personal experience

As can be seen in Figure 4.3, 10 (13.51%) of participants stated that they had experienced tinnitus themselves and nine (12.16%) stated that they knew of a family or friend who experienced tinnitus. However, it is clear that the majority had no experience with tinnitus.

Tinnitus may not always be experienced by the individual person but can be experienced via family and friends who may be associated with that person. It seems that there are almost an equal number of young adults in this study who knew of family or friends who had tinnitus when compared to those who experienced tinnitus themselves. Therefore, it

may be assumed that young adults may be likely to experience tinnitus from exposure to close family and friends.

The results from Figure 4.3 show that nine (12.16%) knew of someone who had tinnitus. From the nine participants who indicated that they knew someone who experienced tinnitus, five participants indicated that it was a close family member who had tinnitus i.e. mother, grandmother and grandfather. It appears that the results for this question support the results shown on Table 4.1 in which eight (32.00%) of individuals indicated that they heard about tinnitus from family and friends. Therefore, it seems as if the individuals in this study heard about tinnitus only because that family member had experienced it, i.e. their experience was indirect.

4.3.2 Personal experience of tinnitus

It was evident that only a small number, 10 (13.51%) experienced tinnitus themselves. Research has shown that young adults are at risk for acquiring tinnitus (Chung et al., 2005). Other recent research by Gilles et al., (2013) also found that tinnitus has increased in the last 20 years in the young-population group. One such study found that 89.5% of young adults had transient tinnitus after exposure to excessive noise (Gilles et al., 2013). However, the result of this study is different from what these researchers have found. Perhaps, a possible reason could be that this study did not have as many participants as the others. Therefore, these results need to be interpreted with caution. At the same time, however, one can possibly deduce, based on the results obtained, that there are young adults who experience tinnitus. Young adults are at risk and tinnitus can occur even at a young age. It may not be advisable to comment on the prevalence though, based on the number of participants.

Of the young adults in the study who experienced tinnitus, the possible causes of tinnitus were sought. Sometimes, individuals may know the cause of their tinnitus but that would mean that they would have had to seek professional help so that the cause may be confirmed. However, it was interesting to determine whether the young adults in this study knew what caused their tinnitus, since it was evident in Figure 4.1 that the majority of young adults were not aware of the causes of tinnitus.

4.3.3.1 Known cause of the tinnitus personally experienced

It was evident that seven (70%) of the tinnitus sufferers did not know what may have caused the tinnitus. However, the few participants, two (20%) who indicated that they knew what caused their tinnitus, indicated that it could have been due to exposure to noise or listening to music at very loud levels. This cause may correlate with other research studies which state that noise exposure is the most common cause of tinnitus in young adults (Williams, Beach & Gilliver, 2010).

Therefore, these results may mean that if most of the participants did not know what caused their tinnitus, then they may be at risk of constant exposure to the cause. This does concur with the lack of knowledge on the causes of tinnitus as shown in Figure 4.1. However, through the provision of educational information to young adults in a similar situation, this can be prevented and young adults will be more aware of the possible causes of tinnitus. Since tinnitus can be temporary or permanent, participants were asked whether the tinnitus they experienced persisted during the time of the survey.

4.3.3.2 Participants who currently experience tinnitus

From those participants who experienced tinnitus, eight (80%) were still experiencing it at the time of the survey. Participants who stated that they experienced tinnitus were asked to describe it in more detail.

According to literature, there are two types of tinnitus i.e. temporary/transient and permanent tinnitus. Temporary tinnitus disappears after a short while and does not return whereas permanent tinnitus is continuous and does not disappear (Crummer & Hassan, 2000). These results are of concern as participants may be experiencing permanent tinnitus. Also, the experience of the tinnitus is likely to cause negative effects in their daily life. The other characteristic which is important to determine is the site of the tinnitus, i.e. in which ear/s the tinnitus was perceived. Tinnitus may also be perceived in the head. Therefore, it was interesting to note the results which follow.

4.3.3.3 Laterality of tinnitus

Table 4.4

Description of tinnitus with regards to the site

Affected ear/s	Number ($n=10$)	Percentage
Right Ear	2	20%
Left Ear	2	20%
Both	4	40%
Inside my head	2	20%
Outside my head	0	0%
Not sure	1	10%

Four (40%) of the participants who experienced tinnitus indicated that they experienced it in both ears. There were an equal number of participants each (20%) who stated that they felt the tinnitus occurred in both ears with a small percentage (10%) unsure of where they could hear the tinnitus. According to literature, tinnitus has many characteristics, among others, ranging from loudness, pitch, frequency of occurrence and laterality (Tyler, 2000). Participants were asked to describe their tinnitus according to the characteristics. There did not seem to be any trend noticed in the ears that the participants experienced the tinnitus, although more participants seemed to hear it in both ears. There is no evidence in literature of trends in tinnitus with regards to laterality. In this study, also, no trends were noticed.

4.3.3.4 Onset of experienced tinnitus

Five (50%) stated a gradual onset of tinnitus and five (50%) stated a sudden onset. It cannot be determined why this difference was obtained. According to literature, tinnitus with a gradual onset is generally associated with other pathologies such as sensorineural hearing loss and tumours whereas tinnitus with a sudden onset can result from ear trauma which can be physical or through sudden loud noise exposure (Tyler, 2000). However, in this study, as mentioned in section 4.2.4, few participants felt that noise exposure had caused their tinnitus. Therefore, it is difficult to make any conclusion from these results.

4.3.3.5 Frequency of occurrence of tinnitus

All the participants, 10 (100%) who experienced tinnitus stated that the tinnitus occurs only sometimes. However, it was not stated what they meant by “sometimes”. Therefore, it is difficult to make any further assumptions in this regard. Furthermore, it may be taken as a positive sign that at least none of the participants experience the tinnitus on a daily basis. It may be assumed that if tinnitus is not occurring continuously, then it may not

affect the individual as much as it would if it was present constantly. This is especially important when dealing with students who are involved in academic studies, as one has to be concerned about the tinnitus negatively affecting their studies.

4.3.3.6 Perceived quality of the tinnitus

Table 4.5

Characteristic of the tinnitus experienced

Sound of the tinnitus	Number (n=10)	Percentage
Ringling	5	50%
Whistling	1	10%
Sea noise	0	0%
Crackling	0	0%
Buzzing	3	30%
Pulsating	1	10%
Other	0	0%

The results above show that five (50%) participants feel that the tinnitus sounds like it is ringing. It must be noted, however, that one (10%) participant complained of pulsating tinnitus. According to literature, pulsatile tinnitus is indicative of a possible vascular problem (British Tinnitus Association, 2014). None of the participants stated that they may be suffering from any vascular problems. However, it must be also noted that participants were not given an opportunity in the survey to state whether they had any vascular problems. Ringing tinnitus is usually associated with exposure to loud noise (Holmes & Padgham, 2011). Thus it seems that the participants in the study may have tinnitus as a result of exposure to noise as five (50%) reported ringing tinnitus.

4.3.3.7 Perceived severity of tinnitus

Table 4.6

Perceived severity of tinnitus

Severity of Tinnitus	Number (n=10)	Percentage
Extremely Annoying	3	30%
Severely Annoying	2	20%
Moderately Annoying	1	10%
A Little Annoying	3	30%
Not at all Annoying	1	10%

According to the results obtained, all participants described the tinnitus as annoying. Approximately a third (30%) said that they found the tinnitus extremely annoying. Literature has mentioned also that the severity of tinnitus is not necessarily a true reflection of the actual impact it has on the individual's life (Alam et al., 2012). Sometimes a person can have a mild severity of tinnitus but still feel that it has a significant impact on daily life as also. Also, someone who may have extremely severe tinnitus but may feel that it does not impact on daily life (McCombe, Baguley, Coles, McKenna, Mckinney, Windle-Taylor, 2001). However, it is difficult in this study to specifically identify the severity of tinnitus with the impact it has on the participant's life.

