ASSESSING THE NEED FOR CAREGIVER TRAINING ON HEARING LOSS

by

Lua Azmak

______________________________________________________

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As members of the Audiology Doctoral Project Committee, we certify that we have read the project prepared by Lua Azmak, titled *Assessing the Need for Caregiver Training on Hearing Loss* and recommend that it be accepted as fulfilling the Audiology Doctoral Project requirement for the Degree of Doctor of Audiology.

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ABSTRACT

Effective communication is an important concern when working with individuals with hearing loss. This concern is apparent in the long-term elder care setting, where caregivers communicate with older adult patients every day, many of whom have hearing loss. However, there is limited training available to these caregivers working with residents with hearing loss. The purpose of this project is to establish the need and context for the development of an educational program for caregivers working with these residents with hearing loss. A total of 38 caregivers employed by three elder care facilities in Tucson, Arizona were surveyed. Results from this survey demonstrated that caregiver respondents felt they are knowledgeable and comfortable working with residents with hearing loss. However, there was an apparent gap as caregivers also reported that the presence of hearing loss among residents makes their jobs more difficult and stressful. Furthermore, they reported feeling that hearing loss impacts communication with residents and negatively effects the quality of care. Based on the findings of this survey, there is a need identified for educational opportunities for caregivers working with residents with hearing loss. The findings from this survey provide a foundation for the establishment of hearing health continuing education programs for caregivers working in long term elder care facilities. Specific recommendations regarding potential content of training programs are offered based on the survey findings. Implementation of caregiver trainings may ultimately lead to improved caregiver-resident communication and positively impact the quality of life for residents with hearing loss.
CHAPTER 1
INTRODUCTION

Effective communication is an important concern when working with individuals with hearing loss. This concern is apparent in the long-term elder care setting, where caregivers communicate with elders every day. However, there are limited training and continuing education opportunities about hearing health available to these caregivers to improve communication with elders with hearing loss. The purpose of this project is to establish whether there is a local need for caregiver training and to evaluate caregiver experiences, preferences, and perceptions related to hearing loss. The findings from this community-engaged project can be used in the future to help establish training or continuing education programs for caregivers working with elders with hearing loss.

**Literature Review**

**Prevalence of Hearing Loss**

Hearing impairment is one of the most prevalent chronic conditions, among older adults. Hearing loss affects two thirds of Americans over the age of 70 years (Goman and Lin, 2016). Within the setting of a long-term elder care facility, the prevalence of hearing impairment among older adults is even greater (Kennedy-Malone, Fletcher, & Plank, 2014). Estimates of the prevalence of hearing loss among adults living in long-term care range from 80% (Schow & Nerbonne, 1980) to as much as 92% (Chafee, 1967; Hull, 1995).
Effects of Hearing Loss on Individuals and Communication Partners

For many individuals, acquired hearing loss impacts the functional ability to communicate, which is a vital aspect of everyday life. Older adults with hearing loss report an overall poorer quality of life (Dalton et al., 2003). They show more depressive symptoms, have lower scores on self-efficacy and report more feelings of loneliness and isolation compared to their peers without hearing loss (Kramer et al., 2002).

Hearing loss not only has an effect on the individual with the impairment, but often also affects those with whom they communicate. In a study by Wallhagen et al. (2004), the authors report that a spouse with hearing loss increases the likelihood of poorer physical, psychological and social well-being in partners. Furthermore, Desbiens et al. (2001) found that caregivers of patients who had hearing impairments had higher levels of stress compared to those of patients without such impairments. Treatment of the hearing loss through the use of hearing aids was found to decrease caregiver stress (Desbiens et al., 2001).

Aging Population

The elder population and number of residents living in long-term care facilities are fast growing. It is estimated that 5% of elder Americans reside in the 19,000 long-term elder care facilities across the United States (Ouslander et al., 1991). Given the aging baby boomer population and the increased life expectancy of adults, the number of long-term elder care residents is expected to double, exceeding 5 million by the year 2040 (Ouslander et al., 1991).
Changes in Living Arrangements

The increasing population of older adults and the rising number of residents in long-term elder care facilities create greater demands for caregivers. When an elder enrolls in a long-term elder care facility, there is often, a shift in the primary daily interactions from elder with family members to elder with caregivers (Port et al., 2001). Any patterns of communication breakdowns are no longer happening primarily between family members and the older adult; communication breakdowns are rather happening between the caregiver and the older adult. The change in care warrants the need for caregivers to have the knowledge, attitudes and behaviors conducive to working with individuals with hearing loss.

