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Hearing Loss: A Silent Health Disparity

Abstract

This paper presents an analysis of various aspects of hearing loss and its connection to healthcare settings, particularly nursing. Normal hearing is defined, followed by the definition of hearing loss and deafness. Cultural Deafness is then explained, followed by ways to prevent hearing loss. Additionally, healthcare experiences of individuals with hearing loss will be presented. The project will conclude with recommendations for healthcare professionals in regard to caring for their patients with hearing loss. The main population focus of the paper are Deaf and Hard of Hearing (HOH) individuals. Specifically, their unique experiences in healthcare encounters will be evaluated. Interactions with healthcare workers in settings such as hospitals, emergency rooms, urgent cares, and physician offices are presented. The goal of this project is to review published literature as well as generate new data in order to evaluate whether or not hearing loss contributes to health disparities for Deaf/HOH patients. A health disparity is identified when a certain population of individuals experience poorer healthcare outcomes based on specific differences and disadvantages. The project population of interest includes all members of the Deaf/HOH community, which can include ASL interpreters as well individuals that identify as Deaf or Hard of Hearing. Recommendations made herein arise from the reviewed literature and from the voices of the target population based on their healthcare interactions.

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By

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Abstract

This paper presents an analysis of various aspects of hearing loss and its connection to healthcare settings, particularly nursing. Normal hearing is defined, followed by the definition of hearing loss and deafness. Cultural Deafness is then explained, followed by ways to prevent hearing loss. Additionally, healthcare experiences of individuals with hearing loss will be presented. The project will conclude with recommendations for healthcare professionals in regard to caring for their patients with hearing loss. The main population focus of the paper are Deaf and Hard of Hearing (HOH) individuals. Specifically, their unique experiences in healthcare encounters will be evaluated. Interactions with healthcare workers in settings such as hospitals, emergency rooms, urgent cares, and physician offices are presented. The goal of this project is to review published literature as well as generate new data in order to evaluate whether or not hearing loss contributes to health disparities for Deaf/HOH patients. A health disparity is identified when a certain population of individuals experience poorer healthcare outcomes based on specific differences and disadvantages. The project population of interest includes all members of the Deaf/HOH community, which can include ASL interpreters as well individuals that identify as Deaf or Hard of Hearing. Recommendations made herein arise from the reviewed literature and from the voices of the target population based on their healthcare interactions.

Project Description

This project consisted of two main methods of gathering information. The first method is extensive review of published literature regarding topics including – the parameters of hearing loss, methods of hearing loss prevention, individual experiences of patients with hearing loss in healthcare settings, and recommendations from these patients to their healthcare providers in order to deliver improved care in the future. Literature will vary in types of publications. Nursing journals will be examined, as well as personal stories of Deaf/HOH individuals. The literature review will also include what hearing members of the Deaf/HOH community have to say about hearing loss in healthcare. The second form of data collection comes from original research by the author. Those who are Deaf, Hard of Hearing, or work as American Sign Language interpreters were interviewed on various aspects of hearing loss in healthcare. Their responses serve as primary data collection and are presented. The summation of these information resources yields the recommendations for healthcare providers presented here.

Introduction to Hearing Loss and Deafness

Normal Hearing

Before hearing loss is discussed, it is important to understand the mechanics and characteristics of normal hearing. Belden, DeFriez, and Huether (2012) explain that normal hearing implies that the individual in question experiences no detectable hearing deficit, but that does not exclude other sensory deficits. To begin, the structure of the ear is segmented in to three separate areas – the external ear, the middle ear, and the inner ear. The external auditory canal is enclosed by the bones of the skull. The meatus, or

opening, of the external canal lies at the top of the mastoid process. Next, mastoid air cells, which are air-filled sinuses, are a part of the mastoid process that stimulate the conductivity of all sounds between the external ear and the middle ear. Furthermore, the external and middle ear is used strictly for hearing, whereas the inner ear is used for both hearing and maintain equilibrium (balance). The external ear is comprised of the auricle, or pinna, which is what as seen as the ear on a human body. Between the external and middle ear is the external auditory canal, which connects the two segments of the ear. When sound is conducted, sound waves enter at the external auditory canal and hit the tympanic membrane, or eardrum, causing it to vibrate. The tympanic membrane also separates the external and middle ear. As the ear progresses inward, the middle ear begins. The middle ear is comprised of the tympanic cavity, which is a small cavity in the temporal brain of the cranium. The middle ear also contains three small bones known as ossicles. The bones in the ear are the malleus (hammer), the incus (anvil), and the stapes (stirrup). These bones transmit the vibration that the tympanic membrane receives into the inner ear. This mechanism is caused by the tympanic membrane vibrating, causing the malleus to then vibrate, which then causes the incus to vibrate, which finally causes the stapes to vibrate. From there, the vibration continues on when the stapes pushes against the oval window which is found in the middle ear. Once the oval window moves, fluids of the inner ear are set into motion.

The eustachian tube serves as the connector between the middle ear and the nasopharynx (upper throat and back of the nasal cavity). The eustachian tube equalizes pressure in the middle ear by opening when an individual yawns or swallows. Otherwise, the eustachian tube remains closed and flat. Once the inner ear is reached, there is a bony

labyrinths that are filled with perilymph. The maze-like chambers are divided into three sections – the cochlea, the vestibule and finally the semicircular canals. The cochlea contains the organ of Corti where hair cells are found. The hair cells are essentially the hearing receptors of the ear. Sound waves must travel from the external ear all the way through the stated path of the middle and inner ear to finally reach the hair cells. The hair cells are stimulated by being pulled or bent due to the movement of fluid. After stimulation, the hearing receptors conduct impulses to the cochlear nerve, and finally ending at the auditory cortex of the brain, in the temporal lobe. Once this entire mechanism is complete, the interpretation of sound is complete.

Definition and Types of Deafness

It is important to understand what exactly deafness is before recognizing those with it as victims of a health disparity. Van Cleve (2009) defines deafness as “partially or wholly lacking or deprived of the sense of hearing; unable to hear; a condition where an individual cannot process auditory signals”. According to UCL Deafness Cognition and Language Research Centre (2013), approximately 2-3 out of every 1,000 babies are born deaf in the United States. Of those children, 90% of them are born to two fully hearing parents. There are two models used to describe deafness, with the first being the medical/pathological model. This classification of deafness focuses on the fact that the person cannot hear, disregarding their attributes and abilities. One large characteristic of the model is that it also implies that the person needs to be ‘cured’ of their deafness. However, the second model, the cultural model, differs greatly. The cultural model, as described by the Commonwealth of Massachusetts (2015), is often heavily promoted by the deaf person and those in their community. It upholds the idea that the inability to hear

should not be the sole defining characteristic of a deaf person, but states instead that the deaf person ought to be viewed for what they are able to do.

The word 'deaf' can be used in two ways, and each implies a separate meaning. The first is 'deaf' with a lower case d, which refers to the medical condition of deafness, which is being unable to hear. The second is 'Deaf' with a capital D, which refers to a Deaf person and/or the community they are a part of. There is a difference between deafness, hard of hearing (HOH), and hearing loss. As previously stated, deafness refers to profound or total hearing loss, with very little to no hearing ability. People who are HOH can have hearing loss that ranges anywhere on a spectrum from mild to severe. The World Health Organization (2014) states that individuals that are hard of hearing usually communicate through spoken language, while some use assistive listening devices. Meanwhile, people with hearing loss are not able to hear as well as someone with normal hearing, but they are usually able to hear greater than those who are hard of hearing. Hearing loss may be mild, moderate, severe or profound, which can eventually lead to becoming HOH. Hearing loss can affect one or both ears, and it often leads to difficulty in conversational speech. The differences among these are important to know when determining someone's hearing ability.

Spectrum of hearing loss. In terms of hearing loss, levels vary among each individual, thus impacting them each in a unique manner. The Hearing Loss Association of America (2005) states that hearing loss can occur in only one or both ears, and can possibly progress into deafness. When an individual is experiencing hearing loss, the loss is often classified as mild, moderate, severe or profound, each with their own respective characteristics. Mild hearing loss is defined as the inability to hear most quiet sounds, up

to about 40 decibels (dB). Individuals with mild hearing loss may experience challenges in keeping up with conversations, particularly in noisy situations. Moderate hearing loss is classified as the ability to hearing up to approximately 70 dB. These people experience greater difficulty with keeping up with conversations. As the ability to hear continues to diminish, effected individuals fall into severe hearing loss. With severe hearing loss, people generally hear 95 dB at most. Those with severe hearing loss often rely on hearing aids and/or lip reading, and possibly the use of sign language to communicate. Finally, when an individual reaches the level of profound hearing loss, they generally only hear sounds above 95 dB. Hear-it (2016) reports that these people are extremely HOH and often communicate through lip reading and sign language. Hearing loss is more common than often thought. Approximately 20% of Americans report some level of hearing loss. That means that close to 48 million Americans have lost some of their ability to hear, whether it is classified as mild, moderate, severe, profound or deafness. As people age, 33% of people recorded as elderly experience some level of hearing loss. Furthermore, it is estimated that two to three out of every one thousand children in the US are classified as hard of hearing or deaf.

