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Daily activities of working individuals with hearing and speech disabilities

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ABSTRACT

Introduction: Disability is one of the factors that can lead to social exclusion and poverty of individuals with hearing and speech impairment. This is because individuals with disabilities are often underestimated, in terms of their work and social skills. The employment of people with disabilities represents a powerful mechanism for achieving full participation of the marginalized groups in all spheres of society.

Methods: The study included a total of 40 people with hearing and speech disabilities, out of which 16 individuals were employed at DES d.o.o. Sarajevo and 24 at SINKRO d.o.o. Sarajevo. A combination of three questionnaires was used for assessing daily activities and their impact on the quality of life (QoL) of the individuals with hearing and speech disabilities.

Results: In the total sample, there were 35% males and 65% females. Complete deafness was observed in the majority of participants (90%), while the rest had either moderate (7.5%) or mild (2.5%) hearing impairment. A higher number of participants used Sign language as the means of communication, compared to manual alphabet. About 17.5% of the participants used a cochlear implant or a hearing aid. Most of the individuals lived with a spouse (70%), 20% lived with their parents, 7.5% lived independently, and 2.5% lived with a guardian. The majority of the participants who were married had a child (57.5%). The average Ferrans and Powers' quality of life index (QLI) was 19.33, and the average value for total daily activities was 11.700 metabolic equivalent of task. The average value for the level of physical activity in males was M = 13716.5 and in females was M = 10613.56 ($p > 0.05$).

Conclusions: Overall, we showed that daily activities have a positive effect on the QoL of working individuals with hearing and speech disabilities, i.e., the individuals who had a higher level of physical activity also had a higher QoL.

Key words: Daily activity; quality of life; impairment; quality of life; quality of life index

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INTRODUCTION

Disability is a condition characterized by difficulties in performing daily activities, and consequently in participating in social life, due to health problems in the body and various physical, social, cultural, environmental, and communication

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barriers (1). Individuals with disabilities are defined as having long-term physical, mental, intellectual, or sensory disabilities, which in interaction with the above-mentioned barriers may hinder their full and effective participation in society, equally with others (2).

In terms of work, there is no difference between individuals with disabilities and those without disabilities, because with certain interventions, they are able to effectively work and contribute to the growth and development of a company/organization (3).

In accordance with the Article 1 of the Universal Declaration of Human Rights, which reads: "All human beings are born free and equal in dignity and rights," every society should ensure that individuals with disabilities have their rights fulfilled. Moreover, the declaration provides that everyone has the right to work, to freely choose a job, to have proper and safe work conditions as well as the protection against unemployment (4). Employment is one of the most powerful mechanisms for achieving social inclusion of marginalized groups. The issue of employment of individuals with disabilities is very important when it comes to their status since employment leads to greater social inclusion and generates income, contributing to the independence of people with disabilities (4). According to the World Health Organization (WHO) estimates from 2012, there were 360 million people worldwide with hearing impairments (5.3% of the world population), of which 328 million (91%) were adults (183 million men and 145 million women), and 32 million (8%) were children (5). In the Global Burden of Disease Study from 2013, hearing loss was ranked as the fifth leading cause of long-term living with disability, higher than a number of other chronic diseases (6). Untreated hearing loss makes an annual global cost of 750 billion international dollars (7).

Professional rehabilitation is an integral part of the rehabilitation process of individuals with disabilities, aiming at their better employment and social integration. Thus, the purpose of the rehabilitation is not only to enable individuals with disabilities to work but also to achieve the integration of such individuals into society and at work, allowing for independent and successful everyday life (8,9).

People with disabilities are often denied the right to work. Therefore, the role of employment policies is to enable individuals with disabilities full participation in society. With employment, people with disabilities achieve material security, they can make decisions on life issues more independently, they are perceived differently by other community members, and they may become fully equal members of society provided they receive adequate professional rehabilitation. All this contributes to their general well-being and prevents the situation in which those people are only recipients of help and assigned to different beneficiaries (10).

