Effects of Information Sharing on Follow-Up After Hearing Screening for Older Adults

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Relatively few elderly people undergo audiological evaluation despite the high prevalence of hearing loss and the fact that hearing impairment negatively affects daily functioning. *Healthy People 2010* emphasizes early identification, evaluation, and treatment of adults with impaired hearing. Compliance levels associated with traditional screening approaches that do not include information sharing about hearing loss and hearing aids tend to be low. Research in other health areas suggests that even a brief session of information sharing may improve compliance with recommendations. This study compared outcomes with 2 screening protocols, *traditional* (screening with no brief information sharing) and *informative* (screening plus brief information sharing). The informative approach did not lead to greater compliance for the study group, but this may be due to the fact that they had minimal handicap.

The fastest growing segment in the U.S. population is, and will continue to be, the elderly. Hearing impairment increases with age, such that its prevalence ranges from 25% among persons 70 to 74 years to more than 50% among persons 85 years of age and older (National Center for Health Statistics [NCHS], 1999). Hearing aid use is beneficial in minimizing the negative consequences of hearing loss; nonetheless, relatively few elderly people undergo audiological evaluation

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or obtain hearing aids.

At present, traditional hearing screening protocols do not include information sharing and are associated with low compliance with recommendations for follow-up (Weinstein, 1992, 2000). Schow (1991) reviewed several studies that examined follow-up after failure of a hearing screening and found compliance rates with a median of about only 19%. However, in instances of other medical conditions, researchers have noted that counseling and understanding of the medical condition and its consequences can improve compliance with recommendations (Gemson, Sloan, Messeri, & Goldberg, 1990; Israel et al., 1996; Mazzuca, 1982; Miller & Rollnick, 2002; Sackett & Haynes, 1976). This outcome is in accordance with the Health Belief Model (Janz & Becker, 1984) and the six stages of change (Prochaska, DiClemente, & Norcross, 1992), which can also apply to hearing screening (Weinstein, 1998).

The Health Belief Model (Janz & Becker, 1984) was developed to predict participation in illness prevention programs. Derived from psychological and behavioral theory, the model suggests that behavior depends mainly upon the value individuals place on a particular goal and their estimate of the likelihood that a given action will achieve that goal. In the context of health-related behavior, the correspondences are the desire to avoid illness and the belief that a specific health action can prevent or ameliorate illness.

In relation to hearing screening, the Health Belief Model suggests that individuals' perception of their susceptibility to hearing loss and the seriousness of the consequences associated with hearing loss will affect their willingness to comply with recommended rehabilitation services (Weinstein, 1998). Therefore, an informative screening approach, which incorporates information sharing about the nature of hearing loss, its consequences, and the advantages of hearing aid/rehabilitation, might positively affect the elderly individual's decision regarding follow-up. If the individual perceived that the reduction in handicap (benefits) outweighed the inconveniences (barriers) associated with hearing aids, then the outcome would be a higher likelihood of compliance with the rehabilitation recommendation (Weinstein, 1998).

Prochaska et al. (1992) identified the following six stages of change in relation to individuals' readiness to comply with recommendations regarding their health status: precontemplation, contemplation, preparation, action, maintenance, and termination. An opportunity for information sharing, albeit brief, might be helpful in moving individuals from one stage to another and consequently modifying their behaviors and activities (Weinstein, 1998).

Information Sharing and Compliance-Improving Strategies

Evidence suggests that lack of knowledge can interfere with a person's intentions to engage in health-seeking behavior. Van den Brink, Kempen, and Van Heuvelen (1996) noted that individuals with hearing loss who did not discuss

their hearing problem with a physician perceived their impairment as relatively inconsequential, most frequently demonstrated a passive acceptance of hearing problems with increasing age, and saw the fewest benefits of hearing aid use. Kochkin (1993) reported that, given two individuals of the same age and with equal hearing loss, the individual to whom rehabilitation was recommended was eight times more likely to pursue rehabilitation/amplification than the person who received no recommendation for rehabilitation.