4.3.3.8 Effect of tinnitus

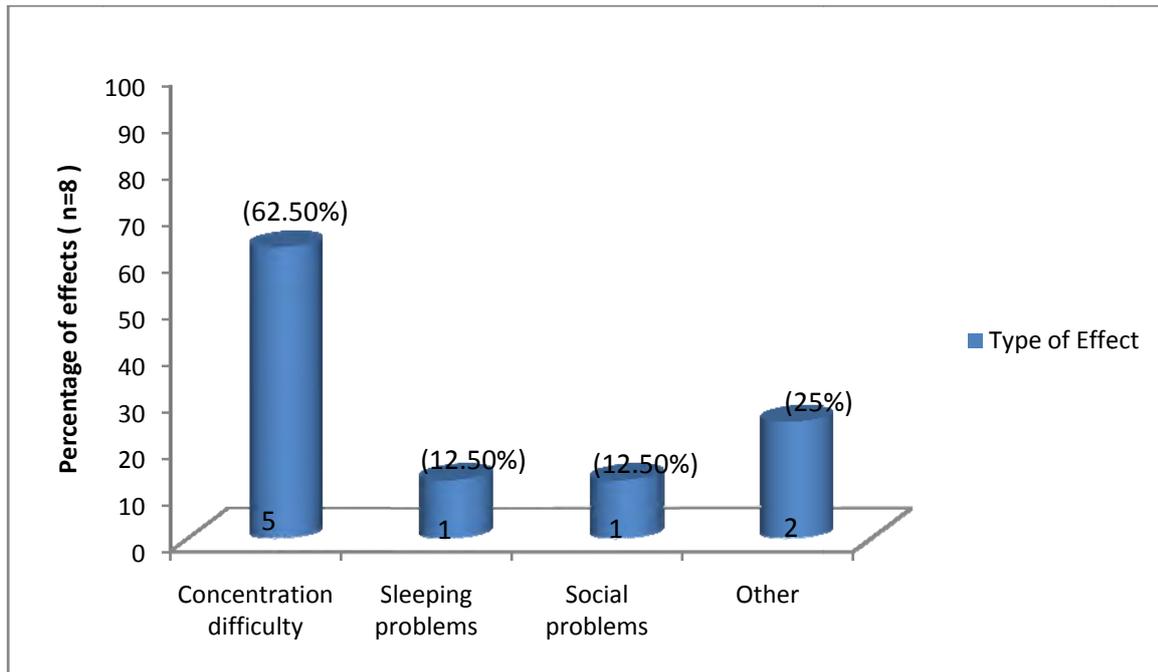


Figure 4.4 Effects of tinnitus on daily life

Tinnitus can have various effects on an individual's life. Concentration difficulties, sleeping problems and social problems were the most common problems associated with tinnitus in previous literature (Gilles et al., 2013). Literature has revealed that these effects can range from sleep disorders to emotional problem (McCombe et al., 2001). Figure 4.4 above shows that only eight of the 10 participants answered the question. Of these, five (62.50%) complained of concentration difficulties due to the tinnitus. An equal number of participants complained of sleeping and social problems. When one looks at this type of population group, it is of concern to find out that most of them who have tinnitus complained of concentration difficulties. These young adults are in university and are required to concentrate on their studies in order to succeed. These negative effects can drastically prevent young adults from participating in their social contexts and affect their progress academically, socially and vocationally (WHO, 2007).

4.3.3.9 Management of experienced tinnitus

Professional help

Table 4.7

Type of help sought

Source of help	Number (n=10)	Percentage
A general practitioner	0	0%
Ear, nose& throat specialist	0	0%
An audiologist	0	0%
I did not get any help	10	100%
Other	0	0%

Table 4.7 shows that from all of the participants who indicated that they had tinnitus, none of them sought any help from a health professional. It is not known from the survey why they did not seek any help. This question aimed to determine whether the participants visited any health professional such as the general practitioner, audiologist, ear, nose and throat specialist for the tinnitus they experience. The Canadian Academy of Audiology (2014) lists the various methods that one can use to obtain relief from tinnitus, ranging from counselling to masking and possibly surgery. Obviously this all follows an audiological examination (Canadian Academy of Audiology, 2014). However, if one has to go back to Figure 4.1 where the majority of the participants stated that they were not aware of tinnitus, it could be that this lack of awareness may have impacted on their decision not to seek any professional help. It seems that even though some participants still experience tinnitus and most of them have concentration problems, none of the participants obtained any help from

any health professional. One may assume that perhaps they did not know where to go to obtain help.

Relief for the tinnitus

None of the participants who had tinnitus reported that they experienced any relief. These results correlate with Table 4.7 where it showed that none of the participants visited any health professional to treat their tinnitus. Perhaps it is because they did not know where to go to obtain any help. It may be assumed also that the few participants who stated that they do not still experience tinnitus perhaps just waited for the tinnitus to disappear without obtaining any help. Furthermore, if they did not seek any help from professionals then one needs to know if they were doing anything on their own to alleviate the tinnitus.

Self-treatment of the tinnitus

From the 10 participants, three (30%) said that they had been treating the tinnitus themselves, with seven (70%) doing nothing about it. This 30% admitted to reducing levels of noise in order to relieve the tinnitus. This shows that the majority of participants in this study who have tinnitus are not obtaining any relief. There have been some indications in the literature stating that there are some individuals who may try and treat their tinnitus using their own methods such as reducing exposure to loud noise and other relaxation techniques (Bupa Health Information, 2014). Therefore, this question was appropriate in trying to find out this information, especially since none of the participants obtained any help from external health sources. From these results, it seems that only some of the participants have indicated that they reduced the volume of their music in order to alleviate the problem. However, one cannot be sure as to what may be the actual cause of their tinnitus. Since none of them have obtained any help from health professionals, they may not know the exact cause. The efficacy of the method they use needs to be identified.

Satisfaction of self-treatment

Only nine of the 10 participants answered this question. It would seem that two (22%) of the nine participants were satisfied with the methods they were using to alleviate the tinnitus. This shows the large majority of participants who are not satisfied with the methods that they are using. Again, this may be due to the fact that the exact cause of the tinnitus is unknown. These participants therefore could benefit from intervention should they seek help from health professionals