Definition of Caregivers

According to the Merriam-Webster definition, a caregiver is described as “a person who provides direct care (as for children, elderly people, or the chronically ill)” (2021). According to Kemper (2001), there are two broad categories that define caregivers that work with elders. First, there is the informal caregiver, typically a family member who offers time caring for a loved one without compensation. Second, there are formal caregivers who are paid and work in the health care sector. For the purpose of this study, the term caregiver will be used to describe the formal care workers in long-term elder care facilities, including registered nurses (RNs), licensed practical nurses (LPNs), certified nursing assistants (CNAs) and medical technicians.

Caregiver Knowledge on Hearing Loss

Previous studies indicate that there is a need for caregivers to continue developing the knowledge about hearing healthcare. In a study by McMillian et al. (2000), authors assessed the
knowledge of a group of 13 caregivers. The assessment addressed knowledge of hearing problems, warning signs of hearing loss, and hearing aid management. The authors found that scores on the assessment were no better than chance. Another study conducted by Norwood-Chapman et al. (2000) demonstrated that 58% of caregivers working in a nursing home could identify the parts of a hearing aid and 70% understood how a hearing aid works; however, only 21% knew how long batteries should last. The majority of the respondents (87.7%) felt they could properly insert/remove a hearing aid from someone’s ear, yet 24% thought that hearing aids could be washed and 40% did not know what causes “feedback”. The results from these studies suggest there is a need for caregivers to continue developing their knowledge about hearing healthcare.

**Caregiver Attitudes**

The importance of a positive attitude among professionals towards older adults has been well documented (Sparkes, 1994). Positive attitudes and interactions between caregivers and residents have been reported to improve residents’ quality of life and their psychological and social well-being (Sorin-Peters, 2010). In a study by Bryan et al. (2002), authors examined the caregivers’ attitudes towards residents’ communication problems. It was demonstrated that over 50% of participants expressed negative feelings about working with people with communication difficulties. These negative feelings included frustration, worry, impatience, helplessness, upset, embarrassment, disappointment and irritation. However, in another study by Norwood-Chapman et al. (2000), authors assessed how comfortable caregivers feel while talking to residents with hearing loss. The majority (91.9%) reported that they felt comfortable talking with the residents with hearing loss. Difficulty communicating has also been reported to cause greater caregiver
burden, which involves the perceived level of emotional strain and stress (Savundranayagam et al., 2005).

**Caregiver Behaviors**

In order to assess the quality of care that residents receive, it is important to examine the caregiver behaviors and interactions with the residents. Dorze et al. (1994) found that caregivers have fewer interactions with residents with communication impairments than those without communication impairments. In another study, authors asked nurses to identify the most important barriers they encounter when communicating with residents (Park, 2005). The most common barriers included ‘being too busy’, ‘presenting several subjects at one time’, ‘speaking too fast’, ‘using a long sentence without a clear message’, and ‘not checking if patient has hearing aid on’. Furthermore, in another study by Cassie et al. (1994), authors analyzed 30-minute caregiver/resident interactions; they found that when communication breakdowns occurred, caregivers primarily tried to repair the breakdown by repeating their original message and paraphrasing. The results from these studies suggest there is a need for caregivers to improve their behaviors and interactions when working with residents with hearing loss.

**Caregiver Training**

According to Adams-Wendling (2008), caregivers in long-term elder care facilities often feel inadequately prepared to care for those who have hearing loss. Despite the evidence that suggests communication disorders are a common problem among older adults, few caregivers have received formal training regarding the identification, treatment, and needs of patients who have communication disorders (Norwood-Chapman, 2000). In order to help caregivers feel more prepared and to promote successful communication, Lubinski (2011) recommends meeting these
needs by offering caregivers training focused on how to apply communication strategies and use amplification devices (2001).

