



Original Research / Orijinal Araştırma

Relationship Between Depressive Symptoms and Hearing Impairment in the Elderly Yaşlılarda İşitme Kaybı ve Depresif Semptomlar Arasındaki İlişkinin İncelenmesi

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Abstract

Objective: This study aims to examine the relationship between the severity of hearing impairment and psychological symptoms in the elderly.

Methods: A cross-sectional survey was conducted using Google Forms distributed via social media and hearing aid dispensers to participants aged 65 and above in Turkey and Northern Cyprus. The survey included demographic questions, the Hearing Handicap Inventory for the Elderly-Screening version (HHIE-S), and the Beck Depression Inventory (BDI).

Results: The sample comprised 246 participants (102 males, 144 females) with a mean age of 72.58 ± 7.75 years. The median score for the HHIE-S was 22. Of the participants, 6.9% reported no hearing handicap, 50.8% reported moderate, and 42.3% reported severe hearing handicap. Hearing aid users had higher HHIE-S scores. The median BDI score was 29, with 3.3% of participants classified as minimal, 17.5% mild, 39% moderate, and 40.2% severe depression. A statistically significant difference in BDI scores was found among groups based on HHIE-S impairment levels ($p=0.000$). Gender differences were not significant for HHIE-S ($p = 0.167$) or BDI ($p = 0.072$), but marital status, education, and income level showed significant differences across groups.

Conclusion: This study revealed that hearing handicaps and symptoms of depression are prevalent among individuals over the age of 65. Those reporting hearing handicaps have a higher rate of depression. Age, marital status, education, and income level effects hearing handicap and depression levels. No effect of gender on hearing handicaps or depression was observed. The use of hearing aids may contribute to a reduction in depression scores among individuals reporting hearing impairment.

Keywords: Audiology, depression, age-related hearing loss, hearing handicap

Özet

Amaç: Yaşlılarda işitme bozukluğu şiddeti ile psikolojik semptomlar arasındaki ilişkinin incelenmesi amaçlanmıştır.

Yöntem: Türkiye ve Kuzey Kıbrıs'ta 65 yaş ve üzeri katılımcılara sosyal medya ve işitme cihazı merkezleri aracılığıyla dağıtılan Google Formları kullanılarak kesitsel bir anket çalışması yapılmıştır. Ankette demografik sorular, Yaşlılar için İşitme Engellilik Ölçeği Tarama Formu (İEÖY-T) ve Beck Depresyon Ölçeği (BDÖ) yer almıştır.

Bulgular: Örneklem, yaş ortalaması $72,58 \pm 7,75$ yıl olan 246 katılımcıdan (102 erkek, 144 kadın) oluşmuştur. HHIE-S için medyan puan 22 idi. Katılımcıların %6,9'u işitme engeli olmadığını, %50,8'i orta düzeyde ve %42,3'ü şiddetli işitme engeli olduğunu bildirdi. İşitme cihazı kullananların HHIE-S puanları daha yüksekti. Medyan BDI puanı 29 idi; katılımcıların %3,3'ü minimal, %17,5'i hafif, %39'u orta düzeyde ve %40,2'si şiddetli depresyon olarak sınıflandırıldı. HHIE-S bozukluk seviyelerine göre gruplar arasında BDI puanlarında istatistiksel olarak anlamlı bulundu ($p=0,000$). Cinsiyet farkı HHIE-S ($p=0,167$) veya BDI ($p=0,072$) için anlamlı değildi, ancak medeni durum, eğitim ve gelir düzeyi gruplar arasında anlamlı farklılıklar gösterdi.

Sonuç: Bu çalışma, işitme engeli ve depresyon semptomlarının 65 yaş üstü bireylerde yaygın olduğunu ortaya koymaktadır. İşitme engeli olduğunu bildirenlerde depresyon oranı daha yüksektir. Yaş, medeni durum, eğitim ve gelir düzeyi işitme engeli ve depresyon düzeyleri üzerinde etkilidir. Cinsiyetin işitme bozukluğu veya depresyon üzerinde bir etkisi gözlenmemiştir. İşitme cihazı kullanımı, işitme engeli olduğunu bildiren bireylerde depresyon puanlarının azalmasına katkıda bulunabilir.

