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**ASSESSMENT OF THE QUALITY
OF LIFE OF PATIENTS WITH A
MILD DEGREE OF
SENSORINEURAL HEARING LOSS**

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Untreated sensorineural hearing loss (SHL) can negatively affect the health-related quality of life of individuals and their families and is often associated with social isolation, increased levels of depression and anxiety [3,4]. Recent studies have shown that SHL is associated with accelerated cognitive decline in the elderly people, and with brain atrophy, especially in the temporal lobe [6]. Although hearing aids (HA) are the most common treatment for SHL, many patients do not seek help for about 10 years or more after they initially notice hearing problems [7]. In addition, only one in five patients who are candidates for wearing HA use them. In other words, this low rate indicates that 70 to 80% of people with hearing impairment are still at risk of the insidious effects of untreated SHL [1]. Unfortunately, approximately 67 to 86% of people with SHL who might benefit from HA do not receive them or use them [2]. It is difficult to understand the reason why so many patients are not looking to improve their hearing, especially given the advances in hearing aid technology over the past decade. Some studies show that sound amplification can be beneficial even for people with mild hearing loss.

For some time, audiologists have been wondering whether hearing aids should be prescribed for people with mild SHL. Some authors claim that their clinical experience has shown that many people with mild sensorineural hearing loss experience both improved hearing and reduced tinnitus from early intervention through sound amplification.

The prevalence of mild SHL varies depending on how it is defined. Recently, mild hearing loss was defined as a four-frequency average of the pure tone at frequencies of 500, 1000, 2000 and 4000 Hz from 26 to 40 dB HL. However, some authors note that 25 dB or more can be considered as having normal hearing, but still having these values at high frequencies can lead to difficulty in understanding speech, especially understanding speech in noisy environments. Many of these patients can benefit from HA with moderate sound amplification.

Patients with mild SHL, as well as those with more severe hearing loss, have a low rate of HA use. Kochkin S. reports that only 29% of the people interviewed who reported mild hearing loss said they had seen an audiologist [5]. Surprisingly, the results of this survey showed that 43% of hearing care professionals advised them to wait before seeking hearing aid, and 25% said that hearing aid would not help them. If this is true, then inappropriate or inaccurate information and advice from hearing aids is a heinous reason for patients not to use hearing aids, especially given the high quality HA technology available today for patients with any degree of hearing loss. Another reason people with mild SHL may not seek help is the lack of easy access to hearing care and the high cost of HA.

There is little information in the available literature that reports the outcomes of HA for patients with mild SHL, and these were rather outdated. Many of them compared the results of analog and early digital devices.

The aim of our study was to determine the indicators of the quality of life associated with hearing in patients with mild SHL, using the SSQ questionnaire - speech, space and quality of hearing.

Research material and methods:

The participants were recruited at the Department of Otorhinolaryngology, Pediatric Otorhinolaryngology and Pediatric Dentistry, TashPMI. We examined 35

patients with mild SHL (0-40 dB HL). Medical history, ENT examination, acumeny, tone audiometry and questionnaires were collected from all of the participants. Questioning was carried out before and after prescribing HA (digital).

All study participants were informed and agreed to fill the questionnaire. The study group included: participants over 18 years old, as well as persons who had the opportunity to fill out the forms. Following

	N=35	%
Male	14	40
Female	21	60
Married	29	82,8
Not married	6	17,1
Number of family members		
1	1	2,8
2	2	5,7
3	11	31,4
More than 3	21	60,0
Disease duration		
Less than 1 year	6	17,1
1-3 years	19	54,3
More than 3 years	10	28,5

were excluded: participants under 18 years old, persons who do not have the opportunity to fill out forms, the presence of mental, chronic, systemic diseases, as well as those who refused to participate in the study. The Speech, Space and Hearing Quality (SSQ) Scale is a questionnaire designed to assess hearing and hearing impairment in real-life communication, with a focus on binaural hearing. The questionnaire explores the main aspects of hearing using 49 points, divided into three areas: a person's ability to listen to speech in various situations (Part 1 - understanding speech); localization of sounds from different directions, distances and during movement (Part 2 - Spatial hearing); and listening experience with respect to musical perception, clarity and naturalness of sounds (Part 3 - Quality of hearing). SSQ can be

used to study binaural hearing, as well as to determine the effectiveness in various rehabilitation measures, and to improve the technologies of the hearing aids themselves. SSQ is widely used in different countries and in different languages, showing its validity in clinical practice. Participants answered questions about aspects of their hearing ability, as well as their experiences in different situations with the help of HA. Participants rated their communication performance for each

Table 1.
Characteristics of patients with mild SHL

situation, scored on a scale from 0 to 10. Subjects were told that 10 indicates that they can perfectly complete the situation in the question, while 0 means they are completely unable to complete it. In addition, there was an option "not applicable" for cases when the patient did not face this situation.