4.4 Interest in information about tinnitus

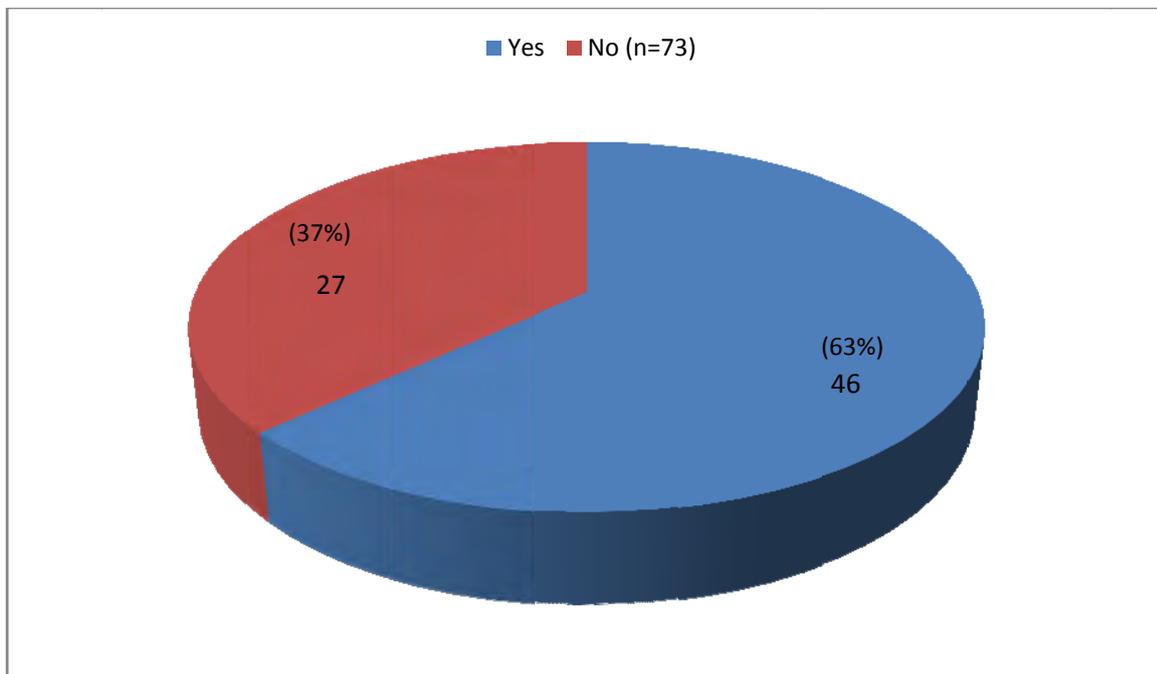


Figure 4.5 Interest in information about tinnitus

From the 75 participants who completed the survey, 73 participants answered this question. From the 73 participants, 44 (62%) indicated that they would like to know more about tinnitus. Since one of the purposes of this study was to promote awareness about tinnitus, all participants were asked if they required more information about tinnitus. It was also found that some of the participants, who did not know about tinnitus, still did not want

any further information about it. Of the 62% of participants who stated that they required more information about tinnitus, the majority of them indicated that they would like to know more about the causes and where to seek help for it. This correlates with the results obtained for these two questions in the survey where most participants did not know what the causes were and none of them seeking any help for their tinnitus. Also, as research has found, young adults stated that they required more information on tinnitus and they were more likely to then take precautions following this (Gilles et al., 2012). Therefore, the results for this question correlate with previous research which also found similar results.

4.5 Summary of chapter

From all the results observed, it can be deduced that there is a majority of young adults who do not know what tinnitus is, what are the causes and the effects of it. This is in agreement with similar studies which state that although the prevalence of tinnitus in young adults is on the increase, there is a high number of young adults who do not know about tinnitus and are exposing themselves to the risk factors. It seems that young adults may lack awareness of ototoxic causes of tinnitus since tinnitus may be a side effect of certain medications. Young adults who were surveyed in other studies also indicated that they would have liked more information about hearing protection devices which would have made them more knowledgeable to use them. This study also produced similar results in terms of the cause of tinnitus in young adults being excessive noise exposure. Although it is difficult to make a definite conclusion as to whether noise exposure is the main cause in the 10 participants who had tinnitus, it seems to be an underlying factor that has surfaced throughout this study which seems to point towards the fact that it could be one of the common causes of tinnitus in this population group. Another factor that emerged throughout this study was the fact that young adults do require more information about tinnitus, especially about where to seek help for those who require it. Awareness campaigns and educational information have

also come through as a common need in other research studies and audiologists need to be aware of their role regarding this. It may reduce the number of young tinnitus sufferers and allow for young adults to function adequately in their daily lives. This seems to be a similar trend in this study and, thus, it appears that awareness campaigns are needed for young adults. It is more likely to be successful via the internet because more young adults access this type of information online. However, this result was found in this study and not in any of the other studies. Also, it is imperative to manage this population group because of the academic and social demands.

CHAPTER 5

CONCLUSION

5.1 Introduction to the chapter

The conclusions of the study will be highlighted in this chapter which will include a summary, limitations and recommendations for future research.

5.2. Summary of the study

This study described young adults' awareness and experiences of tinnitus. This was achieved by using a quantitative descriptive survey to investigate a sample of university students between 18 and 30 years old in the school of Management, IT and Governance at the University of KwaZulu-Natal. In-depth and detailed information regarding young adults' awareness and experience of tinnitus, was obtained by the use of an electronic questionnaire.

Unfortunately, only 75 of 4179 students completed the questionnaire, therefore reflecting a low response rate for the study. Following the low-response rate obtained in the pilot study as well, the researcher investigated methods to increase the response rate. Previous research had stated that it was best to remind potential participants to complete the questionnaire. However, anonymity of participants was practiced in this study as the researcher did not ask for any names or contact details. Each participant had a number by which they were identified. Therefore, this method of increasing the response rate was not deemed viable.

As mentioned in chapter two, previous studies focused mostly on the older adult population regarding tinnitus, while only a limited number of studies focused on young adults. However, it was established from various studies that young adults are also at risk of

tinnitus due to the rising prevalence of it in this population group and, therefore, the researcher was motivated to conduct this study.

It is important that young adults should be aware of tinnitus so that they can prevent themselves from being exposed to its causes and know where to seek help from if they experience tinnitus. This population group may compromise the quality of their life since they are involved in academic studies as well as social activities related to student life therefore, having tinnitus may negatively affect these areas of their life.

The results of the study revealed that the majority of young adults did not know what tinnitus was and that those few participants who were aware of it had heard of it from their family, friends and the internet. It was also evident that the majority of young adults did not know what the causes of tinnitus were. As established in chapters 1 and 2, awareness of the causes of tinnitus was important to ensure that young adults limited their exposure to these causes. However, when looking at the number of participants who did not hear of tinnitus, it is consistent to have found that most of them are not aware of the causes.

It was also revealed that a few young adults from the survey experienced tinnitus. Although only 10 participants indicated that they had tinnitus, consideration must be given to the fact that a small sample of students completed the survey. Perhaps, if the sample population was larger, the number of participants who reported having tinnitus may have been higher. The point that is important to note here, however, is that young adults who currently experience tinnitus were identified in this study. This information concurs with a few other studies which also pointed out that young adults do experience tinnitus.

Significant information which was also found in this study was that all the participants who experienced tinnitus stated that they felt it may have been due to noise exposure which, in this case, was attributed mostly to personal-listening devices. However,

this report of noise exposure was subjective and must also be interpreted with caution and one cannot say with confidence that these participants with tinnitus had been exposed to noise. Perhaps, at some point they had associated loud noise with ear-related problems and in doing so, have come to this conclusion. However, it is also evident in previous studies that noise exposure was the most common cause of tinnitus in the young-adult population. Therefore, it can be assumed in this study that, perhaps, exposure to noise may have been a contributing cause to the tinnitus. Although all the most common causes of tinnitus were presented in the survey, a high percentage of participants were not sure about them. The researcher assumed this to be a lack of awareness and, thus, concluded that the causes of tinnitus were not known.

No definite conclusions could be made about the characteristics of tinnitus experienced, although the majority of participants complained about a ringing sound. There was no correspondence between the different characteristics of tinnitus such as onset, sound and laterality. No correlations were found in other studies as well regarding this. The negative effects of tinnitus on daily life were apparent in this study such as reduced social interactions. Sleeping and concentration difficulties were reported with the majority having concentration difficulties. These results were similar to those found in a few other studies. This relates to one of the main reason for conducting this study in this population group. Concentration difficulty can impact negatively on academic performance and it is, therefore, important to identify this problem earlier in the acquisition of tinnitus.

The overall purpose of this study was to determine if young adults are aware and experience tinnitus. This information in this study may help to prevent unnecessary exposure of young adults to tinnitus. Mostly, tinnitus can be prevented if one is aware of the causes or accepted better if one understood how it may have been caused. If there are avenues that young adults can take to protect themselves, then they need to be aware of it. Previous

studies have shown that young adults are not aware of hearing-protection devices. In this study it became evident that young adults seemed to know about hearing-protection devices, information which they obtained from the internet. However, although they knew about it, most of them did not make use of hearing-protection when exposed to loud noise. Although it can be said that if young adults are aware of hearing protection, then they are more likely to use it, however, this does not seem to be the case in this study. Even though the participants reported being aware of hearing-protection devices and acknowledged the importance of wearing them in loud noise areas, none of them actually used them. There is no definite reason which can be identified as to why this is so. It can be assumed that peer pressure and social norms may have had a strong influence on the use of hearing protection when exposed to loud noise. Taking precautions when visiting a night club or limiting the use of a personal-listening device, may be seen as deviating from the social norms and not conforming.

