Central European Journal of Nursing and Midwifery

Cent Eur J Nurs Midw 2018;9(1):767–772
doi: 10.15452/CEJNM.2018.09.0003

ORIGINAL PAPER

PERCEIVED EMOTIONAL AND SITUATIONAL HEARING HANDICAP IN THE ELDERLY AND THEIR FAMILY MEMBERS

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Received March 3, 2017; Accepted November 10, 2017.

Abstract

Aim: The study aimed to identify perceived emotional and situational hearing handicap in the elderly and their family members. *Design:* A cross-sectional study. *Methods:* The sample comprised 256 respondents (128 hearing-impaired elderly patients and 128 family members). Data were collected in an audiology office over a period of four months. To measure their quality of life, the full version of the standardized HHIE questionnaire was used in elderly patients with hearing loss and the modified HHIE-SP instrument in their family members. *Results:* The study results suggest that elderly patients' hearing loss affects the quality of life of not only the patients themselves but also of their family members. When comparing the two subgroups, the impact of hearing loss on their quality of life was identical. The elderly noticed major problems when communicating in a noisy environment while in family members, hearing loss had the greatest impact when listening to TV or radio. Both subgroups had the least problems when attending religious services. Elderly patients' quality of life was considerably correlated with the severity of their hearing loss. *Conclusion:* In old age, hearing loss is one of the most common sensory impairments, thus becoming an important social and health problem. In the elderly, hearing loss may impair the exchange of information and therefore significantly affect their everyday life, causing loneliness, isolation, dependency, frustration as well as communication disorders.

Keywords: elderly, family member, hearing handicap.

Introduction

In old age, hearing loss is a common sensory impairment and a considerable public health and economic problem. According to available data, more than half of the elderly population over 75 years of age suffer from hearing loss (Salonen, 2013). The prevalence of impaired hearing increases with age (López-Torres Hidalgo et al., 2008). A certain degree of hearing loss is estimated to range between 25% and 40% in 65-year-olds and between 40% and 66% in persons older than 75 years (Roth, Hanebuth, Probst, 2011). According to the World Health Organization, approximately 360 million people worldwide have disabling hearing loss (WHO, 2012). In the Czech Republic, the number was estimated at 360,000 (Hrubý, 2010), the vast majority of them being senior citizens with presbycusis. Age-related hearing loss becomes pathological when a person's communication ability is impaired, being accompanied by a significant impact on their socio-cultural ties and interpersonal relations in their family.

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As a result of impaired communication abilities and social relations, the quality of life is perceived to be lower by both the affected seniors and their caring family members.

There has been increasing interest in assessing the impact of hearing loss in the elderly, as evidenced the number of studies on this issue performed in recent years. To measure the quality of life of hearing-impaired patients, several specific instruments have been developed such as the *Hearing Handicap Inventory for the Elderly* (Ventry, Weinstein, 1982) or International Outcomes Inventory – Hearing Aids (Cox et al., 2000). Assessments of health-related quality of life in hearing-impaired seniors supplement objective health parameters by describing the impact of the disease on everyday life of patients and their loved ones, mediating their subjective perspectives and evaluating the effectiveness of therapy (Dragomirecká, Bartoňová, 2006).

An important aspect of everyday life is sharing information with other people; this may be significantly disturbed in the hearing-impaired. These

communication difficulties may lead to a decrease in perceived quality of life (Sprinzl, Riechelmann, 2010; Chou et al., 2011; Ciorba et al., 2012). The impact of hearing loss on the quality of life may be considerable, as seen from studies (López-Torres Hidalgo et al., 2008; George, Farrell, Griswold, 2012). Hearing loss reduces physical, emotional and social functioning (Fischer et al., 2009). Studies on the quality of life of hearing-impaired seniors have shown that their hearing loss was correlated with, for example, more frequent sadness, anxiety, depression, insecurity, social isolation, communication problems, less involvement in social activities and inability to enjoy music (Chou et al., 2011; Boi et al., 2012).