Results: 35 patients were examined, of which 21 were women and 14 were men with an average age of 65.7 years. Participants were diagnosed with mild SHL (0-40 dB HL) on the basis of audiological studies (tone audiometry). We collected the following data: age, sex, marital status, duration of the disease, the number of people in the family, the number of hours per day of using the HA, experience with the current HA (Table 1).

Table 2 demonstrates the audiometric data for the right and left ear in patients with mild SHL. Mild SHL was set on the basis of a four-frequency pure tone average (PTA) of 26 to 40 dB HL in the best ear. The definition of mild SHL used in the present study was changed to (PTA) \leq 40 dB HL in the best ear without setting a lower limit, because it is possible that patients may have a sharp HF with mild SHL PTA \leq 20 dB. The participants' mean audiometric thresholds collectively showed a descending pattern of hearing loss. It is important to recognize that the different configurations (eg, sloping down or up and flat) of hearing loss fit our definition of mild SHL.

In addition, although the majority of hearing loss was bilateral (68.5%), there were also unilateral cases of hearing loss (31.4%).

Table 2.
Audiological indicators of patients with mild SHL

	AD		AS	
500	24,5	16,1	24,7	20,1
1000	31,6	14,2	31,2	16,2
2000	40,0	18,2	39,4	17,9
4000	58,8	16,5	55,9	15,8

	N=35	%
Bilateral hearing loss	24	68,5
Unilateral hearing loss	11	31,4

Our results showed that the largest number of studied patients (65.7%) used HA for 12 or more hours a day (mean time 13.8). These data indicate that patients with mild SHL used HA during the waking hours, reporting that patients with mild SHL generally benefit from HA use (Table 4).

Table 3.
Experience of using hearing aids in patients with mild hearing loss

	N=35	%
No experience	28	80
up to 1 year	1	2,8
up to 2 years	4	11,4
more than 2 years	2	5,7

Table 4.
Hours of wearing hearing aid per day

	N=28	%
Up to 6 hours	2	5,7
6-9 hours	4	11,4
9-12 hours	6	17,1
12 or more hours	23	65,7

The participants in the present study acquired their HA after the end of the study, which suggests that they felt an improvement in wearing the HA.

Analysis of SSQ results showed that before hearing aids, SSQ scores were reduced in comparison with subsequent ones, which were carried out after hearing aids.

The difference between the two tests was evident, with a lower average score in speech (Part I) than in spatial (Part II) and hearing quality (Part III) (Table 5).

This data suggests that the use of this questionnaire can identify problems caused by hearing loss and test people with or without hearing loss.

It should be noted that the majority of patients (72%) before hearing aids report lack of confidence when talking with another person in small groups, in a car, as well as on the phone and TV, whereas after hearing aids, these indicators decreased almost two times (40%).

Table 5

Analysis of SSQ indicators (parts I, II and III) during testing before and after hearing aids in patients with mild hearing loss

SSQ	Before hearing aids		After hearing aids		p
	M	m	M	m	
Part I	5,34	5,0	7,21	6,12	p<0,52
Part II	6,89	5,92	8,52	7,81	p<0,37
Part III	6,75	5,71	8,70	8,11	p<0,32

Conclusions:

1. A mild degree of SHL requires timely diagnosis and hearing aid.

2. Hearing aids significantly improve the quality of life of patients associated with the decrease in hearing acuity

3. For a comprehensive assessment of the effectiveness of hearing aids, it is advisable to use the SSQ test to determine the quality of life associated with hearing.

References:

1. Abrams H B, Kihm J. *An Introduction to MarkeTrak IX: A new baseline for the hearing aid market. Hearing Review. 2015;22(06):16. o'Google Scholarg'*

2. Blazer D G, Domnitz S, Liverman C T. *Washington, DC: National Academies Press; 2016. Hearing Health Care for Adults: Priorities for Improving Access and Affordability. o'PubMedg' o'Google Scholarg'*

3. Chisolm T H, Johnson C E, Danhauer J L et al. *A systematic review of health-related quality of life and hearing aids: final report of the American Academy of Audiology Task Force On the Health-Related Quality of Life Benefits of Amplification in Adults. J Am Acad Audiol. 2007;18(02):151-183. o'PubMedg' o'Google Scholarg'*

4. Ferrans CE, Zerwic JJ, Wilbur JE, Larson JL. *Conceptual model of health-related quality of life. J Nurs Scholarsh. 2005; 37(4):336-342. o'PubMed: 16396406g'*

5. Kochkin S. *MarkeTrak VIII: The key influencing factors in hearing aid purchase intent. Hear Rev. 2012;19(03):12-25. o'Google Scholarg'*

6. Lin F R, Albert M. *Hearing loss and dementia - who is listening? Aging Ment Health. 2014;18(06):671-673. o'PMC free articleg' o'PubMedg' o'Google Scholarg'*

7. *National Institute on Deafness and Other Communication Disorders. Hearing loss and older adults. 2016 Available at: <https://www.nidcd.nih.gov/health/hearing-loss-older-adults>. Accessed June 12, 2017.*