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Abstract: The purpose of this paper is to measure the effectiveness of existing employment accommodations required by the Americans with Disabilities Act for employees who are Deaf or hard of hearing. Participants completed an online survey in which they identified with one of four levels of hearing loss and selected from descriptions of workplace accommodations. Each selection was ranked according to perceived importance and satisfaction. Accommodations that showed any significance of importance were endorsed by 18% or less of the respondents. The most important accommodations were computer assisted note-taking (18%) and flashing alarms (11%). Participants reported high satisfaction with most of the accommodations necessary to their job performance, but Deaf awareness training (36%) and coworker taking notes (29%) showed low satisfaction levels. As this study was limited, further research is necessary to draw significant conclusions that will lead to refining the ADA required workplace accommodations for Deaf or Hard of Hearing employees.

Keywords: *Americans with Disabilities Act, deafness, disability*

INTRODUCTION

According to recent statistics recorded in 2014 by the World Health Organization, 360 million people worldwide have disabling hearing loss, which constitutes over five percent of the world's population. The majority of these people live in low and middle-income countries (WHO, 2014), which implies that having a hearing impairment, whether its mild, moderate, severe, or profound, may limit this population from obtaining occupations that require extensive communication skills. As the average person in the general population does not have a hearing loss, extensive spoken communication skills shape the interactive lifestyle of the hearing population. According to Luft (2000), developing relationships, which is critical for success in a working environment, can be very difficult if an individual cannot effectively communicate with or interact with co-workers and employers in meetings and other work-related events. The Deaf Community continues to make efforts to create job satisfaction and equality for employees who are Deaf or hard of hearing. These continuing efforts build on previous successes in eliminating hiring and employment barriers for persons who are Deaf or hard of hearing (Lane, 2002).

Research Objective

The objective of this research was to measure the effectiveness of existing employment accommodations for employees who are Deaf or hard of hearing, which are required by the Americans with Disabilities Act (ADA). That effectiveness was measured through receipt of the experiences and opinions of employees who are Deaf or hard of hearing who are presently in the workplace. Respondents identified their functional hearing ability: mild, moderate, severe, profound; and provided feedback on workplace accommodations regulated by the ADA. Upon identification of their functional hearing ability, this study measured the importance and satisfaction levels that these employees reported and how their perceptions varied based upon their level of hearing loss. It was expected that hearing loss would cause employees to have different perceptions of importance and satisfaction of accommodations based upon their individual needs.

It is important to understand these experiences in order to improve existing accommodations and to take steps to develop more resources that will reduce and eventually eliminate these barriers. This research may lead to further investigation that will address solutions to barriers that confront employees who are Deaf or hard of hearing.

Defining Deafness

In order to accurately understand and analyze the impact of "Deafness", it is important to fully comprehend "disability". The Americans with Disabilities Act (ADA) defines an individual with a disability as a person who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is perceived by others as having such an impairment (U.S. Department of Justice, 2009). A major life activity undoubtedly includes the ability to hear. While a profoundly or severely Deaf individual clearly meets the ADA requirement, an individual who is hard of hearing may also qualify. While one can argue that some individuals who are hard of hearing can use devices to improve their hearing ability, Charmatz, Geer, Vargas, Brick and Strauss (2000) claim that this substantial limitation entitles them to the protections of the law, considering that corrective measures do not ensure that the person can experience hearing as efficiently as an average hearing person. If their argument prevails, it could lead to ADA protection of hard of hearing individuals who use hearing aids, despite the ruling of the U.S. Supreme Court that hard of hearing is not a substantial limitation if corrective measures are available (Charmatz et al., 2000). If the argument that hard of hearing is a substantial limitation prevails, it may lead to a change in the general perception of "Deafness". WHO (2014) defines Deafness, hearing loss and hard of hearing as communicational barriers which merely differ in characteristics. WHO (2014) states hearing loss is indicated when a person cannot hear as well as someone with normal hearing, and that hearing loss can be described as mild, moderate, severe or profound in its effect on one or both ears. WHO (2014) states hard of hearing differs slightly from hearing loss as hard of hearing is usually not as large of a communication barrier as hearing loss. Deafness is commonly perceived as shown in individuals with profound hearing loss. Individuals with profound hearing loss generally experience little or no hearing and often communicate through sign language, as communication accommodations do not generally benefit their ability to hear when assistive hearing technology is not used (WHO, 2014).

