
Quality Of Life of Persons with Sensory Impairments

¹ Melani Mihocek *

² Ana Marija Hošnjak

¹ Student at the University of Applied Health Sciences, Zagreb, Croatia

² University of Applied Health Sciences, Zagreb, Croatia

Article received: 11.01.2022.

Article accepted: 01.03.2022.

Author for correspondence:

Melani Mihocek

E-mail: melanimihocek@gmail.com

<https://doi.org/10.24141/2/6/1/1>

Keywords: sensory impairment, quality of life

Abstract

Introduction. Quality of life is a multidimensional concept that includes social, affective, cognitive, and physical domains. People with disabilities include persons with sensory impairments, i.e., the visually impaired, the blind, the hard of hearing, the deaf, and the deafblind. Their diagnosis is a real challenge in

everyday life because it hinders them from gathering visual and auditory information from the environment. This affects their abilities and interaction with others, which affects their quality of life.

Aim. To examine how sensory impairment is related to the quality of life and activities of daily functioning.

Methods. The research was conducted using a questionnaire completed by 57 respondents diagnosed with deafness, hearing impairment, low vision, blindness, and deafblindness. Data were collected online, using the snowball method from members of the Association of the Blind, Association of the Deaf, and Association of the Deafblind. The survey consisted of two parts: the first part consisted of general demographic questions, while the second part consisted of selected questions from the WHOQOL-BREF quality of life questionnaire where respondents marked their answers on a five-point Likert scale.

Results. By calculating the mean of all quality of life issues, the results showed that deaf people are the most satisfied with their quality of life, followed by the hard of hearing, visually impaired, and blind people. Deafblind people are the most dissatisfied with the quality of life.

Conclusion. There is a significant difference in the quality of life of people with sensory impairment depending on the category of impairment. The analysis of the results showed a difference in the quality of life concerning the diagnosis of sensory impairment and that people with deafblindness consider their quality of life the worst.

Introduction

Quality of life is an inclusive term used in many fields of science with different meanings. Assessment of quality of life is based on individual experience, expectations, aspirations, value system, and psychophysiological functioning (1). The World Health Organization (WHO) describes the quality of life as an individual's perception of their position in the cultural and value system in which they live and their own goals, expectations, and standards (2). As the authors disagreed on an accurate definition of quality of life, we do not have a universal measuring instrument. Numerous questionnaires tailored to the research topic are used to measure the quality of life (3). The World Health Organization (WHO) has developed two instruments for measuring the quality of life: the World Health Organization Quality of Life Questionnaire (WHOQOL-100) and WHOQOL-BREF. The WHOQOL-100 questionnaire measures the quality of life through 100 items divided into six domains, while WHOQOL-BREF is its abbreviated version of 26 items that is more suitable for everyday use and measures quality of life through 4 domains (2).

We meet people with visual impairments (blind and partially sighted), hearing impaired (deaf and hard of hearing), and deafblind people in our daily practice. These individuals face many obstacles and challenges that they need to overcome. Sensory impairments are obstacles to properly executing basic daily activities such as walking, climbing stairs, moving in traffic, and watching television. These numerous obstacles, which seem banal to other people, affect their daily functioning and quality of life (4-6). The more severe the damage, the more the lifestyle changes, and the person needs to work harder to adapt to the new situation. Due to living with sensory impairment, stress can lead to the risk of depression, anxiety, anger, poor self-image, lack of self-confidence and self-esteem, and feelings of isolation. The quality of life of people with sensory impairment depends on the form of impairment, the availability of a social network, social life, and environmental support (4, 7-9). Visual impairment increases the risk of injury, falls and depression. It limits daily life activities (10), leading to dissatisfaction with social activity and affecting the quality of life and independence (11). Hearing impairment is associated with commu-

nication difficulties, depression, social isolation, and poor self-esteem, leading to severe psychosocial and functional problems (10). Older people with double sensory impairment face a higher risk of social and relational problems, depression, cognitive impairment, and poor health than older people with single sensory impairment; the percentage of those with dual sensory impairment increases with age (12-15).

The aim of this research is to examine the satisfaction of visually and hearing-impaired persons in the following domains: health, productivity, safety, accessibility of public institutions and encountering prejudice and discrimination based on their disability. The purpose of the study is to assess the difference in the quality of life depending on the type of impairment.

Methods

Design

The research was conducted as a cross-sectional study.

Participants

A total of 57 respondents participated in the research, members of the Association of the Blind, members of the Association of the Deaf, and members of the Association of the Deafblind. The survey was forwarded to the coordinators in each Association and passed on by the snowball method. All respondents were familiar with the purpose and objectives of the research. The survey was voluntary, anonymous, and conducted during December 2020.

Instrument

An abridged version of The World Health Organization's Quality of Life Questionnaire (WHOQOL - BREF).

