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# Role of social support in quality of life of people with hearing impairment

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## Abstract

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**Background:** The deterioration of hearing impairment reduces quality of life (QOL). There is evidence confirming the existence of a positive relationship between social support and subjective QOL.

**Aim:** To examine the subjective QOL of people with severe hearing impairment in relation to the use of hearing aids and perceived social support.

**Methods:** The study included 155 members of Associations of Deaf and Hard of Hearing from Osijek and Zagreb. Data were collected during October and November 2011. Multidimensional approach was used to measure QOL applying the following instruments: Personal Wellbeing Index – Adult (PWI), Scales of Perceived Social Support (SPSS), and Socio-Demographic Health Questionnaire.

**Results:** The average score on the SPSS was 200,06 (SD = 39,01). Most social support was received from family members (M = 101,74; SD = 24,73). Descriptive analysis of PWI and QOL domain showed low PWI score (M = 56,64;

SD = 18,78), the highest satisfaction with close relationships (intimacy) (M = 6,64; SD = 2,44), and the lowest with future security (M = 4,85; SD = 2,53). The highest correlation was obtained between close relationships and total social support ( $r = 0,626$ ;  $p < 0,01$ ), and the lowest between material well-being and social support of the family ( $r = 0,282$ ;  $p < 0,01$ ). Social support was the strongest significant predictor of overall QOL (explaining 22% of variance of QOL). Those using hearing aids had statistically significant higher scores in total QOL, as well as in health, close relationships, safety domains, and in social support.

**Conclusion:** This study shows that use of hearing aids results in higher perceived social support which is the strongest predictor of overall QOL.

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**Key words:** hearing impairment, quality of life, social support, hearing aids

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## Introduction

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The United Nations Convention on the Rights of Persons with Disabilities<sup>1</sup> describes disability as the interaction between persons with impairments and attitudinal or environmental barriers; that interaction may hinder a full and effective participation in society, which may decrease quality of life (QOL). One of the most common sensory disabilities in the world is hearing impairment. According to World Health Report<sup>2</sup>, people with hearing impairment make up more than 10% of the population in developed countries, however, less than 1% of people with hearing impairment in developing countries use hearing aids – electroacoustic devices which are designed to amplify sound for the wearer. In Croatia, there are 13,230 people with hearing impairments leading to disabilities as defined by national legislation, which makes 2.5% of the total population of persons with disabilities (prevalence 3:1,000 citizens)<sup>3</sup>. In Croatian Register of Persons with Disabilities there are 1236 persons who are using hearing aids (9%)<sup>4</sup>.

Studies have shown that deterioration of hearing impairment reduces quality of life<sup>5</sup> and interferes with general life satisfaction, emotional well-being, personal relationships, and sense of security<sup>6</sup>. WHO defines Quality of Life as individuals' perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns<sup>7</sup>. According to research conducted by R. Cummins, quality of life has a direct impact on the health of the individual, when QOL falls below 60% of scale maximum (SM) it disturbs their psycho-physical health<sup>8</sup>. In order to enable comparison of the results of different measures of subjective quality of life, Cummins has proposed standardizing the original results obtained with different scales of QOL in the form of the percentage of scale maximum (%SM)<sup>9</sup>.

Beside quality of life, social support has been also extensively studied over the past thirty years. Social support is usually defined as the existence of people on whom we can rely, people who let us know that they care about, value, and love us<sup>10</sup>. Social support has several elements, of which five should be taken into consideration when measuring it: direction, availability, description and evaluation, content and social networks<sup>11</sup>. Social support has two directions, it could be given and received. Availability refers to whether a person really benefits from social support or it is only potentially

available. Description and evaluation of social support describe the situation in which social support might be needed, as well as the satisfaction with received social support. Social support may comprise one or more of the following types: emotional, instrumental, informational, and support to self-esteem. Emotional support implies giving or receiving empathy, caring, love and/or trust, instrumental refers to giving concrete (often financial) aid such as housework or lending money, and informational on the provision of advice and guidance that can be used to address problems. Support to self-esteem refers to giving feedback relevant for self-evaluation (eg. that the people are respected and accepted). Social network refers to the structure of existing social relations ie. sources of social support. Six most important sources are: family, friends, neighbours, colleagues at work, community and professional helpers<sup>11</sup>.