Self-Perception of the Deaf and Hard of Hearing

It is also important to understand the self-perception of Deaf or hard of hearing individuals, as it is very important to aiding individuals with this disability. Lane (2002) reports that individuals within the Deaf Community resent being identified as "hearing impaired" and consider themselves to be a minority group with a unique language and set of cultural values. Lane (2002) found that individuals in the Deaf Community view a disability as a label that is acquired in a particular culture at a particular time, not an essential personal description. This opinion is supported by Minnesota's Employment Policy Initiative (2011) which states that an individual's self-chosen label as "Deaf" does not necessarily reflect their level of hearing loss; as they are not identifying as an individual with a disability, but are identifying as a specific culture.

Experienced Barriers of Employees who are Deaf or Hard of Hearing

It is important to consider why accommodations are necessary to ensure that individuals who are Deaf or hard of hearing do not experience discrimination and unequal employment opportunities. As with hearing individuals, society benefits as Deaf or hard of hearing individuals find job satisfaction and perform to their highest ability through pursuit of and success in high prestige occupations. Researchers such as Swanson and Woitke (1997) identify environmental and attitudinal career barriers to Deaf or hard of hearing job satisfaction and high performance, which are very similar to issues identified by Punch, Hyde and Des Power (2007). These studies found Deaf or hard of hearing environmental barriers to include physical or structural impediments, including background noise for people with hearing loss. Another identified environmental barrier is the general requirement that workers use telephones and

auditory rather than visual altering signals (Punch et al., 2007). Employees who are Deaf or hard of hearing also face attitudinal barriers, which are formed from societal stigmas and discrimination (Punch et al., 2007). Scherich (1996) reports that employers and hearing workers frequently lack knowledge of appropriate Deaf or hard of hearing accommodation options, which prevent them from understanding the Deaf Culture and adapting to their communication needs. This lack of knowledge inevitably leads to formation of stereotypes and barriers as workers and employers do not understand how to communicate with Deaf or hard of hearing employees in the workplace. Through his research, Scherich (1996) concludes that common Deaf or hard of hearing accommodations may be more appropriate for one-on-one communication situations, rather than group or multi-speaker situations. Though barriers to hiring and successful employment of Deaf or hard of hearing individuals exist today, there have been significant efforts to decrease such incidences through the ADA.

THE AMERICANS WITH DISABILITIES ACT

The ADA provides tremendous benefits to individuals who are Deaf or hard of hearing by mandating removal of hiring and employment barriers. Enforced through regulations by the U.S. Equal Employment Opportunity Commission (U.S EEOC, 2014), Title I of the ADA prohibits an employer from discriminating against a "qualified individual with a disability" in processes such as job application procedures, hiring, discharge, compensation, advancement, and any other terms, conditions and privileges of employment (Charmatz et al., 2000, p. 19). The ADA regulations protect employees who are Deaf or hard of hearing while seeking work or working with employers of fifteen or more employees, including part-time and seasonal employees. The covered employers also include employment agencies, unions, and joint labor/management committees (Charmatz et al., 2000). More specifically, the EEOC, through Title I of the ADA, prohibits an employer from seeking an individual's medical information that could expose impairment of the individuals hearing ability during all three stages of employment; pre-offer, post-offer, and employment (U.S. EEOC, 2014). This means that during the hiring process, a prospective employee does not have to inform the employer that they have a hearing impairment, unless they are seeking immediate accommodations upon being hired, such as specialized equipment, removal of a marginal function, or another type of job restructuring, or if the individual must request an interpreter for the interviewing process. An individual who is Deaf or hard of hearing may request an accommodation after becoming an employee, even if he or she did not do so when applying for the job or after receiving the job offer (U.S. EEOC, 2014) since individuals may choose to disclose this information during the interview, or before, if they wish to disprove Deaf or hard of hearing stereotypes.

