Tell Us Your Telephone Troubles: Using Open-Ended Questionnaires to Explore Telephone Use

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Research into the actual use of the telephone by individuals with hearing loss is a neglected area in the field of audiology. The population with hearing loss however continues to express frustration over telephone use. Following a review of data from existing questionnaires regarding telephone use, the benefits of using an open-ended format in initially exploring issues in audiologic rehabilitation are discussed. An open-ended questionnaire regarding telephone use was sent to 50 veterans with hearing loss. Nineteen responses were evaluated for content/complaint areas by 2 audiologists. Implications for counseling the hearing aid user are addressed. Use of open-ended questionnaires in the development of other test instruments such as self-rating scales is discussed.

The ability to communicate successfully over the telephone is becoming a necessity in our modern society. The telephone is now found everywhere and travels with us from place to place. Answering machines, mobile telephones, and paging devices that were only recently viewed as high tech and for the wealthy only

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are now used extensively by the general population. This widespread use of the telephone can be viewed as a way to communicate with the world, especially for individuals with physical disabilities or those with limited transportation options. Use of the telephone can be a method of maintaining independence or it can be yet another impediment to successful communication. This latter view is unfortunately expressed often by individuals with hearing loss.

Research into the actual use of the telephone by individuals with hearing impairments and the improvement of their telephone communication skills is currently a relatively neglected area in the field of audiologic rehabilitation (Erber, 1985). Existing hearing handicap assessment tools either do not cover telephone use or only ask single or cursory questions regarding telephone communication (Berkowitz & Hochberg, 1971; Demorest & Erdman, 1987; Ewertsen & Birk-Nielsen, 1973; Giolas, Owens, Lamb, & Schubert, 1979; High, Fairbanks, & Glorig, 1964; McCarthy & Alpiner, 1983; Newman, Weinstein, Jacobson, & Hug, 1990; Noble & Atherley, 1970; Speaks, Jerger, & Trammell, 1970; Ventry & Weinstein, 1982).

The apparent lack of research in the area of telephone rehabilitation is not, however, a reflection of the perceived needs of the more typical population with hearing loss. Tyler, Baker, and Armstrong-Bednall (1983) reviewed the results of an open-ended questionnaire on general communication difficulties sent to 250 hearing aid candidates and 250 hearing aid users in Great Britain. The average age of the former group was 66.3 years and the latter average age was 68.7 years. Most of the hearing aid wearers (64%) used body aids. However the authors noted the more recent fittings were behind the ear styles. Twenty-one percent in each group noted difficulty communicating over the telephone. Telephone conversation was in the top five problematic communication areas listed for each group. The authors reported hearing aids did not appear to help telephone communication; however, they noted the high numbers of body aid users and the location of the study may have skewed this observation. Most of the body aids distributed by the National Health Service did not have telecoils and the telephone system in Great Britain at the time of the study was not hearing aid compatible.

Lalande, Lambert, and Riverin (1988) used a questionnaire format in order to determine the psychosocial disadvantages associated with noise-induced hearing loss. Sixty-five metal product workers and their nearest relatives participated in the study. The workers had an average of 17 years of noise exposure. Noise-induced loss was associated with three separate areas of psychosocial impairment: decreased quality of life at home and work, increased isolation with loss of self-esteem, and decreased ability to participate in leisure activities. Use of the telephone was placed in the latter category by the authors. Issues surrounding telephone use were defined as an inability to hear the telephone ringing and a lack of ability to take accurate telephone messages. The authors stressed the need for employee counseling regarding the use of telephone amplification devices.

Bowe (1991) reported on the results of a survey sent to adults who were deaf or hard-of-hearing ages 18 to 70 years. The respondents, who tended to be working, college-educated adults, were asked a variety of questions regarding information access, including telephone use. Fifty-seven percent reported difficulty using the telephone and they were willing to pay up to $15.00 per month to improve their access to telephone communication. A major concern of the group surveyed was an inability to use existing safety systems in their communities, including 911 numbers.

Kepler, Terry, and Sweetman (1992) reported the results of a survey sent to 104 members of a national support group, Self-Help for Hard of Hearing People (SHHH). Results of this survey suggested a keen interest among individuals with hearing impairments to improve their ability to communicate over the telephone. The authors noted 69% of the respondents indicated that their hearing impairment discourages them from using the telephone. Fifty-one percent reported avoiding using the telephone due to their hearing loss and 75% found hearing over the telephone to be "somewhat" to "extremely difficult." The most difficult areas of telephone use were hearing over the telephone in the presence of background noise, low volume of the transmitted signal, poor clarity of the signal, and difficulty acoustically coupling the telephone and the hearing aid. The authors commented that SHHH members may be more sophisticated than the average individual with a hearing loss and the actual status of telephone use by such individuals may be worse than depicted by the survey. They recommended audiologists must be more interactive with the client in choosing the correct telephone amplification method and improve in teaching methods for the correct use of the telephone.