Aim

The main objective of the study was to identify perceived emotional and situational hearing handicap in the elderly and their family members.

Methods

Design

A cross-sectional study.

Sample

The sample comprised two groups of respondents. Included in the first one were elderly patients (n = 128) visiting an audiology office in Ostrava; their family members (n = 128) were included in the second group. Patients were selected based on the following preset criteria: age over 65 years, hearing loss of more than 20 dB, having direct social contact with a family member and consent to participate in the survey. The inclusion criteria for family members were being 18 years of age or older, having direct social contact with an elderly patient and consent to participate in the survey.

Data collection

All elderly participants underwent a hearing test to determine the severity of their hearing impairment and their ability to understand speech was assessed to divide them into hearing loss severity subgroups.

Measurements

The measurements were made with a Madsen Aurical audiometer calibrated in accordance with ISO 389-1.

Perceived emotional and situational hearing handicap was assessed with the *Hearing Handicap Inventory for the Elderly*, or HHIE (Ventry, Weinstein, 1982) in the elderly and with the HHIE-SP (Ventry, Weinstein, 1982) in their family members. An agreement to use Czech versions of both instruments was obtained from their author Dr. Lejska from the AUDIO-FON center in Brno.

The HHIE and HHIE-SP questionnaires cover two important domains, situational and emotional. They contain 12 situational (Questions 1, 3, 6, 8, 10, 11, 13, 15, 16, 19, 21 and 23) and 13 emotional (Questions 2, 4, 5, 7, 9, 12, 14, 17, 18, 20, 22, 24 and 25) items, rated on a 3-point scale (yes = 4 points, sometimes = 2 points and no = 0 points). The situational and emotional subscores are added together to give a maximum total score of 100 points. When collecting data, additional 9 or 6 questions were added to these specific questionnaires to obtain information on age, gender, education, living, marital status, hearing loss severity and family relationship from the elderly patients and their relatives, respectively. In both groups, respondents were asked about their subjective perception of how the elderly patients' hearing loss impaired their quality of life.

Data analysis

For each item, basic statistical characteristics were calculated (arithmetic mean, median, mode and standard deviation).

The variables were statistically compared using the Kruskal-Wallis test. All statistical tests were performed at a level of significance of 5%. The data were analyzed using the SPSS 17.0 statistical software.

Results

Sociodemographic and health characteristics of the sample

The entire sample comprised a total of 256 respondents (128 elderly patients and 128 family members). There were 53 females (41%) and 75 males (59%) among the elderly respondents. Their mean age was 71 years (SD ± 6.64; range 65–89 years). Eighty-eight were married. When assessing their hearing loss severity, most had moderate hearing loss (n = 71); severe impairment was found in 37, mild in 13 and deafness in 7 elderly patients. Ninety-five respondents (74%) self-reported their quality of life as impaired (Table 1).

The family member group consisted of 89 females (70%) and 39 males (30%). Their mean age was 63 years (SD ± 13.55; range, 25–89 years). Ninety-nine respondents were married. The largest subgroup were spouses of an elderly patient (n = 82), followed by daughters or sons (n = 29), other family members (n = 12) and grandchildren (n = 5). Ninety-eight respondents (77%) self-reported their quality of life as impaired (Table 2).

Table 1 Demographic characteristics of elderly patients

Characteristic	Family members	n	%
Gender	males	75	59
	females	53	41
Age	under 70 years	63	49
	70–80 years	42	33
	80+ years	23	18
Marital status	married	88	69
	divorced	12	9
	widow/widower	28	22
Hearing loss	mild 20 ≤ 45 dB	13	10
	moderate 46 ≤ 60 dB	71	56
	severe 61 ≤ 80dB	37	29
	deafness 81 dB >	7	5
Hearing aid	yes	94	73
	no	34	27
Subjective perception of the quality of life	impaired quality of life	95	76
	unimpaired quality of life	33	24