The term "activities of daily living (ADL)" or "daily activities" are first mentioned in 1935 in the Journal of Health and Physical Education. Physiotherapist Edith Buchwald was the first to use the term "ADL," in 1949 (11). ADL are used in physical rehabilitation as an umbrella term referring to self-care and include the activities and tasks that people perform in their everyday life (11). Furthermore, ADL are considered long-term indicators of "activity limitations," according to the WHO framework for dimensions of disability (12).

In addition, daily activities affect the development of working habits, daily routines, and different attitudes, as well as our behavior in relation to the environment (13). Hearing loss has a negative impact on daily and social activities and emotional state of individuals with hearing impairment. Studies have shown that people with hearing loss have reduced social activities, difficulties in communication with others (i.e. friends, family, and colleagues), greater emotional problems at work, and also experience more anxiety, depression, and interpersonal sensitivity (14,15). Understanding the impact of hearing loss on the quality of life (QoL) is very important since difficulties in communication affect interactions with other people. This is an essential aspect of everyday life, which can be seriously impaired in people with hearing disabilities and eventually lead to reduced QoL (16).

This study aimed to investigate daily activities and their impact on the QoL of working individuals with hearing and speech disabilities. Moreover, we analyzed the health, family status, and occupations of the individuals with disabilities.

METHODS

Study groups

A total of 40 working individuals with varying degrees of hearing loss and speech impairment were included in the study, of which 16 were employed at DES d.o.o. Sarajevo, an association for qualification, rehabilitation, and employment of people with hearing and speech disabilities, and 24 individuals were employed at SINKRO d.o.o. Sarajevo, a company for furniture production and sale, which employs people with hearing and speech disabilities. The approval to conduct the study was obtained from both companies.

Research methods

This was a cross-sectional study, and data were collected by a modified questionnaire, in the period of March–April 2017.

Questionnaire

A combination of three questionnaires was used for assessing daily activities and their impact on the QoL of the individuals with hearing and speech disabilities as follows:

1. A revised form of the questionnaire Health and Social Family Status of Individuals with Disabilities (Cerebral Palsy), 2015 (17).
2. The International Physical Activity Questionnaire (IPAQ), 2002 (18).
3. The Ferrans and Powers' quality of life index (QLI), generic version III, 1984 (19).

The questionnaire contained nine sections: General data on a person with a disability; general data on the health status of a person with a disability; family status of a person with a disability; physical activity at work; physical activity during commuting; housework, home maintenance, and family care; recreation, sport, and physical activities in leisure time; time spent sitting; and the QLI.

Statistical analysis

The primary (quantitative) data for this cross-sectional study were collected by the questionnaire. Descriptive statistics, validity and reliability analysis (Cronbach's alpha), Pearson correlation coefficient, linear regression, scatter plot, t-test, and analysis of variance (ANOVA) were performed using IBM SPSS Statistics for Windows, Version 24.0 (IBM Corp., Armonk, NY). Descriptive statistics included arithmetic mean, standard deviation, median, absolute frequency, and relative frequency.

A linear regression model was used to test the hypothesis. The model consists of a dependent variable (QLI on a scale of 1 to 30) and an independent variable (total daily activities within last 7 days [TotalMETu000]). The QLI was calculated according to the Description of Scoring for the Ferrans and Powers QLI, i.e. the initial four variables measuring satisfaction and the four variables measuring the importance of specific life domains were transformed into the QLI variable using the Compute Variable option and formulas in the guideline. Similarly, the total daily activity was determined according to the Guidelines for Data Processing and Analysis of the IPAQ – Long Forms and expressed as a categorical variable (low, moderate, or high according to the metabolic equivalent of task [MET-minutes/week]).

The results are presented in the forms of tables or graphs. The level of significance was set at $p < 0.05$.