Pathology of Hearing Loss

There are several factors that contribute to hearing loss. One prevalent association correlated with hearing loss is common changes in hearing abilities during the process of aging. As previously stated in Belden, DeFriez, and Huether (2012), roughly one third of elderly people experience some degree of hearing loss, and it is often progressive throughout the remainder of their life. The ear goes through various changes in structure as people age. To begin with, the hair cells in the cochlea degenerate over time, leading

to the inability to hear sounds at high frequencies. Hair cell degeneration also leads to difficulty in understanding and keeping up in conversations. Hair cell loss can occur in one or both ears at different times in life. Other changes in auditory structures include the process of losing auditory neurons located in the spiral ganglia inside the organ of Corti. This change affects people's auditory abilities in the same manner of cochlear hair cell degeneration. Moreover, erosion of the cochlear conductive membrane leads to the failure to hear any high frequency sounds due to cochlear conduction loss. Continually, if there is a loss in the number of cortical auditory neurons, or if the cochlea experiences decreased vascularity causing stria loss, the person will suffer from equal loss of the ability to hear sounds at all frequencies. However, not all causes of hearing loss are associated with age-related changes. Hearing loss can be caused by structural abnormalities that are either present at birth or are caused at some point during the individual's lifetime. One of these abnormalities is conductive hearing loss. This occurs when there is a condition affecting the external or middle ear that disrupts the conduction of sound waves into the middle ear. There are several causes of conductive hearing loss, such as impacted cerumen, abnormal objects shoved in the ear, tumors of the middle ear, external ear carcinoma, dysfunction of the eustachian tube, swelling of the external ear, viral otitis media, cholesteatoma and otosclerosis.

The authors continue on to explain that sensorineural hearing loss can also occur. This type of hearing loss is caused by any impairment of the organ of Corti or the central connections associated with it. The hearing loss may occur gradually over time or suddenly. Certain conditions increase the probability of obtaining sensorineural hearing loss, including hereditary or congenital factors, prolonged exposure to loud noises, the

aging process, ototoxicity, Ménière disease, autoimmune processes, systemic disease such as syphilis, disease affecting the collagen in the ear, diabetes, and Paget disease. Congenital hearing loss most often seen in neonates can be triggered by administration of ototoxic drugs, maternal rubella, premature birth, any form of traumatic delivery, or hereditary congenital hearing malfunction. There exists a form of sensorineural hearing loss called presbycusis, and it is observed to be the most common form of sensorineural hearing loss in the elderly population. Several factors can be directly correlated with the condition presbycusis, such as exposure to ototoxic drugs, changes in vascularity, diminished auditory receptors, and stiffening of basilar membranes. These conditions often lead to initial tinnitus, but later on progress into the inability to hear high-pitched sounds, resulting in permanent hearing loss. Certain diseases have also been linked to hearing loss. An example of such is the previously mentioned Ménière disease. This disease can be either unilateral or bilateral, meaning it can effect only one both ears. Ménière disease is a condition of the middle ear related to large amounts of endolymph and high pressure in the membranous labyrinth. The endolymph and pressure alters the vestibular function while also disrupting hearing functions. Continually, certain ear infections can lead to hearing loss, especially if they are frequent or chronic. Acute otitis media (AOM) and otitis media with effusion (OME) are semi-common ear infections that can lead to progressive hearing loss is left untreated. Both of these infections consist of fluid being retained in the middle ear, which can lead to an infection.

Ototoxicity. Ototoxic drugs can induce hearing loss, therefore prevention of hearing loss and conservation of hearing ability is critical. Authors Fausti, Wilmington, Helt, Helt, and Konrad-Martin (2005) explain that ototoxic drugs are medications that can

damage the ear, therefore resulting in a negative impact on a person's hearing ability. Some ototoxic drugs include large doses of aspirin, ibuprofen, streptomycin (antibiotic), loop diuretics, and cancer treatment drugs. Hearing loss caused by ototoxic drugs is very easily preventable, as they present early warning signs. Signs of ototoxicity include tinnitus, or ringing in the ears, and vertigo, or feeling that you or your surroundings are moving when they are not. Ototoxic drugs cause sensorineural hearing loss. The goal of these drugs to treat diseases or improve quality of the patient's life, but a known adverse effect is losing the ability to hear. It is estimated that roughly 4 million American patients are considered to be at risk for hearing loss caused by ototoxic drugs. While ototoxic drugs can cause temporary alterations in hearing, such as tinnitus, the damage can also be permanent. In order to combat potential hearing loss for patients taking ototoxic drugs, there are several steps that can be taken. First of all, if a patient is prescribed an ototoxic drug, the patient should undergo frequent hearing screenings to assess their hearing ability. It is also important to establish a baseline hearing level so that later results can be compared to the original. If it is found that the patient is experiencing hearing loss, it may be necessary to stop the administration of the ototoxic drug and begin administering a medication with similar medical outcomes. In that case, the level of benefit in using the ototoxic drug use ought to be compared to the adverse effects of the patient experiencing hearing loss. If there seems to be more benefits than risks in using the ototoxic, sometimes the dosage can be decreased in order to conserve the patient's current hearing level. Ototoxic-induced hearing loss is preventable in nearly all cases, and certain implementations should be used in order to preserve the patient's hearing ability.

Noise-induced hearing loss and ear infections. Belden, DeFriez, and Huether (2012) state that hearing loss can also be induced by excessively loud noise, especially over a long period of time. This is known as noise-induced hearing loss (NIHL). Working age adults are most affected by NIHL and it is the most common occupational hazard. NIHL affects the ear in many ways. Fausti et al. (2005) continues on to describe how hair cells can either become swollen, stiff, or broken, and auditory nerve endings can become swollen as well. All of the consequences of NIHL lead to the degradation of the ability to hear over time. Certain ear infections can also lead to alterations in hearing ability. The authors make it clear that the particular infection of otitis media can be vaccinated against, therefore preventing hearing loss in the first place. Multivalent vaccines are used to prevent otitis media, which is linked to hearing loss. A child simply getting the vaccine against that specific ear infection reduces the incidence of acquiring hearing loss due to an infection. In terms of community hearing health, providing hearing health services in each community is a necessary step to take.

Pathology of deafness. After understanding what deafness and the other varying types of hearing loss are, there are also different types of deafness, each with a unique cause that needs to be understood prior to discussing deafness as a health disparity. Deaf Child Worldwide (2017) presents varying types of deafness, with the first being conductive deafness. With conductive deafness, sound cannot pass through the outer and middle ear to the cochlea and auditory nerve. In layman's terms this can be referred to as 'glue ear'. Conductive deafness can either be temporary or permanent. Continually, there also exists sensorineural deafness, in which there is a defect of the inner ear, cochlea, and/or the auditory nerve. Due to its severity, sensorineural deafness is often permanent.

Conductive and sensorineural deafness can also combine to form mixed deafness, which ranges in severity. These types of deafness have many causes. Firstly, there exists the category of acquired causes, which are conditions that can lead to deafness at any age. This umbrella term includes meningitis, chronic ear infections, head injury, excessive and prolonged noise exposure, and blockage of the ear canal. Furthermore, there are congenital causes, meaning deafness is present at birth or shortly thereafter. The World Health Organization (2014) states that birth complications, rubella of the mother during pregnancy, a lack of oxygen to the baby at birth, maternal teratogens (alcohol, tobacco, drug abuse), and even severe jaundice of the infant fall under congenital causes of deafness. While each type of deafness is not visibly recognizable, each presents its own unique and specialized case that affects the individual in certain ways, which then changes how the healthcare providers ought to care for them.