Table 2 Demographic characteristics of family members

Characteristic	Family members	n	%
Gender	males	39	30
	females	89	70
Age	under 70 years	63	49
	70–80 years	42	33
	80+ years	23	18
Marital status	single	9	7
	married	99	77
	divorced	15	11
	widow/widower	5	4
Family relationship	daughter/son	29	23
	spouse	82	64
	grandchild	5	4
	other	12	9
Subjective perception of the quality of life	impaired quality of life	98	77
	unimpaired quality of life	30	23

The most common problems of the elderly and their relatives identified by the HHIE

Data at an item level suggest that both the elderly and their family members used the entire range of the scale. In the elderly, the mean scores for individual items ranged from 0.33 points for Question 11 to 3.39 for Question 8 (Table 3). The highest mean scores were noted for Questions 8 (Difficulty with conversation in a noisy environment), 15 (Difficulty when listening to TV/radio), 2 (Embarrassment when meeting new people), 6 (Difficulty when attending a party) and 10 (Difficulty when visiting people).

In family members, the mean scores for individual items ranges between 0.27 points for Question 11 and 3.48 for Question 8. The highest mean scores were found for Questions 15 (Difficulty when listening to TV/radio), 8 (Difficulty with conversation in a noisy environment), 17 (Upsetting difficulties), 10 (Difficulty when visiting people) and 6 (Difficulty when attending a party).

Quality of life by elderly patients' age and hearing loss severity

As seen from Table 4, the results failed to confirm significant differences in elderly patients' quality of life with respect to their age ($H = 6.697$; $p = 0.290$). The highest quality of life was achieved in the under 70 age category.

There were significant differences in the quality of life with respect to hearing loss severity ($H = 3.4755$; $p = 0.000$). The best quality of life was observed in the elderly with mild hearing loss; the lowest quality was noted for deaf patients.

Similarly, results shown in Table 5 failed to confirm significant differences in the quality of life of family members with respect to elderly patients' age ($H = 7.8485$; $p = 0.113$). The best quality of life was noted for family members of elderly patients under 70 years of age. The table also suggests that there was a statistically significant difference between family members of elderly patients with mild hearing loss and those of deaf patients. There were significant differences with respect to hearing loss severity ($H = 2.3408$; $p = 0.000$). Family members of elderly patients with mild hearing loss had the highest quality of life while those of deaf patients had the poorest quality of life.

Table 3 Mean HHIE scores for elderly patients and HHIE-SP scores for family members

	Elderly patients		Family	
Item	**mean**	**SD**	**mean**	**SD**
Q1 Using the phone	1.90	1.10	1.90	1.10
Q2 Embarrassment when meeting new people	**2.84**	**1.30**	**1.98**	**1.30**
Q3 Avoiding other hearing-impaired people	1.34	0.69	1.53	0.69
Q4 Irritability	1.95	0.97	2.36	0.97
Q5 Frustration when talking to family members	2.22	1.10	2.16	1.10
Q6 Difficulty when attending a party	**2.55**	**1.15**	**2.52**	**1.15**
Q7 Feeling stupid	1.67	0.89	1.61	0.89
Q8 Difficulty with conversation in a noisy environment	**3.39**	**1.54**	**3.42**	**1.54**
Q9 Feeling handicapped	2.14	0.94	2.48	0.94
Q10 Difficulty when visiting people	**2.44**	**1.22**	**2.53**	**1.22**
Q11 Attending religious services	0.33	0.89	0.27	0.33
Q12 Nervousness	1.95	0.95	2.33	0.95
Q13 Visiting relatives and friends	1.23	0.55	1.42	0.55
Q14 Arguments with family members	2.03	0.81	1.75	0.81
Q15 Difficulty when listening to TV/radio	**3.20**	**1.44**	**3.48**	**1.56**
Q16 Shopping less often	1.33	0.66	1.34	0.66
Q17 Upsetting difficulties	2.31	1.11	**2.70**	**1.11**
Q18 Solitude	1.55	0.75	1.45	0.75
Q19 Limited communication	1.44	0.66	1.72	0.66
Q20 Limited personal or social life	2.09	0.84	2.19	0.84
Q21 Difficulty visiting a restaurant with relatives/friends	2.27	0.94	2.28	0.94
Q22 Depression	1.16	0.48	1.27	0.48
Q23 Listening to TV/radio less often	2.16	0.92	2.16	0.92
Q24 Feeling uncomfortable	1.91	0.68	2.06	0.68
Q25 Feeling left out	2.02	0.82	2.12	0.82

