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Hearing-friendly workplaces and the position of Persons with Hearing Impairment in the labour market: a scoping literature review

Abstract

Objective: Employment is a major area of life for adults, including people with disabilities. The aim of our study is to understand the conditions and support opportunities that determine the career paths of people with hearing impairment in the labour market. The search was conducted in March 2024, and the articles covered 7 different countries.

Methods: We conducted a systematic review by searching the Web of Science, Elsevier, and EBSCO databases for relevant citations from 2006. We chose this date because of the advent of the UN Convention on the Rights of Persons with Disabilities (UN CRPD), which has contributed to a major paradigm shift in the social inclusion and integration of persons with disabilities, including those with hearing impairments. The focus of the search was on career orientation, career guidance, lifelong guidance and vocational rehabilitation of people with hearing impairment. The authors summarise the results of 14 studies that met the objectives of the study.

Results: We have chosen seven different focal points for the content analyses of the articles. The legal framework for employment is adequate in the surveyed countries. The successful retention of people with hearing impairment in the workplace, whether congenital or acquired, requires not only a change in the environmental conditions, but also a supportive attitude on the part of the employee, the colleagues and the bosses.

Discussion: Our systematic review has identified the most important aspects influencing the subjective situation and objective circumstances of hearing-impaired individuals, as well as the services available to support their integration into the labour market. Overall, the medical, social and human rights models of disability can be seen in the way individual aspects and services operate.

Keywords: Hearing impairment employee, work, vocational rehabilitation, hearing-friendly workplaces.

Hearing-friendly workplaces and the position of Persons with Hearing Impairment in the labour market: a scoping literature review

1. Introduction

The essence of disability inclusion¹ is the recognition that disability is not an isolated, individual problem of the person with a disability, but can be understood in the context of the functioning of the individual and society. The goal and ideal of creating an inclusive society is to enable all individuals to participate to the fullest extent of their abilities and aspirations in all aspects of life. One important area of this is employment, including participation in the labour market for people with disabilities. According to the European Commission's *The Social Business Initiative* (2011), the Single Market needs new inclusive growth with employment for all at its core (Dukic & Perlusz, 2023). Several studies point out that people with disabilities are characterised by higher rates of unemployment and economic inactivity compared to non-disabled people (Barak, 2017; Dunás-Varga, 2021 cited by Dukic & Perlusz, 2023).

One way to combat exclusion is to include people with disabilities in economic processes (Nishii, 2013; Geisen et al., 2019). "The general experiences of people with disabilities can also be diverse, as the social participation depends on individual abilities and the characteristics of the environment in which they live. These can reduce or increase an individual's ability to participate in social processes" (Dukic & Perlusz, 2023, p. 80; see also Könczei, 2009; Hadi, 2013; Kozma, Petri & Bernát, 2020).

The aim of this study is to explore the labour market experiences of a group of people with disabilities, people with hearing impairment, the challenges of inclusive workplaces and the impact of labour market inclusion on personal well-being and quality of life through the use of international literature, using a scoping review method. Our work will not only contribute to a better understanding of the topic, but will also provide an opportunity for professionals and policy makers to compare the situation in their own country and draw conclusions.

Studies on the presence of hearing-impaired people in the labour market and its effects over the last decades (Gussenhoven et al., 2013) have shown that hearing loss can cause difficulties for workers with hearing impairment, however, it not only affects the hearing-impaired individual, but can also lead to higher costs for companies and, ultimately, society through reduced productivity in the workplace. Mohr et al. (2000; cited by Gussenhoven et al. 2013) have shown that a large part of the social costs

¹ Social inclusion: inclusion is the right of the individual and the responsibility of society as a whole. Inclusion requires the removal of barriers and social structures which impede participation. It requires proactive policy making, lateral thinking and ongoing commitment (Jones, 2011).
Social integration is the degree to which individuals participate in a wide range of social roles and relationships (Brissette, Cohen & Seeman, 2000).

of hearing loss is due to reduced work productivity caused by presenteeism (i.e., being present at work but not functioning at full capacity) (Gussenhoven et al., 2013). However, Kramer (2008) points out that an ageing society means that more and more people with hearing impairment will be in the labour market, so that non-congenital hearing loss will also have to be taken into account.

