

Review Article

Vocational implications of tinnitus: Considerations for rehabilitation professionals

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Revised/Accepted November 2017

Abstract.

OBJECTIVE: The purpose of this article is to provide information about tinnitus to rehabilitation counselors and rehabilitation professionals and to discuss the possible impact of tinnitus on employment.

CONCLUSION: While the research on psychological aspects of tinnitus and on psychological interventions is expanding rapidly, little research has been published about the kinds of accommodations that may be useful for tinnitus. This article will focus on the vocational implications of tinnitus and will provide suggestions to help rehabilitation counselors and allied-health professionals assist individuals with tinnitus in the context of work settings.

Keywords: Tinnitus, work, employment, accommodations, rehabilitation

1. Introduction

Tinnitus is the perception of sound without external acoustic stimuli. While often described as a “ringing in the ears,” the subjective experience can differ greatly among those who experience tinnitus. Individuals may report experiencing buzzing, roaring, hissing, or pulsing noises as well. Individuals may also present with chronic or acute tinnitus. Chronic tinnitus is often characterized by ongoing perception of tinnitus sounds for more than six months, while acute tinnitus is often experienced for much shorter lengths of time, often ranging from a few seconds to a few hours (Han, Lee, Kim, Lim, & Shin, 2009; Møller, Langguth, DeRidder, & Kleinjung, 2010). It is important to make the distinction between acute

vs. chronic tinnitus as quality of life is more often impacted in those who experience chronic tinnitus. In many cases, individuals with acute tinnitus may experience little to no interference in their daily life and may never seek treatment for their tinnitus (Stobik, Weber, Münte, Walter, & Frommer, 2005).

Statistics regarding the prevalence of tinnitus show that a large portion of the population has experienced tinnitus. According to one research group, approximately 30 million people in the U.S. have chronic tinnitus (Bhatt, Lin, & Bhattacharyya, 2016) and according to a different research group, 16 million adults in the U.S. report experiencing frequent tinnitus (Shargorodsky, Curhan, & Farwell, 2010). Tinnitus is also currently the top reported service-connected disability for Veterans (Veterans Benefits Administration, 2016). It is important to note that tinnitus is not hearing loss. While many individuals with tinnitus may also have hearing loss or other hearing

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impairments, each condition presents different challenges and therefore requires different management techniques.

Although the number of research studies on tinnitus is rapidly expanding, few articles appear to address the impact of tinnitus on work. While recent professional guidelines for tinnitus (Tunkel et al., 2014) note that it can affect functioning in the workplace, there is a paucity of professional advice (e.g., on accommodations) for helping individuals with tinnitus function better in the workplace. At the present time, the U.S. Department of Labor's Job Accommodations Network website (i.e., in the "Accommodation information by disability" section) does not provide accommodation information for tinnitus. Evidence-based vocational interventions and accommodations for auditory-related disorders primarily focus on the needs of individuals with hearing loss (Gussenhoven et al., 2013) rather than tinnitus.

Due to higher usage of sick leave, difficulty entering or re-entering the labor market, and presenteeism (i.e. being present at work but with hindered work productivity), hearing impairments, including tinnitus, present a large economic cost to society and employers (Hasson, Theorell, Benka Wallén, Leineweber, & Canlon, 2011; Hasson, Theorell, Westerlund, & Canlon, 2010; Mohr et al., 2000). Research has shown that tinnitus that impacts work activities is also linked to lower quality of life (Zeman, Koller, Langguth, Landgrebe, & group, 2014). For these reasons, an understanding of tinnitus-specific vocational issues and possible accommodations is essential for vocational rehabilitation providers, in order to facilitate positive rehabilitation outcomes for those who experience distressing tinnitus.

This present article first will briefly overview the prevalence of tinnitus and its causes, and then will review the possible concomitant psychological issues and the possible vocational implications of having tinnitus. This article will conclude with tinnitus-specific vocational advice and suggestions for accommodations, as well as four scenarios to illustrate the use of accommodations for tinnitus in the workplace.

1.1. Prevalence

Statistics regarding prevalence vary significantly due to the lack of a standard definition for tinnitus across the various research studies, as well as the varying severity for those who experience tinnitus.

