

Physical activity among older people who are deaf and hard of hearing: perceived barriers and facilitators

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Abstract

The objective of this study was to investigate the ways in which participation in physical activity is prevented or facilitated among older adults who are deaf or hard of hearing (D/HH). Interviews were conducted with 8 individuals who are D/HH aged 50+ years (4 females and 4 males). The sample was created by asking key people in local organisations who they would recommend. Participants were recruited in an effort to have a cross-section of different hearing loss view-related experiences. Data was analysed using a thematic analysis. The analysis revealed four themes that helped to explain why physical activity was perceived as being either prevented or facilitated among older adults who are D/HH: communication strategies; visual and technical support; environment; physical activity participation. Appropriate physical activities can help to reduce personal and family stress and facilitate bringing about new long-term friendships, as well as help the individuals to take their minds off the hectic course of life. Various communication strategies can be used effectively in during leisure time physical activities with people who are D/HH. The main challenge for any specialist in physical activities (educator, coach or physiotherapist) is to pinpoint the most effective method for a particular individual who is D/HH and then become proficient in it. Our study confirmed that participation in physical activities is very important for all older adults who are D/HH in order to build connections with existing mainstream community activities.

Keywords: communication strategies; visual and technical support; environment; participation

INTRODUCTION

Being physically active can help to improve one's health and wellbeing and prevent secondary medical conditions. For instance, children in kindergarten are more physically active than teenagers and young adults and seem to satisfy the criteria for health benefits [1]. With increasing age, people seem to engage less and less in physical activities. However, physically older adults are at lower risk of disease and have higher levels of physical and cognitive function, psychosocial well-being and independence than inactive older adults [2].

For individuals who are deaf or hard of hearing (D/HH), the level of physical fitness might be lower than that of people without any disability. The reasons for this difference might be due to a lack of auditive information or communication problems and a lack of auditive information during physical activity [3-7].

Regular physical activity and physical fitness are especially important in maintaining the health and well-being of people of all ages not excepting of older age population [8, 9]. It is particularly important that people who are D/HH and are usually physically inactive devote some time to physical activity since it significantly helps to improve their quality of life [10, 11]. The deaf and hard of hearing population is a heterogeneous group that includes persons who have varying degrees of hearing loss, use multiple languages and belong to different cultures. Factors that must be considered with this population include the degree of hearing loss, the age of onset of loss, the preferred language including supportive communication modes and psychological issues. Individuals who are D/HH may be disadvantaged in terms of health and participation in beneficial physical activities compared to the majority of society due to their information deficit and limited auditory perception [12-14].

The European Disability Strategy 2010–2020 [15] focuses on eliminating all barriers faced by more than 80 million Europeans that often prevent them from fully taking part in society (e.g. sports, leisure, cultural and recreational organizations, events, venues, etc.) and the economy. Rimmer et al. [16] points out that the degree of participation in physical activity among people with disabilities is affected by a multifactorial set of barriers (architectural, social, policy and attitudinal) and facilitators that are unique to this population. Despite having general awareness of the important benefits of physical activity, the rate of participation in leisure time physical activity by people with disabilities is low [17-19]. At present, there is very little understanding of the constraints on the leisure time physical activity among people who are D/HH. To promote an active and healthy lifestyle amongst individuals who are D/HH, it is necessary to understand the factors that prevent or facilitate their participation in physical activities. The purpose of this study was to investigate the ways in which participation in physical activity is either prevented or facilitated among older adults who are D/HH.

METHODS

Participants

After gaining faculty ethical approval for the study, participants were recruited using a purposive sampling strategy [20]. The criteria for selection were: (a) hearing loss of a minimum of 55 dB in the better ear (in three frequencies of pure tones of 500, 1000, and 2000 Hz); (b) active participation in physical activities in the past five years; (c) age 50+. The participants in this study were 8 older adults who are D/HH (4 females and 4 males). The group of participants who are D/HH was comprised of deaf persons who use Czech sign language (n=2); persons who are hard of hearing and speak spoken Czech (n=2); persons with practical deafness who speak spoken Czech with the support of lip reading (n=2); and persons with a Cochlear Implant (n=2) (Table 1). Not counting one participant who reported having an additional visual impairment, the participants had no other additional disabilities.