The WHOQOL-BREF questionnaire initially consists of 26 items that examine four quality of life domains: physical health, mental health, social relations, and environment. The subscales of this questionnaire have good internal consistency (Cronbach's Alpha is between .66 and .84) (16).

For this research, the questionnaire was created in

Google form. Our survey questionnaire consisted of two parts. The first part dealt with general demographic questions: age, gender, diagnosis, education, and employment status. The second part consisted of 10 closed questions summarized from the WHO-QOL-BREF questionnaire. In consultation with staff working with the required group of respondents, ten questions were selected to answer our research objectives, and we made sure that the survey was not too long as some respondents used the help of translators and/or family members due to misunderstandings. Respondents answered these questions using the Likert scale ranging from 1 to 5, where 1 indicates the lowest agreement with an individual item and 5 indicates the highest agreement with the item. The particles of the general quality of life and general health were considered separately.

The last question was open-ended. Respondents could write a personal comment on this question regarding the quality of their lives depending on the sensory impairment.

Results

Sociodemographic data

The study involved 57 respondents whose sociodemographic data are divided by frequencies and percentages in Table 1.

Table 1. **Socio-demographic characteristics of the respondents**

		N	%
Sex	Female	30	53
	Male	27	47
Age	18-30	21	37
	31-40	8	14
	41-50	8	14
	51-60	9	11
	> 60	11	19
Sensory impairment	Hard of hearing	14	25
	Deafness	11	19
	Low vision	9	16
	Blindness	13	23
	Deafblindness	10	17
Education	Elementary School	5	9
	High school	42	74
	Bachelor's/Master's degree	10	17
Working status	Student	8	14
	Employed	21	37
	Unemployed - looking for a job	2	3
	Unemployed - not looking for a job	6	11
	Retired	20	35

Out of 57 respondents most were female (53%), aged 18 to 30. Most of the involved participants have a diagnosis of hearing impairment (25%), followed by blindness (23%), deafblindness (17%), deafness (19%), and low vision (16%). Most partici-

pants have completed high school, while there is the least number of participants who have completed primary school. The vast majority are employed (37%) or retired (35%), while the rest are students and un-employed.

Quality of life

Table 2. Quality of life of people with sensory impairment

QUESTION	CATEGORY	N		Mean	Median	Mode	Std. Deviation	Min	Max
		Valid	Missing						
To what extent do you feel that your diagnosis interferes with your daily activities?	Hard of hearing	14	0	2.79	3.00	3	0.893	1	4
	Deafness	10	1	2.90	3.00	4	1.197	1	4
	Visual impairment	9	0	3.22	3.00	4	0.833	2	4
	Blindness	13	0	2.92	3.00	2	0.954	2	5
	Deafblindness	10	0	4.30	5.00	5	1.059	2	5
How much are you worried about your health?	Hard of hearing	14	0	2.86	3.00	3	2.027	1	5
	Deafness	11	0	2.55	3.00	1	1.572	1	5
	Visual impairment	9	0	2.44	3.00	3	1.014	1	4
	Blindness	13	0	2.23	2.00	2	1.235	1	5
	Deafblindness	10	0	3.50	3.50	2	1.269	2	5
How positive do you feel about your future?	Hard of hearing	14	0	3.21	3.00	3	1.051	1	5
	Deafness	11	0	3.64	4.00	3	1.120	2	5
	Visual impairment	9	0	3.67	4.00	4	0.866	2	5
	Blindness	13	0	3.77	4.00	4	0.725	3	5
	Deafblindness	10	0	2.70	3.00	3	0.949	1	4
Do you feel limited by your diagnosis?	Hard of hearing	14	0	2.43	2.00	2	0.938	1	4
	Deafness	11	0	2.55	3.00	1	1.368	1	4
	Visual impairment	9	0	3.22	4.00	4	1.302	1	5
	Blindness	13	0	2.69	3.00	2	1.182	1	5
	Deafblindness	10	0	4.30	5.00	5	1.059	2	5
To what extent does the quality of your life depend on medical supplies?	Hard of hearing	14	0	3.43	4.00	5	1.604	1	5
	Deafness	11	0	3.36	3.00	3	1.362	1	5
	Visual impairment	9	0	3.56	4.00	5	1.424	1	5
	Blindness	13	0	3.46	3.00	3	1.198	1	5
	Deafblindness	10	0	1.80	2.00	1	0.789	1	3