RESULTS

The study included a total of 40 people with hearing and speech disabilities who met the study inclusion criteria. Of the 40 participants, 14 (35%) were male and 26 (65%) were female, with no significant difference in the gender distribution ($\chi^2 = 3.600$, $p = 0.058$; Figure 1 and Table 1).

The percentage of participants according to the age groups was as follows: 18–25 years (10% of participants), 26–40 years (47.5%), and 41–60 years (42.5%). The average age of the participants was 39 years. There was no significant difference in the average age between males (36.14 years) and females (40.62 years) (ANOVA, $F = 2.591$, $p = 0.116$; Table 2).

Of the 40 participants, 23 (57.5%) completed a regular high school program, 16 (40%) completed a special high school program, while 1 participant (2.5%) had no formal education. There was no significant difference in the qualifications between the participants in the total sample ($\chi^2 = 0.900$; $p = 0.343$) or between males and females ($p = 0.680$) (Table 3).

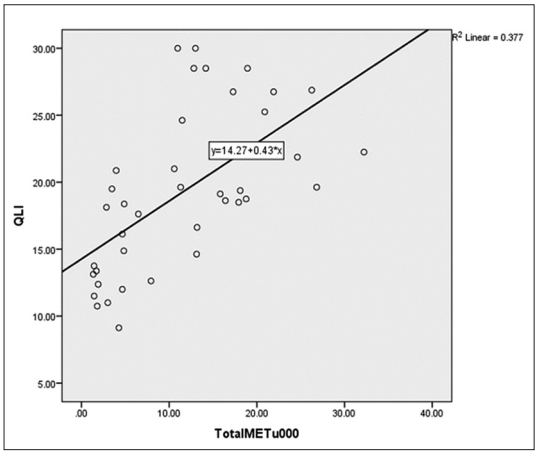

FIGURE 1. The scatter plot and regression line show that daily activities have a positive effect on the quality of life of working individuals with hearing and speech disabilities (B = 0.433, $p < 0.05$).

The number (percentage) of individuals in relation to the type of job (vocation) they performed in one of the two companies was as follows: 22 tailors/sewers (59.46%), 5 printmakers (13.51%), 2 quality controllers (5.41%), 2 lathe operators (5.41%), 1 manufacturing assembler (2.70%), and 5 packaging operators (3.51%) (Table 4).

Among the 40 participants, 24 individuals (60%) were working unassisted, 12 individuals (30%) were working together with an individual with a disability, and 4 participants (10%) were working with an individual who had no disabilities. There was a significantly higher number of participants who were working with an individual with a disability compared to those who were working with a person without a disability ($\chi^2 = 4.000$; $p = 0.046$; Table 5).

In the total sample, 25 participants (62.5%) were married, 13 participants (32.5%) were not married, and 2 participants (5%) were living in a couple relationship. There was a significantly higher number of those who started a family compared to the other groups ($\chi^2 = 4.900$; $p = 0.027$; Table 6).

Most of the individuals were living with a spouse (28 participants, 70%), 8 participants were living with their parents (20%), 1 participant was living with a guardian (2.5%), and 3 participants were living independently (7.5%) (Table 7).

The number (percentage) of participants according to the degree of hearing impairment was as follows: 1 participant (2.5%) had a mild hearing impairment, no participant had a moderate hearing impairment, 3 participants (7.5%) had a severe hearing impairment, and deafness was observed in 36 participants (90%). There was a statistically significant difference in the number of the individuals with deafness (>90 dB) compared to the other groups ($\chi^2 = 25.600$; $p = 0.000$). No participant reported the presence of comorbid disease (Table 8).