SD – standard deviation

Table 4 Comparison of elderly patients' HHIE scores by age and hearing loss severity

	HHIE	**mean score**	**H**	**p***
Age	under 70 years (n = 63)	59.28		
	70–80 years (n = 42)	69.95	6.697	0.290
	80+ years (n = 23)	68.85		
Hearing loss	mild	30.38		
	moderate	57.31	3.4755	**0.000**
	severe	85.31		
	deafness	90.79		

**Kruskal-Wallis test*

Table 5 Comparison of family members' HHIE-SP scores with respect to elderly patients' age and hearing loss severity

	HHIE	**mean score**	**H**	**p***
Age	under 70 years (n = 63)	60.63		
	70–80 years (n = 42)	62.36	7.8485	0.113
	80+ years (n = 23)	79.02		
Hearing loss	mild	31.62		
	moderate	57.80	2.3408	**0.000**
	severe	84.55		
	deafness	87.57		

**Kruskal-Wallis test*

Discussion

The main objective of the survey was to identify perceived emotional and situational hearing handicap in the elderly and their family members. Yueh et al. (2003) consider hearing loss the third most frequent chronic condition in the elderly, having an important impact on their physical and mental health. Similarly, Bennion and Forshaw (2013) or Acar et al. (2011)

claim that hearing impairment has a considerable impact on a wide range of life factors, leading to a decline in physical, mental and social health and thus reducing the quality of life of senior citizens. The present study showed a lower quality of life due to perceived hearing handicap in 74% of elderly patients and 77% of their relatives. The elderly noticed major problems when communicating in a noisy environment and the least problems when attending religious services. In family members, by contrast, hearing loss had the greatest impact when listening to TV or radio. Emotionally, the elderly were consistently aware of their hearing loss-related problems but these did not produce depression. Boi et al. (2012) states that hearing loss may influence the development of depressive syndrome in the elderly. According to Tatović et al. (2011), hearing is one of the most important factors associated with human communication abilities. In a group of adults with hearing impairment, they confirmed serious difficulties with emotional, social and situational functioning and found significant correlations with the severity of hearing loss. Another study (Gopinath et al., 2012) assessed the quality of life with respect to the development of hearing loss. The elderly reported often feeling embarrassed and frustrated. Moreover, their handicap frequently interfered with their personal and social lives. Five years later, the same seniors showed considerably increased emotional stress, reduced social engagement, less self-esteem and more depressive symptoms.

The present study results suggest that even mild hearing loss confirmed by audiometry may be subjectively perceived as an important factor decreasing the quality of life. Two-thirds of the hearing-impaired elderly feel that their quality of life is poorer due to their hearing loss. The remaining third comprises elderly patients with both mild and moderate to severe handicaps. Similar findings were reported by Deepthi and Kasthuri (2012) claiming that, even though audiometry is considered the gold standard for diagnosing hearing loss, it is not clearly decisive for assessing the impact of hearing loss on the elderly patient's personality and subjectively perceived quality of life.

The present study failed to show statistically significant differences between a lower quality of life and age. This is in contrast with studies by, for example, Mitchell et al. (2011) or Corna et al. (2009), confirming that the older the senior patients were, the lower quality of hearing and life they had.