How much information is available to you for everyday life?	Hard of hearing	14	0	3.50	3.50	2	1.225	2	5
	Deafness	11	2	2.73	2.00	2	1.009	2	5
	Visual impairment	9	0	3.00	3.00	2	1.118	2	5
	Blindness	13	0	3.62	4.00	4	0.961	2	5
	Deafblindness	10	0	2.30	2.00	1	1.418	1	5
Have you faced discrimination when looking for a job?	Hard of hearing	14	0	2.93	3.00	4	1.385	1	5
	Deafness	11	0	2.27	2.00	2	1.91	1	4
	Visual impairment	9	0	2.33	2.00	1	1.581	1	5
	Blindness	13	0	2.62	2.00	1	1.446	1	5
	Deafblindness	10	0	3.70	4.00	4	1.494	1	5
Did you face prejudice when meeting a stranger?	Hard of hearing	14	0	2.43	2.00	1	1.284	1	5
	Deafness	11	0	3.18	3.00	2	1.079	2	5
	Visual impairment	9	0	2.78	3.00	1	1.394	1	5
	Blindness	13	0	3.15	3.00	3	1.068	1	5
	Deafblindness	10	0	4.50	5.00	5	0.850	3	5
How satisfied are you with the quality of your life on a scale of 1 to 5?	Hard of hearing	14	0	3.79	4.00	4	0.699	3	5
	Deafness	11	0	4.18	4.00	4	0.751	3	5
	Visual impairment	9	0	3.78	4.00	3	0.833	3	5
	Blindness	13	0	4.00	4.00	4	0.707	3	5
	Deafblindness	10	0	2.90	3.00	3	0.738	2	4
On the scale from 1 to 5, how satisfied are you with the accessibility of educational, cultural and sports institutions adapted to you?	Hard of hearing	14	0	3.57	3.00	3	1.089	2	5
	Deafness	11	0	3.91	4.00	4	0.944	2	5
	Visual impairment	9	0	2.33	2.00	2	1.000	1	4
	Blindness	13	0	2.31	2.00	2	0.855	1	4
	Deafblindness	10	0	1.80	1.00	1	1.135	1	4

Participants diagnosed with deafblindness answered that their diagnosis hinders them the most in daily activities compared to other participants with sensory impairment.

Deafblind respondents are concerned about their health the most, while the least concerned are the visually impaired and the blind.

When asked how positive they feel about their future, none of the deafblind people said they feel very positive. Blind people are the most positive about their future.

When asked if their diagnosis limits them, deafblind

people answered the most affirmative.

When asked how dependent they are on medical supplies, deaf and visually impaired respondents are the most dependent. Interestingly, deafblind respondents answered that they do not depend on medical aids.

When asked how much information is available for everyday life, respondents diagnosed with deafblindness answered that they have no access to everyday information at all. Blind and hard of hearing respondents were the most satisfied with the access to information.

Most deafblind respondents faced discrimination in seeking employment, while most deaf and visually impaired respondents did not.

Deafblind people were ultimately confronted with prejudice when meeting an unknown person, while deafblind respondents encountered little or no prejudice.

Subjectively dissatisfied with the quality of their lives are deaf respondents, while deafblind respondents are the most dissatisfied.

When asked how satisfied they are with the accessibility of cultural, educational and sports institutions, deaf respondents are the most satisfied, while deafblind people are the most dissatisfied.

Table 3. **Quality of life of respondents according to the diagnosis**

Quality of life of respondents	Diagnosis		Statistics	Standard error	
	hard of hearing	Arithmetic mean		2.73	0.195
Standard deviation			0.647		
Minimum			2		
Maximum			4		
Skewness			0.291	661	
Courtesy			0.208	0.279	
deafblindness		Arithmetic mean		3.70	0.153
		Standard deviation		0.483	
		Minimum		3	
		Maximum		4	
		Skewness		-1.035	0.687
		Courtesy		-1.224	1.334
deafness		Arithmetic mean		3.70	0.153
		Standard deviation		0.426	
		Minimum		2	
	Maximum		3		
	Skewness		-1.566	0.597	
	Courtesy		0.501	1.154	
low vision	Arithmetic mean		3.11	0.261	
	Standard deviation		0.782		
	Minimum		2		
	Maximum		4		
	Skewness		0.216	0.717	
	Courtesy		-1.041	1.400	
blindness	Arithmetic mean		3.08	0.077	
	Standard deviation		0.277		
	Minimum		3		
	Maximum		4		
	Skewness		3.606	0.616	
	Courtesy		13.000	1.191	

The quality of life of the respondents according to the diagnosis is shown in Table 3. Here we see that the respondents with deafness rate the quality of life with 2.73, while the standard deviation is 0.647 (2.73 ± 0.647). The minimum score in this group is 2, and the maximum is 4. Participants with deafblindness assess the quality of life with 3.70, while the standard deviation is 0.483 (3.70 ± 0.483). The minimum score in this group is 3, and the maximum is 4. Participants with hard of hearing rate the quality of

life with 3.70, while the standard deviation is 0.426 (3.70 ± 0.426). The minimum score is 2 and the maximum is 3. Respondents with low vision rate the quality of life with 3.11, while the standard deviation is 0.782 (3.11 ± 0.782). The minimum score is 3, and the maximum is 4. Participants with blindness rate the quality of life with 3.08, while the standard deviation is 0.680 (3.08 ± 0.680). The minimum grade in this group is 2, and the maximum is 4.

