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ORIGINAL ARTICLE

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The dizzying cycle: a qualitative study showing the effects of vestibular disorders and stress on work experience

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ABSTRACT

Objective: Quantitative studies have explored the work abilities of persons with specific vestibular-related symptoms, but there seems to be a dearth of research that has explored the work experience of persons-with- vestibular- disorders, so this qualitative study explored this phenomenon.

Design: Audio-recorded semi-structured interviews were conducted online. Thematic analysis was used to analyse the transcripts. Together, two researchers coded the transcripts and deductively identified the main themes on the main components of the expanded International Classification of Functioning, Disability, and Health scheme, and thereafter generated the sub-themes inductively.

Study sample: Fourteen people with various vestibular disorders and occupations in South Africa participated in the study.

Results: Participants reported having difficulty performing work-related tasks requiring attention to detail and ambulation, and work environmental conditions triggered their vestibular-related symptoms. Some participants received time off from work and support from their supervisors and colleagues, while others did not. Seeking mental services allowed them to overcome their negative feelings, medication suppressed their vestibular-related symptoms, and vestibular rehabilitation allowed them to focus on their work.

Conclusion: Vestibular-related symptoms may hinder persons- with- vestibular- disorders from completing and participating in work-related activities, which may result in them experiencing negative feelings. The nature of some of the work-related tasks that they need to complete and experiencing negative feelings may trigger their vestibular-related symptoms. Together, the work-related activity limitations, participation restrictions, and environmental and personal factors may cause persons- with- vestibular- disorders to experience disability in their workplaces. To prevent this potential disability, persons with vestibular disorders should be supported by and receive workplace accommodations. Furthermore, they should be enrolled into work rehabilitation programmes that include, vestibular rehabilitation, medication regimens, and mental health services.

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Persons-with-vestibular-disorders; work experiences; expanded ICF scheme; disability; South Africa

Introduction

Vestibular-related symptoms have been shown to affect peoples' ability to work to the extent that they needed to quit, change, or modify their jobs as a result of their symptoms (Bronstein et al. 2010; Yardley et al. 1998; Benecke et al. 2013). Yardley et al. (1998) found that 40% of their participants who presents with dizziness experienced work-related difficulties. Additionally, Benecke et al. (2013) looked at the economic burden of vertigo. They collected data through a non-interventional registry of vertigo patients from various countries: Algeria, Czech Republic, Egypt, Germany, Hungary, Lithuania, Malaysia, Morocco, Russia, Slovenia, South Africa, Tunisia, and Ukraine Approximately, 50% of the participants in Benecke et al. (2013) study were employed, while 31.6% were retired, 10% were unemployed, and 4.5% of the participants documented their status as "other". Of those participants who were employed, 70% reported that they had reduced their workload and 63% had lost as many as 14 working days within the first three months of their first visit. A similar finding was also obtained by Neuhauser et al. (2008) who aimed to provide insight into the burden of dizziness and vertigo in Germany. One-thousand-and-three participants' participated in Neuhauser et al. (2008) study. Two-hundred-and-forty-three of the participants presented with vertigo, while 742 presented with non-vestibular dizziness. Neuhauser et al. (2008) found that 40.6% of the 243 participants that presented with vertigo required sick leave, while only 14.7% of the 742 participants that presented with non-vestibular dizziness required sick leave. Bronstein et al. (2010) who looked at the impact of vertigo on work productivity in London and Siena found that 27% of the 43 participants that had presented with dizziness reported changing jobs, and 21% of them stopped working as a result of their dizziness. However, over 50% of the participants with dizziness felt that their work efficiency had declined.

Similarly, a study that explored the work participation of workers with hearing loss, and included workers who presented vestibular-related disorders that co-occurred with hearing loss, such as those with Meniere's disease in the study sample, showed

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that there is decreased and workability and employability and high absenteeism rates among these workers (Svinndal et al. 2018). Furthermore, it seems that people's with Meniere's disease work performance is mostly affected by their vertigo rather than by hearing loss and the unpredictability of the attacks (Basura et al. 2020).

