

Well-Hearing is Well-Being

A Phonak position statement about why hearing healthcare is vital for healthy living

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The goal of this position statement is to propose a model of well-being that would be easy to use in clinical audiology practice and considers the domains of socio-emotional, cognitive, and physical well-being as core dimensions of well-being. While hearing loss and its associated communication challenges can indeed impact these core well-being dimensions, growing evidence shows that hearing rehabilitation can provide benefits in the same three domains.

Editor's note: In November 2019, Phonak convened a group of researchers and experts to discuss well-being. How can we define well-being, especially in a hearing health care context? Can we formulate research directions to guide future work, aimed at improving quality of life of people with hearing loss? This paper is a first reflection of this work. "Well-hearing is Well-Being"™ is a trademark of Phonak.

Hearing loss extends beyond hearing sensitivity, in many ways. The complexity of hearing loss relates to the complexity of life. Meetings, restaurant visits, family parties, etc, are all often set in noisy or reverberant surroundings. To hold conversations in these challenging situations, it is generally recognized that listeners rely on peripheral hearing sensitivity (reflected by a pure-tone audiogram), central temporal sensitivity (the accuracy and efficiency by which auditory information is encoded, processed, and integrated throughout the auditory pathway), and cognitive skills.^{1,2} When bottom-up signal processing degrades, such as through hearing loss, top-down cognitive processing becomes more important.³

The complexity of hearing loss also relates to its impact. Hearing is in many ways a social sense, and hearing loss can have a fundamental impact on communicating with others, and connecting to them. Hearing is also an emotional sense, and hearing loss can change how we enjoy social gatherings, theater, music, and how we perceive emotions. Hearing loss can also affect the ability to monitor changes in the acoustical environment, potentially impacting a sense of safety or security.

In other words, hearing loss can have an impact on what we intuitively would refer to as "well-being." But can we put a definition on well-being, with an emphasis on well-being in a hearing healthcare context?

Defining Well-being

Well-being is a very personal and multi-dimensional concept.⁴ It seems to inherently

relate to things we value in life. For one person it can be happiness, independence, or staying active. For another person it can be social participation, satisfying relationships with family and friends, or achievements in the workplace. One's definition of well-being is likely to be fluid and can change throughout life. At times when we are confronted with physical health problems, physical well-being can take on a more prominent role. At times when we are in good physical shape, other aspects of well-being may be more important.

The aim of this paper is to propose a model of well-being that would be easy to use in clinical audiology practice. In this model, we consider socio-emotional, cognitive, and physical well-being as core dimensions of well-being. These three core dimensions are founded on the World Health Organization (WHO)'s constitution, which since 1948 describes health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."⁵ The definition hasn't changed since 1948.⁶ In 1986, the Ottawa Charter for Health Promotion did add that "To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment...Health is a positive concept emphasizing social and personal resources, as well as physical capacities."⁷

While hearing loss and its associated communication challenges can indeed impact these core well-being dimensions, growing evidence shows that hearing rehabilitation can provide benefits in the same three domains. This will be further discussed in the following sections of this paper. By also identifying research directions and applications for clinical practice, we want to further explore these associations and encourage hearing care professionals to discuss the multi-dimensionality of hearing loss and well-being in audiological care.

Socio-emotional Well-being

Human beings are social creatures. Above many things, we value connectedness. For good reason, it seems. Increasing evidence demonstrates that having supportive social ties is associated with better health outcomes, such as longer life expectancy,⁸ better physical,^{9,10} and better mental health.¹¹ One of the longest longitudinal studies ever conducted even suggests that cognitive and emotional health in late-life may be mediated by successful relationships—with significant others, at work, or in a community—around midlife.¹²

If social connectedness is good for the brain and the body, how do hearing and hearing rehabilitation fit in? One of the growing concerns related to hearing loss is the association with a smaller social network,^{13,14} feelings of loneliness,¹⁵⁻¹⁸ restricted interpersonal communication behavior,¹⁹ and an impact on the perceived quality of relationships with others.^{17,20,21} What if this socio-emotional burden associated with

hearing loss acts as a mediating factor, negatively impacting long-term health outcomes? What if treating hearing loss could turn the situation around and allow us to live longer and healthier?