Table 4. Quality of life of respondents by items

Ranks			
Item	Diagnosis	N	Average rank
How satisfied are you with the quality of your life on a scale of 1 to 5?	Hard of hearing	14	29.32
	Deafness	11	36.95
	Visual impairment	9	28.83
	Blindness	13	33.58
	Deafblindness	10	14.00
	In total	57	
On the scale from 1 to 5, how satisfied are you with the accessibility of educational, cultural and sports institutions adapted to you?	Hard of hearing	14	38.07
	Deafness	11	42.77
	Visual impairment	9	22.61
	Blindness	13	22.04
	Deafblindness	10	15.95
	In total	57	
To what extent do you feel that your diagnosis interferes with your daily activities?	Hard of hearing	14	23.39
	Deafness	10	25.20
	Visual impairment	9	29.39
	Blindness	13	24.19
	Deafblindness	10	43.75
	In total	56	
How much are you worried about your health?	Hard of hearing	14	31.43
	Deafness	11	27.00
	Visual impairment	9	26.33
	Blindness	13	22.62
	Deafblindness	10	38.50
	In total	57	

How positive do you feel about your future?	Hard of hearing	14	26.32
	Deafness	11	32.27
	Visual impairment	9	33.39
	Blindness	13	34.46
	Deafblindness	10	18.10
	In total	57	
Do you feel limited by your diagnosis?	Hard of hearing	14	22.29
	Deafness	11	24.14
	Visual impairment	9	32.33
	Blindness	13	25.58
	Deafblindness	10	45.20
	In total	57	
To what extent does the quality of your life depend on medical supplies?	Hard of hearing	14	33.56
	Deafness	11	31.23
	Visual impairment	9	32.32
	Blindness	13	32.31
	Deafblindness	10	13.50
	In total	57	
Did you face prejudice when meeting a stranger?	Hard of hearing	14	20.11
	Deafness	11	29.00
	Visual impairment	9	24.44
	Blindness	13	28.88
	Deafblindness	10	45.70
	In total	57	
Have you faced discrimination when looking for a job?	Hard of hearing	14	30.04
	Deafness	11	24.14
	Visual impairment	9	24.39
	Blindness	13	27.38
	Deafblindness	10	39.15
	In total	57	
How much information is available to you for everyday life?	Hard of hearing	14	34.21
	Deafness	11	23.91
	Visual impairment	9	27.67
	Blindness	13	36.31
	Deafblindness	10	19.00
	In total	57	

	How satisfied are you with the quality of your life on a scale of 1 to 5?	On a scale from 1 to 5, how satisfied are you with the accessibility of educational, cultural and sports institutions adapted to you?	To what extent do you feel that your diagnosis interferes with your daily activities?	How much are you worried about your health?	How positive do you feel about your future?	Do you feel limited by your diagnosis?	To what extent does the quality of your life depend on medical supplies?	Did you face prejudice when meeting a stranger?	Have you faced discrimination when looking for a job?	How much information is available to you for everyday life?
Chi-Square	13.263	22.710	12.278	6.208	7.860	14.327	11.166	15.515	5.978	9.167
df	4	4	4	4	4	4	4	4	4	4
Asymp. Sig.	0.010	0.000	0.015	0.184	0.097	0.006	0.025	0.004	0.201	0.057

Participants with different sensory impairments statistically significantly differ in the items that examine their satisfaction with the quality of life ($\chi^2=13.263$, $p=0.010$) and satisfaction with the accessibility of educational, cultural and sports institutions adapted to them ($\chi^2=22.710$, $p=0.000$). They also statistically significantly differ in the item that examines how much the diagnosis interferes with their daily activi-

ties ($\chi^2=12.278$, $p=0.015$) and in the item that examines whether their diagnosis hinders/limits them ($\chi^2=14.327$, $p=0.006$). Furthermore, participants with different sensory impairment statistically significantly differed depending on medical devices ($\chi^2=11.166$, $p=0.025$) and coping with prejudice when meeting an unknown person ($\chi^2=15.515$, $p=0.004$).

Table 5. Quality of life of respondents by items

Item	Ranks				Mann-Whitney U	p
	Diagnosis	N	Average rank	Sum of ranks		
How satisfied are you with the quality of your life on a scale of 1 to 5?	Hard of hearing	14	15.39	215.50	29.500	0.016
	Deafblindness	10	8.45	84.50		
	In total	24				
	Deafness	11	14.73	162.00	14.000	0.003
	Deafblindness	10	6.90	69.00		
	In total	21				
	Blindness	13	15.42	200.50	20500	0.004
	Deafblindness	10	7.55	75.50		
	In total	23				