This study also showed that young adults may not know from where to obtain information regarding the management of tinnitus, especially for those who experienced tinnitus. However, since the results of this survey also showed that young adults did not know from where to obtain intervention for the tinnitus, it would only be logical to deduce that none of them sought any management.

5.3 Limitations of the study

Although this study has revealed pertinent information regarding tinnitus in young adults, some limitations are identified:

- The expected sample size was not achieved. The sample size was not large enough to make a generalisation to the entire young adult population.

- Detailed questions regarding the participant's actual exposure to tinnitus, such as attending night clubs, exposure to illnesses and injury were not included in the questionnaire.
- No definite conclusion can be made regarding the actual cause of tinnitus in those participants who experienced it.

5.4 Implications of the study

From the information provided and results obtained from this study, the following clinical and theoretical implications are postulated:

5.4.1 Clinical Implications

- Perhaps professionals may offer frequent screening assessments on young adults so that tinnitus as well as hearing loss may be detected early.
- The provision of management may be more structured and accessible to young adults with tinnitus.
- There is a need for health promotion with regards to hearing health to young adults, adolescents and children. It is the responsibility of audiologists to raise awareness of noise induced hearing loss and tinnitus in this population.

5.4.2 Theoretical Implications

- Professionals, young adults and the general public will be more aware that tinnitus in young adults has increased.
- Increased awareness of the existence, causes and management of tinnitus may be provided via appropriate platforms, which will be accessible to young adults.

- The use of electronic surveys in research needs to be addressed so that a better response rate may be obtained. Perhaps researchers can provide incentives or reminders to participants in order to increase the response rate.

5.5 Recommendations for future research

- University students should be accessed via individual modules or schools in order to improve the response rate, with incentives offered if electronic surveys are used.
- A paper based questionnaire should be constructed to probe issues like causes and exposure of tinnitus in high school learners
- To get prevalence data for adolescents and young adults.
- Future research may focus specifically on the levels of noise young adults expose themselves to such as those prevalent in night clubs.
- More studies need to be conducted on actual young tinnitus sufferers. These studies need to focus on the experience of tinnitus, access to management and psychological effects.

5.6 Summary of the chapter

This chapter presented a summary of this study which encompassed the rationale, methodology, results and discussion. The limitations, implications and recommendation for future research were also highlighted in this chapter so that researchers may utilise this information to improve on future studies, providing enriched information regarding tinnitus in young adults.

REFERENCES

- Agrawal, Y., Platz, E.A., & Niparko, J.K. (2008). Prevalence of hearing loss and differences by demographic characteristics among US adults: data from the National Health and Nutrition Examination Survey. *Archives of internal medicine*, 168(14). 1522-30.
- Ahmad, N., & Seidman, M. (2004). Tinnitus in the Older Adult: Epidemiology, pathophysiology and treatment options. *Drugs and aging*. 21 (5). Department of Otolaryngology – Head and Neck Surgery, Henry Ford Health System, Detroit, Michigan, USA.
- Alam N., Katarkar A., Shah P., Jalvi R., Jain A., Shah M. (2012) Audiological, Psychological and Cognitive Characteristics of Tinnitus Sufferers. *Indian Journal of Otology*, 18 (1), 20-23. Retrieved in October 2013 from <http://www.indianjotol.org/article> .
- American Research Foundation. (n.d.).Retrieved in November 2014 from <http://american-hearing.org/disorders/tinnitus/>
- Berger, E. H., & Casali, J. G. (2007). Hearing protection devices. *Encyclopedia of acoustics*. New York: John Wiley & Sons. 967-981.
- British Tinnitus Association. (n.d.).Retrieved October 2014 from <http://www.tinnitus.org.uk/helping-young-people-with-tinnitus>.

Bupa Health Information (n.d.). (2014). Retrieved in November from <http://www.bupa.com.au/health-and-wellness/health-information/az-health-information/ci.hearing-loss.7030news>.

Canadian Academy of Audiology (n.d.). (2014). Retrieved in October from <https://canadianaudiology.ca/consumer/tinnitus.html>.

Chung, J. H., Roches, D., Catherine, M., Meunier, J., & Eavey, R. D. (2005). Evaluation of Noise-Induced Hearing Loss in Young People Using a Web-Based Survey Technique. *Pediatrics*, 115(4), 861-867. Retrieved in April 2012 from <http://pediatrics.aappublications.org/content/115/4/861.full>

Cohen, E. B. (2009). Growing information part 1. *The Journal of issues in informing science and information technology*, 6, 323-337.

Crummer, R. W., & Hassan, G. A. (2000). Diagnostic approach to tinnitus. *American Academy of Family Physicians*, 69, (1). Retrieved March 31, 2010, from http://74.125.155.132/scholar?q=cache:aG7uHs8c9pwJ:scholar.google.com/&hl=en&as_sdt=2000.

Cunha, J. P. (2014). Tinnitus. *eMedicinehealth*. Retrieved in November 2014 from www.emedicinehealth.com.

Danhauer, J. L., Johnson, C. E., Dunne, A. F., Young, M. D., Rotan, S. N., Snelson, T. A., Stockwell, J. S., & McLain, M. J. (2012). Survey of high school students' perceptions about their iPod use, knowledge of hearing health, and need for education. *Language, speech & hearing services in schools, 43*(1), 14-35.

Degeest, S., Corthals, P., Vinck, B., & Keppler, H. (2014). Prevalence and characteristics of tinnitus after leisure noise exposure in young adults. *Noise Health, 16*, 26-33.

Dell, S. M., & Holmes, A. E. (2012). The effect of a hearing conservation program on adolescents' attitudes towards noise. *Noise and health, 14*(56), 39-44.

Eggermont, J. J., (2012) *The Neuroscience of Tinnitus*. United Kingdom. Oxford University Press.

Erlandsson, S. I., Holmes, A., Widen, S. E., & Bohlin, M. (2008). Cultural and social perspectives on attitudes, noise, and risk behavior in children and young adults. *Seminar Hearing, 29*(1). 029-041.

Folmer, R. L. (2002). Long term reductions in tinnitus severity. Research Article. Retrieved in September 16, 2010 from: <http://www.biomedcentral.com/1472-6815/2/3/prepub>.

- Gilles, A., Van Hal, G., De Ridder, D., Wouters, K., & Van de Heyning, P. (2013). Epidemiology of noise-induced tinnitus and the attitudes and beliefs towards noise and hearing protection in adolescents. *Plos one* 8 (7). Retrieved in August 2014 from <http://www.plosone.org>.
- Gilliver, M., Beach, E. F., & Williams, W. (2013). Leisure noise exposure: participation trends, symptoms of hearing damage, and perception of risk. *International journal of Audiology*. 52. 20-25.
- Gopinath, B., McMohan, C. A., Rochtchina, E., Karpa, M. J., & Mitchell, P. (2010). Risk Factors and Impacts of incident tinnitus in older adults. *Annals of Epidemiology*, 20(2), 129-135.
- Gun cho, C., Chi, J. H., Song, J. J., Lee, E. K., & Kim, B. H. (2013). Evaluation of anxiety and depressive levels in tinnitus patients. *Korean journal of Audiology*, 17(2), 83-89. Retrieved in October 2013 from <http://www.ncbi.nlm.nih.gov/pmc/articles>.
- Healthline. (n.d.). Retrieved November 2014 from <http://www.healthline.com/human-body-maps/cochlear-nerve>.
- Health Professions Council of South Africa (Act No. 56 of 1974). Regulations defining the scope of the profession of Audiology. Retrieved online in September 2014 from http://www.hpcsa.co.za/Uploads/editor/UserFiles/downloads/legislations/regulations/slh/Proposed/gg34632_nn803.pdf

Henderson, E., Testa, M. A., & Hartnick, C. (2010). Prevalence of noise-induced hearing-threshold shifts and hearing loss among US youths. *Official journal of the American academy of paediatrics*, 127 (1), 39-46. Retrieved online in June 2014 from <http://pediatrics.aappublications.org>.