Gemson et al. (1990) studied the impact of cholesterol screening that included a brief (3- to 5-min) counseling session on cardiovascular risk factors. Baseline values were obtained from 886 subjects. Results examined at a 6-month follow-up revealed significant declines in total cholesterol levels, weight, blood pressure, and number of people reporting smoking among subjects with higher baseline cholesterol values. Gemson et al. concluded that these results support the feasibility and efficacy of screening utilizing brief counseling.

Mazzuca (1982) reviewed 30 articles addressing the use of patient education in cases of chronic disease such as obesity and hypertension, and concluded that there was a significant effect on compliance. Mazzuca suggested that subjects who received education regarding their disease and its treatment might be in a better position to participate in their own health care. Mazzuca also noted that, as chronic conditions usually cannot be treated as easily and quickly as acute conditions, the need for education to improve compliance might be greater with chronic conditions. Winograd and Steams (1990) noted that counseling might be even more effective in helping to manage nonmedical/nonsurgical rehabilitation. Because hearing impairment is also a chronic condition, and auditory rehabilitation is mostly nonmedical, there may be analogous benefits when information sharing accompanies a hearing screening.

Weinstein (1992, 1998, 2000) noted that people may comply with recommendations for follow-up hearing health care if they: (a) perceive themselves to be susceptible to the condition, (b) think that the condition may have serious consequences, (c) realize that daily hearing difficulties can be minimized via aural rehabilitation, and (d) believe that the cost of treatment will be compensated by the benefit of intervention. The critical issue may not be simply the nature of a given screening protocol but the inclusion of compliance-improving strategies, so that elderly persons who are in need will receive the appropriate intervention. At present, hearing screening with the elderly relies on pure-tone screening and/or a self-assessment questionnaire. Screening protocols typically do not include information sharing. Because relatively few individuals who fail screening currently follow recommendations for further evaluation and rehabilitation, it may be beneficial to modify the process in a new approach, which incorporates brief information sharing. The negative effect of hearing loss on the elderly person's daily functioning and the efficacy of hearing aids in rehabilitation justify the development of a more effective screening protocol that will improve compliance

with rehabilitation recommendations.

The present study was designed to investigate the outcomes of a hearing screening alone with no information sharing versus hearing screening plus brief information sharing. The goal was to determine if either of these approaches would be associated with greater compliance with recommendations for follow-up. The long term objective of the study was to develop a brief protocol to identify hearing impairment early in an effort to direct individuals to seek timely treatment and prevent the onset of disability, thus providing elderly individuals with an improved quality of life.

METHOD

Subjects

Subjects were 147 community-based, English-speaking-and-reading individuals aged 65 and above, recruited from senior centers in the Bronx, New York, and were randomly assigned to a control or experimental group. The only exclusion criteria were hearing aid use and inability to read and understand English. Subjects were recruited by placing a notice about the study and selection criteria on the bulletin board of senior citizen centers in the Bronx. Volunteers who met the criteria were scheduled for a free hearing screening session at their senior citizen center. Subjects were not paid for their participation.

Handicap and Background Questionnaires

All subjects completed the Short Form (SF-12) Health Survey (Ware, Kosinski, & Keller, 1996, 1998), a demographic survey, a readiness for change questionnaire, and the screening version of the Hearing Handicap Inventory for the Elderly/HHIE-S (Ventry & Weinstein, 1982, 1983).

The Hearing Handicap Inventory for the Elderly – Screening (HHIE-S). The HHIE-S was used to screen for hearing handicap. Ventry and Weinstein (1982, 1983) devised this screening questionnaire to identify elderly individuals who experience a handicap associated with hearing loss. The HHIE-S includes five questions to evaluate the emotional aspect of the hearing handicap and five questions to evaluate the social/situational difficulties caused by the hearing loss. An answer of *no* scores 0, *sometimes* scores 2, and *yes* scores 4. Total scores range from 0 to 40. The higher the score, the greater the perceived handicap. Scores of 0 to 8 suggest no hearing handicap. Scores of 10 or above suggest a certain degree of hearing handicap. Thus, scores greater than or equal to 10 were considered a "Refer/Fail."