On the scale from 1 to 5, how satisfied are you with the accessibility of educational, cultural and sports institutions adapted to you?	Hard of hearing	14	14.57	204.00	27.000	0.023
	Visual impairment	9	8.00	72.00		
	In total	23				
	Hard of hearing	14	18.00	252.00	35.000	0.006
	Blindness	13	9.69	126.00		
	In total	27				
	Hard of hearing	14	16.07	225.00	20.000	0.002
	Deafblindness	10	7.50	75.00		
	In total	24				
	Deafness	11	13.82	152.00	13.000	0.004
	Visual impairment	9	6.44	58.00		
	In total	20				
	Visual impairment	11	17.50	192.50	16.500	0.001
	Blindness	13	8.27	107.50		
	In total	24				
Deafness	11	15.09	166.00	10.000	0.001	
Deafblindness	10	6.50	65.00			
In total	21					
To what extent do you feel that your diagnosis interferes with your daily activities?	Hard of hearing	14	8.93	125.00	20.000	0.002
	Deafblindness	10	17.50	175.00		
	In total	24				
	Deafness	10	7.20	72.00	17.000	0.011
	Deafblindness	10	13.80	138.00		
	In total	20				
	Visual impairment	9	6.94	62.50	17.500	0.022
	Deafblindness	10	12.75	127.50		
	In total	19				
	Blindness	13	8.77	114.00	23.000	0.008
Deafblindness	10	16.20	162.00			
In total	23					
Do you feel limited by your diagnosis?	Hard of hearing	14	8.57	120.00	15.000	0.001
	Deafblindness	10	18.00	180.00		
	In total	24				
	Deafness	11	7.41	81.50	15.500 the most common	0.004
	Deafblindness	10	14.95	149.50		
	In total	21				
	Blindness	13	8.62	112.00	21.000	0.005
Deafblindness	10	16.40	164.00			
In total	23					

To what extent does the quality of your life depend on medical supplies?	Hard of hearing	14	15.36	215.00	30.000	0.019	
	Deafblindness	10	8.50	85.00			
	In total	24					
	Deafness	Deafness	11	14.27	157.00	19.000	0.01
		Deafblindness	10	7.40	74.00		
		In total	21				
	Visual impairment	Visual impairment	9	13.44	121.00	14.000	0.01
		Deafblindness	10	6.90	69.00		
		In total	19				
	Blindness	Blindness	13	15.69	204.00	17.000	0.002
		Deafblindness	10	7.20	72.00		
		In total	23				
Did you face prejudice when meeting a stranger?	Hard of hearing	14	8.54	119.50	14.500	0.001	
	Deafblindness	10	18.05	180.50			
	In total	24					
	Deafness	Deafness	11	7.68	84.50	18.500	0.008
		Deafblindness	10	14.65	146.50		
		In total	21				
	Visual impairment	Visual impairment	9	6.50	58.50	13.500	0.008
		Deafblindness	10	13.15	131.50		
		In total	19				
	Blindness	Blindness	13	8.65	112.50	21.500	0.005
		Deafblindness	10	16.35	163.50		
		In total	23				

Post-hoc analysis of the Mann-Whitney test found that there were statistically significant differences in quality of life satisfaction between participants diagnosed with hearing impairment and deafblindness ($U=29.500$, $p=0.016$), deafness and deafblindness ($U=14.000$, $p=0.003$) and between subjects diagnosed with blindness and deafblindness ($U=20.500$, $p=0.004$).

Post-hoc analysis of the Mann-Whitney test found that there are statistically significant differences in satisfaction with the accessibility of educational, cultural and sports institutions adapted to people with sensory impairment between respondents diagnosed with hearing impairment and low vision ($U=27.000$, $p=0.023$), hearing impairment and blindness ($U=35.000$, $p=0.006$), hearing impairment and deafblindness ($U=20.000$, $p=0.002$), deafness and low vision ($U=13.000$, $p=0.004$), low vision and blindness ($U=16.500$, $p=0.001$) and among respondents who are diagnosed with deafness and deaf-

blindness ($U=10.000$, $p=0.001$).

Post-hoc analysis by Mann-Whitney test found that there are statistically significant differences in the item that examines how much the diagnosis interferes with daily activities between participants diagnosed with hearing impairment and deafblindness ($U=20.000$, $p=0.002$), deafness and deafblindness ($U=17.000$, $p=0.011$), low vision and deafblindness ($U=17.500$, $p=0.022$) and among participants diagnosed with blindness and deafblindness ($U=23.000$, $p=0.008$).

Post-hoc analysis of the Mann-Whitney test showed that there are statistically significant differences in the item examining how limited they feel because of their diagnosis in participants with hearing impairment and deafblindness ($U=15.000$, $p=0.001$), with deafness and deafblindness ($U=15.500$, $p=0.004$), and among participants diagnosed with blindness and deafblindness ($U=21.000$, $p=0.005$).

Post-hoc analysis by Mann-Whitney test found that there are statistically significant differences in medical device dependence between subjects diagnosed with hearing impairment and deafblindness ($U=30.000$, $p=0.019$), deafness and deafblindness ($U=19.000$, $p=0.01$), low vision and deafblindness ($U=14.000$, $p=0.01$) and between participants diagnosed with blindness and deafblindness ($U=17.000$, $p=0.002$).