Anahtar kelimeler: Odyoloji, yaşa bağlı işitme kaybı, depresyon, işitme engeli

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Introduction

Global estimates indicate that over 1.3 billion people currently live with hearing loss, a figure expected to rise due to the aging population.¹ Among adults aged 40–49, approximately 13% experience hearing loss, while the prevalence increases to about 45% among those aged 60–69 and reaches 90% in adults aged 80 and above.² Presbycusis, or age-related hearing loss, is primarily caused by the degeneration of inner and outer hair cells in the basal region of the basilar membrane. This degeneration results in decreased hearing sensitivity and a significant loss of higher frequencies in adults over 65.³ Depressive symptoms in older adults are linked to various factors, including chronic stress, personality disorders, substance use, poor nutrition, hearing loss, and negative life events.⁴ Older adults with hearing loss are likely to experience emotional and social loneliness, cognitive decline, and difficulties in daily activities, all of which contribute to increased depressive symptoms later in life.⁵ Neuroimaging studies show decreased activity in brain regions associated with emotions, behavior, and auditory processing in older adults with hearing loss or depression, suggesting widespread neural degeneration.⁶ Epidemiological studies have explored the relationship between hearing loss and depression, with some cross-sectional studies reporting an association between hearing loss and depression in older adults⁷, while others have found no such association.⁸ These contradictory findings in the literature may be attributed to methodological differences between studies and limitations associated with epidemiological research.

Despite the global significance of the interplay between hearing loss and depression, there is a notable lack of research on this topic among older individuals in Turkey and Northern Cyprus. However, considering the potential impact on public health and well-being, it is critical to investigate its consequences in this region. This study aims to contribute to understanding the relationship between hearing loss and depression in the elderly by investigating the level of hearing impairment and psychological symptoms.

Method

The study sample included voluntary participants aged 65 and above from the general population residing in the Northern Cyprus and Turkey. A cross-sectional survey design was employed, with questionnaires created using Google Forms and distributed to participants through social media platforms (WhatsApp, Instagram, Facebook, etc.) and hearing aid dispensers between February 2023 and April 2023. The survey comprised three sections, including the demographic information form, the short version of the Hearing Handicap Inventory for the Elderly (HHIE-S), and the Beck Depression Inventory (BDI). The demographic information form, developed by the authors, included questions about age, gender, marital status, self-reported hearing status, family history of hearing loss, hearing aid use, employment status, health insurance, educational background, and household composition. The Beck Depression Inventory (BDI) is a psychometric instrument used to measure the intensity of depressive symptoms in clinical samples. It was developed by Beck⁹, and Turkish validity and reliability studies were conducted by Hisli.¹⁰ This inventory measures depression such as pessimism, a sense of failure, dissatisfaction, feelings of guilt, restlessness, fatigue, decreased appetite, indecision, sleep disturbance, and social withdrawal. It consists of 21 items related to symptoms. Each item contains four levels of self-evaluation statements that determine a behavior specific to depression. It is a self-rating scale that consists of 21 items, each of which describes a specific symptom of depression. A score of 18 or higher indicates depressive symptoms severe enough to require further clinical consideration.¹¹

The Hearing Handicap Inventory for the Elderly (HHIE) is a questionnaire used to assess the impact of hearing loss on an individual's daily life. The HHIE consists of two parts: the HHIE-S, which is a screening questionnaire, and the HHIE, which is a more detailed questionnaire. The HHIE-S consists of 10 questions that assess the emotional and social effects of hearing loss, while the HHIE consists of 25 questions that assess the functional and social effects of hearing loss. The participants were asked to complete the questionnaire based on how they heard without using a hearing aid. In this study, the researchers used the HHIE-S questionnaire to screen for hearing loss in the elderly. Turkish validity and reliability studies of the screening form of the elderly version of these scales were conducted by Aksoy and colleagues.¹²

Total scores in the HHIE-S form range from 0 to 40. While scores between 0 and 8 are not considered disabilities, scores between 10 and 22 are considered mild-moderate disabilities, and scores between 24 and 40 are considered severe disabilities.¹²

Inclusion criteria: The study should include participants over the age of 65, who are literate in or speak Turkish and able to complete the survey independently or with assistance.

Exclusion criteria: The study excluded participants who had been diagnosed with neurological diseases or who were younger than 65. **Confounding factors:** To rule out transient sudden sensorineural hearing loss or conductive hearing loss, individuals with diagnosed active middle ear problems, ear pain, or discharge were excluded.