The Readiness for Change Questionnaire (Hearing Status Questionnaire). The Readiness for Change Questionnaire was based on the work of Prochaska et al. (1992). Only the first four stages identified by Prochaska et al. are relevant to the screening process, namely precontemplation, contemplation, preparation, and ac-

tion. The Readiness for Change Questionnaire was developed by the authors to reflect these four stages (see Appendix A). Subjects were asked to select one statement out of four that best described their view of their hearing status, from "I do not think I have a hearing problem, and therefore nothing should be done about it," to "I know I have a hearing problem, and I am here to take action to solve it now." To examine the association between the subject's screening experience and compliance, the Readiness for Change Questionnaire was presented twice, at the beginning and the end of the screening session.

The SF-12. The SF-12 is the shorter version of the original Short Form-36 Health Survey devised by Ware and Sherbourne (1992). The survey was constructed for self-administration by older individuals and was found to be a valid and reliable measure of health status. The SF-12 provides a Physical Component Score (PCS) and a Mental Component Score (MCS; Ware et al., 1996, 1998). In the present study, the SF-12 was not being used for clinical diagnostic purposes but to control for variables that might affect compliance.

Demographic Questionnaire. A short questionnaire was completed by the subjects to obtain their gender, ethnicity, marital status, living arrangement, education, household income, and health insurance.

Screening Procedures for Hearing Impairment

Screening for hearing impairment was conducted by one of the authors, a certified and state licensed audiologist, at the selected senior citizen centers in a quiet room meeting American Speech-Language-Hearing Association (ASHA) standards (ASHA, 1997). A calibrated portable audiometer with TDH-39 earphones was used. Pure tones at 1000 Hz, 2000 Hz, and 4000 Hz were presented at 25 dB HL (ASHA, 1997). If a response to all three pure tones was obtained in both ears, the result was considered a "Pass." If no response was obtained at one or more frequencies in either or both ears, the outcome was Refer/Fail.

Referral and Compliance Checks

A Fail on the pure-tone screening, or HHIE-S, or both constituted a Fail and subsequent referral. At the end of the hearing screening, every subject received an oral and written statement of the test results (Pass or Refer/Fail). If the subject received a screening Pass, no further recommendations were suggested. For a Refer/Fail, a complete audiological evaluation was recommended in writing in a nearby hospital. Two weeks after the hearing screening, the researcher telephoned the subjects who did not pass the screening to determine if they had made an appointment for a follow-up hearing test and, if so, where and when. Two months after the hearing screening, the researcher mailed a short questionnaire to all the subjects who did not pass the hearing screening. They were asked whether they had completed a follow-up hearing test and about their rationale for compliance or noncompliance with the recommendation to follow up (see Appendix B).

Traditional and Experimental Approaches

Control group. Control group subjects received the traditional approach, defined here as pure-tone screening for hearing impairment and administration of the hearing handicap questionnaire, the HHIE-S.

Experimental group. In addition to the traditional approach described above (pure-tone screening and HHIE-S questionnaire), subjects in this group viewed a videotape regarding hearing loss and hearing aids.

Information Sharing Videotape

A brief informational videotape was developed and presented individually to each subject in the experimental group. The videotape was about 3 min in length and included concise and specific information about hearing loss and its treatment. More specifically, it: (a) provided information regarding the nature of hearing loss and its effects on communication and daily functioning, (b) discussed the remedial procedures (hearing aids) that are available to minimize the problem, (c) addressed misconceptions regarding hearing loss and hearing aids, (d) emphasized the advanced technology of present hearing aids, and (e) showed several hearing instruments to aid conceptualization of style. In addition, the videotape dispelled negative attitudes regarding hearing loss and hearing aids and emphasized the positive aspects of hearing aids, including reduction of handicap and improved communication.