Previous studies have established that perception of social support availability predicts better adjustment to stressful events<sup>12</sup>. Many studies have confirmed the existence of a positive relationship between social support and subjective quality of life. For example, Gallagher and Vella-Brodrick referred in their study to a meta-analysis of 556 papers which showed that social support explains 1-8% of the variance of subjective quality of life<sup>13</sup>. Therefore, it can be justifiably argued that social support is a universal and significant predictor of quality of life<sup>14</sup>. Association between social support and quality of life depends on some elements of social support. For example, the source of social support is shown to be more important for quality of life than the type of social support. Nevertheless, the type of social support is also associated with quality of life – there is evidence that emotional support is most strongly associated with quality of life<sup>13</sup>. Furthermore, Johansson and Arlinger<sup>15</sup> argue that if a person does not adjust to his/her hearing loss, a withdrawal from social activities occurs, having negative psychosocial consequences for the person, and thus for the subjective quality of life. Using a hearing aid enables a person with a hearing impairment to fully get social support by achieving an adequate contact with normal hearing environment.

This paper will study the quality of life of people with hearing impairment and the role of using hearing aids and social support in moderating the quality of their lives.

## Methods

### Procedure

Data were collected during October and November 2011. Testing was conducted in groups, on the premises of the Associations of Deaf and Hard of Hearing in Osijek and Zagreb, during specially arranged meetings of the Association members. The Associations have premises where members can come for meetings and association. There are regularly scheduled meetings at the Association once or twice a week. Presidents of Associations have invited members to come in large numbers on specified day when researcher was coming to conduct the testing.

The study was conducted within the framework of the National Strategy for the Equalization of Opportunities for Persons with Disabilities, and the research of the Croatian Institute of Public Health entitled "Quality of Life and Functional abilities of People with Hearing Impairment". Approval for its implementation was obtained as well as support by the Ministry of Family, Veterans' Affairs and Intergenerational Solidarity.

The Association members were introduced to the study by a PowerPoint presentation, and informed (a) that their participation in the survey was voluntary and anonymous, (b) that they could withdraw at any moment, and (c) that survey results would be used for scientific purposes only. The questionnaires were then distributed to people who agreed to participate in the study, providing them with instructions how to complete the questionnaire and to be completely honest in their responses. Afterwards, the participants were told that if they had any doubts while completing the questionnaire they could ask the study researchers for clarification. Sign language interpreters helped in communication with the participants. All participants were given the questionnaire in the same order: first, they completed the Socio-Demographic Health Questionnaire, then Personal Wellbeing Index, and finally the Scale of Social Support. Completion time was not limited, and lasted about 20 minutes.

### Sample

The study included 155 participants with severe hearing impairment (over 61 dB), members of the Associations of Deaf and Hard of Hearing from Osijek (101 participants) and Zagreb (54 participants).

## Measures

A multidimensional approach was adopted to measure quality of life and social support, and the following instruments (in Croatian language) were used:

### 1. Personal Wellbeing Index – Adult (PWI – A)<sup>16</sup>

The PWI scale contains seven items of satisfaction, each one corresponding to the perceived quality of a specific life domain: standard of living, health, achievements in life, close relationships, personal safety, community connectedness, and future security. These seven domains theoretically represent the first level deconstruction of the global question: "How satisfied are you with your life as a whole?" The overall PWI score is an aggregate average score across the seven domains. Each domain is rated on a bipolar 11-point (0–10) end-defined scale where 0 means 'completely dissatisfied' and 10 means 'completely satisfied'. PWI has satisfactory metric characteristics; Cronbach alpha lies between 0,70 and 0,85. Inter-domain correlations are often moderate at around 0,30 to 0,55, and item-total correlations are at least 0,50. PWI has also shown good test–retest reliability across 1–2 week intervals, with an intra-class correlation coefficient of 0,84<sup>16</sup>. In this research, Cronbach alpha was 0,89.

In the PWI instructions, no restrictions of application on people with hearing impairment are reported.