Ethical Approval

This study was approved by the Near East University Ethics Committee in January 2024 with the reference number YDU/2024/120-1804 and adhered to the principles outlined in the Declaration of Helsinki, 2013. All participants in this study were provided with both oral and written information, and informed consent was obtained from all participants.

Statistical Analysis

IBM SPSS Statistics for Windows, Version 23 (Armonk, NY: IBM Corp.) was used for data analysis. Descriptive statistics such as mean, percentage, frequency, and standard deviation were used to analyse the data for independent variables. The Shapiro-Wilk test was employed to determine the normality of the groups, and it was found that the groups did not follow a normal distribution. Based on these results, the Mann-Whitney U test was used for pairwise group comparisons, and the Kruskal-Wallis H test was used for comparing two or more groups. The relationship between variables was tested using the Spearman correlation test. The findings obtained from the analysis were interpreted at a significance level of 0.05 ($p < 0.05$).

Results

A total of 246 participants (102 males, 144 females; mean age: 72.58 ± 7.75 years) were included in the study. The demographic characteristics are summarized in Table 1.

Table 1: Demographic variables of the participants

Demographic variable	N (%)
Total number of responses	246 (Turkey: 211, North Cyprus:35)
Hearing status	
Normal hearing	67 (27.2)
Hearing loss in the right ear	17 (6.9)
Hearing loss in the left ear	11 (4.5)
Hearing loss in both ear	151 (61.4)
Gender	
Male	102 (41.5)
Female	144 (58.5)
Family history about hearing loss	
No one else in my family has hearing loss	62 (64.6)
My parents also have hearing loss	28 (29.2)
My children also have hearing loss	1 (1.0)
My siblings also have hearing loss	4 (4.2)
My other relatives also have hearing loss	1 (1.0)
Hearing aid use	
Yes	
Unilateral	0
Bilateral	116 (47.2)
No	130 (52.8)
Employment status	
Employed	6 (2.4)
Unemployed	240 (97.6)
Income status	
Low-Income	112 (45.5)
Low- To Middle-Income	82 (33.3)
Middle-Income	45 (18.3)
High-Income	7 (2.8)
Educational status	
Literate	42 (17.1)
Primary school	93 (37.8)
Secondary school	43 (17.5)
High school	34 (13.8)
Bachelor's degree	25 (10.2)
Master degree	9 (3.6)
Marital status	
Widowed	71 (28.9)
Divorced	6 (2.4)
Married	161 (65.4)
Single	8 (3.3)

N: Number of participants

Upon examining the participants' responses to the question about hearing loss in the demographic information form, it was found that 27.2% (67 participants) reported normal hearing, 11.4% (28 participants) reported unilateral, and 61.4% (151 participants) reported bilateral hearing loss.

Analysis of the HHIE-S results revealed that 6.9% of the participants reported no hearing handicap in their daily lives, 50.8% reported moderate hearing difficulty, and 42.3% reported severe hearing difficulty. The median HHIE-S score for all participants was 22. The median scores for the HHIE-S social and emotional subscales were 11 for both groups. Analysis of the BDI results revealed that 3.3% of the participants exhibited minimal depression, 17.5% displayed mild depression, 39% experienced moderate depression, and 40.2% reported severe depression symptoms. The median BDI score for all participants was 29.

The distribution of BDI levels according to the participants' HHIE-S scores was examined, and statistically significant differences were found among all groups ($p=0.000$). The mean rank values of depression scores were greater in participants reporting moderate and severe hearing handicaps compared to those no handicap group (Table 2). In the comparison based on hearing aid usage, a statistically significant difference was observed between those who did not use a hearing aid and those who used bilateral hearing aids in terms of HHIE-S scale scores ($p=0.000$). HHIE-S scores were higher in hearing aid users compared to non-users. Although there was no statistically significant difference in the depression levels of hearing aid users and non-users, those who used them had lower depression levels when examining mean rank values ($p=0.065$) (Table 2).