The videotape was professionally produced using content prepared by the authors. The person delivering the information was an audiologist who was highly intelligible in both auditory and visual modes. Main points appeared in bulleted phrases on the screen using a highly visible font. The language was easy to understand, yet not condescending, and avoided jargon. To evaluate the quality, intelligibility, and clarity of the videotape, it was presented to 6 older adults (3 males and 3 females) with an average age of about 70 years. All 6 subjects found the videotape to be good in overall quality and clarity, the written material to be clear, the information to be provided in a clear/simple manner, the length of the videotape to be appropriate, and the information provided to be helpful/educational.

The videotape was presented after the pure-tone and HHIE-S screening, and before subjects learned of the screening results. The television volume control was adjusted to each subject's comfortable listening level. The tape was shown without comment, and a transcript of the videotape was given to each subject following the presentation (see Appendix C). A pre-recorded format for information-sharing was chosen to standardize the presentation across subjects.

Data Analysis

A power analysis was performed to determine the appropriate sample size. Compliance with recommendations to follow up was compared in a between-sub-

jects design across control and experimental groups. Objectives were to examine the effect of the information sharing videotape on compliance with follow-up recommendations, and the association of compliance with health status, demographic variables, and readiness for change.

RESULTS

Demographic Information

Subjects represented a varied demographic base. Their average age was 75. Three-fourths were female and the remaining were male. Appendix D summarizes the demographics of the sample. Chi-square tests revealed no significant differences between control and experimental groups on any of the demographic variables.

Prior to the screening, the majority of the subjects (76%) were in the precontemplation or contemplation stage of readiness based on their selection of statement 1 or 2 on the prescreening Readiness for Change Questionnaire (see Appendix A). There was no difference between the control and experimental groups at either pre-screening or post-screening on this questionnaire. Furthermore, no significant differences between pre- and post-screening responses were found within or between the groups.

Subjects' mean Physical Component Score (PCS) on the SF-12 was 44 ($SD = 10.7$) and mean Mental Component Score (MCS) was 49 ($SD = 9.3$). Subjects' mean scores were within one standard deviation of the mean score for the general U.S. population of older adults.

Screening Outcomes

Of the 147 subjects who participated in the study, 12 (8%) passed screening for both hearing impairment and hearing handicap (pure tones and HHIE-S) and 135 (92%) failed one or both screening components. Table 1 clearly highlights a discrepancy between impairment and self-perceived handicap. Of the 134 who failed the pure-tone screen, only 49 (37%) reported a handicap. However, all but 1 of the 50 subjects who perceived a handicap (failed the HHIE-S) also failed pure-tone screening, $\chi^2(1) = 4.40$, $p < .05$. The highest pure-tone screening failure rate was at 4000 Hz (75% in the right ear and 84% in the left ear).

The control and experimental groups were similar in rate of Pass and Fail on both screening measures. Specifically, 93% of the control group versus 91% of the experimental group failed the pure-tone screen, and 38% of the control group versus 30% of the experimental group failed the HHIE-S screen.

Compliance With Screening Recommendations

Of the 135 subjects who failed either component of the screen, 28 complied with the recommendation to see an audiologist and 107 did not comply. From the 28 compliers, 13 failed both HHIE-S and pure-tone screening, and 15 failed only

Table 1

Total Numbers of Pass/Fail Across Impairment (Pure-Tone) versus Hearing Handicap Inventory for the Elderly – Screening (HHIE-S) ($n = 147$)

	Pure-tone screening				
	Pass[a]		Fail[b]		Total across handicap outcomes
Handicap screening	*n*	%	*n*	%	
Pass[c]	12	92	85	63	97
Fail[d]	1	8	49	37	50
Total across impairment outcomes	13	100	134	100	147