The hearing and hearing impairment

According to the World Health Organisation (WHO, 2019), the criterion for hearing loss is a hearing threshold of 25 decibels (dB) or more in both ears. Hearing loss can be classified as mild, moderate, severe or profound. Individuals with profound hearing loss typically communicate through spoken language and may use hearing aids, cochlear implants, captioning and other assistive devices to facilitate communication. In contrast, individuals who meet the criterion for deafness often communicate using sign language, although the explosion of digital communication has greatly expanded the possibilities. For deaf people, the unifying feature of Deaf culture is severe hearing loss and a common language. Hearing loss affects people of all ages, genders, racial and ethnic backgrounds and standards of living. Hearing loss can be congenital or acquired. Congenital hearing loss occurs at or shortly after birth, typically due to a genetic cause, a birth complication or an infection during pregnancy. Acquired hearing loss can occur at any age and may result from a variety of causes, including infectious diseases, chronic ear infections, use of certain medications, head or ear injuries, excessive noise, degeneration of sensory cells, and middle ear infections, which are the leading cause of hearing loss in children (WHO, 2019).

For hearing-impaired people, difficulties in maintaining their jobs, communication challenges, the resulting fatigue, frequent sick leave and early retirement mean that services to improve and maintain their working conditions can not only alleviate their needs, but also reduce the burden on companies and society as a whole.

"Careers may be defined as a sequence of attitudes, activities or behaviors associated with work roles of individuals during the course of their lifetime" (Arthur & Lawrence, 1984 cited by Gerber, Wittekind, Grote & Staffelbach, 2009, p. 1). "Career orientations can be defined as attitudes expressed by superordinate intentions of an individual that will influence career-related decisions" (Maier, Rappensperger, Rosenstiel & Zwarg, 1994 cited by Gerber, Wittekind, Grote & Staffelbach, 2009, p. 2). According to the definition given by UNESCO, career guidance (in some countries terms such as 'career counselling', 'career development', 'careers information, advice and guidance', 'vocational counselling' or 'vocational guidance' are used to refer to the range of activities) covers the services which help people of any age to manage their careers and to make the educational, training and occupational choices that are meaningful for them (Inter-Agency Working Group on Career Guidance, 2021). The careers of hearing-impaired people are significantly determined by the extent of their hearing loss and their communication strategies, as well as the environment that surrounds them. To support career pathway planning and planned career guidance services, the OECD already published a handbook in 2004, and since the 2010s there has been an increasing emphasis on organised and targeted career guidance services for people with disabilities (Rékasi, Svastics, Cserti-Szauer, Kovács & Kalász, 2021).



2. Methodology

In our research we are looking for answers to the following questions:

Do hearing-impaired employees experience difficulties in the labor market, and if so, what types of difficulties do they experience?

How can hearing-impaired people be supported in the labor market in order to obtain and keep a job?

How does the use of labour market support services affect the quality of life of hearing-impaired employees?

In our research, we used the scoping review method. This method should be used when the aim of the review is to map the scope, breadth and nature of the literature on a given topic, to identify any gaps (Mak & Thomas, 2022), to clarify concepts and to gather information for future research (Munn et al., 2018).

The search databases used were Web of Science, Elsevier, EBSCO, which are free and reliable scientific databases available at ELTE Eötvös Loránd University Bárczi Gusztáv Faculty of Special Needs Education. The search was conducted in March 2024.

The search keywords were also defined according to the broadest possible interpretative framework (paradigm) in terms of the target group (hearing impaired person / person with hearing impairment / person with hearing loss / deaf person / person with deafness / hard of hearing person) and the services (career orientation / career guidance / lifelong guidance / vocational rehabilitation).

The provided keywords were searched in the titles, abstracts and keywords of peer-reviewed academic journals in English (books and book chapters, conference papers not included). The search engine was reviewed by librarian colleagues at ELTE Eötvös Loránd University Bárczi Gusztáv Faculty of Special Needs Education.

All three authors read the titles, abstracts and keywords of the results and suggested how to filter them. It was commonly agreed that studies prior to 2006 would be filtered out, as the advent of the UN Convention on the Rights of Persons with Disabilities (UN CRPD) has contributed to a major paradigm shift in the social inclusion and integration of persons with disabilities, including hearing-impaired individuals, as our subject.