Post-hoc analysis of the Mann-Whitney test found that there are statistically significant differences in coping with prejudice when meeting an unknown person between participants diagnosed with hearing impairment and deafblindness ($U=14.500$, $p=0.001$), deafness and deafblindness ($U=18.000$, $p=0.008$), low vision and deafblindness ($U=13.500$, $p=0.008$) and among participants diagnosed with blindness and deafblindness ($U=21.500$, $p=0.005$).

In the last question of the questionnaire, respondents could freely write their thoughts on their quality of life. Here are their answers (without proofreading):

- Without the services of an interpreter, I would not be able to do my daily work and solve life situations.
- Unavailable information, untranslated shows, not enough news, not enough translators because people don't want to do it, or the minimum wage.
- I am a deafblind girl from birth. I am grateful to my parents, relatives, teachers, assistants-translators who, with their hard work, commitment, and sacrifice, made it possible for me to live with dignity, quality and surrounded by love.
- More attention should be paid to the employment of people with disabilities (deafness).
- Simplify the process of getting a guide dog.
- I am bothered by people's ignorance and lack of information about hearing impairment or deafness, and I believe that they should not be discriminated against in their work.
- The need for a communication intermediary (translator of Croatian sign language).
- The association of which I am a member helps improve the quality of life.
- Due to ageing and health, I fear the future, and I would not want to remain a "burden" to

my children. I didn't think about the future before, and now everything comes to my mind due to my deteriorating health and psycho-physical condition. I feel more and more lonely and I withdraw into myself, and I would like to be as active as I used to be since this is a cure for depression.

- I don't think the government cares enough about deaf and deafblind people. There is not enough accessibility of information, and deafblind people have to fight for themselves. We would all be happy if more information is available to enable us to live a better life (e.g., health, social and other rights). The problem is small pensions, and the cost of living is high.
- There are significant individual differences in perceptions of quality of life concerning sensory impairments. I feel like living a fulfilled life because I have entirely accepted my disability and I am supported by family and friends, making me happy with my life. What is missing are rehabilitation services for the visually impaired in local communities. Many services are centralized, and many rehabilitation institutions are located in Zagreb, complicating the rehabilitation process after the damage occurs. Also, many jobs are not adapted for people with disabilities and are still not available.

Discussion

The aim of this study was to examine the satisfaction of deaf, blind and deafblind people with their health, productivity, security, accessibility of public institutions and meeting prejudice and discrimination considering their disability. As far as the authors know, few research papers in the Republic of Croatia determine the quality of life of people with various sensory-perceptual impairments, which could be due to an insufficient sample population or differences in measurement methods. Further clarifications and discussions on research design, participants, tools and results are needed.

Most of the studies we reviewed support the idea that the deterioration of hearing and vision is asso-

ciated with a deterioration in the quality of life and that the quality of life of deafblind people is worse than in people with only one of the impairments, which is consistent with our results (17). Possible explanations include the following: (1) activity limitations: sensory impairments interfere with basic self-help skills in adult daily life, such as bathing and feeding, and also interfere with more complex daily activities such as shopping and financial transactions, causing functional impairment and deteriorating quality of life; (2) less social resources: sensory impairments interfere with communication and interaction with others, causing social isolation and lack of self-perception and social support, which affects the quality of life; and (3) fewer psychological resources: due to disability and social isolation, people with sensory impairments are prone to adverse mental reactions, such as anger and depression, resulting in a low quality of life (18-21). Based on these explanations, future studies should examine whether better social support and easier access to medical, educational and cultural content are affected by mitigating the harmful effects of sensory impairment on quality of life.

Raina and his colleagues (2004) described how respondents with visual and hearing impairments reported the most limitations in their daily life activities, which is in line with our results; however, they were followed by visually impaired people and then people with hearing impairment, while our results are reversed. Elderly deafblind people were also more likely to require assistance in their daily activities than all other subjects with sensory impairment (22).

A study conducted by Vuletić, Šarlija and Benjak (2016) examined the subjective quality of life of 78 blind and 64 visually impaired people. Respondents answered questions about the standard of living, health, achievement in life, close relationships, security, community connection and future security using a ten-point Likert scale where 0 indicates complete dissatisfaction and 10 completes satisfaction. Their results showed that blind and partially sighted people were most satisfied with close relationships and least satisfied with future security, while our results showed they were most satisfied with employment and least satisfied with cultural events (community connection). The results of this study showed a statistically significant difference in the average score by type of impairment: blind people described a lower subjective quality of life than the visually

impaired, which confirms our hypothesis that there is a significant difference in the quality of life with sensory impairment according to the category of impairment (23).