Table 2: Distribution of depression levels according to perceived hearing handicap levels

Hearing handicap levels (HHIE-S)	Depression (BDI) levels					Chi-Square
	Minimum (0-13) n	Mild (14-19) n	Moderate (20-28) n	Severe (29-63) n	Mean rank	
No handicap (n=17)	4	8	5	0	44,44	p=0.000
Moderate (n=125)	1	4	49	71	155,02	
Severe (n=104)	3	31	42	28	98,54	
Total (n=246)	8	43	96	99		
Hearing aid usage						
Nonuser (n=130)	4	20	46	60	130,88	p=0.065
Binaural user (n=116)	4	23	50	39	115,22	
Total (n=246)	8	43	96	99		

* $p<0,05$; BDI: Beck Depression Inventory; HHIE-S: Hearing Handicap Inventory for the Elderly; ($p<0,05$). N: Number of participants

The relationship between depression scores and demographic characteristics, as well as HHIE-S scores, was examined. A weak negative correlation was found between depression scores and hearing loss scores ($r=-0.196$; $p=0.002$), a weak negative correlation with income level ($r=-0.308$; $p=0.000$), and a moderate positive correlation with education level ($r=0.548$; $p=0.000$). No relationship was found between depression scores and age or hearing aid usage (Table 3).

Table 3. The relationship between demographic variables and HHIE-S scores with their BDI results in subjects

BDI Scores	Spearman	Age	Education status	Income level	HHIE-S score
	rho	0,70	,548*	-,308*	-,196*
	p	,272	,000*	,000*	,002*

* $p<0,05$; BDI: Beck Depression Inventory; HHIE-S: Hearing Handicap Inventory for the Elderly

When the relationship between HHIE-S total and subscale scores with age was examined, a weak positive correlation was found between age and HHIE-S total, social, and emotional subscales (Respectively $r=0.207$, $p=0.001$; $r=0.205$, $p=0.001$; $r=0.225$, $p=0.000$).

In terms of marital status, statistically significant differences in HHIE-S scores were found only between married and widowed participants ($p = 0.020$), with widowed participants having a higher median HHIE-S score compared to married participants (141.69 vs. 118.08, respectively). Statistically significant differences were observed in BDI scores between all groups according to marital status ($p<0.010$, $p=0.011$, $p=0.004$, respectively). Among these, it was seen that the divorced participants had the highest BDI median score, followed by widows, married, and single participants (respectively 144.50; 137.67; 117.11; 110.63).

In terms of educational status, it was observed that HHIE-S scores showed a statistically significant difference between literate participants and bachelor's degree ($p=0.017$), high school graduates ($p=0.038$), and secondary school graduates ($p=0.001$). The median HHIE-S scores among participants were as follows: 99.08 for literate participants, 116.64 for elementary school graduates, 153.92 for middle school graduates, 130.18 for high school graduates, 137.34 for bachelor's degree graduates, and 99.33 for master's degree graduates. Since it is examined how BDI scores change in terms of educational status, significant differences were found between literate participants and master graduates ($p=0.000$), bachelor's graduates ($p=0.000$), high school graduates ($p=0.016$), middle school graduates ($p=0.000$), and elementary school graduates ($p=0.000$). Also, significant differences were found between elementary school graduates and master graduates ($p=0.000$), high school graduates ($p=0.001$), and middle school graduates ($p=0.001$). Similarly, differences were found between middle school graduates and master's graduates ($p=0.001$) and between middle school graduates and elementary school graduates ($p=0.002$). The mean rank for literate participants was 178.43, for elementary school graduates 141.47, for middle school graduates 105.36, for high school graduates 99.28, bachelor graduates 56.88, and for master graduates 44.67 ($p<0.000$).

In the analysis made in terms of income level; it was observed that HHIE-S scores showed a statistically significant difference between low-income and low-to-middle-income participants ($p = 0.002$), and between low to middle-income and high-income participants ($p = 0.050$). The mean HHIE-S rank scores for low-income participants was 129.68, for low to middle-income participants was 95.20, for middle-income participants was 105.44, and for high-income participants was 130.90. In the analysis regarding BDI scores, significant differences were found between high and low income. In the analysis regarding BDI scores, significant differences were found between high and low income ($p = 0.000$), low and middle income ($p = 0.000$), and middle income ($p = 0.000$). The mean BDI rank scores for low-income participants were 134.82 (0-10.000 Turkish Lira (TL)), for low- to middle-income participants 141.79 (11.000-15.000 TL), for middle-income participants 164.50 (16.000-35.000 TL), and for high-income participants (36.000 TL and above), it was 54.17. In intra-group comparisons.