### 2. Scales of Perceived Social Support (SPSS)<sup>17</sup>

This instrument measures the perception of social support received from family members and friends, and refers not only to available but also to the social support currently used. It also includes satisfaction and a positive evaluation of social support. The scale consists of 56 statements, of which the first 28 form a subscale Social Support from Family, and the remaining 28 a subscale Social Support of Friends. Participants mark their agreement with the statement on a five-point Likert scale, where 1 means 'does not agree', and 5 means 'fully agrees' with the statement. The instrument has satisfactory metric characteristics. For Croatian data Cronbach alpha was 0,74 (instrumental family support), 0,95 (social support from friends), 0,78 (self-esteem support from friends), and 0,96 (overall social support)<sup>18</sup>. In this research, Cronbach alpha for SPSS was 0,96.

### 3. Socio-Demographic Health Questionnaire

This questionnaire was designed for the purposes of this study, and includes questions about personal information of participants (gender, age, education, and marital status), and issues related to hearing loss (type and percentage of damage, the use of medical and technical aids).

## Data analysis

Descriptive statistics was used to present data on age, educational level, and different hearing aids (mean and standard deviation for quantitative continuous variable, N and percentage for categorical variables). Original results from the PWI were transformed according to authors' algorithm into percentage of scale maximum (%SM). To explore the relation between variables, Pearson correlation coefficient was used (variables used to explore the correlation were: PWI and domain scores, social support-family, and social support-friends, overall social support score). Mann-Whitney U test was used to test the difference in quality of life according to hearing aid usage. Regression analysis was used to explore predictors of the overall QOL. (PWI score was criterion variable, and predictors were: age, education, % of impairment, social support-family, and social support-friends). Significance level was set at  $p < 0,05$ .

## Results

### Sociodemographic and health data of participants

The study included 155 participants, of which 78 were men, and 77 were women, ranging in age from 18 to 79 years, with the average age  $M = 46,89$  years ( $SD = 16,06$ ). Sociodemographic data of participants are shown in Table 1.

No statistically significant gender difference was found in total quality of life or in any individual domain. As shown in Table 2, the average score on the scale of social support was 200,06 ( $SD = 39,01$ ). Considering that the highest score on the scale is 280, it can be argued that people with hearing impairment experienced relatively high social support. Furthermore, they received

more social support from their family members ( $M = 101,74$ ;  $SD = 24,73$ ) than from their friends ( $M = 98,33$ ;  $SD = 21,91$ ).

Table 3 shows descriptive analysis of PWI and quality of life domain: people with hearing impairment had a relatively low PWI score ( $M = 56,64$ ;  $SD = 18,78$ ). Looking at the domain level, they were most satisfied with their close relationships (intimacy) ( $M = 6,64$ ;  $SD = 2,44$ ), and the least satisfied with future security ( $M = 4,85$ ;  $SD = 2,53$ ). The average values for all domains were in the lower range of the positive part of the scale<sup>19</sup>, meaning that people with severe hearing impairment showed a certain level of satisfaction with the specific life domains, with the exception of future security, which showed a score that was on the negative part of the scale ( $M = 4,85$ ;  $SD = 2,53$ ).

### Prediction of Quality of Life

Correlations between PWI and its subscales and social support ranged from  $0,270 < r < 0,626$  and were statistically significant ( $p < 0,01$ ). The highest correlation was found between close relationships and total social support ( $r = 0,626$ ;  $p < 0,01$ ), and the lowest between safety and social support of the friends ( $r = 0,270$ ;  $p < 0,01$ ) (Table 4).

Regression analysis revealed that age and education did not predict overall quality of life. Percentage of impairment was a significant negative predictor (explaining 7% of variance of QOL), and social support was the strongest significant predictor (explaining 22% of variance of QOL). The presented model explains 30% of overall QOL variance (Table 5). Persons who use hearing aids had statistically significant higher scores in total QOL, as well as in health, close relationship, and safety domains. Furthermore, those who use a hearing aid report higher social support than those who do not use these aids (Table 6).

## Discussion

The aim of this study was to examine the subjective quality of life of people with severe hearing impairment in relation to using hearing aids and perceived social support.