Although there is a need for the training of caregivers, there is a gap in the literature regarding the development of a training programs focused on hearing healthcare. Other studies have examined the effectiveness of trainings focused on communication difficulties caused by disorders such as Alzheimer’s and dementia. The literature supports the effectiveness of caregiver trainings with improvement demonstrated by pre- and post-training assessments. Trainings have been demonstrated to improve caregiver attitudes, knowledge and behaviors related to working with older adults with cognitive decline (Ripich et al, 1995. Burgio et al., 2001. Bourgeois et al., 2004. Zientz et al., 2007).

**Purpose of this Study**

Caregivers have a primary role in communicating with and offering care to residents of long-term elder care facilities. It is therefore important that they have the necessary knowledge, attitudes and behaviors to provide quality care to residents. The purpose of this project is to establish the local need and context for the development of an educational program for caregivers working with residents with hearing loss in the Tucson, Arizona community. This study surveys a group of caregivers to identify their current knowledge, attitudes and behaviors on communication with residents with hearing loss. The creation of the survey included community-based participation from administrators of 3 local long-term elder care facilities in order to ensure the survey was appropriate for the needs and reality of caregivers. The findings from this survey are intended to provide a foundation for the establishment of hearing health education programs for caregivers working in assisted living facilities in the Tucson Community.
CHAPTER 2: METHODS

Ethics

The University of Arizona Institutional Review Board (IRB) approved this project prior to data collection. The survey was distributed with a letter of research disclosure, found in Appendix A. Participation in the survey was voluntary and anonymous and responses were kept confidential. Gift card incentives were provided to each volunteer for their participation in the study.

Setting

The study was conducted in Tucson, Arizona in the spring of 2016. Nine permanent assisted living facilities were contacted via email. There were three facilities that were interested in participating in the study. Residents across the three facilities represented a range of socioeconomic status, with some of the facilities being self-pay/for-profit and others being Medicaid/non-profit. For the purpose of this study to respect confidentiality, the data are reported in aggregate and site locations will remain anonymous.

Community Based Participatory Research

Community-based participatory research (CBPR) is an approach to conducting research in which researchers partner with those directly affected by and knowledgeable of the local circumstances (Horowitz et al., 2009). It has led to a better understanding of health related issues and has greater implications for opportunities of meaningful change. The CBPR approach was
used in this study during the creation of the survey. There were face-to-face meetings with the administration at each of the facilities. During the meetings, questions were asked targeted at understanding the demographics of the residential community, levels of interaction with residents, background on trainings provided for staff, and best methods for distributing a survey. Following the creation of the survey, the document was shared with administrators. They offered feedback and modifications were made to the survey based on their feedback.

Survey

The survey was paper based and consisted of 25 questions (found in Appendix B). The format of the survey included Likert scale questions, open-ended questions, multiple-choice, and check all that apply questions. The topic areas of the questions related to caregiver perspectives on hearing loss, experiences with residents, and communication training needs. Surveys were provided in both English and Spanish versions.

Participants

Surveys were distributed to caregivers at local assisted living facilities. Caregivers were paid employees of the facilities in one of the following roles: registered nurses (RNs), licensed practical nurses (LPNs), certified nursing assistants (CNAs) and medical technicians. In total, 60 surveys were distributed across 3 sites and 38 completed surveys were returned.

Procedures

The survey was distributed by the preferred method of each center’s administration. At one location, the survey was distributed by the administrators during a staff meeting; participants
completed the survey the same day. At the other two facilities, the surveys were distributed by administrators to individual caregivers to be completed over a two-month period as they had available time.

Analysis

The quantitative data collected was analyzed using SPSS software using descriptive statistics. Qualitative data collected was analyzed using content analysis procedures to identify themes in responses.
CHAPTER 3

RESULTS

There were 38 caregivers that completed the survey (response rate = 63%). Not all respondents completed each question in the survey; therefore, the response rate varies for each question. The demographics of the survey participants are found in Table 1.