Henry, J. A., Dennis, K. C., & Schechter. (2005). General review of tinnitus: prevalence, mechanisms, effects, and management. *US National library of medicine*, 48 (5). 1204-35.

Henry, J. A., James. K.E., Owens, K., Zaugg, T., & Porsov, E et al. (2009). Auditory test result characteristics of subjects with and without tinnitus. *Journal of rehabilitation research development*, 14, 619-632. Retrieved in April 2012 from <http://www.rehab.research.va.gov/jour/09/46/5/pdf/henry.pdf>.

Hoare, D. J., Gander, P. E., Collins, L., Smith, S., & Hall, D. A. (2010). Management of tinnitus in English NHS audiology departments: an evaluation of current practice. *Journal of evaluation in clinical practice*. 18. 326-334.

Holgers, K. M., & Juul, J. (2006). The suffering of tinnitus in childhood and adolescents. *International journal of audiology*, 45(5), 267-272.

Holmes, S., & Padgham, N. D. (2011). “Ringing in the Ears’’: Narrative Review of Tinnitus and Its Impact. *Biological research for nursing*. 13 (1), 97-108.

Hunter, J., Corcoran, K., & Leeder, S. (2012). Is it time to abandon paper? The use of emails and the Internet for health services research – a cost-effectiveness and qualitative study. *Journal of evaluation in clinical practice*, 19 (5). 855-861.

Johnson, O., Andrew, B., Walker, D., Morgan, S., & Aldren, A. (2014). *The journal of laryngology & Oncology*. 128, 29-34.

Joos, K., Vanneste, S. & De ridder, D. (2012). Disentangling depression and distress networks in the tinnitus brain. *Plos one*, 7 (7). Retrieved in October 2012 from www.plosone.org/

Juul, J. A. (2013). *Hearing symptoms in children and adolescents: Tinnitus and temporary threshold shift*. Department of Clinical Neuroscience and Rehabilitation. Institute of Neuroscience and Physiology. Sahlgrenska Academy at University of Gothenburg, Sweden Gothenburg.

Landgrebe, M., Zeman, F., Koller, M., Eberl, Y., Mohr, M., Reiter, J., Staudinger, S., Hajak, G., & Langguth, B. (2010). The Tinnitus Research Initiative (TRI) database: A new approach for delineation of tinnitus subtypes and generation of predictors for treatment

outcome. *BMC Medical informatics and decision making*, 10. Retrieved in November 2014 from <http://www.biomedcentral.com/1472-6947/10/42>.

Landälv, D., Malmström, L., & Widen, S. E. (2013). Adolescents' reported hearing symptoms and attitudes toward loud music. *Noise Health*. 15. 347-54.

Lannguth, B., Langrebe, M., Kleinjung, T., Sand, G. P., & Hajak, G. (2011). Tinnitus and depression. *The world journal biology of psychiatry*.

Langguth B., Kreuzer P. M., Kleinjung T., De Ridder D. (2013). Tinnitus: Causes and Clinical Management.

Leedy, P.D. & Ormrod, J.E. (2013). *Practical Research: Planning and Design*. (10th ed.). New Jersey: Pearson Education Inc.

Lee, S.H., Kim, S.S., Sung, K.Y., N, E.C. (2013). Pulsatile tinnitus caused by a dilated mastoid emissary vein. *Journal of Korean medical science*, 28(4), 628-630.

Levey, S., Fligor, B. J., Ginocchi, C., & Kagimbi, L. (2012). The Effects of Noise-Induced Hearing Loss on Children and Young Adults. *Contemporary issues in communication Science and disorders*. 39. 76-83.

Levy, P. S. & Lemeshow, S. (2013). *Sampling of populations: methods and applications*.

John Wiley & Sons: Hoboken, New Jersey.

McCombe, A., Baguley, D., Coles, R., McKenna, L., Mckinney, C., Windle-Taylor, P.

(2001). Guidelines for the grading of tinnitus severity: the results of a working group commissioned by the British Association of Otolaryngologists, Head and Neck Surgeons, 1999. *Clinical otolaryngology & allied sciences*, 26(5), 388-393.

Meikle, M. (2002). *Tinnitus: Is it the sound of hearing loss*. Retrieved October 2014 from

<http://www.ata.org>.

Mostafapour, S. P., Lahargoue, K., & Gates, G. A. (2009). Noise induced hearing loss in young adults: the role of personal listening devices and other sources of leisure noise.

Laryngoscope. 108, 1832-1839.

Muchnik, C., Amir, N., Shabtai, E., & Kaplan-Neeman, R. (2012). Preferred listening levels of personal listening devices in young teenagers: self - reports and physical

measurements. *International Journal of Audiology*, 51, 287-293.

Muijs, D. (2011). *Doing quantitative research in education with SPSS*. (2nd ed.).
Southampton. Sage Publications.

National Institute on Deafness and other Communication Disorders. (2014). Tinnitus.

Retrieved on October 2014 from

<http://www.nidcd.nih.gov/health/hearing/pages/tinnitus.aspx>

Nondahl, D. M., Cruickshanks, K. J., Wiley, T. L., Klein, B. E. K., Klein, R., Chapell, R., & Tweed, T. S., (2010). The ten-year incidence of tinnitus among older adults. *International Journal of Audiology*, 49, 580-585.

Nondahl, D. M., Cruickshanks, K. J., Huang, G.A, Klein, B. E. K., Klein, R., Javier Nieto, F, & Tweed, T. S. (2011). Tinnitus and its risk factors in the Beaver Dam Offspring Study. *Informa health care*. 50, 313-320.

Ornstein, R. (n.d.). The sociology of young adulthood. *Life history and the media project*.

Raj-Kosiak, D., Bartnik, G., Skarzynski, G., Pilka, H., Fabijanskan, A., & Borawska, B. (2008).Tinnitus in young patients up to 35-years old. *Polish Journal of Otolaryngology*.62 (4), 476-9.

Rawool, V. W., & Colligon-Wayne, L.A. (2008). Auditory lifestyles and beliefs related to hearing loss among college students in the USA. *Noise and health*, 10,1-10. Retrieved online in June 2014 from <http://www.noiseandhealth.org/>.

Roberts, L. E., Hal Martin, W., & Bosnyak, D. J. (2011). The prevention of tinnitus and noise-induced hearing loss. *Department of Psychology, Neuroscience and Behaviour*. McMaster University, 1280 Main Street West, Hamilton, Ontario, Canada L8S 4K1. Springer Science + Business Media LLC.

Salvago, P., Ballacchino, A., Agrifoglio, M., Ferrara, S., Mucia, M., Sireci, F. (2012). Tinnitus patients: etiologic, audiologic and psychological profile. *Acta Medica Mediterranea*. 28, 171-175.

Shepard, A., Hayes, S. H., Chen, G. D, Ralli, M., & Salvi, R. (2014). Review of salicylate-induced hearing loss, neurotoxicity, tinnitus and neuropathophysiology. *Acta Otorhinolaryngol*, 34, 79-93.

Singh, D. V. (2013). Non Otologic causes of tinnitus-A review. *The South Asian journal of case report and review*, 2(6), 539-549. Retrieved online from <http://www.scopemed.org>.