[a]Response to 1000, 2000, and 4000 Hz at 25 dB HL in both ears. [b]Failure to respond to one or more tones in either ear at 25 dB HL. [c]HHIE-S score of < 10. [d]HHIE-S score of ≥ 10.
$p < .05$

pure-tone screening. Thus, as expected from the screening outcomes, all compliers failed pure-tone screening. Chi-square tests revealed no significant differences between compliance groups in pass/fail rate on the hearing impairment or handicap measure, Readiness for Change Questionnaire, SF-12 scores (either physical or mental health), or demographic survey.

Compliance was examined across experimental and control groups. Contrary to expectations, subjects in the control condition were significantly more likely to comply (19 subjects or 28%) than those in the experimental condition (9 subjects or 13%) as seen in Table 2, $\chi^2(1) = 4.32$, $p < .05$. However, statistical analyses using chi-square tests suggested that one more compliance case from the experimental group would have eliminated the significant difference between the groups. Therefore the clinical significance of the difference between experimental and control conditions is at best marginal. These findings suggest that although the brief information sharing videotape might not discourage compliance, it did not increase compliance.

Table 2

Comparison of Control and Experimental Groups in Compliance with Recommendations for Follow-Up ($n = 135$)

	Control group		Experimental group	
Compliance status	*n*	%	*n*	%
Compliant	19	28	9	13
Noncompliant	49	72	58	87

$p < .05$

Audiograms were obtained for 17 of the 28 subjects who complied to determine if audiometric thresholds were significantly related to compliance. The mean three frequency pure-tone average was 34 dB HL in the right ear and 32 dB HL in the left ear. Many subjects had normal hearing in at least one ear (PTA ≤ 25 dB HL for 53% in the right ear and 59% in the left ear). When evaluating the hearing thresholds over all frequencies, from 250 Hz to 8000 Hz, the mean hearing loss was mild in both ears (39.9 dB HL in the right ear, and 39.2 dB HL in the left ear). The average speech discrimination score was 91% (ranged from 28% to 100%). Thus, most subjects who complied had relatively mild hearing loss and good word recognition ability. Furthermore, for these 17 subjects, the correlation between PTA and HHIE-S scores was positive (9 of the 17 subjects failed the HHIE-S) yet imperfect ($r = .49$), comparable to correlations found in most studies comparing impairment levels to self-report handicap data. The mean score on the HHIE-S was 9.3 ($SD = 1.5$) for the 28 subjects who complied and 8.1 ($SD = 0.9$) for the 107 subjects who did not comply, but this difference was not statistically significant.

To examine reasons for compliance, the follow-up questionnaires were analyzed for compliers ($n = 22$) and noncompliers ($n = 31$) who returned the follow-up questionnaires. Since not all subjects returned the questionnaire, the numbers were fewer than 28 for compliers and 107 for noncompliers. Furthermore, since several subjects gave more than one reason for compliance/noncompliance, the numbers add to more than the number of respondents. Among the compliers who returned the questionnaire, the most frequent reason for compliance was "to improve life quality/to get help" ($n = 7$). Other reasons were "to find out hearing status" ($n = 6$); "was aware of hearing difficulties, and thought it is time to test further ($n = 6$); "recommended at the screening" ($n = 5$); and "a complete hearing test is necessary due to age" ($n = 1$). Among the noncompliers who returned the questionnaire, the most frequent reason for noncompliance was "other health problems" ($n = 12$), followed by "had no time" ($n = 6$); "noted no hearing difficulties" ($n = 6$); "no follow-up at this time" ($n = 4$); "financial" ($n = 2$); "can still cope" ($n = 2$); "is away" ($n = 1$); "the weather" ($n = 1$); and "only contacted her ear, nose, and throat (ENT) medical doctor (M.D.), but no follow-up hearing test" ($n = 1$). Although health problems was a frequent reason for noncompliance, there were no significant differences in SF-12 scores (either physical or mental health status) between subjects who did or did not comply.