Demographics

Table 1. Caregiver Demographics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>30 (78.9)</td>
</tr>
<tr>
<td>Male</td>
<td>8 (21.1)</td>
</tr>
<tr>
<td>Language</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>37 (97.4)</td>
</tr>
<tr>
<td>Spanish</td>
<td>1 (2.6)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>1 (2.6)</td>
</tr>
<tr>
<td>High School/GED</td>
<td>18 (48.6)</td>
</tr>
<tr>
<td>Vocational/Tech College</td>
<td>10 (27.0)</td>
</tr>
<tr>
<td>University</td>
<td>8 (21.6)</td>
</tr>
<tr>
<td>Role</td>
<td></td>
</tr>
<tr>
<td>Direct Caregiver/ CNA</td>
<td>23 (60.5)</td>
</tr>
<tr>
<td>LPN</td>
<td>5 (13.5)</td>
</tr>
<tr>
<td>Med Tech</td>
<td>4 (10.5)</td>
</tr>
<tr>
<td>Other</td>
<td>4 (10.5)</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>1 (2.6)</td>
</tr>
<tr>
<td>Experience with hearing loss (HL)</td>
<td></td>
</tr>
<tr>
<td>Caregivers w/HL themselves</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Caregivers w/family w/HL</td>
<td>19 (52.8)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>43.4</td>
</tr>
<tr>
<td>Total Experience</td>
<td>10.5</td>
</tr>
<tr>
<td>Experience at Current Location</td>
<td>4.4</td>
</tr>
<tr>
<td>Number of Residents on caseload</td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td>32.8</td>
</tr>
<tr>
<td>Night</td>
<td>14.3</td>
</tr>
</tbody>
</table>
Self-Assessment of Knowledge

In order to evaluate the current knowledge of hearing loss, the caregivers were asked to rate how much they feel they know about hearing loss on a Likert scale. The results from the survey indicate that the majority of caregivers feel they know a moderate amount to a great deal about hearing loss (Figure 1).

![Figure 1. Caregiver Perception of Knowledge](image)

Caregiver’s Perception of Prevalence of Residents Affected by Hearing Loss

The caregivers were asked to estimate the percent of residents that are affected by hearing loss. Caregivers estimated that on average, 51% of residents are affected by hearing loss (Table 3). Although the specific statistics for the hearing loss of these particular residents is not known, data from the literature shows there is an average of 50-70% of elders affected by hearing loss in assisted living facilities. Based on this estimate, survey results were further analyzed by splitting the estimates into two groups, caregivers who underestimated and caregivers who correctly
estimated the number of residents with hearing loss. Caregivers were categorized as underestimating hearing loss when they estimated less than 50% of residents have hearing loss and correctly estimating if they estimated more than 50%. There were 42% of caregivers that underestimated the number of residents affected by hearing loss. However, the range of caregiver estimates was quite broad, ranging from 4% to 100%.

Table 2. Caregiver Estimate of the number of Residents with Hearing Loss

<table>
<thead>
<tr>
<th>Caregiver perception of percent of residents w/HL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>37</td>
</tr>
<tr>
<td>Mean</td>
<td>51.5%</td>
</tr>
<tr>
<td>SD</td>
<td>.50</td>
</tr>
<tr>
<td>Minimum</td>
<td>4.0 %</td>
</tr>
<tr>
<td>Maximum</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Caregiver’s Comfort Level

The participants were asked to rate how comfortable they feel with hearing aids and assistive listening devices. The results indicate that the majority of individuals report being comfortable with hearing aids and assistive listening devices (Figure 2).
Attitude

Figure 2. Caregiver Comfort Level with Hearing Aids and Assistive Listening Devices

In order to assess the current attitudes towards hearing loss, participants were asked to rate their level of stress and difficulty when working with residents with hearing loss. The results indicated that 75.7% of caregivers expressed some level of difficulty (Figure 3) and 51.4% expressed some level of stress (Figure 4) when working with residents with hearing loss compared to residents with normal hearing.
Figure 3. Caregiver Perceived Difficulty

Figure 4. Caregiver Perceived Stress


**Perceived Impact on Communication and Quality of Care**

Caregivers were asked to rate how much they feel the residents hearing loss impacts communication. About 94% of caregivers felt hearing loss impacts communication with the residents. The caregivers were then asked whether they feel hearing loss has an impact on the quality of care. Results indicated that 75% of caregivers felt hearing loss does impact the quality of care to some degree.