Data collection and analysis

The sample was created by asking key people in local organisations to identify potential participants. Individuals who might have different perspectives on the study topics were recruited in an effort to obtain a cross-section of different hearing loss view-related experiences. After being selected, participants were given written and oral or signed information about the study and they were asked to sign a Written Informed Consent Statement. Sociodemographic data were also collected (Table 1). The interview was conducted in a private, quiet and light location with easy access. The discussion were recorded and later fully transcribed verbatim. The Principal Investigator had prior 'interview' experience and was assisted by an interpreter from/into Czech Sign Language (CSL). An interview guide was used to help facilitate the

discussion. Questions included in the guide were, 'Why did you decide to be physically active?', 'What are some barriers to your physical activity?', 'How does being active impact your wellbeing?' and 'How have you remained active?' Clarification, elaboration, and detail orientated probes, that is, curiosity-driven follow-up questions, were used throughout to elicit richer data [21].

In the present study, analysis was performed by: (a) independent and exhaustive reading of the transcribed material by two independent evaluators; (b) identification of themes/topics (also called 'units of meaning' or 'record units'); (c) review and examination of these units to define categories that synthesized the material; (d) reconciliation and comparison of each group's results.

RESULTS

The analysis revealed several themes that helped to explain why physical activity was perceived as being either prevented or facilitated among older adults who are D/HH. Each theme often captured both a barrier and facilitator to physical activity. The following themes that were identified through the analysis will be discussed in turn: communication strategies; visual and technical support; environment; physical activity participation.

Communication strategies

Participants in the study communicated using speech as well as lip reading and written texts. Both deaf individuals without cochlear implants communicated primarily through sign language; they regarded any written information as being difficult to understand. Only four of eight participants who are D/HH mentioned that they did not have difficulties in communication. Others stated that the hearing population is uninformed or indifferent.

To put this in context, audiologists categorize hearing based on pure-tone frequencies of 500 to 4000 Hz and as: no hearing loss 0–25 dB, no or very slight hearing problems, able to hear whispers; slight hearing loss 26–40 dB, able to hear and repeat words spoken in a normal voice at a distance of 1 metre; moderate hearing loss 41–60 dB, able to hear and repeat words spoken in raised voice at distances over 1 metre; severe hearing loss 61–80 dB, able to hear some words when shouted into the better ear; and profound hearing loss including deafness of 81 dB or greater, unable to hear and understand even a shouted voice [22].

Participants in this study had profound hearing loss or deafness; six of them used a hearing aid or CI (Table 1). The hearing aids users reported that the hearing aid helped him/her to communicate more easily and to control their surroundings. Users of cochlear implants also indicated that the CI helped them to better understand speech. However, problems arise when they could not have their CI (e.g. during swimming, sauna, in a storm). One of the CI users mentioned that, in such situations, he communicates using sign language that he mastered in childhood. CI users communicate in sign language with hearing as well as deaf persons in acoustically hostile environments when wanting to be sure that they understand each other well.

Older adults who are D/HH try to resolve failures of the auditory analyzer through an agreement in advance and thus avoid misunderstandings in communication. All of them assume a specific attitude with regard to their communication skills and the skills of the counterparties with whom they communicate. Users of hearing aids or CI eliminate common problems with comprehension in noisy environments in various ways: "After years of living with hearing loss and possible communication pitfalls, I already know what to do. Usually, I tell the person in advance what I need for smooth communication, or I resolve the situation at the first sign of trouble" (P3, 56 years old).