Workplace Accommodations Required by ADA

While significant steps have already been taken to eliminate barriers to hiring and employment of individuals who are Deaf or hard of hearing, further research may determine which Deaf or hard of hearing workplace accommodations are most commonly used by employees and the satisfaction levels of Deaf or hard of hearing employees with these accommodations. While workplace accommodations for Deaf or hard of hearing individuals have been implemented, it is important to determine if the needs of individuals who are Deaf or hard of hearing are met in such ways that provide them with equal employment opportunity. Using a survey from Haynes and Linden (2012), with a few modifications, this study will investigate: (a) which workplace accommodations are most commonly used; and (b) the levels of employment satisfaction experienced by Deaf or hard of hearing employees. Accommodations that will be measured include: (a) text telephones (TTY); (b) national relay service (NRS); (c) phone amplifiers; (d) sign language interpreters; (e) loop systems; (f) flashing alarms; (g) computer assisted

note-taking; (h) better lighting; (i) furniture rearrangements for better visual access; (j) Deaf awareness training and information about hearing loss; (k) assistive listening devices for meetings; (l) co-worker note-taking; (m) video conferencing equipment; and (n) special arrangements during attendance at professional development or training days (Punch et al., 2007, Haynes et al., 2012).

In order to evaluate the importance, satisfaction and usage of each accommodation, it is crucial to fully understand the employee perceived benefit provided by each accommodation. This will allow for further research to address recommendations for improvement. It is important to note that although these accommodations must be provided under ADA regulations, an employer does not have to approve them if it causes them undue hardship, which is defined by the ADA (2005) as an "action requiring significant difficulty or expense" (pg. 5). Undue hardship could be claimed if the nature and cost of the accommodation is excessive given the size, resources, nature and structure of the employer's operation (ADA, 2005). With this in mind, there will likely continue to be unmet workplace needs for individuals who are Deaf or hard of hearing.

Understanding Workplace Accommodations

To understand how these accommodations can be accused of causing an employer undue hardship, each accommodation must be understood. The National Association for the Deaf (NAD) has updated descriptions about how each accommodation helps Deaf or hard of hearing employees communicate. The TTY was developed in the 1960s and allowed Deaf or hard of hearing individuals to call each other directly by allowing them to type messages back and forth to one another instead of talking and listening (NAD, 2014). NRS was created to deliver better access for Deaf or hard of hearing individuals (NAD, 2014). Converting voice to text and text to voice, NRS helps connect TTY relay calls among Deaf or hard of hearing individuals and people who communicating by telephone. Since people who are Deaf or hard of hearing require an increased volume of 15 to 25 dB in order to understand in noise as well as people with normal hearing, assistive listening devices and phone amplifiers bring sound directly to the ear, separating the sound of speech from all the background noise (NAD, 2014). Phone amplifiers and assistive listening devices are essentially the same thing in that they serve the same purpose. Loop systems are also similar as they aid Deaf or hard of hearing individuals who do not use hearing aids by using an electromagnetic field to deliver sound through the use of a headphone and inductive loop receiver. Moreover, video conferencing helps Deaf or hard of hearing individuals to access direct communication with others who know sign language and allows access to communication cues such as speech reading (NAD, 2014). This can make it easier for a Deaf or hard of hearing employee to understand all the information in a staff meeting if there is a sign language interpreter on a videoconference in which sign language is used to convey the information being given. Sign language interpreters can also be useful if a fellow employee wants to communicate with a coworker who is Deaf or hard of hearing; this can be achieved by any employee in the office who knows how to sign.

In addition to technological accommodations, many barriers that affect employees who are Deaf or hard of hearing can be addressed using environmental accommodations such as; (a) flashing alarms; (b) enhanced lighting; (c) furniture rearranged for better visual access; (d) assisted note-taking; and (e) Deaf awareness training (Punch et al., 2007, Haynes et al., 2012). Flashing alarms can be used in housing, which is common for individuals who are Deaf or hard of hearing, but may be useful in a workplace if there is an emergency that must inform all employees to evacuate. Better lighting and furniture rearrangement would help an employee who is Deaf or hard of hearing feel more comfortable if they can be more aware of their surroundings. Note-taking assistance from the computer or a co-worker would help an employee who is Deaf or hard of hearing receive adequate information

about a meeting; the person who is Deaf or hard of hearing will have a visual representation of the same information other employees, who are hearing, are getting in a meeting. Deaf awareness training, including information about hearing loss, addresses Deaf or hard of hearing adults who feel stigmatized and left out from regular participation in the workplace. When coworkers can fully understand how Deaf or hard of hearing employees communicate, this can remove the communication barrier with hearing employees if the hearing employees learn to sign.

Each accommodation can be provided for employees who are Deaf or hard of hearing depending on their job position, job responsibilities and available money. It is important for employers to make these accommodations available to employees who are Deaf or hard of hearing unless is becomes an undue hardship. Denying these accommodations can lead to a violation of the ADA and consequences for the employer (U.S. EEOC, 2014).