By contrast, statistically significant differences were confirmed in the quality of life with respect to hearing loss severity, with the highest quality of life being observed in elderly patients with mild hearing loss and the lowest in deaf seniors. This is consistent with the WHO's (2012) conclusion that the more severe hearing loss is, the poorer quality of life such elderly patients have. An American longitudinal study (Dalton et al., 2003) assessed the impact of hearing loss, with respect to its severity, on elderly patients' quality of life at a 5-year interval. There was a statistically significant correlation between hearing loss severity and quality of life reduction. Once again, the more severe hearing loss, the poorer quality of life. Similar findings were also reported by Wong and Chang (2012).

The present study found that as many as 77% of family members perceive that their elderly relatives' hearing handicap has an impact on their own quality of life. Consistently with that, the study results show that the severity of elderly patients' hearing loss is correlated with the quality of life not of only these patients but also of their family members. The greatest deterioration was observed in family members of elderly patients suffering from severe hearing loss or deafness. The family members perceived the most problems when listening to TV and the least problems, similar to elderly patients, when attending religious services. When asked about emotional items, they reported being aware of problems caused by hearing loss of their elderly relatives sharing the same household with them, but not feeling depressed because of that. Similar findings were reported by Brooks, Hallam and Mellor (2001). Moreover, the authors add that, besides disruption of usual activities, communication in the family is substantially affected, including direct communication as well as personal and social relationships. The greatest difficulties experienced were with group conversation and listening to TV, these being perceived by both parties equally. Similar findings were reported by Chou et al. (2011), Sprinzl and Riechelmann (2010), Ciorba et al. (2012) and others.

Conclusion

An important aspect of everyday life, exchanging information with others, may be considerably impaired in individuals with hearing loss. These communication problems may lead to a lower perceived quality of life. The results suggest that elderly patients' hearing impairment affects the quality of life of not only the patients themselves but also of their family members.

Given the fact that the prevalence of hearing loss increases with age, the most important solution appears to be hearing screening in all senior citizens

older than 65 years of age during their regular medical check-ups.

Ethical aspects and conflict of interest

All participants were informed about the purpose of questionnaires and assured about confidentiality of data collected. All respondents providing data consented to their participation in the study. The questionnaires were distributed together with pre-printed and pre-paid envelopes to be filled in at home. The study meets the basic ethical principles of human research. The authors are unaware of any conflict of interest.

Author contribution

Concept and design (RK, JT), data collection (JT), analysis and interpretation of data (JT, RK), drafting of the manuscript (RK, RZ, JT), critical revision of the manuscript (RK, RZ), the final completion of the article (RK, RZ).

References

Acar B, Yurekli MF, Babademez MA, Karabulut H, Karasen RM. Effects of hearing aids on cognitive functions and depressive signs in elderly people. *Archives on Gerontology and Geriatrics.* 2011;52(3):250–252.

Bennion A, Forshaw MJ. Insights from the experiences of older people with hearing impairment in the United Kingdom: recommendations for nurse-led rehabilitation. *International Journal of Older People Nursing.* 2013;8(4):270–278.

Boi R, Racca L, Cavallero A, Carpaneto V, Racca M, Dall' Acqua F, Ricchetti M, Santelli A, Odetti P. Hearing loss and depressive symptoms in elderly patients. *Geriatrics & Gerontology International.* 2012;12(3):440–445.

Brooks DN, Hallam RS, Mellor PA. The effects on significant others of providing a hearing aid to the hearing-impaired partner. *British Journal of Audiology*. 2001;35(3):165–171.

Chou R, Dana T, Bougatsos C, Fleming C, Beil T. *Screening for hearing loss in adults ages 50 years and older: a review of the evidence for the U.S. Preventive Services Task Force [Internet]*. Rockville (MD): Agency for Healthcare Research and Quality (US); 2011.

Ciorba A, Bianchini C, Pelucchi S, Pastore A. The impact of hearing loss on the quality of life of elderly adults. *Clinical Interventions in Aging.* 2012;7:159–163.