Vestibular disorders and their related symptoms may have physical manifestations such as, loss of balance (Dougherty et al. 2022). However, research has also shown that there are associations between vestibular dysfunction and cognitive and psychiatric deficits (Smith et al. 2005). People with vestibular disorders may experience spatial and non-spatial cognitive and attentional deficits (Smith et al. 2005). Furthermore, particularly those who have bilateral vestibular dysfunction may encounter atrophy of the hippocampus, which causes them to experience spatial memory deficits (Smith et al. 2005; Gurvich et al. 2013). These deficits may occur even when persons- with- vestibular-disorders do not experience vestibular-related symptoms, as many ocular motor and postural symptoms do not compensate or compensate incompletely during the vestibular compensation process (Smith et al. 2005). Additionally, since the hippocampus is responsible for emotional regulation, it may explain why persons- with- vestibular- disorders may experience psychiatric disorders, such as anxiety and agoraphobia (Smith et al. 2005; Gurvich et al. 2013). However, persons- with- vestibular- disorders may experience these psychiatric disorders and/or psychological distress as a result of the difficulties that they may experience in their daily lives (Smith et al. 2005; Gurvich et al. 2013; Monzani et al. 2001).

In terms of return-to-work, Lurati (2017) outlined a work programme for workers with benign paroxysmal positional vertigo that included the provision of workplace accommodations, such as workers not engaging in job activities that require awkward head positions which may trigger vertigo. Similarly, she recommends that they should also be given rest periods, which may improve their concentration. Furthermore, Lurati (2017) adds that workers with benign paroxysmal positional vertigo may be prescribed medication in the acute phase of vertigo, but need to be used with caution as they may induce drowsiness and increase the risk for falls. Lurati (2017) and Longo et al. (2018) also recommend that workers with vertigo or dizziness be enrolled into vestibular rehabilitation programmes. These authors advocate for the early identification and intervention of vertigo and dizziness in workers by workers' work environments through occupational health services, so as to prevent these workers from experiencing disability in the workplace. However, these authors do not highlight the need for workers with vertigo and dizziness to receive mental health services, despite research showing that persons with vestibular- disorders and related symptoms may present psychiatric disorders and/or psychological distress, which may lead them to experiencing disability (Smith et al. 2005; Gurvich et al. 2013; Monzani et al. 2001).

Mostly quantitative research studies have been conducted to shed light on the work-related difficulties experienced by persons with vestibular-related symptoms and vestibular disorders that co-occur with hearing loss (Bronstein et al. 2010; Yardley and Putman 1992; Benecke et al. 2013; Svinndal et al. 2018). Therefore, to obtain a more in-depth understanding of how vestibular disorders may influence persons' with these disorders work experiences; this study adopted a qualitative research design. Additionally, only the influence of specific vestibular-related symptoms namely, dizziness and vertigo, and vestibular disorders that co-occur with hearing loss, such as Meniere's disease, on work ability has been investigated (Bronstein et al. 2010; Yardley and Putman 1992; Benecke et al. 2013; Svinndal et al. 2018). Thus, to obtain a further rich understanding of the work experiences of persons- with- vestibular- disorders, persons who were diagnosed with any vestibular disorder were invited to participate in the study. Furthermore, this study included people who presented with physical, cognitive, and/or psychological vestibular-related symptoms and co-occurring hearing loss, and who had different occupations, so as to garner the aforementioned understanding. However, this study focussed on the potential influence of only vestibular disorders and its related symptoms on work experiences. These earlier mentioned studies were conducted internationally and while, for example, Benecke et al. (2013) multi-country study shed light on the economic burden of vertigo, the focus was not only on South Africa. Therefore, it may be worthwhile to explore the work experiences of persons-with- vestibular-disorders in South Africa with its contextual particularities and developmental characteristics.

Furthermore, research that has explored the impact of vestibular disorders on work seemed to have looked at the impact on persons' with these conditions work abilities and participation, but has not explored how work-related environmental and personal factors may potentially influence their health and work participation. Therefore, by employing the expanded International Classification of Functioning, Disability and Health (ICF) scheme proposed by Heerkens et al. (2004, 2017) may elucidate this potential influence. The ICF expanded scheme elaborates on the constituents of the work-related environmental factors of the ICF proposed by the World Health Organisation (World Health Organisation 2001) and personal factors to better understand how these factors may potentially impact workers' health and work participation (Heerkens et al. 2004, 2017). By obtaining a holistic view of the potential influence of vestibular disorders on the work experiences of persons with these conditions, it may aid these peoples' workplaces and their healthcare professionals in holistically managing their working needs. Therefore, this study aimed to explore the work experiences of persons-with vestibular-disorders in South Africa, and the researchers used the main components of the expanded ICF scheme proposed by Heerkens et al. (2004, 2017) to analyse these experiences.