DISCUSSION

The purpose of the present study was to investigate whether a brief period of information sharing about hearing loss and hearing aids would result in higher compliance with follow-up recommendations than a more traditional approach which relies on only pure-tone and self-report handicap screening. Subject readiness to purchase audiologic services was investigated as a variable which may in-

teract with screening measurements/outcomes.

Compliance rates of those individuals who fail hearing screening programs and are referred for follow-up is one way of judging outcomes associated with a given screening protocol (Schow, 1991). Schow suggested that a follow-up rate of about 50% would be desirable. However, a review of the majority of hearing screening studies revealed a much lower compliance rate, with a median of about 19%. In the current study the compliance rate was 21%, comparable to the above rate. Compliance rates in many screening studies conducted to date, including the present study, are most likely low because subjects tend to be recruited from senior citizen centers which attract "well elderly" with minimal handicap, who are less in need of audiological rehabilitation.

The data from the present study allow an assessment of the screening protocol recommended by ASHA (1997). In the present study, of the 17 subjects for whom follow-up audiological test results were available, 7 subjects had moderate hearing loss or worse in at least one ear and 10 subjects had either mild hearing loss or hearing within normal limits. Of the 7 subjects with at least moderate hearing loss, 6 failed the HHIE-S. Of the 10 subjects with either mild hearing loss or hearing within normal limits only 2 failed the HHIE-S. If a 40 dB HL screening level at 1000 Hz, 2000 Hz, and 4000 Hz had been used as a Pass/Refer criterion, only 3 (30%) of the 10 subjects with either mild hearing loss or hearing within normal limits would have failed the pure-tone screening. Moreover, if a 40 dB HL screening level only at 1000 Hz and 2000 Hz (without 4000 Hz) had been used as a Pass/Refer criterion, none of the 10 subjects would have failed the pure-tone screening. However, using the above two criteria, all 7 subjects with at least moderate hearing loss would still have failed the pure-tone screening and been referred for a complete audiological follow-up. In the present study, if 4000 Hz had not been included, the total failure rate in the pure-tone screening would have decreased from 91% to 75%. Thus, based on the present study findings and previously reviewed research, it appears that the frequency and intensity characteristics of a screening protocol for the elderly should be reassessed while considering epidemiological principles. To minimize over-referral and consequently noncompliance, it appears that 1000 Hz and 2000 Hz may yield the most information, if presented at an intensity higher than 25 dB HL, and if combined with a self-report instrument that assesses need and readiness/willingness for rehabilitation. This approach is recommended for further study.

It was not surprising when examining the characteristics of our study group that the results failed to support the notion that a brief session of information sharing is effective in motivating individuals to pursue audiologic services. Most of the subjects in this study (76%) were in the precontemplation or contemplation stage of readiness, indicating they did not feel they had a hearing loss or their hearing loss was not restrictive enough to require intervention. The fact that the majority of our sample (66%) passed the HHIE-S suggests that in fact many had

minimal handicap. Weinstein (1991); Fino, Bess, and Lichtenstein (1990); and Fino, Bess, Lichtenstein, and Logan (1992) noted that hearing-impaired elderly individuals who obtained amplification generally had high HHIE-S scores, while elderly nonusers had low scores and did not perceive themselves as handicapped. Integrating the HHIE-S and stages of readiness findings within the present study with the conclusions of Weinstein and Fino et al. suggests that less than half the population of the present sample reported handicapped and need for audiological rehabilitation. Even assuming that some of the subjects did have a hearing impairment that required intervention, the stages of readiness findings revealed no acceptance of the problem and, as noted by Kochkin (1993), only after individuals learn to accept their hearing loss will they comply with audiological rehabilitation. Thus, the sharing of information may be a vehicle for improving readiness/compliance. In particular, motivational interviewing that utilizes a client-centered counseling style for eliciting behavior change, in combination with the transtheoretical stages of change model may be an approach that could be effective (Miller & Rollnick, 2002).