To date, there are no clear answers to these questions. One longitudinal study showed that a sample of hearing aid adopters and non-adopters spent equal amounts of time engaged in solitary activities, such as watching TV or reading.²² These results suggest that hearing aids may not benefit social engagement. However, in the same study, individuals with hearing loss reported a lower perceived socio-emotional impact of hearing loss while wearing hearing aids.²²

The difference between actual (objective) and perceived (subjective) social impact or benefit may in fact be crucial. It has been suggested that feelings of social isolation or social engagement rather than objective measures may be predictive of health outcomes.²³ While there is a need for further research on

hearing aid use, long-term health outcomes, and different measures of social engagement, the self-perceived social benefits of hearing aid use seem evident to hearing aid adopters,²⁴⁻²⁶ and their communication partners.^{20,27}

Indeed, more and more research shows that involving communication partners in hearing rehabilitation is key. By applying such a family-centered care approach, the needs of all individuals involved in communication can be acknowledged and addressed.^{28,29} For persons with hearing loss, perceived social support is linked to being successful and satisfied with hearing aids,^{30,31} but also to seeking help for hearing loss in the first place.³²⁻³⁴ This is most likely due to the fact that communication partners, such as spouses, can experience difficulties because of the hearing loss of their partner as well—a phenomenon referred to as “third party disability.”^{35,36}

Additionally, people can deal with hear-



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Hearing care providers are uniquely positioned to raise awareness, and put hearing loss and hearing rehabilitation in a much broader context. Therefore, they can play a key role in changing the conversation from “needing a hearing aid because you do not hear well,” to a conversation about what hearing and hearing rehabilitation can truly mean for an individual in the broader context of healthy living.

ing loss in different ways, depending on personality traits, co-occurring life events, and social or environmental influences.³⁷ On the one hand, people may apply strategies to actively manage hearing loss, such as using hearing aids and/or communication strategies (engaged coping). On the other hand, people may avoid addressing hearing loss, for example by denying or minimizing their hearing problems, withdrawing from social situations, or withdrawing within social situations (disengaged coping),¹⁸ sometimes mediated by (self-)stigma.^{37,38} This may lead to social isolation and loneliness.

However, when persons with hearing loss and their communication partners apply aligned coping strategies (eg, by working together on dealing with and managing hearing loss), adjusting to hearing loss and hearing aids can be facilitated.²⁰ Audiologists and hearing care professionals can foster this alignment of coping strategies by providing information and support to both the person with hearing loss and his/her communication partners.

Cognitive Well-being

Cognitive well-being and healthy aging are hot topics for policy makers, researchers, and clinicians. Population aging is a fact. In many parts of the world, it is expected that one-third of the population will be older than 60 years of age by 2050.³⁹ About a third of individuals in this age range will develop a hearing loss that interferes with daily life functioning.⁴⁰ Adding on to it, growing evidence shows that persons with hearing loss are more at risk of developing clinically significant cognitive problems than their normal-hearing peers.⁴¹⁻⁴⁴

There is no consensus yet on why hearing loss and cognitive decline are associated.

Recent data suggest that it may be a combination of different underlying mechanisms.⁴⁵ One of those mechanisms could be a common cause, affecting both hearing and cognition. Another mechanism postulates a short-term relationship between both, as a decline in hearing sensitivity requires compensatory cognitive resources that are then no longer available to perform other tasks. There is also the possibility of a long-term relationship: sensory deprivation due to hearing loss may affect cognition because of a prolonged period of reduced brain stimulation,⁴⁵ or by interacting with other risk factors for developing cognitive problems, such as a smaller social network or depressive symptoms.⁴⁶

Causal hypotheses imply that treating hearing loss—for example by amplifying the auditory signal through hearing aids—could have a positive effect on cognition, protecting against or slowing down cognitive decline. To date, only a few longitudinal studies are available on this topic and they show mixed results.^{47,48} About half of the studies show a positive effect of treating hearing loss, while the other half show no effect of hearing aid use on long-term cognitive outcomes.⁴⁷ Randomized clinical trials on this topic are still ongoing⁴⁹ and will shed more light on this subject in the upcoming years. In the meantime, the promising emerging evidence that hearing aids may delay the onset of cognitive decline⁵⁰⁻⁵² urges for the clinical recommendation to adopt hearing aids early in the course of hearing loss.