Materials and methods

Ethical approval

Ethical clearance to conduct this study was obtained from the University of the Witwatersrand Human Research Ethics Committee (medical; M210511). Participants provided written consent to participate in the study. Their identities were only known to MB who collected the data for the study, and participant numbers, instead of their names, were allocated for the write-up of the research. Additionally, a distress protocol, adapted from Draucker, Martsolf, and Poole (2009), was available to participants. However, none of the participants utilised it. Also, participants who chose to be interviewed via video communication platforms were sent encrypted meeting links by MB so that only she and the participants could join the interview. The audio recordings of the interviews and interview transcriptions were stored in a password- protected folder on a password- protected computer.

Participant recruitment

Maximum variation sampling strategy was used to recruit persons-with- vestibular-disorders. Therefore, as detailed in the inclusion criteria, there was variation in the following participant characteristics: type of vestibular disorders and vestibular-related symptoms, duration of vestibular disorder, gender, age, occupation and contract type namely, full and part-time work. These characteristics also related to the participant inclusion criteria. Therefore, persons with any vestibular disorder that caused them to experience physical, cognitive, and/or psychiatric vestibular-related symptoms were included in the study. Their vestibular disorder needed to be diagnosed by an audiologist who specialises in balance disorders. There was also no restriction regarding the length of time that persons had the vestibular disorder in order for them to participate in the study. If potential participants presented with co-occurring hearing loss they were considered for the study, but their work experiences in relation to hearing loss were not explored. Persons- with- vestibular- disorders who were of any gender were included in the study. However, they needed to be of working age, which as per the South African regulations, is 18 to 64 years old (Bhorat et al. 2015) in order for them to participate in the study. Persons- with-vestibular- disorders who had any occupation and worked either full- or part-time were also included in the study. However, they needed to be working in their workplaces for at least three months, so as to ensure that they were familiar with their workplaces and with the human resource policies. Persons who were medically boarded, those who were working and engaging in further studies were also considered for this project. By including participants who had different characteristics, it allowed for a variety of work experiences to be obtained (Suri 2011). Fourteen ($n = 14$) participants were recruited to participate in the study.

This study sought to include private and public audiology practices. However, due to infrastructural and logistical challenges experienced at the public audiology practices, including COVID-19 restrictions and a fire at one of the practices, only the private practices could be included in the study. MB requested that the private practice managers of audiology practices that offered vestibular services disseminate the participant information sheet to persons-with-vestibular-disorders who attended their practices. Persons-with-vestibular- disorders who were willing to participate in the study were requested to directly contact MB so as to avoid cold-calling of potential participants. Prior to the study, MB was not known to the participants. MB was a fourth-year Bachelor of Audiology student who completed the research study in partial fulfilments for the degree.

Interview guide

Semi-structured interviews were conducted to understand persons- with- vestibular- disorders' vocational experiences. The interview guide was informed by a review of literature that explored the impact of vestibular-related symptoms on work and occupational health care. The interview guide (Supplementary Appendix) comprised of open-ended questions, such as "Tell me about your work experiences with regard to your vestibular disorders" and follow-up probing questions.

Semi-structured interviews

MB conducted remote interviews with participants, and these interviews of approximately 30 to 45 minutes, were audio-recorded. Participants who opted to be interviewed via information communication platforms were also offered the option to switch on the video feature for the interview to further personalise the interview (Krouwel et al., 2019). After conducting the interviews, MB transcribed these interviews verbatim whilst listening to the audio recordings of them. These transcriptions were checked for accuracy by re-listening to recordings while reading the transcriptions.

Piloting the interview guide and interviews

Prior to conducting the main study, the interview guide and semi-structured interviews were piloted by MB with two persons with vestibular disorders. These people were recruited through the same recruitment process as the main study's participants. The pilot participant was interviewed via an information communication platform of his or her choice. Piloting the interview guide and the semi-structured interviews allowed MB to gauge the pilot participants' opinions on the clarity of the questions, interview format, interview platforms, and MB's interaction with the pilot participants (Shkedi 2005). The pilot participants' feedback on the aforementioned aspects was included in the refinement of the main study's interviews, but the findings from the pilot interview were not analysed with the findings from the main study, since the purpose of the pilot study was to review the data collection procedures.