Rubinstein, Josephson, Nichol-Seamons, and Robbins (1986) studied health screening program compliance in a community senior center. The mean age of the subjects was 71 years, and 142 subjects were referred to a physician for follow-up. One month after their examination, subjects were contacted and asked to complete a follow-up questionnaire. Some of the questions were adapted from the Health Belief Model in order to assess and predict compliance. Results revealed that subjects were more likely to comply (about 89% complied) with referrals for conditions that are commonly known to pose a serious threat to health: abnormalities such as breast, cardiac, anemia, and respiratory findings. However, subjects were less likely to comply (about 47%) with referrals on neurological, psychological, musculoskeletal, and skin findings, all of which might be considered by subjects as less serious or even inevitable consequences of aging. Factors that were positively associated with compliance included the specific type of referred problem, the perceived seriousness of the problem, and the absence of financial barriers to medical care. Hearing screening was included in the program but was not one of the conditions for which subjects were more likely to comply with referrals. Rubinstein et al. noted that among older adults, even a seemingly minor condition, such as a hearing problem, could have serious effects on well-being and ability to live independently, however, its effects may not be realized or accepted by the affected individual. Information sharing, wherein hearing loss and its consequences are explained, may help boost compliance rates in a population with a high probability of having a condition amenable to intervention. It would also be interesting to address the issue of referral to a physician versus an audiologist. Schow (1991) noted that research revealed a higher compliance rate when subjects were advised to see a physician rather than an audiologist for follow-up.

Hildesheimer and Muchnik (1992) studied the cooperation of the hearing-impaired elderly in a hearing screening program and noted that the need for rehabilitation was high, but willingness to participate in the screening program was low, although rehabilitation treatment was provided free of charge. They concluded that elderly people often believe that their hearing loss is their own "secret" and that attention would be drawn to their handicap if they wore a hearing aid. Carmen and Ross (2000) noted that the impact of a hearing loss is very much underestimated in our society. Once society as a whole better understands and relates to the individual with hearing loss, that individual will have a better chance of overcoming the psychological barriers associated with wearing hearing aids.

The process of providing the elderly and society as a whole with information regarding hearing loss, its consequences, and possible remedial procedures such as hearing aids can be done by means of media publicity. Further studies that explore the value of information sharing delivered via videotape should consider some of the limitations inherent in the present study. A familiar personality with hearing loss and a hearing aid sharing his/her personal experience with the public may be an effective way to minimize the stigma of hearing loss/hearing aids, increase public knowledge of these topics, and consequently improve compliance with recommendations for rehabilitation. As noted by Kochkin (in Strom, 2000), the positive publicity about President Clinton's hearing loss increased the number of baby boomers who admitted to a hearing loss. Furthermore, a familiar personality from the same age group as the target population might allow individuals to relate better to the spokesperson. The speaker in the videotape in the current study was young, did not have a hearing loss, and did not wear hearing aids.

In the present study, the findings revealed that the videotape did not increase compliance among the current study's sample. However, as discussed earlier, it is possible that the present sample was less in need of audiological rehabilitation and hence the compliance rate was not due to the screening protocol. Thus future research similar to the present study should be conducted with a different population/setting to further examine the effect of information sharing on compliance.

In sum, readiness on the part of the client is crucial for compliance with recommendation for follow-up and consequently for successful audiological rehabilitation. At present, traditional hearing screening with the elderly does not include information sharing. Future research is recommended in the area of motivational interviewing in conjunction with hearing screening for the elderly, which consequently might provide the elderly individual with the appropriate rehabilitation and an improved quality of life.

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APPENDIX A

THE READINESS FOR CHANGE QUESTIONNAIRE (HEARING STATUS QUESTIONNAIRE)

Which of the following statements best describes your view of your current hearing status?