Hearing Loss Prevention

While each of an individual's five senses are critical to their well-being, not every person is fortunate enough to benefit from the full capacity of each sense. According to Belden, DeFriez and Huether (2012), hearing loss is the most common sensory defect of the general population. Hearing loss is much more common than often thought to be, and there exist numerous causes and levels of auditory ability/inability. Over their lifetime, many individuals will experience some level of hearing loss. Each person experiences their own unique level of auditory ability, and each person is susceptible to hearing loss, whatever the cause may be. Nevertheless, despite the fact that hearing loss is a prevalent issue in the world, often times it is easily preventable. There are countless steps to be

taken that can reduce the number of individuals suffering from some degree of hearing loss.

Hearing screening. The first step in hearing loss prevention, is the identification of hearing loss. Programs that screen people's hearing ability need to be put into place. With regular hearing screenings, decline in an individual's hearing level can quickly be detected and treated. McCullagh and Frank (2013) make it clear that it is crucial to screen each individual patient coming into the healthcare system for any degree of hearing loss. Hearing loss is much more common than one would anticipate. Approximately 20% of Americans 12 years and above experiencing some form of hearing loss. Hearing loss is seen more often in older patients. Hearing loss is ranked as the third most prevalent disease among older Americans. In many cases, noise-induced hearing loss is the major cause. Other causes include ototoxic medications, chronic otitis media, and simple age-related changes in hearing ability. Diabetes, smoking, and hyperlipidemia have been found to possibly cause hearing damage. Hearing loss can affect one ear (unilateral) or both ears (bilateral), with each ear having its own level of ability to properly interpret sound. Even with its high incident rate, assessment of hearing ability is uncommon in practice, and there exists little literature about available hearing screening techniques. For example, obtaining a detailed patient-reported body system overview/history can be unreliable. The amount of hearing loss a person assumes themselves to have rarely equates to the severity of hearing loss found by a medical professional.

McCullagh and Frank (2013) state that some professional associations recommend screening each patient's hearing at least once every ten years. As patients get older, hearing ought to be screened closer to every three years. Older adults are assessed

more often than other age groups, although not frequently enough. Hearing screenings are especially important to low-income and underdeveloped areas, as they may have limited access to regular healthcare, and may have increased exposure to damaging environmental factors that are linked to causing hearing loss. The other group of patients that have their hearing routinely assessed is the newborn population. The hearing screen is a part of their newborn screen, but unless a hearing deficit is detected at birth, it is unlikely that each child will be routinely rescreened. There are screening techniques that can be easily integrated into a clinician's practice, such as the utilization of the audioscopes, otoscopes, and audiometers. Additionally, the whisper test can be used quickly and easily. The Rinne test can be added to a whole body assessment, simply by stroking a 512-Hz tuning fork and placing its base on the patient's mastoid process. This method is particularly useful in detecting conductive hearing loss. Nevertheless, the decision of whether or not to integrate a hearing screen into their practice is at each clinician's discretion. The article closes by stating that both screening and management in the elderly during healthcare visits is underdiagnosed, leaving them undertreated, resulting in a healthcare disparity among the elderly hearing impaired.

Methods to protect hearing. Hearing loss is often easily preventable in those who have normal hearing, but certain steps must be taken in order to do so. Moreover, the conservation of hearing ability is as equally as important as the prevention of hearing loss. There are various ways in which people can prevent hearing loss from happening to them while simultaneously preserving the level of hearing ability they currently have. With noise-induced hearing loss, if the exposure to loud noises stops, the hearing loss also stops. Noise-induced hearing loss progresses only when the individual is

continuously exposed to harmful noise. Therefore, the first step in preventing hearing loss, specifically noise-induced, is to simply refrain from being around loud stimuli. For some, like those whose occupation requires them to be continually exposed to loud noises, this is easier said than done. However, even taking the small step of wearing ear plugs or ear muffs can drastically reduce the progression of hearing loss. That being said, whatever damage has already been done to the person's ability to hear is irreversible.

There are several interventions that can be put into place in order to reduce the incidence of hearing loss in the general population. Outreach programs should be available so that hearing loss can be detected early, therefore preventing further auditory damage. Programs that do so include regular hearing screenings at the community level. As previously discussed, a vaccination for otitis media can also be used to decrease the number of incidences in which a child's auditory function decreases. Those vaccinations ought to be readily available, easy to access, and reasonably priced for all communities. Communities themselves also need to be monitored for noise pollution, due to either occupational hazards or simply the lifestyle of the environment. As suggested above, low-income and underdeveloped areas also tend to have more damaging environmental factors linked to hearing loss. Minimizing noise pollution can drastically reduce the incidences of hearing loss. Finally, Saunders, Molter, Barrs and Barrera (2007) reiterate the importance that the use of ototoxic drugs needs to be reduced as often as possible in order to prevent medially induced hearing loss. Various methods that can be implemented in order to not only prevent hearing loss, but to protect against further damage to people's auditory function. The majority of these techniques are simple and easy to put into action – the first step just has to be taken in order to start a cascade of healthy hearing.

Chadha and Stevens (2013) explain that in terms of community hearing health, providing hearing health services in each community is a necessary step to take.

Communities ought to increase the number of places where ear care and hearing services are offered. These locations should include methods of medical/surgical management of hearing loss, offices where people can obtain access to proper hearing aid devices, and rehabilitation services for those who have profound hearing loss. Communities also need to provide places of education where people can learn sign language if they are unable to communicate through spoken language. However, providing medical services for those with hearing loss is not enough on its own to prevent hearing loss or halt progressing hearing loss. Once healthcare services have been implemented, raising awareness is the next crucial step in the prevention of hearing loss, due to any cause. The majority of hearing loss awareness programs and informational supplements are focused on reducing noise-induced hearing loss, but learning to how prevent hearing loss of any kind is equally as important. Early intervention is key when discussing methods to prevent and reduce hearing loss. Information on inhibiting hearing loss needs to be available at all levels of each community, including the health and political systems within them. There are various methods in which hearing loss can be prevented, as well as how a person's current level of hearing can be preserved. Simple steps in hearing loss prevention can be taken by anyone living in their community, regardless of if they are affected by auditory dysfunction or not. Preventing hearing loss is possible and realistic, the first step just has to be executed.

Cognitive Development Effected by Deafness

Cognitive development can be impaired by deafness in a child. Berger (2014) states that cognitive development refers to the process that occurs as the child acquires intelligence, advanced thought and problem-solving abilities. Deafness can hinder cognitive development because the child often experiences barriers to communication. Deaf children often struggle with verbal communication, leading to inadequate stimulatory input from others. Due to this trouble, children and their caregivers must quickly establish another method of communication. Nevertheless, deaf children can overcome cognitive development through the use of deaf adaptations. These include being enrolled in a deaf school, where instructors, faculty and peers often use ASL to communicate. These schools also tend to center around many values of deaf culture, such as deaf pride, sign language, and overcoming common obstacles from society. If a deaf child or his/her caregiver chooses to keep them in a normal, hearing school, the child can benefit from an ASL interpreter. Van Cleve (2009), lays out the typical day for a deaf child and their interpreter in a hearing school. The child would attend normal classes with the other students, but an interpreter would stay with them through the day and convert what is being said in English into ASL. When the child wants to speak out, they will sign to the interpreter who will then convert what is being signed into spoken English. Finally, children with deafness can experienced improved cognitive development through the use of hearing aids or cochlear implants. Each of these devices provides roughly the same service, but with varying degrees of strength. Callis (2013) explains that there are both hearing aids and cochlear implants, with each having their own separate mechanisms of action. Hearing aides are usually used to enhance the person's ability to somewhat hear

loud, ambient noises. Depending on how strong the hearing aid is determines the types of sounds that will be able to be heard. On the other hand, cochlear implants restructure the ear canal, as well as modify of the brain, in order to allow a deaf person to hear the vast majority of everyday noises. This includes voices, music, sirens, and television, among many other things. In turn, the cochlear implant often significantly facilitates the ability for deaf people to learn how to speak, after being enrolled in intense speech therapy. Therefore, although cognitive growth can be impaired by deafness, there are numerous ways to achieve normality.