The above studies illustrate the complaints of adults with hearing loss regarding telephone use; however each study can be viewed as idiosyncratic to a specific area, type of hearing aid, severity of hearing loss, or population. The current project was undertaken to assess the telephone communication problems in a more diverse audiologic clinical population in the United States with the ultimate goal of developing a clinically efficient self-assessment tool to measure telephone performance.

The first step in developing such a tool is to assess the actual and perceived needs of individuals with hearing loss in relation to telephone use. One method to obtain such pilot information is the use of an open-ended questionnaire. The use of open-ended questionnaires to determine hearing aid difficulties has been recommended by Barcham and Stephens (1980) and Stephens (1980). This format "provides an opportunity for clients to express their individual problems, which might not be addressed in a closed question-answer questionnaire" (Tyler et al., 1983, p. 191). The purpose of this study was to explore the use of the open-ended questionnaire format as it relates telephone communication problems of a typical individual with a hearing loss.

Table 1

Subject Characteristics Including Hearing Loss, Hearing Aid Fitting, and Telephone Coupling Strategy

Subject	Age (years)	HA	PTA-R (dB HL)	PTA-L (dB HL)	WR-R (%)	WR-L (%)	2kHz-R (dB HL)	2kHz-L (dB HL)	Phone use
001	58	bin ITE	42	40	64	64	65	65	Amp
002	65	bin ITE	42	38	92	100	45	45	T-coil
003	68	bin ITE	45	48	84	68	55	55	HA
004	65	bin ITE	57	68	90	78	50	65	HA
005	60	mon BTE	50	50	94	90	55	45	HA
006	71	bin ITE	38	35	84	80	65	60	HA
007	71	bin LP[a] ITE	30	28	84	64	45	45	HA
008	60	bin canal	40	36	100	92	40	40	HA
009	63	bin canal	55	28	80	88	60	60	Amp handset
010	72	bin ITE	90	31	0	80	85	50	HA
011	60	bin ITE	66	72	36	36	90	110	HA & amp
012	73	None	42	50	60	70	60	60	Phone
013	63	bin ITE	58	46	76	76	70	55	HA
014	64	bin LP ITE	47	48	66	64	55	55	T-coil

Continued on next page

Table 1 *continued from previous page*

Subject	Age (years)	HA	PTA-R (dB HL)	PTA-L (dB HL)	WR-R (%)	WR-L (%)	2kHz-R (dB HL)	2kHz-L (dB HL)	Phone use
015	71	Mon ITE	105	57	0	84	110	55	Phone alone
016	75	None	28	38	92	84	50	60	Phone alone
017	73	bin ITE	37	37	66	84	65	50	Phone alone
018	68	Mon ITE	68	28	84	96	75	40	HA
019	74	ITE, BTE	43	90	84	32	50	95	T-coil
M	67 years 6 months		51.74	45.68	70.32	75.26	62.63	58.42	
S	5.5		19.52	16.53	28.95	18.04	17.51	17.48	

Note. HA = hearing aid; PTA-R = pure-tone average right; PTA-L = pure-tone average left; WR-R = word recognition right; WR-L = word recognition left; Amp = amplification.
[a]LP = low profile

METHODS

In order to determine telephone listening problems in a more typical population of older adults with hearing loss, an open-ended questionnaire in the form of a letter was mailed to 50 veterans who received audiologic services at a Veterans Affairs Medical Center Audiology Clinic. The audiometric criteria for participation were a sensorineural hearing impairment no greater than 60 dB HL at 2000 Hz and a pure-tone average between 30 and 70 dB HL. An age restriction of 55 to 70 years was used to be more representative of the typical adult clinic population (Adams & Marano, 1995) and to avoid the possible effects of central auditory processing deficits in older individuals (Humes, 1996). Subjects did not have to be hearing aid users to participate. The current audiology files of veterans using the clinic were pulled in reverse alphabetical order until 50 were selected that fit the criteria of the current study.

A letter was designed to elicit comment, both positive and negative, regarding hearing aid compatibility with the telephone and to learn the typical telephone use patterns of the subject. The letter specifically requested the subject to note if he or she used the telephone, and any problems he or she had with the use of the telephone. The subject was given a sheet to write his or her responses and a postage-paid, addressed return envelope. Refer to Appendix for a copy of the open-ended questionnaire. Each completed letter was read and evaluated for content/complaint areas independently by two audiologists who specialize in audiologic rehabilitation.

RESULTS

The post office returned 5 of the 50 letters as undeliverable. Twenty-two of the letters were returned for a response rate of 49%; 2 were not usable as the veteran was either dead or not mentally competent. One subject returned the survey, but removed all identifying information. Demographics and information regarding hearing aid to telephone coupling strategies for the remaining 19 subjects are shown in Table 1.