The goals of the current study were to assess the experiences that employees who are Deaf or hard of hearing report and understand their perception of each accommodation. In order to evaluate these accommodations using various perceptions provided by random samples, this research examined how participants rated the importance level of each one, as well as how satisfied they were with their use of each accommodation. To further understand how these perceptions may vary, participants were asked to categorize their level of hearing loss among four categories, which included mild, moderate, severe and profound. The specific research questions are as follows:

- Which workplace accommodations provided by the Americans with Disabilities Act (ADA) are perceived as the most important to an employee who is Deaf or hard of hearing?
- What are the satisfaction levels of the accommodations used by these employees?
- How do these levels vary among employees who have mild, moderate, profound or severe hearing loss?

RESEARCH METHODOLOGY

Participants

Participants in this research were first identified and contacted by the Rocky Mountain ADA Center on behalf of the primary investigator and research advisor. The Rocky Mountain ADA Center agreed to distribute a link to the survey to a contact list of individuals who are Deaf or hard of hearing. Initial IRB approval was given on January 5, 2015, and the survey link was sent out to the Rocky Mountain ADA Center on this day. On February 5, 2015, a representative from the Rocky Mountain ADA Center distributed the survey link on to other resources they had connected with such as the ColoradoDeaf.com E-newsletter. At this time a flyer was created to attach to the email and the primary researchers still had no access of contact information for the participants of this study. Initial response rate was low, so the IRB proposal was modified in order to post the link to groups and forums found on Facebook and Twitter. IRB approval for the modification was given on April 14, 2015, and the survey link was posted on 56 different pages on Facebook and was “tweeted” to 23 organizations on Twitter immediately. Within a one-week period, the majority of the responses were collected with an end total of 28 responses.

Instrumentation

The web-based survey, which is a slightly modified survey based on previous research by Haynes and Linden (2012), measured, (a) which workplace accommodations provided by the Americans with Disabilities Act (ADA) are perceived as the most important to an employee who is Deaf or hard of hearing?; (b) what are the satisfaction levels of the accommodations used by these employees?; and (c) how do these perceptions vary among employees who have mild, moderate, profound or severe hearing loss. The survey contained a total of 16 multiple-choice questions, which measure demographics of each participant as well as other details that may affect

their perceptions of importance and satisfaction of each accommodation. Demographic information included gender, age, education level, disability status, and employment status. Respondents were also asked to describe their employment demographics in four specific areas, which included employment status, level of employment, employer relationship, and location of employment. They were asked if there were employed and if so, whether their level of employment was one part-time, more than one part-time, one full-time, more than one full-time, unemployed or a student. Respondents who had more than one job were asked to select the answer for their primary job and answer the remaining employment demographic questions only with their primary job in mind. When asked to describe their employer relationship, respondents were able to choose from self-employed, independent contractor, employee of another company or organization, and a volunteer. It is understood that a volunteer may not be given any accommodation since they are not fully employed with an organization, but many individuals with a disability may spend their time performing job tasks in support of a volunteer organization (Haynes & Linden, 2012). Possibilities for the location of their work included working from home, in the same place every day, splitting time between home and another location, and different locations from day to day. These employment demographic questions were asked in order to help evaluate how perceptions could vary depending on the usual location and environment that they often were in while they performed their job.

Moreover, the survey asked respondents how frequently they used each accommodation. With fourteen various accommodations to evaluate, respondents were able to select their usage using a likert-type response with four different responses including "never", "rarely", "frequently", and "always". The survey also ranked importance of each of these accommodations on the job by using a scale ranging from "unnecessary" to "impossible," which indicating how important each accommodation was to performing the job. Satisfaction with each accommodation was measured on a four point Likert scale with responses ranging from "extremely unsatisfied" to "extremely satisfied." This survey was available online for five months beginning when the initial IRB was approved in January 2015 until May 2015.

Data Analysis

In order to analyze the results, Survey Monkey was used to examine frequency information, descriptive statistics, and group comparisons using ANOVA to make these comparisons. While future studies may be proposed to extend this investigation, collecting and describing accommodations and unmet workplace needs for current employees who are Deaf or hard of hearing was the primary focus.