Table 1 Socio- demographic data of participants (N= 155)

		N	Column N%
<b>Education</b>	No primary school	5	3,31%
	Primary school	9	5,96%
	Secondary school	131	86,75%
	Higher education	5	3,31%
	University degree	1	0,66%
<b>Hearing aid</b>	Yes	42	27,10%
	No	113	72,90%
<b>Cell phone use</b>	Yes	125	80,65%
	No	30	19,35%
<b>Computer use</b>	Yes	70	47,30%
	No	78	52,70%
<b>Sign language use</b>	Yes	143	92,26%
	No	12	7,74%

Table 2 Social support descriptive analysis (N=155)

	Mean	Standard Deviation
<b>Total social support</b>	200,06	39,01
<b>Social support of family</b>	101,74	24,73
<b>Social support of friends</b>	98,33	21,91

The study showed that people with severe hearing impairment in Croatia, on average, displayed low quality of life. If the original score for the average quality of life is transformed into a percentage of scale maximum (%SM), the normative range of the population of persons with severe hearing impairment in Croatia was  $56,64 \pm 18,78\%SM$ , which indicates low quality of life because this result is below the lower limit of the normative range (60%SM) assumed by the theory of homeo-

Table 3 Descriptive analysis of PWI and quality of life domain

	Mean	Standard Deviation
<b>PWI</b>	56,64	18,78
<b>Material Well-being</b>	5,06	2,49
<b>Health</b>	5,95	2,23
<b>Achievement</b>	5,31	2,30
<b>Close relationships (intimacy)</b>	6,64	2,44
<b>Safety</b>	5,66	2,42
<b>Community</b>	5,48	2,42
<b>Future security</b>	4,85	2,53

stasis of subjective quality of life<sup>20</sup>. However, it is similar to the average life satisfaction in Croatian adult population, which is  $56,97\%SM$ <sup>21</sup>.

Table 4 Correlations between PWI and its subscales and social support (N= 155)

	Total social support	Social support of family	Social support of friends
<b>PWI</b>	0,547**	0,484**	0,428**
<b>Material Well-being</b>	0,340**	0,282**	0,288**
<b>Health</b>	0,342**	0,300**	0,271**
<b>Achievement</b>	0,376**	0,337**	0,289**
<b>Close relationships (intimacy)</b>	0,626**	0,623**	0,412**
<b>Safety</b>	0,399**	0,390**	0,270**
<b>Community</b>	0,468**	0,352**	0,437**
<b>Future security</b>	0,427**	0,353**	0,362**

\*\* Correlation is significant at the 0,01 level (2-tailed).

Table 5 Regression analysis model summary for overall quality of life predictors

Model summary	B	Beta	Sig.	R Square Change	Adjusted R Square	Sig.
<b>(Constant)</b>	22,538		0,104			
<b>Age</b>	-0,129	-0,111	0,123			
<b>Education</b>	3,164	0,096	0,179	0,037	0,024	0,067
<b>% of impairment</b>	-0,188	-0,161	0,029	0,072	0,091	0,001
<b>Social support-family</b>	0,247	0,332	0,000			
<b>Social support-friends</b>	0,204	0,246	0,002	0,221	0,307	0,000

Table 6 Quality of life and social support in relation to the use of hearing aid (N= 155)

	Hearing aid	Mean	Standard Deviation	Z*	p
<b>PWI</b>	Yes	61,36	18,117		
	No	53,51	18,654	-2,474	0,013
<b>Material Well-being</b>	Yes	5,57	2,548		
	No	4,87	2,448	-1,516	0,129
<b>Health</b>	Yes	6,81	2,255		
	No	5,63	2,147	-2,687	0,007
<b>Achievement</b>	Yes	5,71	2,351		
	No	5,16	2,274	-1,369	0,171
<b>Close relationships (intimacy)</b>	Yes	7,57	2,254		
	No	6,29	2,430	-2,917	0,004
<b>Safety</b>	Yes	6,24	2,467		
	No	5,44	2,375	-2,071	0,038
<b>Community</b>	Yes	5,95	2,479		
	No	5,31	2,391	-1,382	0,167
<b>Future security</b>	Yes	5,10	2,356		
	No	4,76	2,602	-1,339	0,181
<b>Social support</b>	Yes	213,79	27,98		
	No	194,96	41,34	-2,565	0,010

\* Z based on Mann-Whitney U test

Results of this study have shown that social support was the strongest predictor of overall QOL, where people who use a hearing aid had higher perceived social support. Percentage of impairment was also a significant predictor, with higher percentage of impairment indicating lower QOL. Age and education were not revealed as significant predictors. However, the average values for all domains were in the lower range of the positive part of the scale, showing that people with severe hearing impairment achieved a certain level of subjective quality of life in the area of values that indicate satisfaction, especially in the area of close relationships, suggesting that in determining the quality of life of people with disability, quality of life should not

be restricted to the domain of health, such as noted by Albrecht and Devlieger<sup>22</sup>.