Each completed letter was read and rated by two audiologists independently. Rater number one recorded any information regarding telephone use including type of hearing aid coupling to the telephone, general comments on success or failure using the telephone, and use of telephone strategies. From her initial ratings, 17 comment areas were identified. Two comments related to whether they used the telephone with their hearing aid or an assistive listening device (ALD). She then scored each letter based on these areas. Rater number two read each letter and scored it on the basis of the same areas. Agreement of the tallies between the two raters was excellent with only two discrepancies found for all the data collected. Discrepancies centered on the identification of reported use of communication repair strategies. The three authors discussed the discrepancies and

rated the comments based upon group's consensus.

Of the responding veterans, only 16% (n = 3) were satisfied with their ability to use the telephone with their hearing aids while 21% (n = 4) reported avoiding using the telephone if possible. Twenty-six percent (n = 5) noted they simply cannot use the telephone with their hearing aids. The two most common problems associated with telephone use were listening in background noise (47% or n = 9) and acoustic feedback when coupling the hearing aid with the telephone (53% or n = 10). Only 26% (n = 5) of the responding veterans mentioned the use of communication strategies to improve understanding conversation over the telephone. Clearly, telephone use is problematic for the individual with hearing loss. Refer to Table 2 for a listing of comment areas and the corresponding number of veterans reporting.

DISCUSSION

The use of an open-ended questionnaire is discussed as a preliminary step in developing an easy to administer self-assessment tool for use with individuals with hearing loss experiencing difficulty using the telephone. A concern in using such a format is a possible poor return rate due to the labor intensive activity of having to write a response rather than check a box regarding a given statement. This did not occur as our response rate for a single mailing was acceptable (Dillman, 1978).

Benefits of the open-ended questionnaire included avoidance of response bias on the part of the researchers, avoidance of rating system bias by the subject, and free expression of both negative and positive views by the subject. Open-ended questionnaires therefore make excellent tools for obtaining initial information from which to develop more extensive questionnaires or rating tools. Open-ended questionnaires are also less time and labor intensive than other pilot methodologies, such as focus groups, for obtaining such preliminary data (Krueger, 1988).

The interest in the subject of hearing aid-to-telephone compatibility was clearly demonstrated by the high response rate (49%) on one mailing, despite the possible perceived inconvenience of having to write a response rather than circle a given response choice. It is clear from the results of the survey that individuals with hearing loss are not satisfied with their current telephone communication abilities. Options for improving telephone communication include counseling individuals on different amplification options (assistive listening devices), improved use of the current hearing aid fitting, and telephone-specific communication strategies.

Further research is ongoing to incorporate the complaints and suggestions of the pilot survey into a 10 to 15 item self-rating form to be used in clinical settings. The telephone user with a hearing loss can and should be expected to improve his or her ability to communicate over the telephone by being made aware of poten-

Table 2

Comments Regarding Telephone Communication by Number of Subjects Reporting and Type of Telephone Listening System

Comment	No. reporting, T-coil users (N = 3)	No. reporting, ALD users (N = 3)	No. reporting, hearing aid only users (N = 9)	No. reporting, telephone alone users (N = 4)
1. Avoids phone		1	2	1
2. Cannot use H.A. with phone	1	1	2	1
3. Cannot use telecoil	1			
4. Difficulty in background noise	1	2	6	
5. Difficulty first answering			1	
6. Feedback	2	3	5	
7. Happy with phone use	1		2	1
8. H.A. difficult to adjust for phone use		1	2	3
9. Identifying numbers problematic		1		
10. Overall difficulty	1	1	3	
11. Static			3	
12. Uses communication strategies		1	1	1
13. Poor phone equipment		2	1	
14. Use of phone makes nervous			1	
15. Volume too soft	1		1	

tial problems and by using specific communication strategies to facilitate and repair communication (Erber, 1985). The purpose of a scale to evaluate telephone communication abilities would be to foster self-awareness regarding telephone communication, while promoting better, more efficacious clinical care in the form of counseling, fitting alternate amplification options, and implementing and evaluating appropriate therapy on the part of the dispensing audiologist.

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APPENDIX

OPEN-ENDED QUESTIONNAIRE

Dear Subject Name:

As an Audiologist at the VA Medical Center in Gainesville, I am interested in finding out about problems you may have with using your hearing aid on the telephone. I would appreciate it if you would take a little time and share your experiences with me.

On the paper provided tell me in your own words if you use the telephone. If you do not use the telephone, please tell me why, and what you think could help you use the telephone better.

If you do use the telephone with your hearing aid, I ask that you tell me about any problems you have with it. Tell me about the problems you may have understanding people on the telephone. Be as general or specific as you like and give me as many examples as you can. And if you have some advice for people using the telephone with their hearing aid, I'd like to know that too.

When you finish your list and comments send it to the Audiology clinic using the enclosed envelope, no postage needed, just put it in the mail. All of the responses are confidential and remain in the Audiology clinic.

I hope that this information you share with me will help Audiologists better meet the needs of you, the hearing aid using veteran. Your personal experiences are a great resource. Thank you for reading this letter and I look forward to hearing from you.

Sincerely,

Robert B. Yanke, M.S.
Audiologist