Deaf or hard of hearing employees who chose to participate in this research were able to access the survey website as instructed, and no personally identifiable information was collected as part of the survey. Individuals cannot be traced to determine who did or did not respond. Data collected from the surveys was used to generate aggregate frequencies from the website, but it was also re-entered by the researcher into the SPSS data program for further analysis of frequency and descriptive results, which were beyond the capability of the web-based survey program.

RESULTS

Demographic Information

Using frequency information to analyze demographics from the survey responses, it was found that 68% of the participants were female and 32% were male. The average age of the participants was about 48 years old. Eighteen percent of participants had their high school diploma/GED or an associate's degree, while 25% had their bachelor's degree and 39% had their graduate/professional degree. Ninety six percent claimed to have a disability, and 93% claimed to have a hearing disability. Ninety six percent of participants were currently employed, and the majority of the participants (68%) claimed to have one full-time job while the other levels of

employment were varied. Eighty six percent of participants were an employee of another company or organization, and 64% said they worked in the same place every day. Most participants (75%) described their hearing loss as profound while 18% claimed severe and only 7% had moderate hearing loss. Sixty four percent of participants categorized their hearing loss as unable to hear even loud environmental sounds. Results only showed missing data for three of the demographical questions, which measured disability status, employer relationship and location of work.

Importance of Accommodations

Analyzing all of the responses, it was found that several of the accommodations were unnecessary, therefore, deemed as unimportant. About 83% of participants found that the TTY was not important, and 89% found the NRS insignificant to their job performance. Eighty six percent found phone amplifiers unimportant, but 7% found it impossible to perform their job without this accommodation. Eighty nine percent found sign language interpreters unnecessary to their job performance, and 89% claimed that loop systems were unnecessary. Sixty four percent of respondents reported that their job was possible without flashing alarms, but 11% claimed it was difficult or impossible without them. Seventy five percent of respondents found that computer assisted note-taking was unnecessary, but 18% found their job performance difficult or impossible without this accommodation. Better lighting was considered unnecessary by 79% of the respondents, but 11% found their job difficult to perform without it. About 82% found furniture rearrangement unimportant, but 11% found their job to be difficult or impossible without the redisposition. Eighty six percent of respondents found that Deaf awareness training/hearing loss information given to co-workers was not important, and only 8% found their job performance to be difficult or impossible without this. Assisted listening devices were very unimportant as 90% said it was unnecessary. A co-worker taking notes in a meeting was also unimportant with 83% reporting it to be unnecessary or possible to perform their job without this, and only 11% claimed their job was difficult or impossible without this help. Eight nine percent reported video conferencing equipment unnecessary to their job performance. Eighty six percent said that special arrangements when attending professional development or training days was not important, and 8% found it difficult or impossible to perform at these events without special arrangements. In summary, results showed that the top three most important accommodations were computer assisted note taking, flashing alarms and furniture rearrangement.

Satisfaction of Accommodations

While 29% said the NRS was not applicable to them, 32% said they were extremely satisfied with this accommodation. Fifty five percent were satisfied with sign language interpreters, but 22% were unsatisfied with this accommodation. Sixty one percent were satisfied with flashing alarms, while 18% were unsatisfied. Seven percent of respondents were not satisfied with better lighting, while 68% were satisfied. Fifty four percent were satisfied with furniture rearrangement, while 11% were unsatisfied. Thirty six percent were unsatisfied with Deaf awareness training/hearing loss information given to co-workers, while 46% were satisfied. Twenty nine percent were unsatisfied with co-workers taking notes during meetings, while 36% were satisfied. Fifteen percent were unsatisfied with video conferencing equipment, and 34% were satisfied with this accommodation. When measuring satisfaction of special arrangements when attending professional or developmental training days, 18% of respondents were unsatisfied, and 72% were satisfied. Results showed that the accommodations that had the least satisfaction rates were Deaf awareness training/ hearing loss for coworkers, coworker taking notes during meetings and special arrangements during training days. The accommodations with the highest satisfaction levels were better lighting, furniture rearrangement, and sign language interpreters.

Perceptions Centered Upon Level of Hearing Loss

Importance

When measuring perceptions of importance of accommodations based upon the level of hearing loss of the respondent, significant group differences were found with two accommodations, (a) flashing alarms and (b) furniture rearrangement. An ANOVA showed that flashing alarms had a significant group difference, $F(2, 24) = 6.087$, $p = .007$, and furniture rearrangement had a significant group difference, $F(2, 23) = 6.794$, $p = .005$. The information below explains the differences between group means among levels of hearing loss and importance of these accommodations.