Deafness and Its Effects on Communication

Deafness effects communication in very obvious and very subtle ways. This is especially true among interactions with the deaf and healthcare providers. For example, a research study conducted by Wie, Pripp, and Tvette in 2010 examined adolescents and adults with profound unilateral deafness to determine the consequences in terms of social interaction and communication. From this study, 93% of the participants stated that their unilateral deafness affected their communication abilities. 87% also described issues with their capability to perceive spoken words in a noisy setting. Healthcare settings are often filled with background noise composed of monitors beeping, people typing at computers, alarms going off, and the regular hustle and bustle of staff. This makes it increasingly difficult for those experiencing any degree of deafness to focus on what the healthcare provider is saying so that total comprehension takes place. Those with unilateral deafness described the difficulty of perception to be caused by the inability to distinguish the background noise from the speaker's words. Participants later stated that there were additional consequences to their unilateral deafness. Among them were a sense of

exclusion, increased stress levels, diminished health/well-being and excessive use of strategies to increase their perception of speech. 93% of participants self-reported that their unilateral deafness causes a communication handicap, which adversely affects their interactions with all people. Any degree of hearing loss, not even full deafness, can cause profound negative effects to the health and well-being of the person, since communication presents so many obstacles that are often ignored.

The Deaf Patient's Experiences in the Healthcare System

The healthcare system is adjusted to address each individual's needs as best it can. Cultural awareness and competence is an important component of medical professional curriculum. However, applying the learned information can prove to be challenging. Individuals with varying degrees of hearing loss are often mistreated in the healthcare system, potentially leading to health disparities among them.

Communication as a Barrier to Healthcare

Due to several factors, the Deaf/HOH population experience significantly more barriers to not only accessing healthcare, but obtaining a comfortable and beneficial healthcare experience compared to the hearing population. Communication between the Deaf patient and the hearing medical professional is often the largest obstacle, and it is one that proves challenging and stressful for all involved. In a study conducted by Pereira and Fortes (2010), twenty-five Deaf patients were interviewed regarding their experiences in the healthcare system, particularly the communication barriers they experienced. A participant reported that they believed the healthcare system harmed the Deaf community rather than helping them. The participant explained that Deaf patients typically feel the need to negotiate communication sources with their clinicians, generally

beginning with lip reading. If that proves to be unreliable, the patient then asks the provider to communicate through written words, but the doctor's infamous illegible handwriting only further prevents effective communication. In regards to the healthcare professionals themselves, participants were asked to describe the healthcare professionals they interacted with. The Deaf patients responded with several negative words, such as boring, sham, impatient, and even two-faced. Only one out the twenty-five study participants responded with positive feedback.

Pereira and Fortes' 2010 Deaf study participants unanimously reported that they felt as if their health concerns were unable to be communicated, therefore interfering with the quality and effectiveness of their care. Without the presence of a medical interpreter or a doctor willing to work slowly with their Deaf patient, the study participants stated doubts with their healthcare experience. They are often unsure if the doctor correctly diagnosed them, which then affects the use/distribution of prescription medications or medical procedures. The significant communication barrier between the healthcare system professionals and the Deaf patient's results in confusion, doubt, worry, and distrust between both parties. One participant in particular reported that they believed the healthcare system harmed the Deaf community rather than helping them. The participant explained that Deaf patients typically feel the need to negotiate communication sources with their clinicians, generally beginning with lip reading. If that proves to be unreliable, the patient then asks the provider to communicate through written words, but the doctor's infamous illegible handwriting only further prevents effective communication.

In McCullagh and Frank's study during 2013, researchers found that nine culturally Deaf individuals shared fairly similar healthcare experiences. Unfortunately,

the overwhelming consensus of the group reports demeaning, traumatizing, and even harmful clinician interactions. Throughout their lives, the majority of the participants avoided receiving healthcare recently due to previously damaging experiences. One individual in particular experienced such a horrific and confusing healthcare encounter that she stopped visiting medical centers altogether. She has not seen a clinician of any kind for over twenty-five years. Another major concern they reported was the lack of understanding on how to acquire a referral to a specialist. When the participants were asked to describe their access to healthcare, each of them reported difficulty. When interactions did occur, they considered them meaningless due to the lack of progress made in improving their health and well-being.

Patients who communicate primarily through ASL mentioned again and again that they were unable to properly describe their symptoms, emotions, and health history to the clinician (Pereira & Fortes, 2010). These common concerns and fears throughout the Deaf community often result in a delay of or refusal to seek care. A participant explained, “If the doctor doesn’t have any patience, doesn’t like to write, then I cancel, call my mother, we go to another doctor; I reschedule to avoid healthcare problems”. It has come to the point that Deaf patients choose to delay seeking medical attention due to the lack of effort in communication from their clinicians. The universal theme uncovered in this study is that a significant portion of medical professionals are lackadaisical when it comes to communicating with Deaf individuals. The lack of effective communication is causing postponement of medical treatment. Delaying medical attention of any sort yields potentially harmful consequences, thus leading to a multitude of healthcare disparities among the Deaf community. Sheppard (2014) stresses the concept that the constant

difficulty in reporting symptoms, thoughts, opinions, and medical history leads to inadequate perception of health to the healthcare provider, therefore leaving the Deaf and HOH population in poorer states of health than their hearing counterparts.

Fear and Emotional Impacts in Patients Healthcare Encounters

Feeling misunderstood, experiencing ineffective communication and mistreatment is a small glimpse into the spectrum of emotions experienced by patients with hearing loss. Lezzoni, O'Day, Killeen, and Harker conducted a study in 2004 that revealed that an extremely common emotion among Deaf/HOH patients is fear. This fear is generalized and includes all aspects of the healthcare encounter. Encompassed in the emotion of fear lies fear of miscommunication, fear of inaccurate diagnoses, and fear of unknown tests/procedures. One study participant in particular recounts feeling uncomfortable and fearful during a specific healthcare encounter. At the time, her physician suddenly became non-visible. The physician had begun initiating a Pap smear, therefore taking him/her out of sight of the Deaf patient. Not only was she unable to see her doctor, which inhibited any form of communication between them, the doctor had never explained to her what a Pap smear was or how it would be done. She recalls is being put into stirrups and suddenly experiencing discomfort and pain, which she had not been warned about. This experience traumatized the participant so severely that she immediately unassociated herself with that provider. To this day she remains cautious and anxious when going to healthcare appointments.

A male participant experienced a similar situation during an unannounced testicular examination. The doctor had not explained the procedure. When the physician placed his hands on the man's scrotum, his immediate concern was that he was either

being sexually assaulted or the doctor was making sexual advances towards him. He states that when a hearing doctor examines a hearing patient, each step is described throughout the exam. However, because this patient was Deaf, the provider assumed that not talking at all was the best approach. Furthermore, alongside being generally unaware of what is occurring during the appointment, Deaf patients are often unable to determine what is expected of them during a test or procedure (Lezzoni, O'Day, Killeen, & Harker, 2004).

A female participant described her confusion during a mammogram. The x-ray technician set her up for the mammogram, then walked away to stand behind the protective screen. From behind it, the technician told her to hold her breath during to procedure, which the patient clearly could not hear. The technician explained that the mammogram would have to be repeated since the patient did not do as she was told. The participant quickly defends herself in saying that if she is unable to view the technician, she is therefore unable to understand what is being directed to her (Lezzoni, O'Day, Killeen, & Harker, 2004). Miscommunication is a strongly prevalent issue among Deaf/HOH healthcare encounters.

Communication barriers are actually created at times for some patients. The use of hearing aids can be beneficial for patients with partial hearing loss. A male participant was told to remove his hearing aids before beginning major surgery. They were not returned after the surgery was complete. Even with his inability to hear, the doctors obliviously decided reverse his anesthesia, due to his lack of response of them calling his name after surgery. He reported that this caused an immense amount of fear, since the doctors so blatantly ignored the fact that not only was their patient hard of hearing, but

they had also taken away his only communication aid. Moreover, yet another patient experienced a distressing event. His physician suddenly began to cut away at a cyst on his buttock without warning or explanation. He was simply rolled over, and immediately felt the pain of the cut. He had no understanding of why the doctor was doing what he was. He was unaware that he would even be cut at all (Lezzoni, O'Day, Killeen, & Harker, 2004). Aside from awry medical procedures, Deaf/HOH patients unanimously report concern regarding being in waiting rooms before their appointments.

Several participants described various occasions when they were unable to see the person calling their name, and since they could not hear their name being called, they completely missed their appointment despite being present for it. The confusion and frustration only continues once the patient is actually being seen by the doctor. They may be told to remove some, all, or none of their clothes, and oftentimes they misunderstand what is told to them. They cannot hear the doctor knock at the door before coming in, which takes away precious privacy. They sit and wait in confusion about whether or not they have done the right things thus far, and remain fearful of what is to come during the remainder of their appointment (Lezzoni, O'Day, Killeen, & Harker, 2004). This causes many Deaf/HOH patients to become anxious before/during a medical appointment.