TABLE 1. Gender distribution in the sample of 40 individuals with hearing and speech disabilities

Gender distribution	Percent	n
Male	35%	14
Female	65%	26
Total	100%	40

TABLE 2. Age groups of 40 individuals with hearing and speech disabilities

Age group	Percent	n
18–25	10	4
26–40	47.5	19
41–60	42.5	17
61+	0	0
Total	100	40

TABLE 3. Educational status of 40 individuals with hearing and speech disabilities

Educational status	Percent	n
Regular elementary school	0	0
Regular high school	57.5	23
Higher school	0	0
Special elementary school	0	0
Special high school	40	16
No formal education	2.5	1
Total	100	40

TABLE 4. Occupation/employment within a company

Occupation/employment	Percent	n
Tailor/sewer	59.46	22
Printmaker	13.51	5
Quality controller	5.41	2
Lathe operator	5.41	2
Manufacturing assembler	2.7	1
Packaging operator	13.51	5
Total	100	37

TABLE 5. Independence at work

Independence at work	Percent	n
Independent/unassisted	60	24
Together with an individual with a disability	30	12
Together with an individual without a disability	10	4
Total	100	40

TABLE 6. Marital status

Marital status	Percent	n
Married	62.5	23
Single	32.5	13
A couple relationship	5	2
Total	100	40

TABLE 7. Family and non-family households

Family and non-family households	Percent	n
Parents	20	8
Guardians	2.5	1
Spouse	70	28
Alone	7.5	3
Total	100	40

TABLE 8. Degree of hearing impairment

Degree of hearing impairment	Percent	n
Mild	2.5	1
Moderate	0	0
Severe	7.5	3
Deafness	90	36
Total	100	40

As the means of communication, 39 participants (97.5%) were using Sign language, with a statistically significant difference compared to 1 participant (2.5%) who was using manual alphabet ($\chi^2 = 36.100$; $p = 0.000$; Table 9).

A statistically higher number of participants were not using a hearing aid (33 participants, 82.5%) compared to those who were using a cochlear implant or a hearing aid (7 participants, 17.5%) ($\chi^2 = 16.900$; $p = 0.000$; Table 10)

Daily activities of the individuals with hearing and speech disabilities were considered as categorical variables and classified as follows: Low activity level (0–1.500 MET-minutes/week), moderate activity level (1.500–12.500 MET-minutes/week), and high activity level (>12.500 MET-minutes/week).

TABLE 9. Communication (manual alphabet and Sign language)

Communication	Percent	n
Manual alphabet	2.5	1
Sign language	97.5	39
Total	100	40

TABLE 10. The use of hearing aids

The use of hearing aids	Percent	n
Yes (cochlear implant or hearing aid)	17.5	7
No	82.5	33
Total	100	40

TABLE 11. Classification of individuals with speech and hearing disabilities according to the activity level

Category/ Activity	Low % (n)	Moderate % (n)	High % (n)	Total % (n)
At work	25 (10)	52.5 (21)	22.5 (9)	100 (40)
In commuting	92.5 (37)	7.5 (3)	0 (0)	100 (40)
At home	52.5 (21)	45 (18)	2.5 (1)	100 (40)
Sport and recreation	80 (30)	20 (8)	0 (0)	100 (40)

The level of activity at work was low in 10 participants (25%), moderate in 21 participants (52.5%), and high in 9 participants (22.5%).

In commuting, most of the individuals had low level of activity (37 participants, 92.5%), 3 participants had moderate level of activity (7.5%), while no participant showed high level of activity.

The level of physical activity at home was low in 21 participants (52.5%), moderate in 18 participants (45%), and high in 1 participant (2.5%).

Regarding recreation and sport, 32 participants (80%) had low level of physical activity, 8 (20%) had moderate physical activity, while no participant had high level of physical activity (Table 11).

The average value for total daily activities was 11.700 MET, and the median was 11.393 MET (based on the IPAQ). The median for total physical activities at work was 9537 MET, in commuting 643 MET, at home 1355 MET, and for recreation and sport, the median was 396 MET.

The average QLI was 19.33 (the QLI index range is 0–30) (Table 12).