Flashing Alarms. It is important to note that importance of each accommodation was measured using a likert scale of 1 to 5. One allowing the respondent to classify an accommodation as unnecessary to their job performance and five suggesting their ability to perform a job was impossible without the accommodation being evaluated. For respondents who described their hearing loss as moderate, descriptive statistics showed that there was a mean of 3.0. The severe hearing loss group showed a mean of 2 and a standard deviation of .707. The profound hearing loss group showed a mean of 1.75. Respondents who categorized their hearing loss as moderate and severe were more likely to perceive their ability to perform their job with difficulty without flashing alarms while those who had profound hearing loss reported that it was possible to perform their job, but still difficult.

Furniture Rearrangement. This accommodation used the same likert scale as the flashing alarms. For respondents who described their hearing loss as moderate, results showed a mean of 2.5. The severe hearing loss group showed a similar mean of 2.8, while the profound hearing loss group showed a mean of 1.68. Respondents who categorized their hearing loss as moderate and severe were more likely to perceive their ability to perform their job with difficulty without their furniture rearranged while those who had profound hearing loss reported that it was possible to perform their job, but still difficult.

Satisfaction

When measuring the perceptions of satisfaction among the different levels of hearing loss regarding satisfaction with accommodations, no significant results were found.

Other Significant Findings

Frequency of Use

The majority of respondents, 65%, said they used sign language interpreters, but 12% say they have asked for this accommodation and have not received it. Seventy seven percent reported using flashing alarms, and 4% said they have asked for this accommodation but have not received it. Half of the participants use Deaf awareness training/ hearing loss information given to coworkers while 25% say it might be useful to them, and 17% said they have asked for this but have not received it. Interestingly, 30% use coworkers taking notes for them during meetings, and another 30% said this might be helpful to them but they have not asked while 13% said they've asked for this accommodation but have not received it. A majority of respondents, 76%, use special arrangements during developmental/ professional or training day, and 8% said this would be useful to them but they have not asked for it, and 12% have asked for this accommodation but have note received it. These results help explain why perceptions of importance and satisfaction vary in how often they are used.

DISCUSSION

After analyzing the results, it was found that the majority of the respondents were female and the average age was about 48 years old. Nearly all participants claimed to have a disability and had their graduate/professional degree. Approximately all participants were employed full time working for another company or organization where they worked in the same place every day. Data reported higher rates of profound hearing loss, and participants categorized their hearing loss as unable to hear even loud environmental sounds.

Many of the accommodations that were measured were insignificant to respondents' ability to perform on the job. The accommodations that showed any significance of importance were endorsed by 18% or less of the respondents. Nine accommodations stood out as important to some participants, (a) phone amplifiers (7%); (b) flashing alarms (11%); (c) computer assisted note taking (18%); (d) better lighting (11%); (e) furniture rearrangement (11%); (f) Deaf awareness training/hearing loss information given to coworkers (8%); (g) coworker taking notes during meetings (11%); and (h) special arrangements during professions/developmental or training days (8%).

Satisfaction of each accommodation was also analyzed, and most showed high levels of satisfaction. Accommodations that showed low satisfaction included (a) sign language interpreters (22%); (b) flashing alarms (18%); (c) better lighting (70%); (d) furniture rearrangement (11%); (e) Deaf awareness training/ hearing loss information given to coworkers (36%); (f) coworker taking notes during meetings (29%); (g) video conferencing equipment (50%); and (h) special arrangements during professional/developmental or training days (18%).

Demographic Information

The larger participation rate of females may be explained by the amount of females over males who were associated with the various groups and forums on Twitter and Facebook. In fact, once the survey link was distributed on social media, there was a higher rate of female participants. Results showed that the majority of the participants (39%) had their graduate/professional degree, which suggests they are employed in careers requiring advanced education. In this case, it might be easier for these individuals to ask and receive specific accommodations to fit their individual needs.

While the majority of participants claimed to have a hearing disability, results showed that two participants chose only a cognitive disability. This did not significantly affect the results of the overall research. In addition, the majority of participants claimed to have one full time job as an employee of another company or organization, which explains high reports of working in the same place every day. It seems that this made the research more stable as it focused on results of employees who rely on the accommodations they need to perform their job on a day-to-day basis. While the research aimed to understand perceptions of importance and satisfaction among levels of hearing loss, results showed that participants only identified with three of the four levels provided; moderate, severe and profound. Profound hearing loss is described by Phonak (2015) as ability to hear some very loud noises, but without a hearing aid, communication is no longer possible even with intense effort. This suggests that most of the respondents (75%) need to use a hearing aid to communicate effectively in any environment where sign language cannot be used as a source of communication.