Mental Health and the Deaf/HOH Patient

A study by Richardson (2014) provides another insight into a Deaf patient's perception of healthcare. The participants reported that until they feel comfortable and safe with a provider, many of them change clinicians with each visit. This can lead to confusion for both the providers and the patients, all due to the fact that the patient feels neglected by their initial physician. Likely due to the ineffective communication, nearly

40% of the Deaf population suffer from mental illnesses, while only 25% of the hearing population is mentally ill. A large portion of the Deaf patients report indications of depression, yet healthcare providers rarely screen their Deaf patients for depression. Misdiagnosis or the complete lack of a diagnosis only leads to more severe depression among Deaf individuals. The majority of them report they feel depressed because they are unable to communicate properly with their healthcare providers. The inability to ask questions or ask for clarification results in confusion, frustration, anger, and sadness. If such emotions remain unaddressed, mental illness becomes exponentially more likely. The article sums up its findings perfectly by saying, “These factors all lead to misperceptions, misdiagnoses, and stereotypes, creating suboptimal healthcare and negative outcomes” (Richardson, 2014, ¶ 25). Undoubtedly, Deaf and Hard of Hearing patients face poor healthcare treatment, further progressing the incidence of healthcare disparities among them.

ASL Accessibility in Healthcare Encounters

Deaf patients often experience many hindrances to receiving healthcare, largely due to communication/linguistic obstacles, ASL is often the language used among the deaf in the United States, and healthcare providers who are able to provide the deaf with suitable and qualified interpreters are few and far between. The National Association of the Deaf (2014) writes that even if a healthcare provider’s office does offer such services, there are many dialects of ASL in conjunction with the level of hearing disability that further obstruct appropriate communication. This lack of available communication channels exists for multiple reasons. One of them is the fact that most healthcare providers are not taught how to converse with those in the deaf community. Furthermore,

those who are in need of such services require either a certified interpreter who is fluent in ASL, or some type of service where a qualified interpreter is available in healthcare settings. Services such as videophones are an example. Both interpreters and videophones ought to be readily available to those who need it to communicate, just as any lingual minority is entitled to translation/interpretation services. The availability of ASL interpretation services is actually required by federal law. This law is to ensure that effective and appropriate communication takes place between the healthcare provider and the deaf consumer. Oftentimes, this service is overlooked due to monetary costs to the businesses. They are also overlooked simply due to a lack of education about the needs of services among the deaf community in terms of healthcare. Also of note, communication methods such as a teletypewriter or relay machine are seldom utilized, largely due to the fact that doing so would take up 'too much' of the physician's time (Lezzoni, O'Day, Killeen, & Harker, 2004). McCullagh and Frank (2013) also reported that many Deaf/HOH patients expressed the hardship of locating care providers who are willing to take on a Deaf patient. These factors all contribute to the formation of a large healthcare disparity among the deaf and hard of hearing.

In Summary: Deaf Patient's Reported Healthcare Experiences

Visiting a healthcare professional can provoke such anxiety, fear, and confusion that far too many hearing impaired patients simply avoid healthcare altogether. According to the Medical Access subcommittee (2012), patients with hearing loss experience higher rates of hospital readmission, increased lengths of stay, unnecessary diagnostic tests, poor healthcare satisfaction, decreased health outcomes, and fewer follow-up appointments. This population is more likely to visit an emergency room or

urgent care in order to get the care they need (Lezzoni, O'Day, Killeen, & Harker, 2004). They are less likely to understand their conditions, therefore hindering them from properly adhering to treatments and medications, which only worsens their condition.

The Case for Deafness as a Health Disparity

Health disparities of many different forms exist in every area of healthcare. A health disparity can be described as an unfair treatment or some form of dissimilarity in the continuity of care toward members of a certain group of people, often those with disabilities, therefore they are not able to maintain or take advantage of the same health status as other people. Health disparities are present in various forms – mistreatment towards those that are a different race, ethnicity or religion, or towards those that are mentally incapacitated. The lack of quality care is not always intentional, and it even more often goes unnoticed by healthcare professionals. A group of people that markedly experience adverse effects of a health disparities are members of the deaf/Deaf community.

Health Disparities and Disabilities

The link between health disparities and disabilities is continually a noticeable and strong one. It has been previously discussed that people with disabilities, among those being the deaf population, run a high risk of adverse health afflictions. An article by Drum, Krahn, Culley, and Hammond (2005) states that people who have either physical or cognitive disabilities experience greater reduced health than the general population, as well as earlier death ages, increased chronic conditions/illnesses, and even secondary conditions that are most often preventable. To further iterate previous research, this source also states that disabled people are still less likely to take advantage of healthcare

services than the non-disabled population due to the difficulty in finding a healthcare service that can meet their needs, as well as getting to such a location, and finally paying for the services. These factors can lead to a large population suffering from health disparities. Such factors can lead the deaf population into having reduced health status as well as a lack of access to proper and adequate healthcare services, which further builds into an unnecessary health disparity.

Health Inequities for the Deaf/HOH

According to the Centers for Disease Control and Prevention (Schoenborn & Heyman, 2008), there are particular reasons as to why the deaf and HOH population is increasingly experiencing inequities in not only healthcare, but general health as well. They report that adults who were deaf or profoundly HOH, were nearly three times as likely to be considered to be in fair or poor health, as well as experience difficulty with physical activity and functions, including walking, reaching for items and bending down. Furthermore, the same adults were also almost four times more likely to suffer from severe psychological distress. Surprisingly, diabetes and hypertension were also more predominant among the deaf and HOH compared to the hearing population. It is stated that these imbalances of care are most noticeable in deaf/HOH people who rely on the use ASL to communicate. For people who communicate using ASL, that is often their first language. Barnett, McKee, Smith, and Pearson (2011) explain that for Deaf people, learning English is a challenge, and even when they do know English, their literacy level can be quite low. This also causes deaf people to be ignored when surveys are being taken, because most of them cannot read and write well enough to complete the survey. Many deaf patients who have been deaf since birth or early childhood read at low literacy

levels, therefore comprehending the health information presented even less. Deaf people are often unaware of family health histories or past diseases because they cannot hear their family members discussing such issues. This presents many issues, with a major concern being that without family history, chronic illnesses may be overlooked, which can quickly lead to severe health concerns for the deaf patient. This can contribute to lack of preventative care, late diagnosis, and poorer health outcomes.

Due to their low literacy levels (both general and health), deaf people cannot understand the majority of health terminology, which is often used when asking for symptoms or side effects, as well as diagnosing illnesses (Barnett et al., 2011). The deficiency of knowledge of what can be said to be common healthcare terminology can lead to a lack of care for deaf populations, further enabling the health disparity of deafness. Those in the deaf/HOH population are already less likely to have visited a physician in their lifetime compared to the hearing population (Barnett et al., 2011). Part of this is due to the deaf community feeling displeased with their patient-physician communication. They will often seek emergency care as opposed to regular care by a physician. Physicians have stated that they believe caring for deaf patients takes more time and effort than the general patient population (Barnett et al., 2011). Doctors are also upset that interpreter services are often unavailable in their practice, so they must take time to find an interpreter for the patient, and such services are often not reimbursed by insurance, which costs the practice money. These language and communication barriers can lead to the occurrence of common illnesses/injuries that are oftentimes preventable. Deaf/HOH healthcare patients are at a high risk for lower healthcare status, health discriminations, and lack of healthcare knowledge due to their inequality in access to

healthcare, comprehensible healthcare information and instruction, and financial resources. These factors come together to form a disastrous health disparity for deaf individuals.

Barnett et al. (2011) make it clear that people with disabilities are at a high risk for being neglected relative to healthcare. While deaf individuals often do not consider themselves to be disabled, health professionals often consider them as such because they are lacking in one of the five senses used for normal functioning. Continually, in 2015, Krahn, Walker, and Correa-De-Araujo identified that disabled people (including the deaf) are four times more likely to self-report that their health as fair or poor as opposed to their non-disabled counterparts. Disabling conditions can be present at birth or acquired throughout a lifetime. This is also true for deafness. At what time in life a person becomes deaf affects the outcome of their health services and how they communicate with health professionals. Individuals with disabilities are a unique and diverse group of people who each have their own experiences of life with their disability. Due to the shared condition among this group, these individuals frequently experience segregation from other communities, including healthcare settings, which can further lead to an increase in the incidence of health disparities. As previously stated, people who experience some sort of disability, including the deaf, are less likely to seek necessary healthcare resources because of cost for them. The authors continue on to say that people categorized as having disabilities are nearly 25% less likely to be covered by private insurance companies when compared to the majority of the non-disabled population that is covered by private insurance. Conclusively, the disabled population, including the deaf, are far more likely to suffer from health disparities for numerous reasons.