Social support is positively associated with the subjective quality of life, and some researchers believe that it is necessary for a sense of life satisfaction<sup>13</sup>. Cohen and Wills<sup>12</sup> suggested two explanations for the impact of social support on quality of life – main effects hypothesis and stress-buffering hypothesis. According to the main effects hypothesis, the relationship between social support and quality of life is linear, the greater the social support, the better the quality of life, regardless of the individual's stress level. Direct benefits of social support are in the assessment that others will provide assistance in stressful situations. However, in

the stress-buffering hypothesis, the relationship between social support and quality of life depends on the level of individuals' stress; unless the person is under stress, social support is not associated with quality of life, but under conditions of high stress, social support serves as a protection from the harmful effects of stress. In other words, in order to facilitate high stress conditions, an individual needs extra support sources from other people in his/her social environment. Numerous studies have been conducted on the importance of social support for the quality of life of people with hearing impairment. For example, participants in the study of Kelly and Atcherson<sup>5</sup> emphasize the significant contribution of close persons to the overall quality of life, which is in accordance with our results. Furthermore, Arlinger argues that if hearing loss is not adjusted, a withdrawal from social activities occurs, having negative psychosocial consequences for the person, and thus for the subjective quality of his/her life<sup>23</sup>, where the use of hearing aids can be a factor for facilitating contact with the other person and thus enable better social support. Results of this study support that hypothesis. Persons using a hearing aid had higher perceived social support and better quality of life, wherein our participants were most satisfied with their close relationships, which is not in accordance with the literature – previous research showed that hearing impairment mostly interferes with close relationships<sup>6</sup>.

In our survey, there were significantly less people who used a hearing aid (27%), which is in accordance with trends of using hearing aids in developing countries, where less than 1% of people with hearing impairment use hearing aids<sup>2</sup>, while in Croatia 9% of people with hearing impairment use them<sup>4</sup>. A major reason why people do not wear their hearing aids when prescribed seems to be due to discomfort or they do not know how to put them in correctly<sup>24</sup>. It seems to us that one of the reasons of not using hearing aids is certainly insufficient awareness of persons with hearing impairment about all the benefits a hearing aid could bring.

This study highlights the importance of using hearing aids and their impact on perceived social support and subjective quality of life of people with hearing impairment. The participants received most of the social support from family and friends, which is a positive impact because this kind of support has the highest quality and is most accessible; however, encouragement of social support for people with disabilities in the wider community should not be ignored. Croatia is one of the first signatories of the UN Convention for the Rights of

Persons with Disabilities in the World<sup>1</sup>. By this Convention and through the number of national acts<sup>25</sup> Croatia has undertaken significant activities for equal opportunities for persons with disabilities and persons with hearing impairment. In addition to the national policy for persons with disabilities Croatian Association of the Deaf and Hard of Hearing also has an important role. This Association implemented a number of projects for improving the quality of life for the persons with hearing impairment, for example learning sign language in secondary medical school, the presence of a sign language interpreter on some TV broadcasts of special interest for the deaf, projects for employing deaf persons<sup>26</sup>, etc. National efforts and activities of the Croatian Association of the Deaf and Hard of Hearing certainly have a positive impact on perceptions of quality of life in this group of persons with disabilities, as can be seen from the results of this study, especially in the fact that the persons with hearing impairment have a similar quality of life to the rest of the Croatian population.