Data analysis

The six steps to thematic analysis as proposed by Braun and Clarke (2006) were used to analyse the findings of the study. As per the recommendation by Braun and Clarke (2006), MB familiarised herself with the transcript data. During the familiarisation stage, MB noted down her thoughts of the data in a journal as she read the transcriptions. MB then submitted the transcriptions to researcher NN who read through the transcriptions to familiarise herself with the data and also journaled her impressions of these data. Once, MB and NN were familiar with the data, moved to the second step of thematic analysis, which involved generating codes (Braun and Clarke 2006). MB and NN coded the data together manually. This allowed them to discuss how their perceptions and ideas evolved as they further immersed themselves in the data (Nowell et al. 2017). They tracked, in a journal, the discussions of their emerging impressions of what the data represent and how they relate. (Nowell et al. 2017). These codes were deductively generated and based on the main components of Heerkens et al. (2004, 2017) expanded ICF scheme (Figure 1). MB and NN then moved onto the third step of thematic analysis, which involved searching for themes (Braun and Clarke 2006). MB and NN identified the themes at a semantic level. The deductive codes-main components of Heerkens et al. (2004, 2017) expanded ICF scheme- also

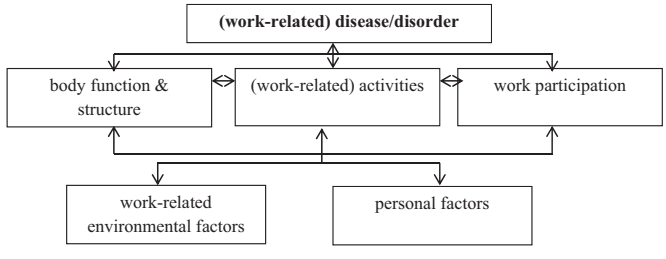


Figure 1. The main components of Heerkens et al. (2004, 2017) expanded ICF scheme.

formed the main themes, but the sub-themes were inductively generated, which revealed the work experiences of persons- with-vestibular-disorders. MB and NN then presented these provisional themes and sub-themes to researcher VA to review. Reviewing the themes is the fourth step of thematic analysis (Braun and Clarke 2006). Once the three researchers agreed on the themes, the themes were defined and their interaction with each other was noted, which is the fifth step of thematic analysis (Braun and Clarke 2006). The researchers then moved onto the last step of thematic analysis, which involved producing the report (Braun and Clarke 2006). The researchers have presented the themes and sub-themes, which are supported by interview extracts, in the results section of this paper. In the discussion section of the paper, the themes and sub-themes are discussed together with literature that pertains to work and vestibular disorders.

Furthermore, a priori thematic saturation model was employed to gauge saturation. This model relates to the extent to which the generated codes are exemplified in the data (Saunders et al. 2018). Therefore, since the codes-the main components of Heerkens et al. (2004, 2017) expanded ICF scheme-were exemplified by the time the researchers finished coding the twelfth transcription, the other two transcriptions were not analysed.

Results

The themes were body function, that is, the vestibular-related symptoms work-related activity limitations and participation restrictions, work-related environmental factors, and personal factors.

Body function: vestibular-related symptoms

For the diagnosed vestibular disorders listed earlier, participants reported the following vestibular-related symptoms: 13 reported dizziness, seven reported vertigo, and eleven reported disorientation, 11 experienced concentration difficulties, six experienced nausea, nine felt off-balance, seven felt fatigued, and/or five had double vision.

Work-related activity limitations and participation restrictions

As reflected in Table 1, participants had difficulty performing work-related tasks that involved required their attention to detail and involved ambulation.

Work-related environmental factors

Table 2 reflects participants' responses as to how work-related environmental factors influenced their work experiences. From participants' responses, it seems that bright lights and floor designs triggered their vertigo. Additionally, some participants were afforded the opportunity to take a break from work when they required it, but other participants were not able to take time-off from work when they needed it. Similarly, some participants received support from their colleagues and supervisors, while others were met with judgement and received no support from their colleagues and supervisors when mentioning that they had vertigo or when they took longer to complete tasks.

Personal factors

Table 3 indicates that when participants experienced a vertigo episode and when they were unable to complete their work-related tasks, they felt depressed and stressed. This stress then exacerbated their dizziness, which caused them further stress. When experiencing dizziness, participants took medication to suppress it. Taking medication reportedly provided them with immediate relief so that they could focus on their work-related tasks. Additionally, those participants who received vestibular rehabilitation were provided with exercises that helped them to focus. The healthcare professionals who they consulted suggested that they use canes when walking if necessary, and consult with a psychologist or psychiatrist when presenting with stress and anxiety as a result of a vertigo episode experienced at work.