**Behaviors**

In order to assess behaviors related to working with individuals with hearing loss, caregivers were asked to rate how much they talk to residents with hearing loss compared to residents with normal hearing. It was found that 83.7% of caregivers reported that they talk with residents with hearing loss about the same or more than residents with normal hearing (Figure 5). In addition, caregivers were asked to share strategies they have used to communicate with individuals with hearing loss. Responses were categorized into main themes and the number of times that strategy was mentioned was recorded (Table 4). A total of 32 caregivers responded to this question.
Figure 5. Communication with Residents
Table 3. Current Use of Communication Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=32 (%)</td>
</tr>
<tr>
<td>Write it down</td>
<td>12 (37.5)</td>
</tr>
<tr>
<td>Face to face communication</td>
<td>12 (37.5)</td>
</tr>
<tr>
<td>Use gestures</td>
<td>10 (31.2)</td>
</tr>
<tr>
<td>Slow down the rate of speech</td>
<td>8 (25)</td>
</tr>
<tr>
<td>Speak into the better ear</td>
<td>7 (21.8)</td>
</tr>
<tr>
<td>Speak louder</td>
<td>4 (12.5)</td>
</tr>
<tr>
<td>Emphasize important information</td>
<td>3 (9.3)</td>
</tr>
<tr>
<td>Speak in a low pitch</td>
<td>2 (6.2)</td>
</tr>
<tr>
<td>Decrease background noise</td>
<td>2 (6.2)</td>
</tr>
<tr>
<td>Get residents attention before talking</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>Ensure hearing aids are on</td>
<td>1 (3.1)</td>
</tr>
</tbody>
</table>

Training Needs

When asked if they would be interested in learning more about a hearing related topic, 94.7% of caregivers expressed interest (Figure 6). In order to assess the current level of training, caregivers were asked to indicate whether they had previously participated in a training related to hearing loss. More than half of the caregivers (67.5%) had not had a previous training on hearing loss (Figure 7). Furthermore, caregivers were asked if they knew a community resource to which a resident with hearing loss could be referred; 42% of caregivers reported they did not know a community resource.
Figure 6. Caregiver Interest in Training

Figure 7. Previous Training Experience
Caregivers indicated the most interest in learning about communication strategies (82.9%).

Below is the distribution of topics caregivers would like to learn more about (Table 5).

**Table 4 - Topics of interest for caregiver training on hearing and effective communication**

<table>
<thead>
<tr>
<th>Topics of interest:</th>
<th>Total Percent of cases (N=38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Strategies</td>
<td>82.9%</td>
</tr>
<tr>
<td>Hearing loss</td>
<td>65.7%</td>
</tr>
<tr>
<td>Hearing aids</td>
<td>62.9%</td>
</tr>
<tr>
<td>Assistive listening devices</td>
<td>57.1%</td>
</tr>
</tbody>
</table>
CHAPTER 4
DISCUSSION

The primary purpose of this research was to assess the current attitudes, behaviors and training needs of caregivers in local long-term elder care facilities in Southern Arizona related to hearing loss among older adults. In addition, the survey assessed whether caregivers felt hearing loss impacts communication within elder care facilities and whether it impacts the quality of care. Finally, the survey assessed the caregiver’s current experience with training and what caregivers would be interested in learning about in a future training.

Based on the findings from the results of this study, caregivers generally felt knowledgeable about hearing loss and felt comfortable with hearing devices. However, the literature demonstrates that caregivers were unable to identify parts of a hearing aid, did not know how long a hearing aid battery should last, and could not identify what causes feedback (McMillian et al., 2000). It was previously found that 76-100% of hearing aids were malfunctioning in long-term elder care facilities (Lubinski, 1995). There may be a gap between caregivers’ perceived knowledge and comfort and the basic skills needed to care for residents with hearing loss. Given the perceived familiarity and comfort level with the topic area, this finding is promising for a future training program that could advance caregiver skills.