Corna LM, Wade TJ, Streiner DL, Cairney J. Corrected and uncorrected hearing impairment in older Canadians. *Gerontology.* 2009;55(4):468–476.

Cox R, Hyde M, Gatehouse S, Noble W, Dillon H, Bentler R, Stephens D, Arlinger S, Beck L, Wilkerson D, Kramer S, Kricos P, Gagné JP, Bess F, Hallberg L. Optimal outcome measures, research priorities, and international cooperation. *Ear and Hearing*. 2000;21(Suppl 4):106S–115S.

Dalton DS, Cruickshanks KJ, Klein BE, Klein R, Wiley TL, Nondahl DM. The impact of hearing loss on quality of life in older adults. *The Gerontologist.* 2003;43(5):661–668.

Deepthi R, Kasthuri A. Validation of the use of self-reported hearing loss and the Hearing Handicap Inventory for elderly among rural Indian elderly population. *Archives on Gerontology and Geriatrics.* 2012;55(3):762–767.

Dragomirecká E, Bartoňová J. *WHOQOL-BREF: Příručka pro uživatele české verze dotazníků kvality života světové zdravotnické organizace.* Praha: Psychiatrické centrum Praha; 2006. (in Czech)

Fischer ME, Cruickshanks KJ, Klein BE, Klein R, Schubert CR, Wiley TL. Multiple sensory impairment and quality of life. *Ophthalmic Epidemiology. 2*009;16(6):346–353.

George P, Farrell TW, Griswold MF. Hearing loss: help for the young and old. *The Journal of Family Practice.* 2012;61(5):268–277.

Gopinath B, Hickson L, Schneider J, McMahon CM, Burlutsky G, Leeder SR, Mitchell P. Hearing-impaired adults are at increased risk of experiencing emotional distress and social engagement restrictions five years later. *Age and Ageing*. 2012;41(5):618–623.

Hrubý J. *Úvod do výchovy a vzdělávání sluchově postižených.* [CD]. Praha: Tiché učení; 2010. (in Czech)

López-Torres Hidalgo J, Boix Gras C, Téllez Lapeira J, López Verdejo MA, del Campo del Campo JM, Escobar Rabadán F. Functional status of elderly people with hearing loss. *Archives of Gerontology and Geriatrics.* 2009;49(1):88–92.

Mitchell P, Gopinath B, Wang JJ, McMahon CM, Schneider J, Rochtchina E, Leeder SR. Five-year incidence and progression of hearing impairment in an older population. *Ear and Hearing.* 2011;32(2):251–257.

Roth TN, Hanebuth D, Probst R. Prevalence of age-related hearing loss in Europe: a review. *European Archives of Otorhinolaryngology.* 2011;268(8):1101–1107.

Salonen J. *Hearing impairment and tinnitus in the elderly.* Annales Universitatis Turkuensis: Painosalama Oy, Turku, Finland; 2013.

Sprinzl GM, Riechelmann H. Current trends in treating hearing loss in elderly people: a review of the technology and treatment options – a mini-review. *Gerontology.* 2010;56(3):351–358.

Tatović M, Babac S, Djerić D, Ančić R, Ivanković Z. The impact of hearing loss on the quality of life in adults. *Srpski Arhiv Celokupno Lekarstvo*. 2011;139(5–6):286–290. (in Serbian)

Ventry IM, Weinstein BE. The Hearing Handicap Inventory for the elderly: a new tool. *Ear and Hearing*. 1982;3(3):128–134.

WHO. *WHO global estimates on prevalence of hearing loss.* WHO; 2012. [cited 2013 Mar 20]. Available from: http://www.who.int/pbd/deafness/WHO_GE_HL.pdf

Wong LL, Cheng LK. Quality of life in older Chinese-speaking adults with hearing impairment. *Disability and Rehabilitation*. 2012;34(8):655–664.

Yueh B, Shapiro N, MacLean CH, Shekelle PG. Screening and management of adult hearing loss in primary care: scientific review. *JAMA.* 2003;289(15):1976–1985.