Many individuals may never seek out treatment for their tinnitus due to the fact that they do not find it distressing (Dobie, 2004). Therefore, these individuals are less likely to be recruited for surveys or other research studies and are not represented in these statistics. Estimates vary from as low as 2.4% of the population to as high as 30% of the population (Allman, Baizer, Salvi, & Lobarinas, 2013; Heller, 2003; Møller, Langguth, DeRidder, & Kleinjung, 2010). The 1996 National Health Interview Survey (NHIS) found that 2-3 million adults in the U.S. experienced tinnitus that was severely debilitating (Adams, Hendershot, & Marano, 1999). Shargorodsky and colleagues (2010) found that approximately 50 million U.S. adults report experiencing tinnitus of any kind and 16 million of those individuals report experiencing frequent tinnitus. Tinnitus is also the top service-connected disability for Veterans, comprising 7.4% of all disability claims within the VA (Department of Veterans Affairs, 2016).

Decades of research has shown a higher rate of tinnitus among men than women (Hasson, Theorell, Westerlund, & Canlon, 2010; Nelson, Nelson, Conchita-Barrientos, & Fingerhut, 2005; Wallhagen, Strawbridge, Cohen, & Kaplan, 1997). It is also more prevalent among those 65 and older, and research estimates that over a third of the 65 and older population may experience tinnitus (Mattox, 2006). However, other studies have found that after the age of 69, prevalence of tinnitus actually decreases with age (Nondahl et al., 2002; Shargorodsky, Curhan, & Farwell, 2010). Some researchers posit the reason for this decline may be related to increased rates of cardiovascular health concerns among those with tinnitus and therefore increased mortality rates at younger ages (Nondahl et al., 2002).

1.2. Causes and treatment of tinnitus

1.2.1. Causes

The exact cause of tinnitus is unknown but some researchers theorize that mechanisms within the central auditory pathways may be involved (Han, Lee, Kim, Lim, & Shin, 2009). However, numerous risk factors for tinnitus have been identified, which include occupational noise exposure, toxin exposure, non-occupational noise exposure, use of certain drugs or medications, ontological diseases, history of middle ear or sinus infections, and head and/or neck injuries (Gopinath, McMahon, Rohtchina, Karpa, & Mitchell, 2010; Hoffman & Reed, 2004). According to Gopinath, McMahon, Rohtchina, Karpa,

and Mitchell (2010), an increased risk for tinnitus can be found among individuals with a hearing impairment. Their research also found that this risk rises with increased severity of the hearing impairment.

At present, tinnitus is an incurable symptom indicating neural damage (Allman, Baizer, Salvi, & Lobarinas, 2013; Han, Lee, Kim, Lim, & Shin, 2009). Individuals may present with chronic (tinnitus that occurs frequently or constantly for at least 6 months) or acute (tinnitus that occurs infrequently or occurs after excessive noise exposure and lasts minutes to days after the exposure) tinnitus (Han, Lee, Kim, Lim, & Shin, 2009; Møller, Langguth, DeRidder, & Kleinjung, 2010). Research has found a correlation between tinnitus severity and increased number of other health problems. These health problems may include headaches, dizziness, and insomnia (Erlandsen & Holgers, 2001).

1.2.2. Treatment

Research has yet to discover a cure for tinnitus but many different treatment methods have been studied with varying results. Treatment methods may include medical approaches (Tunkel et al., 2014), as well as psychological approaches (e.g., cognitive behavioral therapy or stress-reduction therapies; Hesser, Weise, Westin, & Andersson, 2011; Hoare, Kowalkowski, Kang, & Hall, 2011; Martinez-Devesa, Perera, Theodoulou, & Waddell, 2010; Ruth & Hamil-Ruth, 2001). Vitamins and herbal supplements, including zinc, melatonin, and ginko biloba, have also been used in the treatment of tinnitus. However, there is a lack of scientific evidence pointing to their efficacy in the treatment of tinnitus at this time (Enrico, Sirca, & Mereu, 2007), and professional guidelines (Tunkel et al., 2014) do not recommend use of these supplements to treat chronic tinnitus.