In Summary: Hearing Loss as a Health Disparity

Many factors previously discussed contribute to putting those within the deaf or hard of hearing population at risk for poor health outcomes. As discussed throughout this paper, effective communication is crucial in healthcare, therefore the presence of language barriers is likely to lead to adverse effects. The struggle between a hearing clinician and a Deaf patient results in decreased patient understanding of their disease process, which only leads to poor disease diagnosis and management. When the Deaf/HOH patient hardly comprehends their condition, they are unable to properly adhere to the prescribed treatment. The lack of knowledge for the Deaf patient results in more frequent emergency room/urgent care visits than their hearing counterparts. When communication is ineffective, the Deaf/HOH suffer the consequences. In addition to the literature discussed above, primary investigation was done to hear first-hand the healthcare experiences of those in the Deaf/HOH community.

Original Data Collection

For this primary data collection, four participants willingly agreed to be interviewed about either their knowledge of hearing loss in healthcare, or their own personal experiences as individuals with hearing loss interacting with healthcare professionals. Two participants are licensed American Sign Language Interpreters, one participant is medically and culturally Deaf, and the other participant is Hard of Hearing. Questions were based on who the participant was, as well as their knowledge on the subject. The following is a summary of the key findings from the interviews.

Availability of American Sign Language Interpreters

A serious issue among the Deaf and Hard of Hearing patient population is the availability of ASL interpreters. A large portion of these individuals choose to communicate through ASL as opposed to speaking English. Therefore, if they do decide to pursue learning English, they are learning a second language. The grammar structure between ASL and English is very different, although one may not realize. Furthermore, people who communicate using ASL often have low literacy rates, due to the differences in grammar and sentence structure between ASL and English. Due to the fact that English is often their second language, if they learn it at all, they are often hindered in their ability to read. Study Participant 3 (P3) explained the importance of using ASL in healthcare settings among the Deaf and HOH. P3 said that access to interpreters in healthcare is crucial because ASL is the patient's language; they need to know what is happening to their body and what is happening around them. P3 makes the point that no person should have to sit in silence and confusion with so many things happening around them. An ASL interpreter allows the patient to understand what is happening to them and what is being discussed. They also make the important part that even though the Deaf/HOH patient may be confused, that they deserve to hear the medical jargon from their healthcare providers. They ought to be allowed to ask questions and clarify, just as hearing patients do. P3 states that, "Deaf people have a right to hear that jargon, to be confused, and to say they don't understand and ask for it to be explained in a different way".

Moreover, a common misconception is that people often assume that the Deaf and HOH can read lips. Lip reading is extremely difficult, and the level of lip reading comprehension is very, very low. As stated in an interview when questioned on the

barriers of effective communication between the hearing and those with hearing loss, a licensed ASL interpreter, Participant 1 (P1) said, “Stop assuming everyone can lip read. Lip reading is hard. It’s a huge struggle in general, not everybody can do it. Even the best lip readers, it’s only 20% comprehension at best, and while writing back and forth can be helpful, sign language is not English. And that means English is their second language, and not everybody can read”. When asked the same question, another interpreter, P3 mentioned the lengthy process of becoming an ASL interpreter. Testing can take upwards of six months to complete, and it is not uncommon for people to fail their first test. This only decreases the amount of available medical interpreters for Deaf and HOH patients. Yet even when ASL interpreters are available, their services are not often offered. Participant 4 (P4) is HOH and uses a combination of spoken language and ASL to communicate. P4 mentioned their experience in healthcare settings when questioned on the availability of ASL interpreters. They said that out all of the time they’ve seen a healthcare professional, which is more than the average person, they have only been offered an ASL interpreter once, at her university’s sports trainer’s office. P4 strongly believes that an ASL interpreter should be available to Deaf and HOH patients who need that service. They feel that the presence of an interpreter could reduce levels of anxiety, frustration, and anger in Deaf/HOH patients, since they will have a better understanding of what is happening. It is crucial to understand that just as another other foreign language speaker in a healthcare setting, the Deaf and HOH are in desperate need of interpreters in order to receive optimal healthcare.

Implementation of Language Resources

The availability and use of ASL interpreters during encounters with Deaf/HOH patients is crucial. However, the suggestion and the implementation of such a practice are extremely different. There are several barriers that currently prevent this population from maximizing the use of such a vital resource. An enormous unforeseen issue when interpreters are used is that the interpreter is spoken to, rather than the patient themselves. The interpreter is viewed as the individual in charge of the conversation, and that they control what will be discussed. Later on during their interview, P2 stated that they are spoken to as if they have authority over the patient. Questions are often directed towards them, and some providers even go as far as handing the interpreter the prescription, or asking the interpreter to schedule a follow-up appointment for the patient. P4 also commented on this issue. They said that they get frustrated with their healthcare providers who do not give them time to speak for themselves. P4 is HOH, and able to speak English, but it takes more time for effective communication to occur. They ask that healthcare providers simply give their Deaf/HOH patients more time and patience, and accept that these interactions will take longer than normal. These unfortunate circumstances occur because of the assumption that because the Deaf/HOH patient has difficulty communicating for themselves, they are incompetent and unable to take care of themselves. However, there are times when the interpreter is the one hindering the flow of communication, because instead of giving P4 a chance to verbally communicate her thoughts, the interpreter will continue voicing for the HOH client. P4 stated, "I don't want an interpreter going, 'they said this, this, this and this'. No, I can talk!" If such problems exist when an interpreter is used in healthcare encounters, the question begging

to be asked remains, what are the concerns with obtaining an interpreter in the first place? This question was prompted in a separate interview with a culturally Deaf individual, Participant 2 (P2), with the complete inability to hear. When asked what troubles they have experienced in the past, they quickly stated several issues they have personally dealt with.

To obtain an interpreter at a simple check-up is a difficult process in and of itself. First, the Deaf patient must contact their healthcare provider and discuss possible appointment times. Next, the patient must contact a medically certified ASL interpreter and obtain their times of availability. Then, the patient themselves must take the two schedules and compare them with their own, and hopefully find a common time among the three individuals. Such a process can take days, and oftentimes both the interpreter's and doctor's schedules are made weeks if not months in advance. Thus, oftentimes each schedule does not coordinate with the others, leading to a delay in care. Additionally, Deaf and HOH patients can actually be denied an interpreter during their appointment. P2 stated several reasons why they were denied an interpreter. The most common reason is due to cost. Healthcare facilities neglect obtaining interpreters because they are found to be too expensive to bring in. P2 was also told they were denied an interpreter because using ASL would disturb and bother the other patients, due to its gestures and movements. They have also been told an interpreter was simply not able to be found or one was not available. They also stated that some healthcare facilities report concerns with patient confidentiality and HIPAA violations when using an interpreter, since sensitive medical information is shared with an otherwise uninvolved party. Irrefutably, for each reason for denial, there exists a possible solution. In order to prevent further

incidents of healthcare disparities among the Deaf and HOH population, each solution ought to be implemented in order to ensure optimal healthcare for patients with hearing loss.

Implications for Practice

Hearing loss is a common occurrence in the general population, albeit an under-recognized one. Unfortunately, through literature review and original research, it has come to light that a particular cultural population is repeatedly put at a disadvantage in the healthcare system – the Deaf and the Hard of Hearing (HOH). Individuals with varying degrees of hearing loss are often mistreated in the healthcare system, potentially leading to health disparities among them. This paper reviewed data collected from original research and literature to assess for a connecting between the Deaf/HOH population and the prevalence of healthcare disparities. Furthermore, the suggestions and recommendations provided from research participants will be presented. Such propositions will be further analyzed and formed into plans for future implementation, to be used by healthcare professionals, namely nurses. The final aspect of this paper will discuss how changing current nursing practices to fit the needs of patients with hearing loss lowers the prevalence of hearing loss related healthcare disparities.