Discussion

Majority of the participants in this study seemed to have experienced disability in the workplace. This disability seemed to be caused by their vestibular-related symptoms affecting their ability to complete and participate in work-related tasks. Therefore, they presented with what Heerkens et al. (2004, 2017) would describe as work-related activity limitations and participation restrictions. Similarly, work-related tasks that persons- with- vestibular- disorders were required to complete triggered their vestibular-related symptoms. In addition to work-related activity limitations and participation restrictions possibly contributing to their disability in the workplace, so did the restrictions in participants' work environments. Furthermore, persons- with- vestibular- disorders also experienced negative feelings, which caused them to encounter vestibular-related symptoms and associated deficits and ultimately exacerbated their negative feelings. Therefore, this cycle seemed to have further contributed to the potential disability that they may have experienced in their workplaces. However, when persons- with- vestibular- disorders received support and workplace accommodations from their workplaces, were enrolled into vestibular rehabilitation programmes, received medication regimens, and sought mental health services, it seemed to have mitigated and prevented them from experiencing disability in the workplace. Therefore, this study provided an in-depth understanding of persons-with vestibular- disorders' work experiences, and ultimately provided insight into the disability that persons- with- vestibular-disorders may experience in their workplaces and how this disability may be prevented.

Participants in this study presented with a variety of vestibular disorders that led them to experience spatial cognitive deficits, such as disorientation and concentration difficulties, physical deficits like dizziness, and sensory difficulties namely, double vision. These symptoms seemed to have affected participants fulfilling their work-related tasks that required their attention to detail and ambulation. Studies that have looked at the possible cognitive and physical deficits caused by vestibular disorders have also shown that vestibular disorders may affect one's attention and ambulation (Smith et al. 2005). However, the findings in this paper also shows that work-related tasks that required participants' attention to detail and ambulation seemed to have induced vestibular-related symptoms, particularly dizziness.

Persons- with- vestibular- disorders also seemed to encounter restrictions in their work environments, The restrictions were work environmental conditions, the working time arrangements,

Table 1. Types of work-related tasks that participants had difficulty completing.

Work-related tasks	Interview excerpts reflecting work-related tasks
Analytical	"*I am working on very detailed stuff, if I didn't determine this calculation thing right, the building is going to fall into pieces. In the beginning I didn't think the dizziness was affecting me, and then later when I was printing the building schedules and stuff, I was like OH NO I DID THIS WRONG!*" (P2, 32 year-old female, structural engineer, unknown vestibular disorder for 6 months). "*You have to go through teachers' books, and the file, and … that after a while affects me as well- looking up and down and crisscross makes me dizzy, and I can't read anymore.*" (P11, 52 year-old female, teacher, vestibular migraine for 2 years).
Ambulation	"*Sometimes when I am monitoring exams, so you must walk up and down within an exam venue, that makes me dizzy, and I can't expose myself or the learners to me fainting while they are writing exams.*" (P11, 52 year-old female, teacher, vestibular migraine for 2 years). *Filing was a big problem because that was up and down. I couldn't understand that after a busy day of walking up and down, up and down … when I sat down that's when the nausea really hit me.*". (P12, 59 year-old female, accountant, benign paroxysmal positional vertigo for approximately 3 years).

Table 2. Work-related environmental factors that influenced participants' experiences.

Work-related environmental factors as described by Heerkens et al. (2017)	Interview excerpts reflecting work-related environmental factors
Work environmental conditions	"*Very bright lights at work can cause vertigo for me, you know that white light … like the light is white? I have actually sat in the office with my sunglasses on a few times before, because those office lights are sometimes way too bright.*" (P5, 37 year-old female, structural engineer, vestibular migraine for 1 year). "*Sometimes it depends on the floor where you go from a very dark colour to a very light colour, or there's a lot of changing patterns on the floor- then I have this sensation of vertigo. It felt like the floor wasn't where the floor was, it was a few centimetres lower down.*" (P9, 53 year-old female, business administrator, benign paroxysmal positional vertigo for 2 years).
Working time arrangements	"*I have been battling with the dizziness for a long time, but sometimes are worse than others and I need a break for a day or two just to get back to normal again and they would give me a hard time for it.*" (P9, 53 year-old female, business administrator, benign paroxysmal positional vertigo for 2 years). "*As I am saying, I needed time out, you know? Without explaining every little detail. So, it was a give and take, they were supported to give me some time to take a break.*" (P10, 50 year-old female, information technology specialist, unknown vestibular pathology for a few months).
Collegial attitudes	"*I got a good support structure at work- we divide the work amongst us. If I am not up to do doing something, I just tell the other person … 'can you please take over today?'*" (P8, 48 year-old female, nurse, vestibular neuritis for more than 4 years). "*When you having to go slowly, take long on your work they think your kind of – there's this little bit of a – 'oh she's making this up', kind of thing. Judging me thinking maybe I am lazy and not pulling my weight.*" (P9, 53 year-old female, business administrator, benign paroxysmal positional vertigo for 2 years).
Supervisor attitudes	"*When I told them I had vertigo they went 'whatever you know drink a pill get over it'- kind of thing. But uhm no I didn't get any support.*" (P12, 59 year-old female, secretary, Meniere's disease for an estimated 3 years). "*It's just myself and my boss lady in the team and I have worked for her for many years. I can just tell her I have this really bad dizziness and she'll be like ja it's okay just take a few hours go lay down when you are feeling better come back to work.*" (P4, 31 year-old female, financial specialist, vestibular migraine for 1 year).