The usual care for individuals who seek treatment for tinnitus often involves a multidisciplinary team, including visits with a primary-care provider, ear, nose, and throat (ENT) specialist, and an audiologist (Tunkel et al., 2014). In particular, the role of the audiologist is crucial to any treatment plan for tinnitus. Audiologists will assess possible concomitant hearing loss and the appropriateness of using hearing aids as one type of treatment for tinnitus. For many individuals with tinnitus, hearing aids can be of great benefit to them because the increased auditory input from the hearing aids can lead to reduced awareness of tinnitus (Andersson,

2009). Auditory therapies also may include the use of sound therapy (Tunkel et al., 2014). However, for many individuals with tinnitus, consultation with these providers alone is often not enough to address all the concerns that these individuals may encounter. Psychosocial, emotional, and vocational concerns may not be adequately addressed by these practitioners and additional referrals may be needed (Hétu & Getty, 1991; Jennings & Shaw, 2008).

It is also important to assess an individual's treatment history when assessing their specific needs. If an individual has already tried different treatments and interventions, determining what worked and what did not work for them can give insight into which interventions and accommodations may prove most beneficial in their vocational rehabilitation process (Moroe & Khoza-Shangase, 2014).

1.3. Psychosocial issues related to tinnitus

The psychosocial impact of tinnitus varies greatly for individuals and is often not linked to the quality of the sound (i.e. loudness or pitch) or length of time that someone has experienced tinnitus. Personal characteristics, such as resiliency and ability to cope, may have the most impact on whether or not an individual experiences their tinnitus as distressing or not (Gopinath, McMahon, Rochtchina, Karpa, & Mitchell, 2010). Specific psychological issues related to tinnitus are covered in the "Thoughts and Emotions" section. Language and culture may also play a role in how an individual understands, conceptualizes, manages, and accepts tinnitus (Moroe & Khoza-Shangase, 2014).

Individuals with 'bothersome' tinnitus (i.e., tinnitus that is distressing and/or negatively impacts quality of life; American Academy of Otolaryngology-Head and Neck Surgery, 2017) report difficulties with attention. Difficulties with attention may affect not only work situations, but also social interactions. Such individuals may report a reduced ability or desire to interact with other people, which may affect multiple areas of an individual's life, from their interactions with family or friends to coworkers or work supervisors. Social withdrawal is not uncommon in these situations and can often be associated with depression (Gopinath, McMahon, Rochtchina, Karpa, & Mitchell, 2010).

When examining the associations with the item "interference with job or household responsibilities" from the Tinnitus Handicap Inventory (THI; Newman, Jacobson, & Spitzer, 1996), researchers found

that this item significantly predicted three quality of life domains of physical health, psychological health, and environment, as well as depression scores (Zeman, Koller, Langguth, Landgrebe, & group, 2014). Overall, the issues that reflected the highest impact on individuals' quality of life and depression, as reported in this study, were interference with work or household activities, sleep, or feeling confused or upset by their tinnitus.

Individuals with tinnitus may also encounter similar instances of stigma as individuals who experience other chronic conditions. Since tinnitus is an invisible condition, individuals with tinnitus may worry that individuals will not believe them; or because the condition is not visible to others, they may expend more energy trying to hide the impact that tinnitus has on their daily lives (Danermark & Gellerstedt, 2004; Friberg, Rosenhall, & Alexanderson, 2013; Joachim & Acorn, 2000). Individuals who choose not to disclose having an invisible condition (i.e., tinnitus) to others may often do so with the belief that this information will receive negative reactions from others. This fear of being stigmatized may also lead individuals to lessen their interaction with others in order to avoid encountering negative reactions to their tinnitus. This social withdrawal can have larger effects in terms of poorer tinnitus rehabilitation outcomes (Danermark & Gellerstedt, 2004).

Counseling, whether group or individual, is often recommended for individuals with tinnitus, in order to help individuals to better cope with and adapt to having tinnitus (Tunkel et al., 2014). Counseling interventions that engage family members may also be recommended (Henry, Zaugg, Myers, Kendall, & Turbin, 2009). Moroe and Khoza-Shangase (2014) suggest that tinnitus assessment tools such as the Tinnitus Handicap Inventory (THI; Newman, Jacobson, & Spitzer, 1996) or the Tinnitus Functional Index (TFI; Meikle et al., 2012) may be utilized to help individuals and their family members understand how tinnitus may impact daily life. A better understanding of tinnitus impact may allow family members to provide more effective support.