A study conducted by Sign Health (2013) involved 533 deaf respondents. Their health, lifestyle and access to health services were researched. One-third of the deaf (37%) were currently employed full time, 19% part-time, 9% were retired, 3% were students, while 12% of respondents were not employed at all. In our study, 55% of deaf respondents were employed full time, 36% were retired, and 1% was a student. In both surveys, only about half of the deaf respondents were employed. These results prove that employment is a problem for the deaf, among other things. Namely, deaf people are exposed to being misunderstood by employers because employers are not familiar with their methods of communication and consequently do not know how to establish communication (24). In a study conducted by Hersh (2013) 27 deafblind people from six different countries were interviewed. Discussed topics were barriers to communication with the people around them and inadequate support from society. Participants used a variety of communication strategies, from sign language and palm writing to lip reading and hearing aid use. The research results showed that all deafblind participants in all countries were interested in participating and contributing to the society. However, communication is an obstacle. In communicating with other people, they noticed that people do not have the patience to repeat what is said to them, even though they try to understand them. Sometimes they can be offended if they are not answered. The participant stated that they had lost friends or treated them differently due to increasingly evident sensory impairment, which resulted in withdrawal and a lack of self-confidence. It was concluded that barriers to communication, information and mobility can have severe emotional and social consequences, such as depression and isolation. They can also limit decision-making, reduce functional independence, and perform daily life tasks, resulting in poor quality of life. These results suggest that deafblind people consider their quality of life as poor (25).

Limitations of the study

As a limitations of the study, we should mention the small number of respondents and insufficient under-

standing of the meaning of specific issues. Therefore, some respondents needed the help of an assistant/translator/family member to complete it, which could also be a significant obstacle in answering questions. In the future, it is necessary to research a larger sample of respondents to improve the existing multidisciplinary or monodisciplinary approach to people with sensory impairments to improve their quality of life. Furthermore, the cross-sectional study for this area of research is inadequate to establish cause-and-effect relationships because it cannot demonstrate the actual causal relationship between sensory impairment and quality of life or determine whether the relationship changes over time.

Conclusion

This research proved a significant difference in the quality of life of people with sensory impairment due to the impairment category and that deafblind people consider their quality of life the worst. The results show that blind and partially sighted people are the most positive about their future and are the most satisfied with employment, while they are least satisfied with personal participation in cultural events, i.e., connection with the community. Deaf and hard of hearing people are most satisfied with employment, while on the other hand, they state that they are most dependent on medical aids (hearing aids). People with deafblindness state that their diagnosis dramatically interferes with their daily activities and are the most concerned about their health. They state that they are the most dissatisfied with the accessibility of educational, cultural and sports centers adapted to them. By calculating the mean value of all quality of life questions, the results showed that hard of hearing are the most satisfied with their quality of life. They are followed by deaf, visually impaired, and blind people, while deafblind people are the most dissatisfied with the quality of life.

References

1. Croatian Encyclopaedia, Lexicographic Institute Miroslav Krleža. Quality of life. Available from: <http://www.enciklopedija.hr/Natuknica.aspx?ID=34866> Accessed: 3.11.2020. Croatian.
2. World Health Organization. Blindness and vision impairment. Available from: <https://www.who.int/> Accessed: 3.11.2020.
3. Vuletić G, Misajon R. Subjective quality of life. In: Vuletić G, editor. Quality of life and health. Osijek: University of Osijek, Faculty of Philosophy; 2011. Croatian.
4. Pavić J. Health care of persons with disabilities. Zagreb: Zdravstveno veleučilište; 2014. Croatian
5. Nenadić K, Fajdetic A. Influence of visual impairment on the functioning of a blind person. In: Fajdetic A, editor. A handbook for vision assistants for the visually impaired. Zagreb: Hrvatski savez slijepih; 2015. Croatian.
6. Runjić T, Fulgosi Masnjak R, Mlinarić I. Orientation, and movement of the blind - tree lines as landmarks. *Agronomy Bulletin*. 2004;3-5(66):215-26. Available from: <https://hrcak.srce.hr/> Accessed: 08.04.2021. Croatian.
7. Savez-slijepih.hr. Zagreb: The Association; c2021. Available from: <https://savez-slijepih.hr/> Accessed: 08.04.2021.
8. Behetić Đ, Duh Đ. Access and care of patients with visual impairments and eye diseases. Zagreb: Clinical Hospital Center "Sisters of Mercy"; 2013. Croatian.
9. Šegota I. Deaf and sign medical terminology: how to communicate with a deaf patient. Rijeka: Medicinska naklada; 2010. Croatian.
10. Ham RJ, Sloane PD, Warshaw GA, Bernard MA, Flaherty E. Primary care geriatrics: A case-based approach. Philadelphia, Pa: Mosby Elsevier; 2007.
11. Crews JE, Campbell VA. Vision impairment and hearing loss among community-dwelling older Americans: Implications for health and functioning. *Am J Public Health*. 2004;94(5):823-9.
12. Swenor BK, Ramulu PY, Willis JR, Friedman D, Lin FR. The prevalence of concurrent hearing and vision impairment in the United States. *JAMA Int Med*. 2013;173(4):312-3.
13. Caban AJ, Lee DJ, Gomez-Marin O, Lam BL, Zheng DD. Prevalence of concurrent hearing and visual impairment in US adults: The national health interview survey, 1997-2002. *Am J Public Health*. 2005;95(11):1940.
14. Schneider JM, Gopinath B, McMahon CM, Leeder SR, Mitchell P, Wang JJ. Dual sensory impairment in older age. *J Aging Health*. 2011;23(8):1309-24.