and colleagues' and supervisors' attitudes. Bright lights and flooring with patterns may trigger vestibular-related symptoms, such as vertigo. Vertigo may be triggered by these environmental conditions, as they tend to overload the vestibular system. Bright lights seemed to trigger vertigo in those with vestibular migraines, which may be expected as people who have migraine associated conditions like vestibular migraines are sensitive to bright lights (Frith 2016). However, patterned flooring triggered vertigo in participants who had benign paroxysmal positional vertigo.

Additionally, when participants experienced severe vestibular-related symptoms, they required time off from work, which is unlike the participants in Yardley et al. (1998), as only 1.5% participants in their study reported needing time off from work despite just under 50% of the participants reporting that their dizziness caused them to experience work-related difficulties.

Table 3. Work-related personal factors that influenced participants' experiences.

Personal factors	Interview excerpts reflecting work-related personal factors
Negative feelings	*"When you forced to work from home because you woke up with an episode- you start getting emotional, a little depressed and stressed about it, you're frustrated with yourself."* (P5, vestibular migraine). *"It's a cycle- you stress about not being able to do your work, and then that worsens the dizziness, and then you stress about the dizziness, and it's a whole cycle."* (P12, 59 year-old female, secretary, Meniere's disease for an estimated 3 years).
Medication	*"Over the counter medication is my friend. Anything really, from muscle relaxants to (non-steroidal) anti-inflammatory- It's just quicker it's more convenient if you start feeling dizzy at work, anything to just make it better is good enough."* (P4, 31 year-old female, financial analyst, vestibular migraine for 1 year). *"So, for me to drink that medication, it does slow me down, but I can at least feel better enough to do some work versus not drinking it then I am completely useless sometimes because I can't focus, and I feel terrible."* (P5, 37 year-old female, accountant, vestibular migraine for an estimated 1 year).
Vestibular rehabilitation	*"So, they gave me some eye exercises- where you look at the dot, move your eyes and come back to it. I am doing those. I have done those, and you know what, I stopped moving so much my head so much when I work, I have learnt to focus on what I am doing and not move my head"* (P11, 52 year-old female, accountant, vestibular migraine for 2 years). Participant 7: *"So, I go for OT [Occupational Therapy]. And I have 2 people that's sort of part of my team – so twice a week I do hydrotherapy also. My OT helps me with my stabilisation and stuff and strengthening my muscles. Even the cane, using it for walking and stairs and whatever the need may be, it was her suggestion."* (P7, 32 year-old female, financial advisor, Meniere's disease for 2 years).
Mental health services	Participant 6: *"There's an ENT that I am seeing now, and she actually referred me to, like, a psychologist or psychiatrist or something just to assist with the stress and anxiety that I have. The one time that I visited her she noticed that I was very stressed and very anxious when I was telling her about my episode at work the previous week… so she suggested that I see someone."* (P6, 37 year-old male, structural engineer, Meniere's disease for more than 5 years).

Despite participants whose responses are reflected in this current paper requesting this accommodation, some of their workplaces did not allow them time off from work.