In the analysis made in terms of hearing status, it was observed that HHIE-S scores showed statistically significant difference between those reporting normal hearing and those reporting unilateral and bilateral hearing loss ($p=0.000$; $p=0.000$) but showed no significant difference between those reporting unilateral and bilateral hearing loss ($p=0.806$). The HHIE-S scores of those reporting bilateral hearing impairment were the highest (136.79), followed by those reporting unilateral hearing impairment (134.72) and those reporting normal hearing (91.57), respectively. In the analysis regarding BDI scores, significant differences were found only between those reporting normal hearing and those reporting bilateral hearing loss ($p=0.000$). According to this, it was observed that the mean BDI rank scores of those reporting bilateral hearing impairment (154.71) were higher than those reporting normal hearing (107.28).

No significant gender differences were found in HHIE-S ($p = 0.167$) and BDI ($p = 0.072$) scores.

Discussion

In our study, which focused on individuals aged 65 and above residing in Northern Cyprus and Turkey, we aimed to investigate the relationship between hearing impairment and depression levels. The primary hypothesis proposed that individuals self-reporting hearing loss would experience higher levels of depression and that as the severity of hearing impairment increased, so too would the severity of depression. The second hypothesis suggested that demographic variables effect depression scores. The findings generally supported both of our hypotheses.

According to HHIE-S results, 50.8% of participants reported a moderate handicap while 42.3% reported severe handicap. Similar rates were observed in both social and emotional subscales of HHIE-S, reflecting the expected age-related hearing loss in the elderly population. Age-related hearing loss (ARHL) is a common chronic health problem affecting the elderly.⁶ The Global Burden of Disease Study 2017 highlights that hearing loss, especially age-related, ranks as the third leading cause of years lived with disability and is a significant contributor to global health challenges.¹³ Approximately 66% of people over 70 years old¹⁴ and 8% of people over 80 years old had hearing loss in their better-hearing ear, according to a large study.¹⁵

In our study, no evaluation was made based on age groups. Individuals aged 65 and over were considered as a single group. However, we observed that the rate of reporting hearing handicap increased with age. These findings are similar to the literature, although our prevalence rate is higher. This could be because, compared to the literature, our participants were fewer in number, from different cultural regions, or due to variability in self-reported condition statements. However, the results of our study are close to the 84.48% prevalence rate noted in another study conducted in Turkey among a group aged 59 and over.¹⁶

The examination of demographic factors influencing depression revealed that there was no correlation between age and depression scores. However, a positive relationship was found with education level and a negative relationship with income level. It was observed that as education level increased and income level decreased, depression increased. When examining differences between groups based on demographic factors, depression scores were found to differ significantly in terms of marital status, education level, income level, and hearing status. Marital status was significantly associated with mental health scores, with widowed and divorced individuals exhibiting higher BDI scores, indicating increased hopelessness, aligning with existing literature on the impact of spousal loss.¹⁷

We also found that HHIE-S levels were higher in hearing aid users. Participants answered the questions related to HHIE-S by considering their hearing without using a hearing aid. As expected, this result is associated with a higher rate of reported hearing handicap among hearing aid users. No statistically significant difference was observed in depression levels between groups of hearing aid users and non-users; however, when looking at the mean rank values, depression levels were lower among those who used hearing aids. Although these results suggest that hearing aid use may be effective in reducing the likelihood of depression, the lack of statistical significance may be due to various factors. These factors may include the duration of hearing aid use, the degree of hearing loss, and the time between the diagnosis of hearing loss and the start of hearing aid use. Hearing aids are a rehabilitative method for hearing loss and are widely used. In addition to improving the quality of health-related life, hearing aids can also enhance listening skills.¹⁶ However, many individuals with hearing loss do not seek help, with research indicating delays of up to 9 years in acquiring hearing aids.¹⁸ In a national study conducted in the United States, 32% of adults experiencing hearing difficulties reported never consulting a doctor about their hearing issues, and 28% never had a hearing test.¹⁹