The direction and slope of regression line shows a strong positive relationship between the independent and dependent variable. The simple linear regression model was y = 14.27 + 0.43 × x, where y is dependent variable and x is independent variable expressed in 000 MET-minutes/week (Table 13 and Figure 1).

B represents the slope of regression line. If we increase the value of independent variable (TotalMET) by 1.000 MET, the QoL on the QLI scale (0–30) will increase by 0.433. If physical activities were not included (x = 0), the QLI index would be equal to 14.27. Because B was significantly different from 0 (p = 0.000), the null hypothesis was rejected, and it was concluded that the daily activities have a positive effect on the QoL of working individuals with hearing and speech disabilities.

DISCUSSION

We included a total of 40 working individuals with hearing and speech disabilities, and a significant difference was not observed in the gender distribution. The average age of participants was 39 years, with no significant difference between males and females. Other studies investigating the impact of hearing loss on daily life included groups of older adults; for example, in the study of Dalton et al. (20), the participants were 53–97 years old, while in the study of Hidalgo et al. (21), the participants were aged ≥65 years. The differences in the age of participants limited the comparative analysis with those two studies.

Most of our participants completed a regular high school program (23 individuals, 57.5%), and there was no significant difference in the qualifications between the participants in the total sample (p = 0.343) or between males and females (p = 0.680). Nemčić and Jončić (22) reported that the majority of their participants (83%) completed a high school program, a minority of them (7%) had a university degree, 5% completed elementary school and higher (vocational) school, and 1% had no formal education. Among the individuals who completed a high school program in their study, 58% had a regular high school diploma (50% with vocational high school diploma and 8% with gymnasium diploma), while 39% of participants completed a special school (22). These results are in agreement with the results of our study.

Norhayati et al. (23) investigated barriers and constraints of employment of young men and women

TABLE 12. Total daily activity and the QLI

Parameters	TotalMET	TotalWorkMET	TotalTransMET	TotalHomeMET	TotalSportMET
N					
Valid	40	40	40	40	40
Missing	0	0	0	0	0
Mean	11699.59	7850.28	709.09	2346.50	793.72
Median	11393.25	9537.00	643.50	1335.00	396.00
Standard deviation	8400.673	5911.877	642.447	3049.227	924.007

QLI: Quality of life index, MET: Metabolic equivalent of task

	Mean	Standard deviation	N
QLI	19.3344	5.92159	40
Total METu000	11.6996	8.40067	40

TABLE 13. Significance of the regression model coefficients

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	95.0% Confidence interval for B		Collinearity statistics	
	B	Standard error	Beta			Lower bound	Upper bound	Tolerance	VIF
1									
(Constant)	14.268	1.294		11.026	0.000	11.649	16.888		
Total METu000	0.433	0.960	0.614	4.799	0.000	0.250	0.616	1.000	1.000

with hearing impairment. There was no significant difference in the number of males and females (67 men and 69 women) in their sample, but they did observe a difference in the employment between genders. Namely, 55 young men (82.1%) in their study was employed and 12 (17.9%) were not, compared to 43 employed (62.3%) and 26 (37.7%) unemployed young women (23). These results are not comparable to the average results reported in our study.

In our study, there were 22 tailors/sewers (59.46%), 5 printmakers (13.51%), 2 quality controllers (5.41%), 2 lathe operators (5.41%), 1 manufacturing assembler (2.70%), and 5 packaging operators (3.51%).

Most of our participants (24 individuals [60%]) were working unassisted. There was a significantly higher number of participants who were working with an individual with a disability (12 individuals, 30%) compared to those who were working with a person without a disability (4 individuals, 10%) (χ^2 = 4.000; p = 0.046).