Sliwinska-Kowalska, M. & Davis, A. (2012). Noise induced hearing loss. *Noise and health*, 14(61), 274-280. Retrieved in June 2013 from <http://www.noiseandhealth.org>

Smith, G. S., Romanelli-Gobbi, M., Gray-Karagrigoriou, E., & Artz, G. J. (2013). Complementary and integrative treatments: tinnitus. *US National library of medicine*. 46 (3), 389-408.

Song, J. J., De Ridder, D., Schlee, W., Van de Heyning, P., Vanneste, S. (2013). “Distressed aging”: the differences in brain activity between early- and late-onset tinnitus.

Neurobiology of aging, 1853-1863.

Sweeto, R. W. (2013). The use of fractal tones in tinnitus patient management. *Noise and health*. 15 (63). 96-100.

Sweeto, R. W. (2013, February). An integrated approach to tinnitus management.

AudiologyOnline, Article #11598. Retrieved from in March 2012 from

www.audiologyonline.com

Tucker, D. A., Phillips, S.L., Ruth, R.A., Clayton, W.A., Royster, E., & Todd, A.D. (2005).

The effect of silence on tinnitus perception. *Otolaryngol Head Neck Surgery*, 132 (1).

20-4.

Tyler, R. S. (2000). *Tinnitus handbook*. San Diego: Singular Publishing Group

Vogel, I., van de Looij-Jansen, P. M., Mieloo, C. L., Burdof, A., & de Waart, F. (2014).

Risky Music Listening, Permanent Tinnitus and Depression, Anxiety, Thoughts about Suicide and Adverse General Health. *Plos one*. 9 (6). Retrieved in October 2014 from

<http://www.plosone.org/article/info>.

- Wallhäuser-Franke, E., Brade, J., Balkenhol, T., D'Amelio, R., & Seegmüller, A., Wolfgang, B. (2012). Tinnitus: distinguishing between subjectively perceived loudness and tinnitus-related distress. *Plos one*, 7(9). Retrieved in October 2014 from <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0034583>.
- Widen, S. E., Holmes, A. E., Johnson, T., Bohlin, M., & Erlandsson, S. I. (2009). Hearing, use of hearing protection, and attitudes towards noise among young American adults. *International Journal of Audiology*, 48 (8), 537-545.
- Williams, W., Beach, E. F., Gilliver, M. (2010). Clubbing: The cumulative effect of noise exposure from attendance at dance clubs and night clubs on whole-of-life noise exposure. *Noise and health*, 12(48), 155-158.
- World Health Organization (2007). *International classification of functioning, disability and health*. Switzerland.
- Zeman, F., Koller, M., Langguth, B., Landgrebe, M. (2014). Which tinnitus-related aspects are relevant for quality of life and depression: results from a large international multicentre sample. *Biomed central*. 12 (7).

APPENDIX A: QUESTIONNAIRE

Young adults' awareness and experience of tinnitus: A survey of a

1. INFORMATION ON THE STUDY

DISCIPLINE OF AUDIOLOGY
SCHOOL OF HEALTH SCIENCES
Tel: 031 260 7438
Fax: 031 260 7622
E-mail: sitholep2@ukzn.ac.za

INFORMATION ON THE STUDY

Dear student

Are you:

- currently registered in the School of Management, IT & Governance at UKZN Westville Campus?
- between the ages of 18 and 30?

Yes? Then you have been invited to participate in an online survey as part of a post-graduate study into young adult awareness and experience of tinnitus – the ringing or buzzing sensation occurring in the ears.

Why take the survey?

- It would greatly help me as this is a key component in my master's degree in Audiology.
- It only takes up to 10 minutes of your time.
- It is totally anonymous.

Should you have any further questions about tinnitus, you will be able to access an informational pamphlet which outlines tinnitus, its effects and risk factors which you can avoid. Also, if you are experiencing tinnitus or suspect you have any other ear-related problems there is the option to contact UKZN's Audiology Clinic for a follow-up assessment.

As participation in this survey is voluntary, you may withdraw your participation at any time should you feel the need to. Remember, this is all confidential.

To get started, complete the consent form below...

I am Ms Vedika Bagwandin, a post-graduate student from the discipline of Audiology, at the University of KwaZulu-Natal (Westville campus). Your participation is greatly appreciated.

Many thanks,
Vedika Bagwandin
(Student Researcher)
B. ComPath (Audiology)
Ph: 031 2607592
Email: Bagwandinv@ukzn.ac.za

Dr. L. Joseph
(Research Supervisor)
B. Speech & Hearing Therapy(UDW)
M. ComPath (UP)
PhD (UP)
Ph: 031 2607625
Email: josephl@ukzn.ac.za

If you have any further queries, please feel free to contact:

Research Office, Westville Campus
Govan Mbeki Building

Young adults' awareness and experience of tinnitus: A survey of a

Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 – Fax: 27 31 2604609
Email: BRECE@ukzn.ac.za

***I hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.**

- Yes
 No

2.

***PLEASE CLICK ON THE APPROPRIATE BOXES**

- I declare that I am between the ages of 18-30 years
 I declare that I am a registered student in the School of Management, IT & Governance

3. PLEASE ANSWER ALL QUESTIONS IN THIS SURVEY

PLEASE CLICK ON THE MOST APPROPRIATE ANSWER FOR EACH QUESTION IN THIS SURVEY

I am:

- 18-20yrs
 21-25yrs
 26-30yrs
 30yrs and older

I am a:

- Male
 Female

Young adults' awareness and experience of tinnitus: A survey of a

Please indicate your level of study

- 1
 2
 3
 Honors
 Masters
 PHD

Other (please specify)

4.

Have you heard of tinnitus? (Ringing, buzzing, whistling noises in the ear)?

- Yes
 No

If yes, how did you learn about it?

- I have tinnitus
 A friend
 A Relative
 A General Practitioner
 A book
 A Magazine
 The internet
 Other (please specify)

Do you know how tinnitus affects people?

- Yes
 No
 Not sure

If yes (please specify)

Young adults' awareness and experience of tinnitus: A survey of a

Are you aware of what causes tinnitus?

- Yes
 No

If yes please describe

5.

Certain types of illnesses can cause tinnitus

- Strongly agree
 Agree
 Unsure
 Disagree
 Strongly disagree

Listening to high levels of noise can cause tinnitus

- Strongly Agree
 Agree
 Unsure
 Disagree
 Strongly Disagree

Certain types of medications can cause tinnitus

- Strongly Agree
 Agree
 Unsure
 Disagree
 Strongly Disagree

An injury to the head, neck or ears may cause tinnitus

- Strongly Agree
 Agree
 Unsure
 Disagree
 Strongly Disagree

Young adults' awareness and experience of tinnitus: A survey of a

Tinnitus can accompany ear related problems such as ear infections, hearing difficulty, ear related dizziness

- Strongly Agree
- Agree
- Unsure
- Disagree
- Strongly Disagree

Attending night clubs, raves and concerts with high noise levels can cause tinnitus

- Strongly Agree
- Agree
- Unsure
- Disagree
- Strongly Disagree

6.

Have you heard of hearing protection devices e.g. earplugs?

- Yes
- No

If yes, from where did you hear about it?

- Friend
- Family
- Doctor
- Internet
- Other (please specify)

7.

Young adults' awareness and experience of tinnitus: A survey of a

Hearing protection devices should be worn while attending an event with an exceedingly loud level of noise.

- Strongly Agree
- Agree
- Unsure
- Disagree
- Strongly Disagree

Frequent use of iPods/mp3 players or other personal listening devices at loud levels for a prolonged time can cause tinnitus

- Strongly Agree
- Agree
- Unsure
- Disagree
- Strongly Disagree

Do you wear hearing protection devices?

- Yes
- No

If yes, please describe

8.

Do you know of anyone who experiences tinnitus?