After the concerns among those with hearing loss are brought to light, the next, and arguably more important step, is to offer suggestions and recommendations to healthcare professionals from those that are suffering the consequences. Each interview conducted, with Participants 1, 2, 3, and 4, ended with the same two questions: if they could, what would they change about the healthcare system in regards to communication with their Deaf/HOH patients, and what suggestions do they have to offer healthcare

professionals about caring for the Deaf/HOH? P1 strongly voiced the importance of education. They pushed for healthcare workers to be taught what interpreters are, what they do, how they become licensed, and what their role as an interpreter is in a healthcare setting. P1 once again stressed that as an interpreter, they are not a replacement voice for the patient – they simply audibly say what the Deaf/HOH patient is signing. Interpreters are for communication only. P3, another ASL interpreter, suggested that hospitals should have an interpreter on staff at all times. Understanding that such a request is not very plausible, they go on to suggest a more realistic plan of action. P3 believes hospitals and medical centers should have four to five licensed ASL interpreters on contract with the facility, stating that if they are called, they must come in and interpret. They would only get paid when they are working, but they are making a commitment and guaranteeing that they will come to the Deaf/HOH person's aide. If the first interpreter is not available, the facility can call the second, then the third, and so on. P3 says this is a way for Deaf and HOH patients to have access to the interpreters they need without asking too much of the healthcare system.

P1 went on to state the belief that just a small amount of education can greatly improve advocacy for patients with hearing loss, allowing them to take initiative over their own health and well-being. P3 expands on this idea. Educating the healthcare professionals working with Deaf/HOH patients can greatly increase the quality of healthcare they receive. It is important to understand that providing care for these patients is different than for hearing patients. Deaf/HOH patients will need to be tapped on the shoulder in order to get their attention. On the other side, the patient with hearing loss may bang on their table, or flicker the lights to get the attention of their care providers. It

is not their intention to be rude when doing so, it is simply how they are able to quickly communicate with the hearing world around them. P3 continues on by saying that healthcare providers need to be educated on the fact that there exists a large variety of Deafness and hearing loss. Some affected people read lips, or use hearing aids, while others communicate through ASL. Healthcare providers also need to be educated on what exactly ASL is, and what role an interpreter serves in the healthcare setting. A basic understanding of Deafness and hearing loss can expand the quality of healthcare for these patients.

P4 responded to this question by stating how important it is for the doctors and nurses to be calm and gentle when caring for their Deaf/HOH patients. Oftentimes the miscommunication leads to frustration, anger, anxiety, and a sense of being overwhelmed. As with any patient in healthcare, being in an unfamiliar environment during an unfamiliar situation can lead to fear. P4 made it clear that having calm nurses, in particular, can truly make all the difference. Maintaining neutral face expressions, although difficult, can lead to a sense of peace for the patient. Deaf/HOH people generally pick up on facial expressions and body language cues more frequently than hearing people, so they are quick to recognize the look of confusion or nervousness on their nurse's face. In conjunction to keeping neutral body language, P4 also said how helpful it has been for them when the nurses look at P4 when they talk. Because P4 relies on lip reading, they are not able to comprehend the situation well without an interpreter is they cannot see the nurse's mouth moving. Moreover, P4 made it clear that when HOH patients ask for their providers to face them for this reason that it is to be respected. Doctors and nurses are often in such a rush, they ignore the request to face the patient

because it takes more time. P4 encourages healthcare providers to accommodate their care to fit the needs of their Deaf/HOH patients.

Both P1 and P3, as interpreters, ask for respect towards them. They are not there to get in the way or cause problems, they are there to do their job, which is facilitate communication. Similarly, P3 makes the point of saying that healthcare providers should not treat their Deaf/HOH patients as an annoyance simply due to their hearing loss. They are people too, they only require more time and attention. P3 encourages healthcare providers to slow down and be patient with those with hearing loss. P3 suggests saying to the patient something along the lines of, "I understand, we're trying to get an interpreter for you. I understand you need that and I want to help you. I'll slow down". By doing so, P3 believes that Deaf/HOH patients will in turn be more willing to try and communicate in other ways until an interpreter arrives. If they are literate, the patient and healthcare provider could exchange notes through writing. The interview with P1 ends with two more pieces of advice. They reiterate the fact that lip reading is incredibly difficult, and a skill very few people possess. They go onto say that the best possible thing to do for their patient with hearing loss is to provide them with an interpreter. While the language barrier certainly presents more obstacles for all involved, it does not make communication impossible. They support their statement by saying that although the two parties speak different languages, it does not make the Deaf/HOH person helpless or unable to care for themselves. It also does not mean that the patient has any mental or physical disabilities. Aside from not being able to hear or speak, patients with hearing loss are the same as any other patient, and deserve to be treated as such.

As for P2, who has personally experienced hardships during their healthcare encounters as a Deaf patient, they offer a unique perspective of solutions into the challenges they face. They begin by suggesting that each individual state have its own set of medical interpreters that are readily available to use, such as in an agency. They go on to further explain that these state interpreters should be licensed as medical interpreters only, so they are able to go to hospitals, clinics, therapy centers, etc. whenever they are needed. Such interpreters would be located near large medical facilities, as well as spread throughout the state. P2 believes that this would offer opportunities for more prompt and effective medical care for Deaf/HOH patients at any moment. They continue on to stress the most important solution of them all: to have an interpreter available, and provide each patient with an interpreter when needed. P2 realizes that this is not always possible, so they go on to suggest that other methods of interpreting, such as Video Relay Imaging (VRI) be implemented into healthcare settings.

To explain, VRI is a type of phone service with two methods of communication – a regular phone for those that hear and speak, and a screen/camera for those that sign. When a VRI machine is activated, it connects to a licensed ASL interpreter, who is seen on screen. The person communicating through ASL is able to view the interpreter, who is signing what is being said. The Deaf/HOH patient is then able to sign into the camera, and the interpreter voices what it being said. Through VRI, medical professionals and patients with hearing loss are able to communicate without the need for a live interpreter.

In lieu of using VRI, P4 suggested that healthcare providers utilize pictures to communicate with their patients. Pictures are a universal method of communication, and can at least offer a basic interaction between the Deaf/HOH patient and the caregiver. An

example that is already in use in healthcare settings in the FACE scale. It is often used with children. The child is asked to point to a face that they feel like – smiling, neutral, crying, etc. Further developments of similar instruments could allow for a small amount of communication to take place before an interpreter arrives. P4 suggested that these pictures include topics such as pain, including level and location of pain and what the nurse/doctor will be doing, such as inserting an IV or taking a temperature. These are the basic questions every patient is asked during their healthcare interactions, therefore having pictures of these could facilitate more effective communication. Finally, P2 and P4 both conclude their recommendations by asking healthcare professionals to learn very basic ASL. Signs such as, ‘yes’, ‘no’, ‘help’, ‘better’, ‘feel’, ‘hurt/pain’, and ‘how’ would greatly improve immediate communication between all involved. P4 mentions the alphabet in ASL, which could be used to fingerspell words rather than sign them. Although that would prove to be a tedious task, it still takes the communication further than it usually would go. These skills could prove to be especially helpful in an emergency when an interpreter may not be available at a moment’s notice. P2 and P4 are not asking healthcare providers to become proficient in ASL, but teaching basic signs such as those listed above takes only moments and may provide the patient in need with life-saving care. It also makes it known to the patient that their nurse or doctor is attempting to communicate in a way that is familiar to them. Once the patient realizes their healthcare provider is actually trying to effectively communicate with them, the patient will be more likely to stay calm, not get frustrated, or even delay seeking care. Each interviewee provided very possible solutions that can easily begin to be

implemented among the healthcare community in order to bridge the gap between patients with hearing loss and exceptional healthcare.

Nurses as patient advocates. Providing excellent nursing care is the goal of each and every practicing nurse, and nurses are always seeking methods to improve their quality of care. Each of the aforementioned solutions can apply to nursing care, and each has the possibility of being implemented into practice. Nurses are their patient's biggest advocates, therefore nurses ought to be the ones at the patient's bedside, requesting an interpreter in order to provide optimal care. Due to their close relationship with their patients, nurses quickly build rapport and trust with each patient, and each patient is entrusting their life in their nurse's hands. Thus, each nurse is called to insist on obtaining whatever means possible to increase their level of patient care, which can be easily done through the use of an interpreter.

Nurses are taught to also be educators. By first learning about hearing loss, sign language, and the role of interpreters, nurses can provide education for not only other nurses, but for all other medical professionals. Nurses are in constant communication with physicians, so just a bit of education can go a long way towards improving patient health and well-being. Learning how to best facilitate communication, understanding patient rights, and methods of accommodation would aid significantly in decreasing the incident rate of health disparities among the Deaf and HOH. Furthermore, nurses can easily be taught basic ASL, as discussed previously. Each nurse is required to continue their education throughout their practice, therefore exposure to basic ASL would not be difficult to obtain. Just a small amount of teaching can allow nurses to vastly improve their quality of bedside nursing care. Lastly, nurses are taught the importance of empathy,

kindness, and thoughtfulness all throughout their education and practice. At any moment a nurse can become the care provider of a Deaf or HOH patient, and nurses are expected to care for each patient's unique needs. Patients with hearing loss deserve the same quality of care as any other patient, even if extra steps must be taken to do so. These patients deserve respect, attention, and patience from their nurses, not frustration and maladaptive behavior. Implementing small changes in nursing practice ensures the best possible care for these patients, which aids in decreasing the rate of health disparities among them.