We then selected those studies that were agreed by consensus among the authors. The exclusion criteria were as follows: the target group excluded persons with associated disabilities in addition to hearing impairment (e.g., specific groups of deafblind persons or persons with associated conditions), the topic should be related to career orientation, employment (e.g., studies on the effects of specific health therapies or studies of a historical nature were excluded), but policy (1) and review (2) articles were not filtered out.

Only three duplicates were found across the three databases. Additionally, four studies had no abstracts and were not downloadable, while one study was also not downloadable. Figure 1 shows the search and selection process.



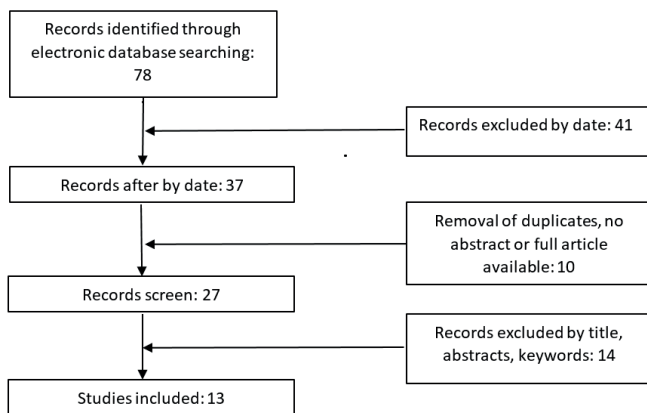


FIGURE 1. SEARCH AND SELECTION PROCESS

The selected studies (see Table 1.) include 5 USA, 4 European, 1 Canadian, one Asian and one African study. The studies' use of the term 'persons of concern' varies, but none are stigmatising, they are rather following the human rights model. Of the research-based studies, 3 were qualitative and 7 were quantitative in nature, the latter two with a large sample of items.

TABLE 1. REVIEWED STUDIES, AUTHORS, PARTICIPANTS, METHOD, DATE AND COUNTRY

Authors	Participants	Methods	Date	Country
1. Li, E. P. Y., Li-Tsang, C. W. P., Lee, T. K., Lee, G. W. M., Lam, E. C. F.	655 persons with occupational deafness	Quantitative: questionnaire survey	2006	Hong Kong
2. Kramer, S. E.	86 patients	Quantitative: data of the audiological center of the VU University Medical Center	2008	Netherlands
3. Gussenhoven, A. H., Anema, J. R., Goverts, S. T., Bosmans, J. E., Festen, J. M., Kramer, S. E.	160 hearing-impaired employees	Quantitative: hearing and distress Screener	2012	Netherlands
4. Gussenhoven, A. H., Jansma, E. P., Goverts, S. T., Festen, J. M., Anema, J. R., Kramer, S. E.		Systematic review	2013	
5. Shaw, L., Tetzlaff, B., Jennings, M. B., Southall, K. E.	7 older adults with hearing loss	Qualitative: in-depth interviews	2013	Canada
6. Luft, P.	Deaf and hard of hearing and young adults with disabilities	Literature review	2015	USA
7. Horváthová, I.	48 students with hearing impairment	Quantitative: questionnaire of author's design	2017	Czech Republic
8. McAbee, E. R., Drasgow, E., Lowrey, K. A.	6 deaf adults	Qualitative: structured interviews	2017	USA
9. Svinndal, E. V.; Jensen, C.; Rise, M. B.	21 hearing-impaired individuals	Qualitative: in-depth interview	2020	Norway
10. Cuevas, S., Hansmann, S., Rodrigo, H., Saladin, S. P., Schoen, B.	Department of Education Rehabilitation Service Administration Case Service Report	Quantitative	2021	USA
11. McMahon, B. T., Leslie, M. J., Li, G. W., Rumrill, P. D., Simpson, P. E., Grover, J. M.	21 847 persons with hearing loss	Quantitative: ADA allegations of workplace discrimination	2021	USA
12. Chelius, S., Jonker, B. E., Brouwers, M.	14 employees with hearing impairment	Quantitative: open-ended deaf-accessible questionnaires	2022	South Africa
13. Cawthon, S. W.		Policy	2022	USA

After a review of the studies, seven focal points were identified, focusing on the actors that determine the labour market participation of people with hearing impairment and the actors that support them: legal environment; Deaf identity or disability; workplace acceptance of hearing loss, hearing impairment; equal access to workplace; early retirement and psychological fatigue of hearing-impaired workers; labour market rehabilitation services and experiences, recommendations for rehabilitation services, employers, workers.