Importance of Accommodations

Although the results did not show results to claim that any one accommodation is extremely important, results did show which ones are currently perceived as the most important. With 18% of respondents claiming their job was difficult to impossible without computer assisted note taking, it appears to be an important accommodation provided by the ADA. Considering all the new technology that allow conversations to be recorded and written in text, this accommodation is most likely easy to provide during a meeting, whether its one-on-one or with a group. This is also effective for employees who are Deaf or hard of hearing because they can save the text in documents or messages where they can be accessed at all times. Given this opportunity, an individual can keep their own notes along with the notes taken on the computer in order to enhance their understanding of the meeting. They can also use the notes to connect ideas from various meetings from the past and in the future. Similarly, having a co-worker take notes during a meeting was rated as important but less important than computer assisted note taking. It could have been less important because you never know the

quality of those notes, especially if they understand the conversation in another context. One may prefer the computer over a coworker because the note may be too vague, but, on the other hand, a co-worker taking notes may allow the individual to make side notes during the meeting that may make it easier to understand the discussion.

Flashing alarms were also perceived as important as employees (11%) reported that it was difficult or even impossible to perform their job without them. Flashing alarms may be important because with any level of hearing loss, a siren may be difficult to comprehend if there is too much background noise. Even individuals who have mild to moderate hearing loss may have difficulty hearing soft to loud sirens and alarms. If there were an emergency in the workplace, background conversation and shuffling would make it difficult to focus on the sound of an alarm that may be informing the employees to evacuate; therefore, a flashing alarm would help an individual with hearing loss understand that an alarm is sounding. In addition to flashing alarms, respondents found better lighting to be an important accommodation. Although hearing loss does not affect the ability to see, better lighting in any situation makes it easier to be aware of one's environment and surroundings. If the lighting is not good, it may be difficult to see a flashing alarm, which could be very dangerous if an individual could not be successfully warned of an emergency.

Correspondingly, furniture rearrangement was also perceived as important to an employee who is Deaf or hard of hearing. If a work area were not set up so that an individual could see the flashing alarm, having the flashing light would not be effective. It also makes sense to rearrange the furniture so that an employee can observe his or her environment and be aware of anyone coming into his or her work space at all times. If they cannot hear someone approaching their office or cubicle, they can be easily startled or even unaware of an emergency. Overall, it was unexpected to not find more significant results for the importance of accommodations. Based upon the results from this research, several of the 14 accommodations provided by the ADA are not perceived as significantly important to helping an individual with hearing loss to perform their job.

Satisfaction of Accommodations

Interestingly, data shows high rates of low satisfaction for several of the accommodations, which were not initially rated as important to the individual's job performance. As shown in the results, 36% of respondents were unhappy with Deaf awareness training/hearing loss information given to co-workers, but only 8% reported that this was important to their job. This can be further explained when looking at the results for frequency of use for this accommodation. Twenty five percent reported that Deaf awareness would be helpful to them, but they have not requested it. It seems that respondents reported their satisfaction of this accommodation upon the absence of it. This does not necessarily make it important, but it means that Deaf awareness/hearing loss information would be helpful in the work environment for employees with hearing loss to feel more understood. Even if they do not need accommodations, it would satisfy them to be in an environment where everyone understands the Deaf culture and community; this may eliminate existing stigma (Punch et al., 2007).

Participants also reported low satisfaction rates for co-workers taking notes during meetings. This was also perceived as one of the important accommodations provided by the ADA. Results indicated that 30% of respondents used this accommodation and 30% were interested in using this accommodation. It may have been perceived with low satisfaction as some reported that they have asked for this accommodation but have not received it.

Unexpectedly, sign language interpreters showed low rates of importance, and results showed very low satisfaction rates with this accommodation. While a large majority of the respondents claimed that they used sign language interpreters, some claimed that they did not use them, and many claimed that this accommodation

was unnecessary to their job performance. Although the rate of importance seemed low, frequency rates showed that a large majority of the respondents (65%) use special arrangements during developmental/ professional or training day while some (12%) said they have asked for this accommodation but have note received it

Special arrangements during professional/developmental or training days also showed low satisfaction even though it was not reported as an important accommodation. A large majority of the participants claimed to use this accommodation frequently (76%), but only a few said their job was difficult or impossible without it.