Despite the high level of comfort, knowledge and behavior ratings, the majority of caregivers in this study still reported stress and difficulty when working with residents with hearing loss. This agrees with previous studies, which suggest that among caregivers, communication difficulties with patients are a primary cause of stress. Improved communication with residents has been documented to improve stress levels and ease caregivers perceived
difficulties (Arranz et al., 2005). This is an important finding because it has implications for improving quality of life of both caregivers and residents. Trainings focused on communication skills for professionals in the health care settings have been found to decrease the perceived difficulty (Arranz et al., 2005). The results of this study show that stress and difficulty associated with working with residents with hearing loss is a current problem that needs to be addressed.

Caregiver awareness of hearing loss among residents was assessed by asking for an estimate the percentage of residents with hearing loss. Caregivers estimated that on average, 51% of residents had hearing loss. While the actual number of residents with hearing loss in this study is unknown, previous studies found that over 80% of residents in long-term elder care facilities have hearing loss (Schow & Nerbonne, 1980., Chafee, 1967; Hull, 1995). Based on the most conservative estimate of residents with hearing loss in long-term elder care facilities (50%), 42% of caregivers in this study underestimated the number of residents with hearing loss. This is consistent with previous studies that demonstrated that about half of long-term elder care facility staff underestimate the presence of hearing loss among residents (Burnip Erber, 1997). If hearing loss is not adequately estimated, caregivers may be attributing communication breakdowns to other disorders such as memory loss or Alzheimer’s disease. This underestimation of the presence of hearing loss could also contribute some of the communication breakdowns that occur in long-term elder care facilities. These breakdowns could be addressed through the use of simple communication strategies or use of amplification. This study, alongside previous findings, provides evidence that although caregivers feel they are knowledgeable about hearing loss, a large number of them underestimate how many residents are likely affected by hearing loss. This study establishes the need to further train caregivers regarding indicators of hearing loss.
It is also important to consider everyday practice and behaviors of caregivers. Based on the results of this study, caregivers generally felt hearing loss did not affect their behavior in terms of how much they talk to residents with hearing loss compared to residents with normal hearing. However, in a previous study that directly assessed caregiver-resident communication via observation, it was found that caregivers have fewer interactions with residents with communication impairments than those without communication impairments (Dorze et al., 1994). Based on these findings, there appears to be a gap between caregivers’ perceptions of their communication with residents and their actual behavior.

Furthermore, this study examined the behavior of caregivers by identifying their perception of current use of communication strategies. In an article by Mamo et al, authors recommended five common communication strategies to use between patients with hearing difficulties and their communication partners (2016). These recommendations included speaking face-to-face, speaking slower, reducing background noise, stating the topic and rephrasing the statement. Only about half (53%) of caregivers in the current study reported using at least one of these recommended strategies and less than 13% reported using more than one of these strategies. This finding demonstrates the need to further train caregivers regarding the use of communication strategies.

The factors discussed so far, including the perception of caregiver’s knowledge, attitudes and behaviors have implications for the quality of care that residents receive. In this study, almost all caregivers (94%) reported that hearing loss does impact communication with residents. This finding is important because previous research had found that impaired communication can lead to feelings of depression, loneliness and social isolation (Kramer et al., 2002). Furthermore, 75% of caregivers in this study felt that hearing loss impacted the quality of
care residents receive. In order to increase the quality of care, communication and overall quality of life for residents, it will be important for the net stage of the academic-community partnership to develop a training to equip caregivers with additional tools and skills to work with residents with hearing loss.

Based on the findings of this study, there is a local need for caregivers to be trained on issues related to hearing loss. One example of this need is that, 67% of caregivers in this study had not previously participated in a training of this sort. Almost all caregivers (94.7%) in this study indicated interest in learning about a hearing related topic. The presence of trainings has implications for the quality of care of the residents and furthermore the stress and difficulty that caregivers face in the workplace (Desbiens et al., 2001, Kramer et al., 2002, Wallhagen, 2004). In a future training for caregivers, it would be important to include the topics that caregivers were interested in learning about. Based on the results of this study, caregivers were most interested in learning about communication strategies with residents (82.9%), followed by learning about hearing loss (65.7%), hearing aids (62.7%) and assistive listening devices (57.1%). Furthermore, it is important to educate caregivers regarding the number of residents affected by hearing loss in long-term elder care facilities and the local resources available to residents with hearing loss.