3. Results

Legal environment of the studies examined

The legal context of the studies is defined in several ways. In all research studies, the WHO's International Classification of Functioning, Disability and Health (WHO, 2001) categorisation system was used to define participants. Furthermore, in all studies, access to employment and rehabilitation services was considered a basic human right.

While typically European studies use the CRPD² as a human rights reference, U.S. studies use the ADA or IDEA or its amendments (e.g. Cawton (2022) Model State Plan; Luft (2015) the federal legislation).

Deaf identity or disability

Of the studies we reviewed, only one addressed the issue of Deafness as a linguistic and cultural identity. In their study, McAbee, Drasgow and Lowrey (2017) cite Lane et al. (1996) as stating that Deaf people are the only group that society considers to be disabled, but its members do not consider themselves disabled. One of the key findings of their quality of life research was that Deaf people believe that the basis of their lives is Deafness, when they think of their community and their supportive social network, they primarily refer to the Deaf community. McMahon et al. (2021) further highlight that for Deaf people, severe hearing loss and a common language (sign language) are unifying features of their culture. A direct positive relationship between deafness and quality of life was found in their case, as deafness and being part of a Deaf community defines their identity and makes them happy, i.e., they value Deaf identity itself, considering deafness as the most important aspect of their quality of life (McAbee, Drasgow & Lowrey, 2017).

Workplace acceptance of hearing loss, hearing impairment

It is a general fact that hearing impairment can develop at any time in life and can vary due to a number of causes (e.g., trauma, infection, genetic syndrome, ageing or excessive noise exposure). Therefore, there is no general or comprehensive profile

² Committee on the Rights of Persons with Disabilities.

of the typical hearing-impaired person, but the circumstances of each cause of onset can potentially lead to significant adaptation problems (Cuevas, Hansmann, Rodrigo, Saladin & Schoen, 2021).

Based on several studies, the number of people with hearing loss increases with age, and with this in mind, the number of hearing-impaired workers is expected to increase in the near future, as the ageing population increases the prevalence of hearing loss, especially if the retirement age is planned to be raised (Gussenhoven et al., 2012). Other authors also point out that an ageing population will lead to an increasing number of hearing-impaired people in the labour market, and thus to the possibility of non-congenital hearing loss (Kramer, 2008).

Another aspect that came up in one of the studies was the issue of an adult person suffering hearing loss in the course of their work. The psychological acceptance of work-related disability in adulthood presents a number of challenges, particularly for people with occult hearing loss. These individuals have to learn new ways of communicating, which can make it difficult to find and keep a job. They often misunderstand their abilities in the work environment, which can put them at risk of unemployment. Studies have shown that such people face lower self-esteem, communication difficulties and unemployment, which has a serious impact on their quality of life. Noise-induced hearing loss causes long-term problems and affects their quality of life (Cuevas, Hansmann, Rodrigo, Saladin & Schoen, 2021).

Hearing impairment can often cause communication difficulties, which can be a challenge to overcome and resolve in the field of employment (Kramer, 2008).

According to data from the National Center for Health Statistics (2015 cited by Gussenhoven et al., 2013), approximately 37.2 million Americans are living with hearing loss or impaired ability to hear sounds. The prevalence of hearing loss among the Dutch workforce shows similar trends (3%). These figures are comparable to further estimates of global hearing loss figures from the WHO (Gussenhoven et al., 2012).