### Study limitations

Some study limitations should be addressed. One of the limitations of this study is the convenience sample of participants (members of the Association of the Deaf and Hard of Hearing in Osijek and Zagreb), for which results could not be representative of the whole population of people with hearing impairment in Croatia. We cannot exclude potential clustering effects generated by geographic location: there may be differences in the social support or quality of life for the people from different cities (Osijek, Zagreb) because Zagreb is the capital city, the biggest in Croatia, and Osijek is a rather small town. In case of future data showing regional differences in QOL in adult population, results of this study should then be interpreted in that context. Future research on QOL in Croatia is suggested in that area. However, low QOL in people with any disability needs to be interpreted in the context of general Croatian adult population, where the average overall satisfaction with life is shown to be relatively low. Furthermore, the differences in the number of participants in sub-groups could have influenced the results of the statistical analysis.

In addition, the self-reports on Personal Wellbeing Index and the Scale of Social Support are open to socially desirable responses, which could be influenced by a variety of situational factors (e.g., current mood of participants, the motivation to participate in the study, fatigue, etc.).

Although this study did not reveal age as a significant predictor, future studies on the quality of life and social support of people with hearing impairment should take into account the age or age group of participants because it has been shown that there are differences between older and younger age groups. For example, some studies have shown that elderly people with disabilities are more socially isolated and have lower quality of life than younger people with disabilities<sup>27</sup>.

## Conclusions

This study shows that people with hearing impairment had average satisfaction with life similar to that of the Croatian adult population, what is surely the result of the continuing national policy for persons with disabilities in Croatia and activities of the Croatian Association of Deaf and Hard of Hearing. Social support was the strongest predictor of overall QOL. Percentage of impairment was a significant predictor with higher percentage of impairment indicating lower QOL. This study highlights the importance of using hearing aids and their positive impact on the perceived social support and subjective quality of life for persons with hearing impairment.

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## UTJECAJ SOCIJALNE PODRŠKE NA KVALITETU ŽIVOTA OSOBA S OŠTEĆENJEM SLUHA

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### Sažetak

Uvod: Pogoršanje oštećenja sluha reducira kvalitetu života. Postoje dokazi koji potvrđuju postojanje pozitivnog odnosa između socijalne podrške i subjektivne kvalitete života.

Cilj: Ispitati subjektivnu kvalitetu života osoba s teškim oštećenjem sluha u odnosu na korištenje slušnim pomagalicama i percipiranu socijalnu podršku.

Metode: Studija je uključivala 155 članova Saveza gluhih i nagluhih osoba iz Osijeka i Zagreba. Podaci su prikupljeni tijekom listopada i studenoga 2011. Primijenjen je multidimenzionalni pristup kako bi se izmjerila kvaliteta života putem sljedećih instrumenata: Indeksa osobne dobrobiti za odrasle (Personal Wellbeing Index – Adult (PWI)), Skale percipirane socijalne podrške (Scales of Perceived Social Support (SPSS)) i Sociodemografskoga zdravstvenog upitnika (Socio-Demographic Health Questionnaire).

Rezultati: Prosječni rezultat na Skali percipirane socijalne podrške (SPSS) bio je 200,06 (SD = 39,01). Većina socijalne podrške primljena je od članova obitelji (M = 101,74; SD = 24,73). Deskriptivna analiza domena Indeksa osobne dobrobiti i kvalitete života pokazala je nizak rezultat za Indeks osobne dobrobiti (M = 56,64; SD = 18,78), najveća razina zadovoljstva bila je s bliskim (intimnim) odnosima (M = 6,64; SD = 2,44), a najniža za osjećaj sigurnosti u budućnosti (M = 4,85; SD = 2,53). Najveća korelacija dobivena je između bliskih odnosa i ukupne socijalne podrške ( $r = 0,626$ ;  $p < 0,01$ ), a najniža između materijalnog blagostanja i socijalne podrške obitelji ( $r = 0,282$ ;  $p < 0,01$ ). socijalna podrška bila je najjači signifikantni prediktor ukupne kvalitete života (objašnjavajući 22 % varijance kvalitete života). Osobe koje su se koristile slušnim pomagalicama imale su statistički značajno više rezultate ukupne kvalitete života, kao i na domenama zdravlja, bliskih odnosa i sigurnosti te socijalne podrške.

Zaključak: Ova studija pokazuje da korištenje slušnim pomagalicama rezultira većom percepcijom socijalne podrške, koja je najjači prediktor ukupne kvalitete života.

**Ključne riječi:** oštećenje sluha, kvaliteta života, socijalna podrška, slušna pomagala