- Yes
- No

If yes, who?

Do you experience tinnitus?

- Yes
- No

9.

Young adults' awareness and experience of tinnitus: A survey of a

Do you know what caused the tinnitus?

- Yes
 No
 Unsure

If yes or unsure, explain

Do you still experience tinnitus?

- Yes
 No

10.

Describe the tinnitus

- Right ear
 Left ear
 Both
 Inside my head
 Outside my head
 Not sure

The tinnitus started:

- Gradually
 Suddenly

The tinnitus is:

- Continuous
 Intermittently (comes and goes)

The tinnitus occurs:

- Sometimes
 Daily
 Weekly

Young adults' awareness and experience of tinnitus: A survey of a

The tinnitus sounds like:

- Ringing
- Whistling
- Sea noise
- Crackling
- Buzzing
- Pulsating
- Other (please specify)

I find the tinnitus:

- Extremely annoying
- Severely Annoying
- Moderately Annoying
- A little Annoying
- Not at all Annoying

The tinnitus causes me to have:

- Concentration difficulty
- Sleeping problems
- Social problems
- Other (please specify)

Because of the tinnitus I tried to get help from:

- A General Practitioner (family doctor)
- An Ear, Nose and Throat specialist
- An audiologist
- I did not get any help
- Other (please specify)

Young adults' awareness and experience of tinnitus: A survey of a

I have found relief for the tinnitus after visiting the above-mentioned professional

- Yes
- No

I was given treatment regarding the tinnitus.

- Yes
- No

If yes, briefly describe what treatment was given to you regarding the tinnitus

11.

Are you doing anything to relieve the problem by yourself?

- Yes
- No

If yes, please describe what you are doing

Are you satisfied with the method you are using to relieve the noise/s?

- Yes
- No

12.

I would like to know more about tinnitus?

- Yes
- No

If yes, please specify what you would like to know more about

THANK YOU FOR PARTICIPATING IN THIS STUDY!

13.

Young adults' awareness and experience of tinnitus: A survey of a

INFORMATION ON TINNITUS

WHAT?

Tinnitus refers to sounds that a person can hear which may NOT be caused by an external sound source. This may be very distressing and distracting for some individuals. Tinnitus can affect individuals of any race, gender, social society and age.

SIGNS?

Tinnitus is perceived differently by every individual. Sounds which are commonly a sign of tinnitus may be ringing, buzzing, whistling, crackling, sea-noise, pulsating. Some sounds may be high in pitch while others are low.

CAUSES?

Some of the most common causes of tinnitus are:

- A hearing loss
- Middle ear infections
- Excessive ear wax
- Exposure to high levels of noise such like night clubs, concert, excessive use of i-pods/mp3 players, hobbies which involve high levels of noise such as shooting ranges.
- Head or neck injuries
- Medications which are harmful to the hairs cells of the ear
- Aging
- Cardiac or blood flow trouble

WHO TO SEE IF YOU HAVE TINNITUS?

- An audiologist to conduct a full hearing assessment
- An ear, nose and throat specialist
- General Practitioner / Family Doctor

WHO IS INVOLVED IN ASSESSMENT AND MANAGEMENT OF TINNITUS?

Depending on the cause the following professionals maybe involved:

- Audiologist
- Ear, Nose and Throat specialist
- Neurologist
- Psychologist
- Medical practitioner

TREATMENT FOR TINNITUS?

Depending on the cause, there are methods and strategies which may be used in order to decrease the effects of the tinnitus. Some of these strategies may be:

- Drowning out the tinnitus noise by using environmental sounds such as the sound of water, music or any other soothing sounds which you may have access to
- Tinnitus masker (a device which may be fitted onto your ear similar to a hearing aid) This device produces a sound which will help to block out the unpleasant sound of the tinnitus
- Tinnitus Retraining Therapy – the individual with tinnitus is taught to cope with the tinnitus in various ways.
- Hearing aids-In certain situations where the individual has a hearing loss, a hearing aid may assist with the hearing loss and also drown out the sound of the tinnitus.
- Medical management
- Surgical management

Should you require more information about tinnitus you may visit the following websites:

www.medicinenet.com/tinnitus/article.htm

Young adults' awareness and experience of tinnitus: A survey of a

www.tinnitustreatmentinfo.com

If you or anyone you know is suffering from tinnitus or any ear related problems, please feel free to contact the UKZN audiology clinic for further assessment. The details are as follows:

Mrs. R. Naidoo

Tel: 031 260 8986

Fax: 031 260 8984

E-mail: naidoor1@ukzn.ac.za

APPENDIX B: ETHICAL CLEARANCE PERMISSION LETTER



10 September 2013

Ms Vedika Bagwandin 200005733
School of Health Sciences
Westville Campus

Protocol reference number: HSS/0497/013M
Project title: Young adults' awareness and experience of tinnitus: A survey of a sample of students at a university in KwaZulu-Natal

Dear Ms Bagwandin

Full Approval – Expedited

This letter serves to notify you that your application in connection with the above has now been granted full approval.

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach/Methods must be reviewed and approved through an amendment /modification prior to its implementation. Please quote the above reference number for all queries relating to this study. Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

Best wishes for the successful completion of your research protocol.

Yours faithfully

Dr Shenuka Singh (Acting Chair)

/px

cc Supervisor: Dr L Joseph
cc Academic Leader Research: Professor J van Heerden
cc School Administrator: Ms P Nene

Humanities & Social Sciences Research Ethics Committee
Dr Shenuka Singh (Acting Chair)
Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban, 4000, South Africa
Telephone: +27 (0)31 260 3587/8350/4557 Facsimile: +27 (0)31 260 4609 Email: ximbap@ukzn.ac.za / sriymam@ukzn.ac.za / mohunp@ukzn.ac.za
Website: www.ukzn.ac.za

Founding Campuses: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville

INSPIRING GREATNESS



APPENDIX C: LETTER OF PERMISSION TO REGISTRAR

**DISCIPLINE OF AUDIOLOGY
SCHOOL OF HEALTH SCIENCES**

Tel: 031 260 7438

Fax: 031 260 7622

E-mail: sitholep2@ukzn.ac.za



Date:

The Registrar
University of KwaZulu-Natal

Re: Permission to Conduct Research

I am currently a post-graduate student from the discipline of Audiology at the University of KwaZulu-Natal (Westville campus). I am conducting a survey as part of my Master's Degree in Audiology. The title of the study is **Young adults' awareness and experience of tinnitus: A survey of a sample of students at a university in KwaZulu-Natal**. I have chosen the students from the College of Law and Management Studies as this college has the most number of registered students, who may represent a similar group.

Participants will be required to complete an electronic questionnaire which would take approximately ten minutes. Participants will be given a copy of the signed consent form. The study will not involve any risks and/or discomfort to the participants. I hope that the study will create the following benefits: participants will be provided with an information pamphlet outlining tinnitus, its effects and risk factors. This pamphlet will also provide information regarding who participants can visit if they or someone they know is experiencing tinnitus.

Participation in this research is voluntary and participants can withdraw at any point. In the event of refusal/withdrawal of participation, there will not be any penalty incurred or loss of benefits to which participants are normally entitled.

There will be no cost incurred as a result of participation in the study. Confidentiality will be maintained at all times. Participants, who experience tinnitus and / or hearing loss or any other ear related problems, will be given the option of contacting the researcher or UKZN audiology clinic for a follow-up assessment. Any electronic copies of the questionnaires both on the computer as well as the memory stick will be deleted and destroyed after 5 years. Only the researcher and supervisor will have access to the questionnaires. The study will

commence after it is approved by the Human and Social Sciences Ethics Committee at the University of KwaZulu-Natal as well as the University registrar.