Individual perceptions of hearing loss and how to correct and cope with it at work can vary from person to person, which can affect work performance and the experience of stress at work. Svinndal, Jensen and Rise (2020) have identified this personal context in three areas: knowledge of the effects of hearing loss, strategies used to deal with the challenges, and the participant's attitude to hearing loss itself. This includes individual needs, assertiveness and a sense of shame about making the hearing loss visible (e.g., wearing hearing aids). McAbe, Drasgow and Lowrey (2017) emphasise the importance of early mastery of communication techniques for people with congenital hearing loss in overcoming communication barriers. Additionally, attention is drawn to the ambivalence of working with an interpreter in the workplace, as 'interpreter' was the most commonly used word in their research in the area of physical well-being. Participants talked about the need for better communication in medical practices and with their families, and the need for trained interpreters, so that communication is not misinterpreted, but in the workplace, communication through an interpreter can be difficult.

Individual responsibility for verbal communication, constantly inventing communication strategies, or even the lack of dialogue and knowledge transfer at work, repetitive explanations, wrong task orientation lead to fatigue, frustration, frequent sick leave (Svinndal, Jensen & Rise 2020; Chelius, Jonker & Brouwers, 2022), increased "need for recovery after work" (Gussenhoven et al., 2012).



According to McMahon et al. (2021), the most common reasons for people with hearing impairment in the U.S. are voluntary and permanent termination (24%), termination due to discrimination (3.1%), request for temporary leave (1.6%). Also, intimidation in the workplace has been reported. "Harassment yields a significant difference while intimidation does not, and the higher proportion for both terms involves the HL" (hearing loss), than other disabilities (McMahon et al., 2021, p. 214).

Equal access to workplace

The issue of equal access has been raised in several studies. Generally, hearing-impaired adults are less likely to achieve top levels of educational attainment and income compared to those without hearing impairment (Shaw, Tetzlaff, Jennings & Southall, 2013; Cuevas, Hansmann, Rodrigo, Saladin & Schoen, 2021). In the U.S., when complaining about jobs, complainants (10%) experienced higher discrimination in hiring and promotion compared to other complainants, and, to a small extent (1-2%), arbitrary demotion to a lower pay grade or job category, or lower grade, reduced wages and non-wage benefits, lack of insurance, and lack of union membership (McMahon et al., 2021).

The need to ensure equal access mainly concerns communication in the workplace, at school, at the doctor's office and at vocational departments (McAbee, Drasgow & Lowrey, 2017; McMahon et al., 2021).

For hearing-impaired workers, the most challenging situations in which they have to interact with others (boss, co-worker, client) are those that require them to work (Svinndal, Jensen & Rise, 2020; Chelius, Jonker & Brouwers, 2022), such as when hearing individuals speak too quickly or explain themselves (Svinndal, Jensen & Rise, 2020), or use a microphone in a meeting (Svinndal, Jensen & Rise, 2020). The high degree of adaptability and flexibility of the manager and co-workers reduced the verbal and auditory workload of hearing-impaired workers, and thus their internal stress, or conversely. The lack of adaptability of co-workers emerged as a pattern of participation barriers (Svinndal, Jensen & Rise, 2020; Shaw, Tetzlaff, Jennings & Southall, 2013; Chelius, Jonker & Brouwers, 2022). The prominent role of the supportive attitude of bosses of people with hearing impairment is emphasised by Svinndal, Jensen and Rise (2020), as well as Chelius, Jonker and Brouwers (2022). In general, unreasonable expectations and confrontations of colleagues and devaluation of people with hearing impairment were also reported as difficulties (Chelius, Jonker & Brouwers, 2022; McAbee, Drasgow & Lowrey, 2017), as in the US, where workplace discrimination is low in prevalence but an important aspect of working conditions based on complaints about it (McMahon et al., 2021). In McAbee, Drasgow and Lowrey's (2017) research, hearing-impaired participants discussed the need for better understanding between the hearing and deaf worlds in general.

A recurring element of the employer's reasonable accommodation in employing people with disabilities has been the creation of a suitable work environment, which Shaw, Tetzlaff, Jennings and Southall (2013) call a hearing-friendly workplace.