2. Impact on functioning and work activities

The idea of presenteeism, being present at work but non-productive due to a variety of issues, has been linked to hearing impairments, including tinnitus, and their effect on work activities (Hasson, Theorell,

Benka Wallén, Leineweber, & Canlon, 2011). Presenteeism presents an enormous cost to society in terms of reduced worker productivity. Absenteeism can also affect employment: One study of Swedish workers found a link between tinnitus and increased sick leave usage, as well as a higher proportion of disability pensions granted (Friberg, Rosenhall, & Alexanderson, 2013). Tunkel et al. (2014, p. S5) suggested that four main functional areas can be impaired by tinnitus, including: (a) thoughts and emotions, (b) hearing, (c) sleep, and (d) concentration.

2.1. Thoughts and emotions

Previous research has noted that individuals with tinnitus may experience depression and anxiety (Bartels, Middel, van der Laan, Staal, & Albers, 2008; Bhatt, Bhattacharyya, & Lin, 2016; Krog et al., 2010; Marciano et al., 2003; McCormack et al., 2015). While Seo and colleagues (2016) found an association between suicidal behavior and tinnitus (i.e., both suicidal ideation and suicide attempts, but not completed suicide), Martz et al. (in press) found that Veterans with tinnitus had a lower likelihood of suicide (completion) than Veterans without tinnitus among individuals who received healthcare from the Veterans Administration.

Individuals may experience distress over having tinnitus, which is why counseling or psychotherapy is recommended (Tunkel et al., 2014). Due to the fact that there is no cure for most cases of tinnitus, psychotherapy or counseling that includes cognitive behavioral interventions or stress-reduction therapies (Hesser, Weise, Westin, & Andersson, 2011; Hoare, Kowalkowski, Kang, & Hall, 2011; Martinez-Devesa, Perera, Theodoulou, & Waddell, 2010) or brief interventions that help build individuals' coping skills can also help individuals with their expectations and beliefs about living with tinnitus (Martz, Chesney, Livneh, Jelleberg, Fuller, & Henry, submitted). Counseling not only provides a setting in which information about tinnitus can be disseminated, but within group settings, individuals can feel supported by and learn from others who have had similar experiences (Gussenhoven et al., 2013).

2.2. Hearing

Jobs involving frequent communication with others, whether it is with coworkers, supervisors, clients, or customers, may create additional difficulties due to the fact that many individuals with

tinnitus report their tinnitus can interfere with their ability to concentrate on tasks, including maintaining conversations. Additionally, individuals with tinnitus and hearing impairments often report feeling a lack of control in their workplace, difficulty functioning within a noisy work environment, and increased concerns regarding job safety, along with disability stigma associated worries that include fear of loss of job due to their disability (Jennings & Shaw, 2008; Morata et al., 2005). Often this work-related distress can lead to more sick leave and even early retirement (Danermark & Gellerstedt, 2004). Audiological-related accommodations are mentioned in the "Audiological Support and Accommodations" section.

2.3. *Sleep and concentration*

Associations between tinnitus and fatigue, insomnia, depression, and reduced cognitive functioning have long been noted in the research literature (Folmer & Griest, 2000; Folmer, Griest, Meikle, & Martin, 1999; Hallam, McKenna, & Shurlock, 2004; Langguth et al., 2007; Rossiter, Stevens, & Walker, 2006). Individuals with tinnitus also often experience fatigue and distress due to the need to constantly adapt and compensate for their disability (Héту & Getty, 1991). Each of these issues associated with tinnitus has also been linked to increased risk for work injuries (Arlinghaus, Lombardi, Willetts, Folkard, & Christiani, 2012; Vetter & Symonds, 2010). According to Hallam, McKenna, and Shurlock (2004), tinnitus itself may also increase the risk of work injury. One reason for this is that because of tinnitus' internally-generated sounds unrelated to the work environment, tinnitus may distract or interfere with an individual's ability to discern workplace sounds that signal danger or risk.

Individuals with tinnitus will often report experiencing difficulties with concentration. Many individuals with tinnitus state it can be difficult to focus on conversations with others, or that reading in a quiet room often leads to being distracted by tinnitus (Baigi, Oden, Almlid-Larsen, Barrenäs, & Holgers, 2011). An individual's ability to focus attention away from their tinnitus may be especially difficult during times when their tinnitus becomes more severe and distressing. Increased stress may contribute to a perception of increased tinnitus severity and therefore, stressful work environments may further contribute to tinnitus severity and decreased work productivity (Andersson, 2009).