1) I do not think I have a hearing problem, and therefore nothing should be done about it.

2) I think I have a hearing problem. However, I am not yet ready to take any action to solve the problem, but I might do so in the future.

3) I know I have a hearing problem, and I intend to take action to solve it soon.

4) I know I have a hearing problem, and I am here to take action to solve it now.

APPENDIX B

REASON FOR COMPLIANCE/NONCOMPLIANCE

Thank you, again, for participating in the hearing screening.

Please answer the following questions, and return it in the attached, addressed stamped envelope. Thank you.

Question #1: Did you make an appointment for a complete hearing test, as recommended in the hearing screening? 1) Yes _____ 2) No _____

IF "yes," please indicate: 1) Where was your appointment?
2) When was your appointment?

Question #2: Please list the reason(s) for your decision to go or not to go for a complete hearing test.

Answer: _____

_____

_____

_____

_____

APPENDIX C

TRANSCRIPT OF VIDEOTAPE VIEWED BY EXPERIMENTAL SUBJECTS[1]

Hello. I am an audiologist, a healthcare professional specializing in the area of hearing, hearing loss, and hearing aids, and I would like to tell you a little about hearing loss.

- Hearing loss is the third most common condition affecting people over 65 years of age.
- The typical hearing loss that people of your age experience affects the inner part of the ear, and generally cannot be treated medically. Hearing aids are the treatment of choice.
- When hearing loss is not treated, it can have major effects on your ability to enjoy routine daily activities such as talking to family members and friends, understanding television or radio, and speaking on the telephone. Hearing loss can also be unsafe because you may not hear important sounds such as a car horn honking or the smoke alarm.
- It is important for you to understand that it is not normal for all older people to have hearing difficulties. You should not think of your hearing loss as your own individual secret and of hearing aids as devices that will call attention to the fact that you have hearing difficulties. Instead, wearing hearing aids will reduce the hearing problems you have and make your hearing loss less obvious.
- Hearing aids, which are becoming better and better at treating hearing loss, can help to overcome problems associated with hearing loss. Present day hearing aids can help you to understand people better in noisy situations and as you can see are very small and easy to handle. These are examples of different types of hearing aids, ranging from the smallest which fits all the way inside the ear canal, to an in-the-ear hearing aid which rests in the outer part of the ear, to the behind-the-ear hearing aid. When you go for a complete hearing test, the audiologist will thoroughly explain to you about the advantages and disadvantages of each. A hearing aid can cost from about $650 and up. Medicare does not pay for the hearing aid, Medicaid pays for certain types, and some insurance plans reimburse for hearing aids. However, you should know that you will be entitled to a time period in which you can try the hearing aid, with only a small charge if you choose not to keep it.

I would like to thank you for coming for the hearing screening, and I encourage you to have a complete hearing test to determine the exact degree and nature of your hearing loss, if recommended. When you undergo the hearing test, you will be provided with the information which will help you decide about options available to remedy your hearing difficulties.

[1]Transcription was given to each subject following the videotape presentation.

APPENDIX D

DEMOGRAPHIC INFORMATION FOR THE TOTAL SAMPLE (n = 147)

Gender	75% Females 25% Males
Average age	75 (range = 65 to 92 years)
Ethnicity	59% Caucasians 32% African-Americans 6% Hispanic 3% Other
Marital status	49% Widowers 31% Married 20% Other
Living arrangement	57% Living alone 29% With spouse 14% Living with others
Education	4% Less than elementary degree 11% Elementary degree 16% High school (some) 43% High school degree 20% College (some) 1% College degree 5% Graduate school or above
Annual household income	26% < $10,000 32% $10-19,000 29% $20-29,000 9% $30-39,000 2% $40-49,000 1% $50-59,000 1% $60,000 and above
Health insurance	29% Medicare only 1% Medicaid only 6% Medicare and Medicaid 59% Medicare and other 1% Medicare, Medicaid, and other 3% Other 1% No insurance