Table 1. Participants characteristic

Participants	P1	P2	P3	P4	P5	P6	P7	P8
Age	52	67	56	64	64	58	72	64
Gender								
Female	-	+	+	-	-	-	+	+
Male	+	-	-	+	+	+	-	-
Onset of hearing loss								
Years of age	FB	FB	5	13	2	5	18	36
Type of hearing loss								
Sensorineural	+	+	+	+	+	+	+	+
Degree of hearing loss								
Deafness	+	+	-	-	-	-	+	+
Profound hearing loss	-	-	+	+	-	-	-	-
Moderate hearing loss	-	-	-	-	+	+	-	-
Use of hearing aid or CI								
Yes	-	+	+	-	+	+	CI	CI
No	+	-	-	+	-	-	-	-
Primary mode of communication								
Czech sign language	+	+	-	-	-	-	-	+
Czech language (spoken speech)	-	+	+	+	+	+	+	+
Difficulties in communicating								
I have no problem	-	-	-	-	+	+	+	+
Uninformed	+	+	-	-	-	-	-	-
Indifferent	+	-	+	+	+	+	-	-
Hearing state of parents								
Both parents hearing	+	+	+	+	+	+	+	+
Hearing state of siblings								
Hearing siblings	+	+	+	+	+	+	+	+
Education								
Regular school	-	-	-	+	+	+	+	+
Leaving examination	-	+	+	+	+	+	+	+
University degree	-	-	+	-	-	+	+	+

Note. FB = from birth; CI = cochlear implant

Visual and technical support

Sign languages are common in all settings; therefore, it is highly recommended that they be used, because these signs can become generalized to other settings and individuals, leading to increased effective communication in other environments [23]. If an individual who is D/HH does not know signs but is able to read lips, it is important for the coach or instructor to face him or her when giving directions, feedback and/or instructional cues. If it is not possible to use communication with the support of sound amplification (hearing aid, CI) and we want to attract the attention of deaf people, it is necessary to touch their upper arm or use gestures in their field of vision, or barring that, vibrations (foot stamping on the floor). A participant with residual hearing appreciated the following sensitive approach taken by their Pilates instructor: "Because I need to see the instructor, I have to watch the demonstration and know her exercise technique ... we just have to adapt to each other I cannot constantly pay for individual lessons. Well, I also have to explain to others in the group why I have to see the instructor and therefore choose a suitable place" (P3, 56 years old).

If individuals who are D/HH can hear some sounds, but they are not recognizable (e.g., high tones or changes from one word to another), instructors should modify their instructions. The suitability of this simple solution was mentioned by a participant in the Pilates group: "Our passionate trainer even uses graphic cards with simple labels and pictures to lead the exercise" (P3, 56 years old). This creative approach taken by the Pilates instructor was further highlighted by her friend who also attends the lessons: "The longer I attend the group training, the more I enjoy it, the more I am confident in including new and unknown combinations and exercises. It is a challenge for me as I can train my head and stretch my body" (P7, 72 years old).

These modifications are often very helpful to the hearing exercisers in the gym as well. In addition to his/her own visual demonstration of the exercise, the instructor or trainer can also use posters, smart boards, video presentations with closed or opened captions or English subtitles and handouts. If possible, the instructor should maintain eye contact with others and thus keep control over the correctness of the conducted exercises.

Environment

When providing information during physical activities, it is necessary to take into account the current environmental lighting conditions. A deaf individual who uses a hearing aid, said: "Look, although I cannot hear and although I can read lips excellently, it may happen that I understand the information completely wrong due to fatigue or poor lighting conditions. Therefore, don't be afraid and warn me about the fact that I have misunderstood you, and be patient with me" (P2, 67 years old).

A participant with profound hearing loss complained about the possible risk of injury during hiking: "I sprained my ankle several times during a conversation with my hearing girlfriend during Nordic walking. I just suddenly stepped into a hole that I did not see as I was watching her mouth" (P3, 56 years old).

"Regarding orientation in an unfamiliar sporting environment, such as water parks or multifunctional halls, visual signs are typically located everywhere. Previously, I used a guide for easier orientation; a resort employee acquainted me with the environment, showing me what to do. I must say that it is much better (awareness, the approach taken by employees toward deaf persons) than thirty years ago. At that time, people perceived persons using sign language as exotics communicating among themselves through strange gestures" (P2, 67 years old).

Physical activity participation

When leading physical activities, it is important that the trainers, instructors and other staff know what hearing aids or CIs can do and what limits these devices have. There are some instances during physical activity when it is necessary to remove CIs or hearing aids, e. g. excessive sweating, aquatic activities and contact sports. "In group physical activities, a demonstration really helps me. I do not register many of the verbal commands given by our yoga instructor. I would get nothing out of our yoga class without her cooperation and initial explanation of my needs... I also appreciate videos that I can comfortably watch at home and that tell me what we will do in the next lesson" (P2, 67 years old).