3. **Rehabilitation considerations and accommodations for tinnitus**

Numerous tinnitus assessments and questionnaires include at least one item that aims to assess tinnitus interference with work activities, including the aforementioned THI and the TFI, as well as the Tinnitus Reaction Questionnaire (TRQ; Wilson, Henry, Bowen, & Haralambous, 1991). Yet, few sources provide work accommodation suggestions for tinnitus and how to help individuals with tinnitus better function in work settings. As stated previously, individuals seeking treatment for tinnitus will often be referred to primary-care providers, audiologists, and ENT specialists. However, when tinnitus interferes with work activities, these professionals may not have the adequate training required to assist individuals with these concerns. Therefore, it is imperative that multidisciplinary interventions that include vocational rehabilitation be considered when creating a treatment plan for individuals with tinnitus.

3.1. *Multidisciplinary interventions*

Multidisciplinary approaches for tinnitus-related rehabilitation suggest treatment that addresses multiple areas in which an individual may be experiencing distress (Gussenhoven et al., 2013; Tunkel et al., 2014). Interventions may include the use of assistive technology, work accommodations, skills training in coping and communication skills, and building a supportive relationship with coworkers and supervisors. Tinnitus-specific interventions that include vocational rehabilitation providers not only can reduce societal costs due to presenteeism, absenteeism, early retirement, and disability pensions, but can also lead to better rehabilitation outcomes and quality of life for individuals with tinnitus (Gussenhoven et al., 2013). Interventions for tinnitus may include the use of assistive technology, work accommodations, skills training in coping and communication skills, and building a supportive relationship with coworkers and supervisors.

Yet, interventions for tinnitus that only have a singular focus on how the individual can adapt to their environment, such as interventions that only recommend the use of hearing aids or sound machines, are not ideal, as these approaches imply that work adaptation is the sole responsibility of the worker, instead of viewing vocational functioning as a complex interaction among multiple work aspects. Interventions can be targeted at a micro-level (e.g., at an

individual level by the employee using sound therapy techniques to assist with turning their attention away from their tinnitus), meso-level (e.g., by addressing workplace culture to advocate for more work flexibility including overall office environments changes), and macro-level (e.g., by the employee accessing resources outside of the workplace, such as vocational rehabilitation counselors to assist with workplace accommodations or finding employment that is a better fit), in order to meet each individual's specific needs (Gussenhoven et al., 2013). The macro-level may also include legal recourse when attorneys are needed to intervene on a client's behalf if an employer violates accommodation laws under the Americans with Disabilities Act.

3.2. *Audiological support and accommodations*

If an individual with tinnitus has not already met with an audiologist, it may be advantageous for the vocational rehabilitation counselor to facilitate this referral. An audiologist can address the assistive technology (e.g., hearing aid assessment and use) side of tinnitus rehabilitation. For example, some hearing aids also have sound generator functions that produce white noise or other sounds to help individuals with tinnitus (Tunkel et al., 2014), which can help individuals better function in the workplace. Another type of accommodation which can be useful in quieter work environments is the use of sound therapy (e.g., interesting, soothing, and background sounds) to help draw an individual's attention away from the sound of their tinnitus (Henry, Zaugg, Schechter, & Myers, 2008). Sound enrichment (i.e., adding sound to their environment) is often taught to individuals with tinnitus as a means of decreasing distraction due to tinnitus, or internally-generated, sound. Sound enrichment devices can include the use of sound machines, audio players, fans, television, radio, computer tablets and Smartphones (Tunkel et al., 2014).

3.3. *Psychosocial support for workplace issues*

As previously noted, numerous studies have linked depression and anxiety with severe tinnitus, therefore, it is important to assess if an individual requires additional mental-health counseling (Erlandsson, 2000; Van Veen, Jacobs, & Bensing, 1998). In cases when mental health concerns are more severe, working on vocational rehabilitation goals may need to be postponed until mental health symptoms are addressed.