In our study, there was a significantly higher number of those who started a family; 25 participants (62.5%) were married compared to the other two groups (13 participants [32.5%] were not married and 2 participants [5%] were living in a couple relationship [χ^2 = 4.900; p = 0.027]). Most of the individuals were living with a spouse (28 participants, 70%), 8 participants were living with their parents (20%), 1 participant was living with a guardian (2.5%), and 3 participants were living independently (7.5%). Our results are comparable to those reported by Jončić and Nemčić (24) who showed that 51% of their participants were married, 20% had never been in marriage and were not in a relationship, 12% were in a relationship, and 8% of their participants were divorced (24).

We observed a statistically significant difference in the number of the individuals with deafness (>90 dB; 36 individuals, 90%) compared to the number of participants who had a mild hearing impairment (1 participant, 2.5%) and those who had a severe hearing impairment (3 participants, 7.5%) (χ^2 = 25.600; p = 0.000). No participant reported the presence of comorbid disease. Contrary to our findings, Tatović et al. (25) reported that, in their sample, the most common were moderate (44%) and mild hearing impairment (36%), less common was severe hearing impairment (13%), and the least common was very severe impairment and deafness (7%) (25).

Regarding the means of communication, a significantly higher number of our participants were using Sign language (97.5%) compared to those who were using manual alphabet (2.5%) (χ^2 = 36.100; p = 0.000). Radoman and Nikolić (26) analyzed the effects of learning Sign language in a cohort of 60 children with severe hearing impairment, aged 8–12 years. They showed that learning and improving Sign language positively affected the verbal competence, global communicative competence, and school achievement in children with severe hearing impairment (26).

Mujkanović et al. (27) indicated that social communication barriers exist between individuals who have hearing impairment and those who do not, at the busiest places where the communication is required in everyday life. The authors showed that people with a basic knowledge of Sign language had significantly less barriers in their communication, improving the overall QoL of people with disabilities (27). These findings are in agreement with our results and suggest that Sign language as the means of communication in people with hearing impairment is of crucial importance in their socialization.

A significantly higher number of our participants were not using a hearing aid (33 participants, 82.5%) compared to those who were using a cochlear implant or a hearing aid (7 participants, 17.5%) (χ^2 = 16.900; p = 0.000). These results are in agreement with the findings of Qian et al. (28) who, in a group of 100 adults with hearing impairment and aged 80–99 years, showed that only 34 participants were using a hearing aid (28).

The level of physical activity in different situations of everyday life, such as at work, in commuting, at home, and during recreation or sport, was low to moderate in most of our participants.

Craig et al. (29) assessed the level of physical activity at population level, among 18–65-year-old adults from 12 different countries, using the short and long forms of the IPAQ. The long forms of the IPAQ were completed by 1880 adults, with a reported median of 3699 MET-minutes weekly (29). Compared to their results, the level of physical activity was significantly

higher in our study. For example, the average value for total daily activities was 11.700 MET in our study group, and the median was 11.393 MET. Furthermore, we showed that the median for physical activities at work was 9537 MET, in commuting 643 MET, at home 1355 MET, and for recreation and sport, the median was 396 MET.

In their study, on relationships between physical activities in different domains and health indicators, using the short version of the IPAQ in 29,193 individuals aged 15 years and older, Abu-Omar and Rüttern (30) reported the following results: At work (occupational physical activity), 61.1% participants had low/little or no activity, 19.6% had moderate/some activity, and 19.3% had high/a lot of activity; by commuting: 37.4% participants had low/little or no activity, 42.6% had moderate/some activity, and 20% had high/a lot of activity; at home (domestic physical activity): 30.7% had low/little or no activity, 41.8% had moderate/some activity, and 27.5% had high/a lot of activity; and during recreation and sport (leisure time): 61.9% had low/little or no activity, 26.1% had moderate/some activity, and 12% had high/a lot of activity (30).