"If I go somewhere to regularly exercise, people already know me and understand how to communicate with me. They are not afraid to use the basic signs that I have taught them... We all are then sure that we understand each other" (P8, 64 years old). A participant who is HH summarized his problem as follows: "Whenever I spoil a dance, cannot understand how to properly execute the moves or I get out of rhythm with the music, which happens quite often, we all laugh together". The hearing colleagues who exercise with me know that I am not doing it on purpose. And those who are slower and physically less fit at least see that they are not the only ones who make mistakes" (P5, 64 years old). Another participant with profound hearing loss summed it up in the following way: "Given the fact that I have been practically deaf for years, I have got accustomed to this in everyday life as well as during sports [volleyball, Frisbee]. People react differently to my deafness. I deal with the situation by informing people about my condition. You know I hear poorly, do not be angry if I respond differently. When seeing repeated negative reactions from people, I give it up and change both where I am and the people I associate with" (P4, 64 years old).

Despite these problems during exercise, all the participants expressed the belief that regular physical activity releases them from their daily routine and helps to keep them in good mental and physical condition. The contribution of daily activities (walking the dog) and taking joint trips with friends in nature were described by a deaf participant with CI as follows: "I feel safe during these joint walks with the dog and this activity has allowed me to make new social contacts and discover new interests. It helped me overcome bad periods in my life. I feel I live a full life because of the dog, even though I'm already retired... My dog is a great companion and psychological support" (P7, 72 years old).

DISCUSSION

A targeted support of communication and a mutual collaborative environment where physical activities are provided may alleviate or eliminate any possible feelings of social exclusion among those who are D/HH. On the contrary, an example of an inappropriate approach taken by professionals is the situation where they verbally explain everything in great detail to the hearing persons, but very often provide only rather simple instructions to individuals who are D/HH, or who rely primarily on gestures when communicating with people who are D/HH. Similar findings have been published in other studies that were focused on the special needs of people who are D/HH [3, 5]. Drawbacks in communication may, for people with varying degrees of hearing loss, result in insufficient development of their verbal or sign vocabulary. Consequently, they are often not afforded enough opportunities during physical activities to engage in social interaction with mainstream society, and through it, to develop new skills and interpersonal relationships.

The main factors impeding the involvement of people who are D/HH in leisure time physical activities include a feeling of indifference or uncertainty from the majority of society,

as well as a lack of available information [24]. Appropriate physical activities can help to reduce personal and family stress and facilitate bringing about new long-term friendships into their lives, as well as help the individuals to take their minds off the hectic course of life. It also helps them to overcome critical periods in their lives. Those findings have also been confirmed in the other studies [25, 26].

Therefore, if we want to offer appropriate physical activities, we must take into account the specific conditions for persons who are D/HH: (a) the general needs of people who are D/HH (the basic needs of persons); (b) the special needs of given individuals based on their skills and abilities. We agree with Reich & Lavay [27], Schultz et al. [28] and Zaccagnini [29], who stated that there are numerous physical activities that individuals who are D/HH could take part in, although they must have the opportunity and know how to access them. Professionals delivering these services need to have appropriate training, including knowledge and skills related to the special needs of people who are D/HH, especially appropriate communication skills and practical experience with that group.

CONCLUSION

In the present study, older adults who are D/HH were interviewed so that they could describe their participation in leisure time physical activities. By using qualitative methods, ways that prevented or facilitated physical activity participation among older adults who are D/HH were investigated.

Physical activity providers or other professionals delivering these services could benefit from training how to best facilitate physical activity for older people who are D/HH. Also, opportunities to participate in different forms and levels of physical activity that include provisions for a smooth transition between responsible parties when they leave are essential. Information and guidelines are needed that inform people how, why, where, and when to be physically active with respect to their special needs. As a part of this, promoting positive messages that incorporate the multiple reasons for being physically active, such as physical, mental, and emotional rewards, is required. Close cooperation between relevant service providers and local organisations for people who are D/HH is the best choice to build connections with existing mainstream community activities.

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