Respondents also had low satisfaction rates for flashing alarms. Understandably, flashing alarms are an important accommodation to provide for an employee with hearing loss if they cannot distinguish the sound of an alarm from background noise. These results imply that this accommodation must be improved since nearly all respondents (77%) claimed to use this in their workplace.

Perceptions and Level of Hearing Loss

There was not much variation in perceptions of importance and satisfaction among different levels of hearing loss. The two significant differences among groups were flashing alarms and furniture rearrangement. The respondents who categorized their hearing loss as moderate and severe found these accommodations the most important. Individuals with moderate hearing loss do not hear soft and moderately loud noises and understanding speech may be very difficult if there is any background noise (Phonak, 2015). Similarly, individuals with severe hearing loss require conversations to be very loud and must use a lot of effort to understand group conversations. With this level of hearing loss, flashing alarms are crucial to warning an individual of an emergency and furniture placement is crucial to helping them see the flashing alarms if they cannot discriminate even loud noises when background noise is present. Although the ANOVA test did not show any significance of satisfaction levels among levels of hearing loss, it may be because there were not enough participants in each group. The lack of sample size makes it difficult to compare these levels as the majority of respondents claimed to have profound hearing loss.

Limitations

One of the limitations of this study was the small sample size acquired. In order for the data to be more representative of the actual population of employees who are Deaf or hard of hearing, a larger sample size is needed. Another limitation was failing to have a sample size that equally represented each level of hearing loss. It was difficult to test how the perceptions varied among levels of hearing loss since the majority of the small sample categorized themselves as having profound hearing loss. This research was also limited by who could answer the survey since it was web-based, and the data was collected using social media. There may be several employees who are Deaf or hard of hearing that could participate, but they do not use social media, nor were they associated with the Rocky Mountain ADA Center, and as a result, they did not participate. The design of this research was also descriptive in nature; therefore, the investigators were unable to draw any conclusions suggesting causation.

Future Research

For future research, a larger, more diverse sample should be obtained. Future investigators should work more closely with employees who are Deaf or hard of hearing and make more of an effort to make sure the sample is representative of the population. Also, an opportunity to receive qualitative feedback regarding workplace accommodations would be beneficial. To get a better understanding of perceived importance and satisfaction of workplace accommodations for employees who are Deaf or hard of hearing, qualitative data will provide suggestions and feedback to either improve existing accommodations required by the ADA or determine if new research should add new accommodations. Further research will also make

it easier to determine if some accommodations that are currently required should be removed. These extensive details will offer an opportunity to determine how accommodations can be regulated to fit the individual needs of the employee.

CONCLUSION

In conclusion, this research found which ADA required workplace accommodations for employees who are Deaf or Hard of Hearing are perceived by those employees as more important and/or more satisfying, and which need upgrading in order to provide more significance and/or satisfaction. Among the ADA required accommodations, the Deaf or Hard of Hearing employee survey participants ranked the following accommodations as most important to their job performance, (a) computer assisted note taking; (b) flashing alarms; (c) better lighting; (d) furniture rearrangement; and (e) coworker taking notes during a meeting. The survey participants reported low satisfaction rates with certain accommodations, which include, (a) Deaf awareness training/ hearing loss information given to coworkers; (b) coworker taking notes during meetings; (c) sign language interpreters; (d) flashing alarms; and (e) special arrangements during professional/developmental or training days. The results also indicated that there were certain accommodations which were reported by specific participants as providing high satisfaction levels for some and low satisfaction levels for others. Accommodations which were reported by survey participants as providing high satisfaction levels were (a) better lighting, (b) furniture rearrangement, and (c) sign language interpreters. Findings that showed variation of perceptions of importance and satisfaction based upon level of hearing loss were not significant for many accommodations, but for flashing alarms and furniture rearrangement, respondents who categorized their hearing loss as moderate considered these to be the two most important accommodations. Those who said they might find an accommodation helpful, but have not asked for it, were more likely to have reported low satisfaction levels with those accommodations. As this study was limited, further research is necessary to draw significant conclusions that will lead to refining the ADA required workplace accommodations for Deaf or Hard of Hearing employees.

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