Comparing these results with ours, we observed differences in the values for almost all domains of physical activity. For instance, they showed that most of their participants (61.1%) had low level of activity at work, while the percentage of those with moderate and high activity was similar (19.6% and 19.3%, respectively) (30). On the contrary, most of our participants had moderate activity at work (52.5%), followed by those with low (25%) and high level of activity (22.5%). In commuting, Abu-Omar and Rüttern (30) reported the highest percentage for those with moderate physical activity (42.6%), while we reported the highest percentage for the individuals with low activity (92.5%). Around 37.4% of their participants had low level and 20% had high level of activity by commuting. On the other hand, no participant reported high-level activity by commuting in our study, and 7.5% had moderate activity. At home, most of the participants in our study reported low level of activity (52.5%), followed by those with moderate (45%) and high activity (2.5%). This was again in contrast with the results of Abu-Omar and Rüttern (30) who showed that 41.8% of their participants had moderate domestic physical activity, and approximately, the same percentage of their participants had low and high domestic activity (30.7% and 27.5%, respectively).

Regarding the level of physical activity during leisure time (e.g., sport and recreation), our results were similar to the findings of Abu-Omar and Rüttern (30). Both studies reported the highest percentage of individuals with low physical activity (61.9% in their and 80% in our study) and the following were individuals with moderate activity (26.1% in their study vs. 20% in ours). They also reported 12% of participants with high activity, while no individual in our study had high level of physical activity in this domain.

Azevedo et al. (31) investigated the association between gender and leisure-time physical activity in a population of adults (1407 men and 1807 women) from Brazil. Using the long version of the IPAQ to measure the physical activity, they showed that males were more active than women (31).

On the contrary, in assessing the validity and reliability of the Yale Physical Activity Survey (YPAS) and the short version of the IPAQ in older South African adults, Kolbe et al. (32) showed that the total physical activity was higher in women compared to men. In both studies, the differences between males and females were significant, and this is not in agreement with our study.

In our study, the average QLI was 19.33 (QLI index range is 0–30) and the average of total daily activities, according to the IPAQ, was 11.700 MET. Hagell and Westergren (33) reported the average QLI of 20.2 in 81 patients with Parkinson's disease.

Rannestad and Skjeldestad (34) explored the usefulness of QLI in analyzing the impact of urinary incontinence (UI) on the QoL of women who were long-term gynecological cancer survivors compared to controls. The average QLI of the patients with UI was 22 compared to 23.4 in controls (34). The QLI values reported in the above-mentioned studies are in agreement with our results.

Our Pearson correlation ($r = 0.614$) and linear regression analysis ($B = 0.433$; $p < 0.05$) showed a positive relationship between the daily activities and the QoL of the individuals with hearing and speech disabilities. Their daily activities affected all aspects of QoL

including their satisfaction with family life, socio-economic status, psychological, and emotional state. Similar findings were reported by Gill et al. (35) in a population aged 18–89 years. Furthermore, Tavares et al. indicated that physical exercise improves the QoL of elderly individuals (>60 years) with depression and AD (36). Similar findings with different groups/populations were also reported by Rank et al. (37), Tewari et al. (38), and Joseph et al. (39).

CONCLUSION

Complete deafness was observed in the majority of our participants, while the rest of the participants had either moderate or mild hearing impairment. Comorbidities were not observed. As the means of communication, a higher number of participants used Sign language compared to manual alphabet. Only 17.5% of the participants used a cochlear implant or a hearing aid.

Most of the individuals lived with a spouse; others lived either with their parents, a guardian, or independently. The majority of the participants who were married had a child. In half of the participants, other members of their families also had a disability. Different occupations were present in our group of individuals with hearing and speech disabilities including tailors/sewers, printmakers, quality controllers, lathe operators, manufacturing assemblers, and packaging operators.

Overall, we showed that daily activities have a positive effect on the QoL of working individuals with hearing and speech disabilities. In other words, the individuals who had higher level of physical activity also had a higher QoL, as assessed by the QLI index.

CONFLICTS OF INTEREST

Authors declare have no conflicts of interest.

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