The provision of workplace accommodations, such as time off from work and sharing of workload also seemed to be due to participants' supervisors and colleagues' attitudes. When supervisors and colleagues were supportive colleagues would share the workloads, particularly when the participant experienced vestibular-related symptoms and thus requested assistance with their work. Some of the participants' supervisors who seemed to be aware of participants' vestibular disorders also seemed to provide the participants with the necessary accommodations, such as allowing them to rest. These findings support the conclusions drawn by Svinndal et al. (2018) and Davis (2010) who looked at the workplace attitudes and perceptions of hearing impairment, as they concluded that persons with hearing difficulties need to inform their supervisors and colleagues of their hearing difficulties and of the accommodations that they require so that they can perform their job optimally. However, slightly contradictory to the conclusions drawn by Svinndal et al. (2018) and Davis (2010), and different to the experiences of participants whose supervisors were supportive, when other participants in this current study disclosed their vestibular- disorders and -related symptoms to their supervisors, their supervisors were unsupportive. Other participants experienced prejudice in the workplace, as their colleagues judged them when participants displayed low work productivity due to their vestibular related symptoms

The negative attitudes of some of the participants' supervisors and the colleagues, and the lack of workplace accommodations may suggest that these participants' workplaces are not effectively complying with the Employment Equity Act (1998). The Employment Equity Act (1998) is a South African employment Act that aims to eliminate unfair discrimination in the workplace, and ensure that people from designated groups, such as those with disabilities have equal opportunities in the workplace. Therefore, the lack of compliance with this Act may result in workers, like some of the participants, experiencing discrimination and ultimately disability in the workplace.

The potential disability that participants may have experienced in their workplaces was also contributed by personal factors, such as negative feelings, that prevented them from performing their work-related tasks. Their negative feelings were characterised by stress, anxiety, and depression. They experienced these feelings as they were unable to fulfil their work-related tasks sufficiently as a result of their vestibular disorders and vestibular-related symptoms. Monzani et al. (2001) who looked at the psychological distress in patients with vestibular disorders also found that these patients have high levels of psychological distress, characterised mostly by depression and anxiety, as compared to individuals with normal vestibular function. However, unlike Monzani et al. (2001) earlier study, this current study highlights that when participants experienced negative feelings, it seemed to have triggered their vestibular-related symptoms, which in turn heightened these negative feelings.).To provide immediate relief from vestibular-related symptoms so that the symptoms do not hinder them from performing their work-related tasks, participants with vestibular migraine would take medication, such as nonsteroidal anti-inflammatory medication. This finding would be expected when looking at the results obtained by Bikhazi, Jackson, and Ruckenstein (1997), as these

authors already then found that nonsteroidal anti-inflammatory medication may mitigate dizziness in migraine associated-vestibular dizziness, such as vestibular migraine.

While taking medication may have aided participants' with vestibular migraine to focus on their work-related tasks, there were times where taking medication slowed their work pace, possibly because medications used to treat vestibular-related symptoms may result in drowsiness (Lurati 2017). While medication may form part of the treatment programme, it is generally used for the acute phase of vestibular-related symptoms (Lurati 2017; Bisdorff 2011). Therefore, vestibular rehabilitation should also be included in the treatment programmes, as Longo et al. (2018) found that vestibular rehabilitation can reduce workers' vestibular-related symptoms in the workplace. Lurati (2017) recommended that vestibular rehabilitation for workers with dizziness should include gaze stabilisation exercises as they may provide central nervous system the spatial cues needed to judge the position of the head and body (Tjernström, Zur, and Jahn 2016). Therefore, when participants in this study performed gaze stabilisation exercises, they seemed to limit and restrict their head movements their head as much, which ultimate improved spatial cognitive function, as they were able to focus on tasks. Vestibular rehabilitations programmes in which some of the participants had enrolled, included hydrotherapy, which seemed to alleviate their vestibular-related symptoms and improve their muscle strength. Hydrotherapy also known as aquatic therapy seems to be a fairly new method of vestibular rehabilitation, and is deemed to be successful as it seems to reduce dynamic and static dizziness while also improving musculoskeletal strength (Pereira et al. 2021). Lurati (2017) also states that vestibular rehabilitation may provide the healthcare professionals involved in the rehabilitation with the opportunity to determine if workers with vestibular disorders, such as benign paroxysmal positional vertigo, require assistive devices. In this current study, healthcare professionals who treated participants recommended that participants assistive devices, such as canes, to aid them in overcoming work environmental characteristics, like staircases, in their workplaces that were barriers.

Furthermore, since participants experienced negative feelings as a result of experiencing episodes of vertigo at work were also advised by healthcare professionals from whom they sought vestibular services, to seek mental health services. This recommendation is in accordance with that of Monzani et al. (2001) who informed Ear, Nose, and Throat specialists that patients' with vestibular disorders psycho-emotional states need to be addressed in addition to the disorder, as this may reduce the likelihood of them experiencing disability due to their vestibular- disorders and –related symptoms.