In hearing-friendly workspaces, technology is used appropriately (e.g., amplification devices, use of email instead of the telephone) (Svinndal, Jensen & Rise, 2020; Shaw, Shaw, Tetzlaff, Jennings & Southall, 2013), acoustically appropriate

environments are created (e.g., reducing noise levels in the workplace, rearranging room furniture to reduce echoes), providing lighting that affects speech perception (Svinndal, Jensen & Rise, 2020; Shaw, Tetzlaff, Jennings & Southall, 2013; Kramer, 2008), allowing for flexible and punctual organisation of the workday, tasks and work processes, and providing time and space for recovery (Svinndal, Jensen & Rise, 2020; Shaw, Tetzlaff, Jennings & Southall, 2013; Chelius, Jonker & Brouwers, 2022). Special adaptations to work processes or interactions are of particular importance: organising face to face communication with others, moderating a meeting, taking minutes, communicating using sign language (Svinndal, Jensen & Rise, 2020; Shaw, Tetzlaff, Jennings & Southall, 2013) – these adaptations result in increased productivity and reduced workplace stress for people with hearing impairment.

Several factors can contribute to finding and keeping a job. There is a need for disclosing the needs of the hearing-impaired and for accommodation by colleagues (Shaw, Tetzlaff, Jennings & Southall, 2013; Chelius, Jonker & Brouwers, 2022). Assertive behaviour and seeking and finding supportive key players can make the workplace a safe environment for the hearing-impaired (Svinndal, Jensen & Rise, 2020). According to McAbee, Drasgow and Lowrey (2017), vocational rehabilitation (VR) services offer a range of resources, including job search, for individuals with disabilities. An increasing number of people with hearing loss are seeking help for occupational problems (Kramer, 2008). However, Svinndal, Jensen and Rise's (2020) study suggests that in many cases, finding services is a matter of chance with the help of a colleague or co-worker.

Labour market rehabilitation services and experiences

Four of the studies we reviewed dealt in detail with labour market rehabilitation services for people with hearing-impairment.

Gussenhoven et al. (2013) Vocational rehabilitation services for people with hearing difficulties: a systematic review of the literature, reviewed a number of studies to examine the programmes available for workers with hearing impairment and their effectiveness. Their search identified three studies that describe a programme specifically designed for workers who have developed hearing loss due to noise exposure at work. The remaining articles reported on programmes for workers with hearing loss, regardless of the type of hearing loss. Programmes ranged in duration from half a day to 7 weeks, with one suitable session per week. The programmes were led by professionals with different competences: audiologist or hearing therapist (in our country we use the term 'therapist') of hearing impairment, psychologist or social worker, occupational physician, occupational health nurse/therapist or rehabilitation counsellor. Five out of the nine programmes used a multidisciplinary approach and involved experts from different disciplines (audiology, psychology, ENT (ear-nose and throat), occupational health). Some intervention programmes considered it important to involve people around the hearing-impaired person (family members, co-workers, the worker's supervisor) in the programme to better understand the problems related to hearing impairment and to gain insight into the daily work of the hearing-impaired worker.



Svinndal, Jensen and Rise (2020) also highlighted in their study the need for a more integrated approach in programmes supporting people with hearing impairment, involving managers and other stakeholders in vocational rehabilitation, as the knowledge gained facilitates the adaptation process. The content of the programmes generally covered the following topics: information for the hearing-impaired worker, knowledge of ear anatomy, the hearing process, hearing aids and assistive listening devices, hearing strategies, sick leave, insurance, early retirement, disability pension, communication training. Additionally, four of the nine programmes focused on coping strategies, including managing hearing loss at work and accepting the loss. In their study, Cuevas, Hansmann, Rodrigo, Saladin & Schoen (2021) report that 69.7% of people with profound hearing loss successfully found a job as a result of labour market support programmes. Services that contributed most to successful employment outcomes included disability assessment, diagnosis and management, rehabilitation technology, vocational rehabilitation counselling and guidance. Kramer (2008) presents a study on a programme of recommendations for environmental modifications in the workplace (replacement of furniture, removal of noisy machinery) and changes in work schedules (introduction of day breaks, modification of strenuous listening situations, removal of non-essential work functions).

Gussenhoven et al. (2012) evaluated the (cost-)effectiveness of the Vocational Enablement Protocol (VEP). The VEP integrated care programme consists of a multidisciplinary assessment of hearing function, work needs (activity, participation, working conditions) and personal characteristics. The intervention aims to promote the participation and retention of hearing-impaired workers in work. It is hypothesised that if the VEP integrated care programme proves to be (cost)-effective, the intervention may have an impact on the well-being of hearing-impaired workers and thus on the costs to the company and society.