Also, the immediate, short-term effects of hearing aids on cognition should not be underestimated. Wearing hearing aids during a listening task allow listeners with hearing loss to do better on a secondary task (ie, a task performed at the same time).⁵³⁻⁵⁶ Keeping in mind that a person’s individual cognitive

capacity^{56,57} or experience with hearing aids (eg, experienced versus first time users⁵⁷) may also play a role, these dual-task studies suggest that making sounds more audible can make listening less effortful. Reducing listening effort could free up cognitive resources for purposes other than listening,⁵⁸ and could potentially also reduce feelings of fatigue.⁵⁹

As the generalizability of laboratory studies on listening effort remain unclear, novel methods to measure hearing aid benefits in the field could provide more insights. During Ecological Momentary Assessment, for instance, hearing aid wearers are asked to monitor their experiences in real-time. By filling in a survey through an app, listeners can indicate how effortful listening is in different situations, or how they would rate their hearing performance, multiple times per day.^{60,61}

Physical Well-being

To navigate the world, we continuously try to stay aware of our surroundings by integrating information that comes in through all the senses.⁶² Our sense of hearing, for example, contributes to a sense of environmental awareness: by processing and interpreting spatial information in sounds, listeners are able to monitor changes in the acoustical environment.⁶³ Hearing loss can make this a lot more challenging, as it introduces difficulties to segregate and localize sound sources,⁶⁴ but also to detect subtle sounds, such as approaching footsteps or the splashing sounds from a wet and slippery floor.

Therefore, it is likely that listeners with hearing loss spend more effort maintaining awareness of their surroundings than listeners with normal hearing. Similar to compensating for reduced speech intelligibility by “filling in the gaps,” extra effort spent on auditory tasks like spatial awareness may compromise the availability of cognitive resources for other purposes.⁶⁵ In an older more vulnerable population, it has been hypothesized that this could impact skills such as postural control.⁶⁶

Postural control is a complex motor skill that allows us to achieve, maintain, and restore balance. It prevents us from falling down and allows us to control our movements.^{67,68} To achieve postural control, we rely on a multisensory feedback system that integrates auditory,⁶⁹ visual, vestibular, and proprioceptive information.⁷⁰

More and more research shows that older adults with hearing loss are significantly more at risk of falling than their normal-hearing peers.⁶⁶ As falls often result in detrimental outcomes—such as loss of confidence, serious injuries, or even mortality⁷¹⁻⁷³—it is of high interest to identify and address risk factors for falling, such as hearing loss.

In addition to the cognitive effort hypothesis, it is known that postural control is especially challenged when there is a vestibular problem. Given the close proximity of the vestibular and auditory systems, factors such as infections or aging may impact both at the same time.⁶⁶

Interestingly, some studies show positive effects of hearing aid use on postural stability and balance in individuals with hearing loss.⁷⁴⁻⁷⁶ Other studies suggest that this may only be the case for persons with clinically significant vestibular problems.^{76,77} Nonetheless, well-fitted hearing aids can increase access to subtle sounds, fostering a listener's awareness of changes in the environment. Hearing-aids could thus increase feelings of safety or security, giving people the confidence to maintain an active and healthy lifestyle.

To date, however, almost no studies have investigated long-term physical health outcomes following hearing aid adoption. Holistic intervention programs aimed at improving the physical and social well-being, as well as the hearing and health-related quality of life in persons with hearing loss, are currently under investigation^{78,79} and show promising pilot results.⁸⁰

Potential Research Directions, and Applications in Clinical Practice

The goal of this paper was to give a high-level overview of current scientific evidence linking hearing and hearing rehabilitation to the different dimensions of the “Well-Hearing is Well-Being” model. Of course, more work needs to be done, and there is a group investigating the relationship between hearing loss and well-being to define a conceptual model of well-being in those with hearing loss.⁴ Following a research priority consensus exercise, we recommend future research to focus on how our hearing sense relates to different aspects of well-being, and how hearing rehabilitation might foster well-being. Also, we should explore collaborations with other disciplines to address hearing loss as a part of whole-person care, rais-

ing awareness and spreading knowledge on comorbidities in different healthcare fields, and advocating for hearing treatments as part of interprofessional healthcare.

A close collaboration with general practitioners, especially, could foster preventative care, identifying and addressing hearing loss and its comorbidities earlier in time.⁸¹ Also, optimizing communication in healthcare settings⁸² and care homes⁸³ deserves much more attention, as optimal communication is invaluable for adequate history-taking, reducing the risk of misdiagnoses, fostering retention of information, supporting self-efficacy, and treatment adherence.

Finally, hearing care providers are uniquely positioned to raise awareness, and put hearing loss and hearing rehabilitation in a much broader context. Therefore, they can play a key role in changing the conversation from “needing a hearing aid because you do not hear well,” to a conversation about what hearing and hearing rehabilitation can truly mean for an individual in the broader context of healthy living. Through a family centered-care approach, discussing comorbidities, hearing technology, and communication strategies, hearing care providers and hearing rehabilitation can be pivotal in fostering communication, participation in physically or cognitively stimulating activities, and social functioning—thereby serving as a catalyst for well-being. ▀

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