The recommendations based on the findings from this study to prevent persons- with vestibular- disorders from experiencing disability in their workplaces are similar to that of Lurati (2017), who provided insight into a return to work programme for employees with resolving vertigo. Persons- with- vestibular- disorders should be provided with the necessary workplace accommodations so as to prevent workplace and environmental conditions from triggering vestibular-related symptoms and to aid persons- with- vestibular- disorders in performing their work-related tasks effectively. Supervisors and colleagues of persons- with vestibular- disorders ought to offer support by appreciating the disclosure of vestibular-disorders, -related symptoms, and the workplace accommodations. Furthermore, persons-with- vestibular- disorders are encouraged to inform their supervisors and colleagues of their vestibular-related requirements. More research is needed about supervisors' and colleagues' experiences regarding employees with vestibular disorders so that more insight can be obtained about the barriers and facilitators in persons- with- vestibular- disorders' workplaces that may influence their work performance and participation. Furthermore, as Lurati (2017) encourages, persons- with- vestibular- disorders should be enrolled into work rehabilitation programmes. These programmes can include persons- with- vestibular- disorders receiving medication regimens to treat vestibular-related symptoms in the acute phase, vestibular rehabilitation that includes exercises that will aid them in completing their work-related tasks more effectively, and mental health services to mitigate any negative feelings that may trigger their vestibular-related symptoms, which may lead to their negative feelings being exacerbated.

Strengths, limitations, and areas for future work

To date quantitative studies have been used to understand the work difficulties of persons- with- vestibular- disorders (Bronstein et al. 2010). However, this current study employed a qualitative research design and involved conducting interviews with persons- with- vestibular disorders, which allowed the authors to obtain deeper insight into these people's work experiences. Therefore, the findings from this study may compliment the findings from the quantitative studies, so that a comprehensive and deeper understanding can be obtained regarding persons- with- vestibular- disorders' work experiences (Knudsen et al. 2012).

Although, other studies have explored the impact of specific vestibular-related symptoms on specific occupations (Bronstein et al. 2010), this current study explored the experiences of various persons who were diagnosed with a variety of vestibular disorders and had different occupations. This diversity allowed the researchers to obtain a rich understanding of persons-with-vestibular-disorders' work experiences. However, the findings from this current study and literature highlight, for example, that different environmental conditions may trigger different vestibular-related symptoms depending on the vestibular disorders. Thus, the disability in the workplace experienced and the work rehabilitation programmes required by persons-with- vestibular-disorders is dependent on their vestibular disorders. Therefore, future studies should look at the work experiences of persons with specific vestibular disorders. While participants in this study had a variety of occupations, they mainly had sedentary jobs. Therefore, to obtain an even broader understanding of these experiences, it is recommended that other researchers look at the work experiences of persons- with- vestibular- disorders who have manual labour-intensive occupations. It is also recommended that this study be replicated in the South African public healthcare sector to garner a wider perspective into persons-with- vestibular-disorders' work experiences.

This study employed a first-person account of work experiences, in order to obtain a more holistic understanding of persons -with-vestibular-disorders' work experiences, future research could explore their employers', colleagues', and healthcare professionals' experiences as well as third-party disability. A strength of this current study is that the expanded ICF by Heerkens et al. (2004, 2017) was used to describe the work experiences of persons- with- vestibular- disorders. Furthermore, since deductive and inductive approaches were used to analyse the findings from this study, it provided the researchers with a comprehensive understanding of the work experiences of persons- with- vestibular- disorders.

Conclusion

The findings from this study indicate that the vestibular-related symptoms experienced by persons with vestibular disorders prevent them from fulfilling their work-related activities and participating in these activities. Furthermore, the work-related tasks that persons with vestibular disorders needed to complete seemed to have triggered their vestibular-related symptoms. Together, the work-related activity limitations, participation restrictions, and environmental restrictions experienced by persons with vestibular disorders may have led them to experience disability in their workplaces, especially when they were not provided with workplace accommodations. They also did not always receive support from their colleagues when disclosing that they had a vestibular disorder and when requesting for workplace accommodations. Furthermore, the inability to complete the work-related tasks caused persons with vestibular disorders to experience negative feelings. These negative feelings triggered their vestibular-related symptoms, which in turn exacerbated their negative feelings. This cycle may lead to persons with vestibular disorders experiencing disability. Therefore, the potential disability in the workplace due to vestibular disorders needs to be addressed. This could include work rehabilitation programmes that incorporate vestibular rehabilitation, medication regimens, and mental health services.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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