A strength of this study was the use of community-based methods to engage participation by the community partners. During the creation of the survey, administrators at each of the assisted living and nursing home facilities were actively involved. The participation of the administrators helped in determining the length, the content, the language and method of distribution of the survey. The survey was therefore based on the reality of each of the particular sites. As a result of asking for input, the administrators also reported feeling invested in seeing
the study through its completion and the administrators’ support ultimately helped with recruitment of caregivers for participation.

**Limitations and Future Research Needs**

Although the findings from this study provide a starting point for future community-engaged research with caregivers, the current study also has several limitations. The sample size of this study was modest with 38 participants from 3 facilities in the Tucson, Arizona area and therefore the effect size and generalizability of the study to other geographic locations needs to be taken into consideration. Another limitation of this study is that it assessed the caregivers’ perception of their knowledge, however the survey format did not include a practical skills test. In future studies, it would important to include an assessment of practical skills, which could further provide insight into specific content that may be needed in a caregiver training. To more fully understand the caregiver-resident relationships, it would also be beneficial for future research to include assessments of the residents’ hearing and perceptions on communication with caregivers.

**Clinical Implications**

With the growing number of older adults living in long-term elder care facilities, it becomes increasingly important that caregivers acquire the necessary knowledge, attitudes and behaviors to work with hearing impaired residents. Additionally, caregivers are likely to be called upon to help residents with hearing aids, especially as residents encounter additional comorbidities. Audiologists, as hearing health care providers, have an important role in offering additional education to caregivers. To improve the knowledge, attitudes and behaviors of
caregivers with residents with hearing loss, audiologists should take an active role and consider creative ways to ensure hearing impaired residents with hearing loss receive the necessary care and assistance (Taylor, 2016). Audiologists can offer education by including caregivers in hearing aid orientations, offering in-service trainings, or providing written material that could be shared with caregivers by the resident or family.

The education of caregivers has implications not only for the quality of care that residents with hearing loss receive, but also has implications for the number of individuals that audiological services are able to reach. This study demonstrates that many caregivers did not know where to refer residents with hearing loss. By offering educational opportunities and informational counseling to caregivers and raising their awareness of resources within the community, it could also increase the number of referrals to audiologists.

**Conclusion**

In summary, this study documented the local need for continuing education for caregivers and provides the context for future educational trainings in Tucson, Arizona. Results from this study demonstrated that caregivers felt they were knowledgeable and comfortable working with residents with hearing loss. However, there was an important gap in training identified, as caregivers reported that the presence of hearing loss among residents makes their jobs more difficult and stressful. Furthermore, they responded that hearing loss impacts communication with residents and the quality of care. Caregivers expressed a high level of interest in learning more about hearing related topics. They were most interested in learning about: communication strategies, hearing loss, hearing aids and assistive listening devices. Based on the findings of this
study, there is a need to enhance educational opportunities for caregivers working with residents with hearing loss. The findings of this survey provide a foundation for the establishment of hearing health education programs for caregivers working in long-term elder care facilities.

Implementation of caregiver trainings may lead to improved caregiver-resident communication and positively impact the quality of life for residents with hearing loss. Furthermore, the education of caregivers may serve to raise awareness of audiology in the community, which may ultimately become a source of referrals to audiologists.
APPENDIX A – RESEARCH DISCLOSURE

Research Disclosure

What is the purpose of this research study?
We want to learn from your experiences as care staff working with older adults. This study will help us to develop a future training for caregivers about hearing loss.

What would I do?
Participation in this study involves completing a survey. Your answers are completely anonymous. We will not share your name or the name of your workplace.

You do not have to be in this research study. You can agree to be in the study now and change your mind later. Your decision will not affect your job. Your decision will not affect your relationship with the University of Arizona.

Who approved the study?
This research has been reviewed and approved by the University of Arizona Human Subjects Protection Program. It has also been approved by the assisted living facility.

What if I have questions?
Please contact Nicole Marrone, Ph.D. with any questions at 520-626-3539. Dr. Marrone is an Assistant Professor in Speech, Language, and Hearing Sciences at the University of Arizona. Her email address is: nmarrone@email.arizona.edu.