In McAbee, Drasgow and Lowrey's (2017) research, they used interview methods to investigate the quality of life of 6 Deaf people. Participants reported that Deaf adults were frequent users of labour market support services, and all believed that their quality of life would have deteriorated without these services. However, McAbee, Drasgow and Lowrey (2017) found in their study that a proportion of hearing-impaired individuals were quite dissatisfied with the labour market services they received. It quotes one study participant: "I used to be with VR in the past, but there are a lot of problems with VR. They don't really help me that much" (McAbee, Drasgow & Lowrey, 2017, p. 344). Participants in McAbee, Drasgow and Lowrey's (2017) study all expressed concerns about VR services in the region. Their concerns ranged from problems communicating with counsellors to finding a job that matched their aspirations. Research participants expressed the need for service providers to have a high level of sign language skills to better communicate with Deaf people. When the counsellor communicates better, Deaf people feel more comfortable and open to express what they need for their future. To achieve this, qualified interpreters are needed so that communication is not misinterpreted. Another study found that hearing-impaired VR users were more likely to work in lower-skilled jobs than other workers, despite the fact that their cases were labelled 'successfully completed' (Capella, 2003 cited by McAbee, Drasgow & Lowrey, 2017).

Svinndal, Jensen and Rise (2020) also highlight the importance of the first step in accessing a service: ensuring that the hearing-impaired person is aware of the



available services. This process begins with medical follow-up and hearing aid fitting. Respondents to McAbee, Drasgow and Lowrey's (2017) research emphasize the need to increase services in the community, including interpreting services in community and academic settings, as well as services related to the transition from school to work.

Recommendations for rehabilitation services, employers, workers

The studies make recommendations for people with hearing impairment in school-age and adult life, and for people who have become hearing-impaired as adults.

Parental recommendations are the most important when choosing a secondary school. "The next question focused on the provision of information. As far as the form of information is concerned, the most frequent was verbal information provided by the class teacher. This form was followed by information meetings and visits to the labour force" (Horváthová 2017, p. 46). For this reason, Luft (2015) proposes comprehensive and person-centred planning to prepare individuals for the transition, taking into account and expanding the individual's network of relationships (family, friends). In the context of adolescents, Luft (2015) points out that person-centred transition support should be primarily hearing impairment specific, with any associated diagnoses being secondary. "They should be prepared for appropriately challenging post- secondary training and/or employment opportunities, and to live and recreate within their communities" (Luft, 2015, p. 409).

In Kramer's (2008, p. 126) definition, "vocational enablement refers to services for maintaining, facilitating, or improving the employment situation". How, by what means can "vocational enablement" be supported?

Studies have shown that key elements of sustainable employment include: appropriate hearing aids (Kramer, 2008; Svinndal, Jensen & Rise, 2020), environmental changes (Svinndal, Jensen & Rise, 2020; Kramer, 2008; Li, Li-Tsang, Lee, Lee & Lam, 2006), communication, knowledge transfer support (Svinndal, Jensen & Rise, 2020; Chelius, Jonker & Brouwers, 2022; Kramer, 2008; Luft, 2015; McMahon et al., 2021), professional multidisciplinary support team (Svinndal, Jensen & Rise, 2020; McMahon et al., 2021), access to services (Kramer, 2008; McMahon et al., 2021; Luft, 2015; Svinndal, Jensen & Rise, 2020; Horváthová, 2017).

According to Kramer's (2008) research on quality of life, the most commonly recommended measure is the use of hearing aids and their proper fitting for hearing-impaired workers. Two further recommendations are closely linked to this: the creation of a suitable working environment, the use of work equipment (Additionally, creating an appropriate work environment and using work equipment) (e.g., visual warning systems, task reallocation, rearrangement of time schedules, assignment to a supportive colleague) (Kramer, 2008; Chelius, Jonker & Brouwers, 2022; Svinndal, Jensen & Rise, 2020). Reducing noise exposure specifically improves the coping strategies, quality of life (QoL) and sustainable employment of hearing-impaired hearing-impaired workers (Svinndal, Jensen & Rise, 2020; Kramer, 2008).