Psychosocial and emotional stressors may be present within an individual's work environment, due to workplace dynamics. Vocational counselors may not only play a role in assessing physical work accommodations, but may also act as advocate on behalf of their clients. Individuals with tinnitus may encounter barriers when trying to communicate how their tinnitus affects them on a daily basis. Because there is no objective test for tinnitus and severity can vary greatly for every individual, coworkers and supervisors may have difficulty understanding the full impact of tinnitus. If requested by their clients, vocational counselors can assist in facilitating conversations between coworkers and supervisors that allow for their client to feel more supported within their work environment (Gussenhoven et al., 2013).

3.4. *Environmental considerations for accommodations*

Environmental factors play an important role in workplace distress. Noisy work environments may impact tinnitus severity and make it more difficult for an employee with tinnitus to communicate with others or complete their job duties (Rubak et al., 2008). However, work environments that are too quiet may also make it difficult for an employee to cope with their tinnitus (Gussenhoven, Anema, Goverts, Bosmans, Festen, & Kramer, 2012; Gussenhoven et al., 2013). In quieter environments, individuals may find that their tinnitus is more noticeable and therefore can be more distracting.

Hearing conservation programs often recommend the use of hearing protection for career fields where workers will encounter loud noise levels for extended periods of time (e.g., jobs within manufacturing plants, military service jobs, and jobs which use heavy machinery). While hearing protection devices have been shown to reduce the risk for noise-induced hearing loss and the onset of tinnitus, self-reports from individuals who already have tinnitus indicate that tinnitus annoyance may increase when using these devices (Cantley et al., 2015). When using these devices, individuals may find that they notice their tinnitus more due to the fact that they are no longer receiving additional auditory stimuli from their environment. Devices which not only protect hearing but also include the ability to stream other sounds (i.e. soothing, interesting, and background sounds) may be especially useful for employees with tinnitus who also require hearing protection at their workplace (Henry, Zaugg, Myers, Kendall, & Turbin, 2009).

One concern that must be addressed before recommending use of these devices is assessing the on-the-job communication needs of the employee (Cantley et al., 2015). These devices may hinder an individual's ability to communicate with coworkers. This may cause tension between workers or even pose a safety risk. As with all accommodation-related suggestions, it is important to make sure each accommodation is appropriate for the workers and their workplace environment.

3.5. *Other workplace accommodations*

Kramer (2008) suggests additional workplace accommodations aimed at restructuring schedules and eliminating non-essential work tasks to help alleviate some of the distress workers with disabilities may encounter during their workday. Assertiveness and communication training may also be useful for individuals who feel they have difficulty communicating their needs to their coworkers or supervisors. Many individuals with tinnitus may express feeling a lack of control over their tinnitus and how it affects them. Skills training aimed at empowerment may help reduce this feeling of helplessness (Getty & Héту, 1991; Lalande, Riverin, & Lambert, 1988; Ringdahl et al., 2001). While these studies focused on employees with hearing loss, the suggested accommodations aim to address experiences (i.e. feelings of stress, helplessness, or lack of control) that can be common for many employees, including those with tinnitus.

Research has been conducted into the use of Vocational Enablement Protocols (VEP) for hearing impaired employees (Gussenhoven et al., 2012, 2013). While these studies focused on the impact of hearing loss within the workplace, the structure of the VEP programs may provide a starting point for future research on the use of VEP programs for employees with tinnitus. VEP address the various disability factors found within the International Classification of Functioning, Disability, and Health (ICF) disability framework. The ICF framework posits that disability and functioning are a complex interaction between an individual's health condition, daily and leisure activities, environmental factors, personal factors, and interactions with others (World Health Organization, 2001). Therefore, VEP propose a multidisciplinary approach to vocational rehabilitation, which addresses the individual's health condition and functioning (auditory assessment), personal characteristics, workplace environment, and job duties

(Kramer, 2008). While the use of VEP primarily has been focused on employees who have hearing loss, research into the application of VEP programs adapted for tinnitus should be explored. Vocational rehabilitation counselors may also benefit from using the ICF framework to help conceptualize their client's experience with tinnitus and therefore their vocational needs. ICF breaks down disability into three levels: the bodily impairment (body level), activity limitation (person level), and participation restriction (society level). Using this framework, counselors can address accommodations and interventions at each level (Ramkumar & Rangasayee, 2010).