If you have questions about your rights as a participant in this study or to discuss the study with someone who is not part of the research team, you may contact the Human Subjects Protection Program at (520) 626-6721 or visit their website at: http://rgw.arizona.edu/compliance/human-subjects-protection-program.

Research disclosure:
By completing this survey, I consent to participate in this research project.

For online version:
☐ Continue with survey
☐ End survey

Version: 5/18/16

APPENDIX B – SURVEY

Caregiver Survey

Participant Code: _______

1. How old are you?

_______ years

2. How long have you been working with older adults?

_______ years _______ months

3. How long have you been working at your current workplace?

_______ years _______ months

4. On a typical day at work, how many residents do you work with?

Day shift: _______ residents  Night shift: _______ residents

5. What percentage (%) of residents that you work with on a daily basis have hearing loss?

_______ %

6. What is your role in working with residents?

☐ Direct Care Giver or CNA
☐ Registered Nurse
☐ Nurse in training
☐ MD or NP
☐ Other, Member of Care Staff, please specify: ___________________________

7. What is your gender?

☐ Male
☐ Female
8. What is the highest level of education you have completed?

☐ Less than high school
☐ High school/GED
☐ Vocational/Technical College
☐ University
☐ Other, please specify:

9. Have you been diagnosed with hearing loss?

☐ Yes
☐ No

10. Do you have a family member with hearing loss?

☐ Yes
☐ No

11. How much do you feel a resident's hearing loss impacts your communication?

☐ A great deal
☐ A lot
☐ A moderate amount
☐ A little
☐ None at all

12. How difficult is it for you to work with residents with hearing loss?

☐ Extremely difficult
☐ Moderately difficult
☐ Somewhat difficult
☐ A little bit difficult
☐ Not difficult at all
13. How stressful is it for you to work with residents with hearing loss?

☐ Extremely stressful
☐ Moderately stressful
☐ Somewhat stressful
☐ A little bit stressful
☐ Not stressful at all

14. How much do you talk to residents with hearing loss compared to residents with normal hearing?

☐ Much more
☐Somewhat more
☐ About the same
☐ Somewhat less
☐ Much less

15. How much do you think hearing loss has an impact on quality of care?

☐ A great deal
☐ A lot
☐ A moderate amount
☐ A little
☐ None at all

16. At your workplace, who is responsible for taking care of the residents’ hearing aids? (check all that apply)

☐ Resident
☐ Resident’s Family Member
☐ Nurse
☐ Direct Care Worker or CNA
☐ Other: ___________________________
17. Are you responsible for taking care of the residents' hearing aids?

☐ Yes
☐ No

18. How much do you feel that you know about hearing loss?

☐ A great deal
☐ A lot
☐ A moderate amount
☐ A little
☐ None at all

19. How comfortable do you feel helping residents with their hearing aids?

☐ Extremely comfortable
☐ Somewhat comfortable
☐ Neither comfortable nor uncomfortable
☐ Somewhat uncomfortable
☐ Extremely uncomfortable

20. How comfortable are you with helping residents to use assistive listening devices? e.g. pocket talker, wireless TV headset, amplified telephone, etc.

☐ Extremely comfortable
☐ Somewhat comfortable
☐ Neither comfortable nor uncomfortable
☐ Somewhat uncomfortable
☐ Extremely uncomfortable

☐ I am not familiar with these devices.
21. If a resident or resident’s family wants help with hearing loss, would you know a community resource you could refer them to?

☐ Yes  ☐ No

22. Have you ever participated in a training focused on hearing loss?

☐ Yes  ☐ No

23. Suppose that we are going to develop a training program for staff working with adults with hearing loss, what topics would you be interested in learning more about? Choose all that apply.

☐ Hearing Loss  ☐ Communication Strategies  ☐ Hearing aids (type, use, care)  ☐ Assistive listening devices  ☐ Other – please describe: ______________________________________________________

24. From your experience, can you please give an example of how a resident’s hearing loss may have affected your communication or work?
25. What strategies have you found helpful when talking to residents with hearing loss? Please explain.

This is the end of the survey. Thank you for your time!
REFERENCES