An essential recommendation is to promote good communication and knowledge transfer. Communication applies to both formal requirements and attitude. Several



methods are suggested to overcome communication barriers in the workplace (slower speech, transcription in meetings, provision of a sign language interpreter) (Chelius, Jonker & Brouwers, 2022; Kramer, 2008). Attitude as a professional tone of voice (Chelius, Jonker & Brouwers, 2022) can be both a source of demand and a source of discrimination in the workplace (McMahon et al., 2021). The importance of communication and knowledge sharing in the design of the work environment is summarised, a key element of which, according to Svinndal, Jensen and Rise (2020), is that it should not be the responsibility of only one party, i.e., only the employer or only the employee, but it should involve both parties, be proactive on the part of the employer (McMahon et al., 2021) and, if necessary, be supported by an appropriate professional (Kramer, 2008).

From the employee's perspective, easily accessible and comprehensive information is a protective factor (Svinndal, Jensen & Rise, 2020; Kramer, 2008), while lack of knowledge on the part of both the employee and the employer (employees, colleagues, employers, trade unions, health professionals) can be a source of danger and discrimination (Kramer, 2008; McMahon et al., 2021).

For sustainable employment, the authors recommend the support of a multidisciplinary team (psychologist, audiologist, rehabilitation services and employers) (Svinndal, Jensen & Rise, 2020; Luft, 2015; Kramer, 2008), the identification of a so-called key support person outside or inside the company (Svinndal, Jensen & Rise, 2020), and the building of a network of relevant people and service providers to support labour market participation (Svinndal, Jensen & Rise, 2020) and the transition of learners (Luft, 2015).

Access to different services is also a key element of access to employment, with Horváthová (2017) reporting on students' visits to a job centre, and McMahon et al. (2021) suggesting the involvement of rehabilitation specialists to reduce the prevalence and impact of possible discrimination in the workplace. According to Svinndal, Jensen and Rise (2020), having access to appropriate service provision and building a strong network are foundational elements for individuals to thrive in their working lives.

The area of quality of life is determined by vocational rehabilitation services (Kramer, 2008), identification of key individuals and services, design of person-centred planning programmes (Luft, 2015).

4. Discussion

We were looking for answers to three different questions in our study. The first one was related to the hearing-impaired employees' experience and difficulties in the labour market. They mentioned several different difficulties, as communication difficulties, stress and fatigue. The second question examined the different supportive possibilities in the labour market in order to obtain and keep a job. Deaf-friendly workplaces are not only about IT and communication accessibility, but also about empathetic attitudes of co-workers and bosses. The third question was about how the use of labour market support services affects the quality of life of hearing-impaired employees? Vocational rehabilitation programmes improve their quality of life, but they mentioned many barriers, such as differences in the work of interpreters and the



lack of adaptation regarding the forms of communication fit to the individual needs. Another study found that hearing-impaired VR users were more likely to work in lower-skilled jobs than other workers, despite the fact that their cases were labelled 'successfully completed'.

Based on the review of studies, it has become clear that there is little emphasis on the heterogeneity of the group of hearing-impaired individuals during research, particularly regarding the severity of hearing loss and the chosen mode of communication. This may be influenced, in part, by the impact of the United Nations Convention, which represents a departure from the so-called medical model of disability. However, this lack of emphasis complicates the comparability of results. Despite this, the mode of communication—according to certain qualitative studies—is prominently present for the hearing-impaired participants themselves, even though they have access to various channels (such as spoken language, sign language with interpreter support, or digital tools).

The topics of school-age hearing-impaired children's career planning and transition to the labour market are mentioned in only two studies. However, this limited coverage could be a consequence of the search terms used, as neither 'child' nor 'student' appeared among the keywords.

The processed studies highlight the importance of workplace adaptation and the attitudes of colleagues and workplace leaders in the experiences of hearing-impaired employees. This emphasis aligns with the social-community model, emphasizing the significance of the workplace role. Overall, the review of studies suggests that any environmental adaptation or services provided for hearing-impaired workers can be viewed from a broader perspective, promoting an inclusive and effective work environment for all employees, not just for those with disabilities.

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