While the primary vocational rehabilitation goal should be to help individuals with tinnitus retain their current job, there are some vocations in which an individual may not be able to continue working. Just as the experience of tinnitus can vary greatly, each individual's course of vocational rehabilitation will vary greatly as well. Some individuals may be able to tolerate jobs that have louder noise levels; whereas others may find that their tinnitus severity increases to an unbearable level when exposed to louder noise (Rubak et al., 2008). In some cases, it may not be so much a concern about tinnitus severity as it is a safety concern. In occupations that require unimpeded auditory senses, tinnitus may pose an increased risk of injury on the job (Jennings & Shaw, 2008; Kramer, 2008; Morata et al., 2005). In cases where a change of occupation is warranted, additional career counseling and support with a focus on tinnitus impact may be needed to aid in the transition to another job or career.

4. **Accommodation examples**

4.1. *Situation*

A vocational rehabilitation client reports experiencing distressing tinnitus. She works in an open office environment and finds that the noise within that environment increases her perception of her tinnitus. She states that it is often difficult for her to concentrate because she is unable to switch her focus away from her tinnitus and the office noises to the tasks she must complete at work.

4.2. *Solution*

The client's employer allowed her to wear headphones to listen to sounds other than the office noise. The client reports that this has allowed her to use

sounds that she finds soothing. As a result, she finds that she notices her tinnitus less and is better able to concentrate on her work tasks.

4.3. *Situation*

A vocational rehabilitation client works as a supervisor on the floor of a production plant. Years of working in loud conditions have led to hearing loss and tinnitus. He reports having trouble maintaining conversations with other workers because his hearing loss and tinnitus make it hard to hear certain sounds, as well as concentrate on what others are saying. This client must be able to communicate effectively with those he supervises in order to maintain work productivity and workplace safety.

4.4. *Solution*

This client was referred to an audiologist who assessed him for hearing aids and provided education on hearing protection options. The client was outfitted with appropriate hearing protection to reduce further hearing damage as well as hearing aids. He reports that the hearing aids have both helped his ability to hear conversations as well as reduced his tinnitus impact by providing more auditory-related information and stimuli, which seem to lessen the tinnitus intensity. He wears his hearing protection device as much as possible while on the production floor and is able to go to a quieter office when longer conversations with employees are needed. Due to work safety being a concern if the client was unable to hear an alarm go off, he was fitted with a vibrating pager that was linked to the alarm system.

4.5. *Situation*

A vocational rehabilitation client has returned from three tours of duty in the U.S. Army. He was stationed in both Afghanistan and Iraq. He and his squad experienced exposure to multiple improvised explosive devices (IED). In one incident, two of his team died because of an IED, while he sustained a traumatic brain injury (TBI). Since returning to the U.S. five years ago, he has been unable to maintain a job. He reports experiencing constant tinnitus and admits drinking six beers every day.

4.6. *Solution*

A referral to audiology was made to check for hearing loss, as well as to a specialist in tinnitus, who

can teach him about use of sound enrichment for tinnitus. This client was also referred for neuropsychological testing (for the TBI), and for psychological assessment (for possible substance abuse concerns, depression, posttraumatic stress disorder, and suicidal ideation). During the psychological assessment, client disclosed using alcohol to help cope with memories of the traumatic events he experienced as well as his tinnitus. Client was referred to a mental health provider for ongoing counseling.

4.7. *Situation*

A vocational rehabilitation client is a female who reports that she cannot sleep at night due to her tinnitus. She wakes up exhausted and also reports that she has difficulty concentrating at work. She has been put on probation at work, due to poor performance.

4.8. *Solution*

The client was referred to a multidisciplinary team who specializes in treating tinnitus. This team assessed her hearing levels and collected information about her tinnitus history. She was offered group sessions that utilized cognitive-behavioral techniques. She was also taught how to use sound therapy to turn her attention away from her tinnitus.

5. **Conclusion**

Few studies have been conducted about the impact of tinnitus on individuals' abilities to work, and of those studies, few offer ideas on accommodations that may help individuals maintain employment while having tinnitus. This article provided an overview of the functional impact of tinnitus, as well as the types of interventions and accommodations that should be considered by rehabilitation providers. Given the prevalence of tinnitus in the general population and the fact that tinnitus is the most prevalent service-connected disability in the U.S., then specific research needs to be conducted that examines the issues and barriers to work experienced by individuals with tinnitus. The results from such studies can inform the types of accommodations that will help individuals with tinnitus flourish in the workplace.

Conflict of interest

None to report.

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