15. Hjalte F, Brännstrom J, Gerdtham UG. Societal costs of hearing disorders: A systematic and critical review of the literature. *Int J Audiol.* 2012;51(9):655-62.
16. The World Health Organization Quality of Life Group (1996). WHOQOL-BREF Introduction, Administration, Scoring And Generic Version Of The Assessment. Geneva: Program on mental health.
17. Tseng YC, Liu SH, Lou MF, Huang GS. Quality of life in older adults with sensory impairments: a systematic review. *Qual Life Res.* 2018;27(8):1957-71 .
18. Ciorba A, Bianchini C, Pelucchi S, Pastore A. The impact of hearing loss on the quality of life of elderly adults. *Clin Interv Aging.* 2012;7(6):159-63.
19. Brown RL, Barrett AE. Visual impairment and quality of life among older adults: An examination of explanations for the relationship. *J Gerontol B Psychol Sci Soc Sci.* 2011;66(3):364-73.
20. Contrera KJ, Wallhagen MI, Mamo SK, Oh ES, Lin FR. Hearing loss health care for older adults. *J Am Board Fam Med.* 2016;29(3):394-403.
21. Renaud J, Bédard E. Depression in the elderly with visual impairment and its association with quality of life. *Clin Interv Aging.* 2013;8:931-43.
22. Raina P, Wong M, Massfeller H. The relationship between sensory impairment and functional independence among the elderly. *BMC Geriatr.* 2004;4:3.
23. Vuletić G, Šarlija T, Benjak T. Quality of life in blind and partially sighted people. *J Appl Health Sci.* 2016;2(2):101-12.
24. Sign Health. Research into the health of deaf people; 2013.
25. Hersh M. Deafblind People, Communication, Independence, and Isolation. *J Deaf Stud Deaf Educ.* 2013;4(18):446-63.

KVALITETA ŽIVOTA OSOBA SA SENZORNIM OŠTEĆENJIMA

Sažetak

Uvod. Kvaliteta života definirana je kao višedimenzionalni koncept koji obuhvaća društvene, afektivne, kognitivne i fizičke domene. U osobe s invaliditetom spadaju osobe sa senzornim oštećenjem, tj. slabovidni, nagluhi, slijepi, gluhi i gluhoslijepi. Njihova dijagnoza predstavlja pravi izazov u svakodnevnom životu jer ih ometa u prikupljanju vizualno-auditivnih informacija iz okoline. To utječe na njihove sposobnosti i interakciju s drugima, što posljedično utječe na kvalitetu života.

Cilj. Ispitati kako je senzorno oštećenje povezano s kvalitetom života i aktivnostima svakodnevnog funkcioniranja bio je cilj ovoga istraživanja.

Metode. Istraživanje je provedeno s pomoću anketnog upitnika koji je ispunilo 57 ispitanika s dijagnozom naglušnosti, slabovidnosti, gluhoće, sljepoće i gluhosljepoće. Podaci su prikupljeni putem interneta i metodom snježne grude, a sudjelovali su članovi udruge slijepih Hrvatskog saveza slijepih, članovi udruge gluhih Hrvatskog saveza gluhih i nagluhih i članovi Saveza gluhoslijepih osoba „Dodir“. Anketa se sastojala od dva dijela: prvi dio sastojao se od općih demografskih pitanja, dok su drugi dio sačinjavala odabrana pitanja iz upitnika kvalitete života Svjetske zdravstvene organizacije WHOQOL-BREF gdje su ispitanici svoje odgovore označavali na petostupanjskoj Likertovoj ljestvici.

Rezultati. Izračunom srednje vrijednosti svih pitanja o kvaliteti života rezultati su pokazali da su gluhe osobe najzadovoljnije kvalitetom života. Zatim slijede nagluhe, slabovidne i slijepo osobe, dok su gluhoslijepo osobe najnezadovoljnije kvalitetom života.

obe najzadovoljnije kvalitetom života. Zatim slijede nagluhe, slabovidne i slijepo osobe, dok su gluhoslijepo osobe najnezadovoljnije kvalitetom života.

Zaključak. Postoji značajna razlika u kvaliteti života osoba sa senzornim oštećenjem s obzirom na kategoriju oštećenja. Analizom rezultata utvrđeno je da postoji razlika u kvaliteti života s obzirom na dijagnozu senzornog i motoričkog oštećenja te da osobe s gluhosljepoćom svoju kvalitetu označavaju kao najlošiju.

Ključne riječi: senzorno oštećenje, kvaliteta života