Regarding depression, in our study found that 3.3% of participants displayed minimal, 17.5% mild, 39% moderate, and 40.2% severe levels of depression, indicating a higher prevalence compared to global rates reported in the literature.²⁰ Although depression and hearing loss were common among the participants, there was no strong correlation between them. In our study, the differences in BDI scores among groups categorized by hearing handicap levels were statistically significant. Those with no handicap group had lower BDI scores compared to those with hearing handicap. The highest rate of depression was observed in the group reporting moderate hearing handicap. Based on these results, we cannot say that depression levels increase as the rate of reported hearing handicap increases, but we can say that depression is prevalent among older individuals reporting hearing handicap. This suggests that depression may be influenced by various factors. Literature on the relationship between hearing loss and depression shows mixed results, with some studies indicating a connection and others finding none.²¹ Factors like age, lifestyle, and cultural differences may contribute to these discrepancies, highlighting the need for further research in different populations and settings. Golub and colleagues found that increasing hearing loss in elderly Hispanic individuals was significantly linked to higher levels of depressive symptoms.²² They noted that individuals with mild, moderate, and severe hearing loss had higher odds of experiencing clinically significant depressive symptoms compared to those with normal hearing. This suggests that untreated hearing loss could be a risk factor for late-life depression, highlighting the importance of interventions.²² However, many elderly individuals may not recognize their hearing loss, attributing difficulties to aging.

The examination of demographic factors influencing depression revealed that there was no correlation between age and depression scores. However, a positive relationship was found with education level and a negative relationship with income level. It was observed that as education level increased and income level decreased, depression increased. When examining differences between groups based on demographic factors, depression scores were found to differ significantly in terms of marital status, education level, income level, and hearing status. Marital status was significantly associated with mental health scores, with widowed and divorced individuals exhibiting higher BDI scores, indicating increased hopelessness, aligning with existing literature on the impact of spousal loss.¹⁷ Despite emotional responses typically decreasing over time after spousal loss, the grieving process can persist, potentially triggering onset of depression.¹⁷ HHIE-S scores also varied significantly among marital statuses, with widowed individuals reporting higher hearing handicap. Widows often experience poorer psychological, social, behavioural, and physical well-being compared to those who are married or living together. This includes factors such as depression, diminished social connections, unhealthy lifestyles, and compromised cardiovascular

health.²³ The higher prevalence of HHIE-S scores in our study among widows may have contributed to increased levels of depression, anxiety, and stress factors.

Additionally, lower educational status was associated with higher HHIE-S and BDI scores, highlighting the role of education in buffering against depressive symptoms and underscoring the need for targeted interventions to improve mental health support among individuals with lower educational backgrounds.

The study highlighted income disparities in both HHIE-S and BDI scores, indicating the significant influence of socioeconomic status on mental well-being. Participants with lower incomes reported higher levels of hearing impairment and depression, aligning with existing literature.^{7,22}

Limitations

Since this study is the first of its sort to be carried out in Turkey and Northern Cyprus, it will be a valuable resource. The study's comparison of the results of depression and hearing impairment with comprehensive demographic data is one of its main strengths. Based on patients' subjective reports, the study was carried out both in-person and online to represent as wide a population as possible. The study might have been more robust, though, if the authors had identified the kind and severity of hearing loss and adjusted the comparisons appropriately.

Conclusion

Overall, the study's findings reveal that reported hearing handicap and symptoms of depression are prevalent among individuals over the age of 65. In the group reporting moderate to severe hearing handicap, the rate of depression was found to be higher compared to no handicap group. As education level increased and income level decreased, depression also increased. It was observed that as age increased, the level of hearing handicap rose, while age was not found to be related to depression. Additionally, among participants, widowed individuals reported higher levels of hearing handicap compared to single, married, and divorced individuals. The rate of depression was higher among divorced individuals. Gender was found not to have an effect on hearing handicap or depression levels. A significant difference in depression scores was observed between participants with and without hearing aid; however, the lower depression scores among hearing aid users suggest that the use of hearing aids may reduce the potential for depression in those reporting hearing handicap.

This study highlights the complex impact of factors such as marital status, education, income level, and living arrangements on the mental health of elderly people with hearing loss. These findings emphasize the need for targeted interventions and policy initiatives to address the specific challenges faced by older individuals. However, further research is necessary to explore the underlying mechanisms and develop specific interventions. Longitudinal studies may provide deeper insights into the evolving dynamics of demographic factors, hearing loss, and mental health. Some older adults may experience depressive symptoms associated with hearing loss, and we recommend that healthcare professionals and practitioners increase their awareness and understanding of the depression that may arise due to hearing loss during aging.

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Conflict of Interest

The authors report no conflict of interest.

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