If you have any further questions/concerns or queries related to the study, please do not hesitate to contact the researcher at 031-2607592 or email to Bagwandinv@ukzn.ac.za

Signature of student Researcher
Ms. V. Bagwandin
B. ComPath (Audiology)

Date

Dr. L. Joseph
Research Supervisor
BSHT (UDW)
M. ComPath (UP)
PhD (UP)

Date

APPENDIX D: PERMISSION FROM REGISTRAR



3 July 2013

Ms Vedika Bagwandin
College of Health Sciences
Westville Campus
UKZN
Email: bagwandinv@ukzn.ac.za

Dear Ms Bagwandin

RE: PERMISSION TO CONDUCT RESEARCH

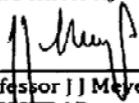
Gatekeeper's permission is hereby granted for you to conduct research at the University of KwaZulu-Natal, provided Ethical clearance has been obtained. We note the title of your research project is:

"Young adults' awareness and experience of tinnitus: A survey of a sample of students at a university in KwaZulu-Natal".

It is noted that you will be constituting your sample with a request for responses on the website. The questionnaire must be placed on the notice system <http://notices.ukzn.ac.za>. A copy of this letter (Gatekeeper's approval) together with the ethical clearance must be attached when requesting the services. You are not authorized to distribute the questionnaire to staff and students using Microsoft Outlook address book.

Please note that the data collected must be treated with due confidentiality and anonymity.

Yours sincerely



Professor J J Meyerowitz
REGISTRAR

Office of the Registrar
Postal Address: Private Bag X54001, Durban, South Africa
Telephone: +27 (0) 31 260 6005/2206 Facsimile: +27 (0) 31 260 7824/2204 Email: registrar@ukzn.ac.za
Website: www.ukzn.ac.za

APPENDIX E: INFORMATION TO PARTICIPANTS

**DISCIPLINE OF AUDIOLOGY
SCHOOL OF HEALTH SCIENCES
Tel: 031 260 7438
Fax: 031 260 7622
E-mail: sitholep2@ukzn.ac.za**



INFORMATION ON THE STUDY

Dear student

I am currently a post-graduate student from the discipline of Audiology, at the University of KwaZulu-Natal (Westville campus).

I am conducting a survey as part of my master's degree in Audiology. I would really appreciate it if you could participate in my study.

If you are between the ages of 18-30 years and are currently registered in the College of Law and Management studies at UKZN Westville campus, then you are being invited to consider participating in a study that involves research in the area of tinnitus (ring, buzzing/whistling noises in the ears). The title of the study is **Young adults' awareness and experience of tinnitus: A survey of a sample of students at a university in KwaZulu-Natal.**

The study will not involve any risks and/or discomfort to you. I hope that the study will create the following benefits: you will be provided with an information pamphlet outlining tinnitus, its effects and risk factors. This pamphlet will also provide information regarding who you can visit if you or someone you know is experiencing tinnitus. Should you experience tinnitus and / or hearing loss or any other ear related problems, will be given the option of contacting the researcher or UKZN audiology clinic for follow-up assessment. Participation in this research is voluntary and you are can withdraw your participation at any point. In the event of refusal/withdrawal of participation, you will not incur penalty or loss of benefits to which you are normally entitled. The informational pamphlet on tinnitus can be accessed once you complete the questionnaire or on the following link, if you choose not to participate in the study. There will be no cost incurred as a result of participation in the study. Confidentiality will be maintained at all times.

If you choose to participate in the study, you will not be required to provide your name on the questionnaire. The consent form will be stored separately from the questionnaires in a secure and locked cabinet in the researcher's office and you will receive a copy of the signed consent form. All questionnaires will be shredded after 5 years. Any electronic copies of the research both on the computer as well as the memory stick will be deleted and destroyed after 5 years. Only the researcher and supervisor will have access to the questionnaires. If you choose to participate in the study, please complete the consent form which follows.

Thereafter, you will be able to access the questionnaire. Please click on the box to confirm that you understand the information above.

I have read and understand the above information about the study

Vedika Bagwandin
(Student Researcher)
B. ComPath (Audiology)

Dr. L. Joseph
(Research Supervisor)
BSHT (UDW)
M. ComPath (UP)
PhD (UP)

If you have any further queries, please feel free to contact:

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 – Fax: 27 31 2604609
Email: BRECE@ukzn.ac.za

The researcher:
Tel: 031-260 7592 / 8986
Email: Bagwandinv@ukzn.ac.za

APPENDIX F: PARTICIPANT CONSENT FORM

**DISCIPLINE OF AUDIOLOGY
SCHOOL OF HEALTH SCIENCES**

Tel: 031 260 7438

Fax: 031 260 7622

E-mail: sitholep2@ukzn.ac.za



CONSENT

I.....(full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire. I have been informed about the study entitled **Young adults' awareness and experience of tinnitus: A survey of a sample of students at a university in KwaZulu-Natal**, by Vedika Bagwandin.

Please also note you will have to be between 18-30 years and registered in the College of Law and Management Studies in order to participate in the study. Please provide the information below by clicking on the appropriate box.

- I understand the purpose of the study
- I provide consent to participate in the study and declare my participation in this study is entirely voluntary and that I may withdraw at any time without any penalty in any way.
- I declare that I am between the ages of 18-30 years
- I declare that I am a registered student in the College of Law and Management Studies

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at 031-2607592 or Bagwandinv@ukzn.ac.za

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 – Fax: 27 31 260460

TINNITUS

WHAT?

Tinnitus refers to sounds that a person can hear which may not be caused by an external sound source. This may be very distressing and distracting for some individuals. Tinnitus can affect individuals of any race, gender, social society and age.

SIGNS?

Tinnitus is perceived differently by every individual. Sounds which are commonly a sign of tinnitus may be ringing, buzzing, whistling, crackling, sea-noise, pulsating. Some sounds may be high in pitch while others are low.

CAUSES?

Some of the most common causes of tinnitus are:

- Exposure to high levels of noise such like night clubs, concert, excessive use of i-pods/mp3 players, hobbies which involve high levels of noise such as shooting ranges.
- A hearing loss
- Middle ear infections
- Excessive ear wax
- Head or neck injuries
- Medications which are harmful to the hairs cells of the ear
- Aging
- Cardiac or blood flow trouble

WHO TO SEE IF YOU HAVE TINNITUS?

- An audiologist to conduct a full hearing assessment
- An ear, nose and throat specialist
- General Practitioner / Family Doctor

WHO IS INVOLVED IN ASSESSMENT AND MANAGEMENT OF TINNITUS?

Depending on the cause the following professionals maybe involved:

- Audiologist
- Ear, Nose and Throat specialist
- Neurologist
- Psychologist
- Medical practitioner

TREATMENT FOR TINNITUS?

Depending on the cause, there are methods and strategies which may be used in order to decrease the effects of the tinnitus. Some of these strategies may be:

- Drowning out the tinnitus noise by using environmental sounds such as the sound of water, music or any other soothing sounds which you may have access to
- Tinnitus masker (a device which may be fitted onto your ear similar to a hearing aid) This device produces a sound which will help to block out the unpleasant sound of the tinnitus
- Tinnitus Retraining Therapy – the individual with tinnitus is taught to cope with the tinnitus in various ways.
- Hearing aids-In certain situations where the individual has a hearing loss, a hearing aid may assist with the hearing loss and also drown out the sound of the tinnitus.
- Medical management
- Surgical management

Should you require more information about tinnitus you may visit the following websites:

www.medicinenet.com/tinnitus/article.htm

www.tinnitustreatmentinfo.com

[If you or anyone you know is suffering from tinnitus or any ear related problems, please feel free to contact the UKZN audiology clinic for further assessment. The details are as follows:](#)

[Mrs. R. Naidoo](#)

[Tel: 031 260 8986](#)

[Fax: 031 260 8984](#)

[E-mail: naidoor1@ukzn.ac.za](mailto:naidoor1@ukzn.ac.za)