Study Limitations

The small number of participants is an important limitation. While appropriate for this work, there are many other factors that could be considered within sampling that could impact the results. Greater diversity by age, race, gender, economic status, co-morbid conditions/health history, or geographic areas are just some examples of factors that may impact the breadth of results. Toward this end the topic of saturation is discussed and debated in qualitative methodologies (Munhall, 2012). Ideally, for the achievement of saturation, sampling (and interviewing per this study's methods) in qualitative research continues until no new information is brought forth from the interviews of additional subjects. Additionally, when using interviews the participant's recall ability as related to past events can be a limitation. Depending on the duration since the event being recalled, content may be forgotten. Additionally in this regard, recall can be influenced such that some events are particularly salient and influential for the participant and thereby well remembered, while other events deemed less memorable are forgotten. The participant interviews were very informative for this study, but are

methodologically a limitation for the study results. While qualitative work gives depth of meaning for the lived phenomena in people's lives and is intentionally subjective, such findings are not considered generalizable to larger populations (Schmidt & Brown, 2012). It is rewarding that the results of this study were largely in alignment with the quantitative results reported by Crowe (2017).

Proposed Solutions to Eliminating Hearing Loss as a Health Disparity

Though hearing impaired patients continue to report their negative experiences in healthcare, many issues have potential to be resolved with little changes in healthcare practice. Although deafness in healthcare is largely misunderstood, there are several suggested resolutions for this issue. First and foremost is an increase in access to healthcare services for the deaf and hard of hearing. Authors Krahn et al. (2015) and Barnett et al. (2011) agree with the statement that improving access to healthcare is the first step in the reduction of health disparities for the Deaf/HOH. Healthcare service offices must be available for the deaf/HOH population to use before other progress can be made. This process can include opening new offices in areas with a high concentration of deaf/HOH communities, or simply making transportation more available to the individuals that need it. Next, further data needs to be collected concerning the deaf/HOH patient population. Little is known about them since traditional survey methods are often unusable to them, therefore effort must be made to obtain information about them. This can be done by offering surveys to be filled out using ASL, since that is the primary language for nearly all deaf individuals. After adapting the surveys to include the deaf population as well as the general population, further recruitment strategies needs to be employed in order for the surveys to reach their intended group of people. Consent also

needs to be given from the deaf individuals to ensure that the surveys taken are viable for data usage and statistics. Once the data is collected, it can be used to implement new policies and procedures that will increase the quality of care provided to deaf/HOH patients.

Another vital component of improving the healthcare of deaf patients is increasing the availability of ASL interpreters fluent in healthcare terminology. This serves multiple purposes. It will encourage the deaf/HOH patients to come to their physician's offices since there will be someone available to interpret between them and the physician. This will affirm that there is proper and effective communication available to those patients who require such services. That will lead the deaf/HOH population to see routine preventative and maintenance healthcare, as opposed to only emergency care. The National Association of the Deaf (2014) is confident that these actions can lead to the elimination of deafness as a health disparity, therefore increasing the overall health and wellness of those individuals. Another proposed solution to this dilemma is the recognition and implementation of relevant federal laws. Federal laws state that there must be sufficient language assistance access to all patients in healthcare setting whose first language is not English. Furthermore, federal law requires that there must be equal access to all healthcare providers for all individuals. Lastly, federal law mandates that there must be equal access to all healthcare services for patients who receive financial assistance from the government. In the previously mentioned article by Barnett et al. (2011), the authors list a final proposition for eliminating deafness as a health disparity is to include deaf sign language users in healthcare settings. This includes them participating in public health, as well as becoming healthcare professionals. As for their

involvement in public health, the deaf individuals could add unique content of their own experiences to public health information, and could even teach students involved in public health about life in the deaf community. As for working as healthcare professionals, deaf sign language users could be extremely useful. They are a minority, therefore they are valuable to healthcare services. In order to achieve this, the deaf students must have the same access to healthcare curriculum that hearing students have. ASL interpreters can be used for educational purposes while the deaf student is in school. Once the deaf students have completed school, they can be used in various settings. They can once again be used in a public health settings, working as informants and advocates for the deaf population. They can also work in research settings so that more information and data on the deaf/HOH community can be obtained. Additionally, with some effort and persistence, deaf individuals can even become doctors, nurses and technicians in healthcare settings. There are many suggested solutions that could help eliminate deafness as a health disparity, and many of them are tangible and plausible. These ideas can be planned and implemented, therefore improving the lives of the deaf and hard of hearing patient population.

It can be said without argument that deafness results in a major health disparity, yet one that can be so easily prevented. Deaf individuals are frequently neglected by healthcare professionals in settings where they are to be assisted and taken care of. Unfortunately, varying factors lead into the formation of deafness as a health disparity. Lack of access to quality care, lack of resources and money, lack of consideration from health professionals and lack of available education and informational services are only some of the elements that make up this health disparity. However, there are solutions to

these issues. Many proposed solutions have been explained, including increasing ASL interpreter availability in healthcare settings, obtaining further data on deaf communities, and even allowing deaf individuals to become healthcare professionals. Healthcare disparities are unacceptable and reversible. Effort can be made to reduce deafness as a healthcare disparity, but healthcare professionals and the general population must be willing to make the effort to do so. Deaf and hard of hearing people do not have to continue to suffer in silence.

Conclusion

There are several barriers that currently exist in the healthcare system that perpetuate the prevalence of health disparities among the Deaf and Hard of Hearing. Further research, recommendations and suggestions can be brought together to allow for future implementation. The frequency of health disparities among the Deaf and Hard of Hearing population continues to grow, thus direct action must be taken immediately. Although it may go unrealized, the Deaf and Hard of Hearing make up a unique cultural population that deserves the same competence implemented with other cultures. The healthcare system needs to be adjusted to accommodate for this large population of patients, before any more of them are harmed, traumatized, or fearful of the providers that have taken an oath to care for them.

References

- Barnett, S., McKee, M., Smith, S. R., & Pearson, T. A. (2011). Deaf sign language users, health inequities, and public health: Opportunity for social justice. *Preventing Chronic Disease*, 8(2), 45. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3073438/>
- Belden, J., DeFriez, C., & Huether, S. (2012). Pain, temperature, sleep, and sensory function. In S. Huether & K. McCance (5th Ed.), *Understanding pathophysiology* (pp. 338-340). St. Louis, MO: Mosby
- Berger, K. (2014). *The developing person through the life span* (9th Ed.). New York, NY: Worth
- Callis, L. (2013). Raising a Deaf Child. *LC Interpreting Services*. Retrieved from <http://www.signlanguagenyc.com/raising-a-deaf-child/>
- Chadha, S. and Stevens, G. (2013). Editorial: Promoting ear and hearing care: The WHO perspective. *Hearing Journal*, 66(9), 2. doi: 10.1097/0.IHJ.00004626.62138.81
- Commonwealth of Massachusetts Executive Office of Health and Human Services. (2015). *Understanding Deaf culture*. Retrieved from <http://www.mass.gov/eohhs/gov/departments/mcdhh/culturally-deaf/understanding-deaf-culture.html>
- Crowe, T. (2017). Helping-seeking behaviors among urban deaf and hard-of-hearing adults. *Urban Social Work*, 1(2), 117-129. doi: 10.1891/2474-8684.1.2.117
- Deaf Child Worldwide. (2017). *Types of deafness*. Retrieved from http://www.deafchildworldwide.info/childhood_deafness/types_of.html

- Drum, C. E., Krahn, G., Culley, C., & Hammond, L. (2005). Recognizing and responding to the health disparities of people with disabilities. *Californian Journal of Health Promotion, 3*(3), 29-42. doi: 10.1.1.452.8359
- Fausti, S. A., Wilmington, D. J., Helt, P. V., Helt, W. J. & Konrad-Martin, D. (2005). Hearing health and care: The need for improved hearing loss prevention and hearing conservation practices. *Journal of rehabilitation research and development, 42*(4), 45-62. doi: 10.1682/JRRD.2005.02.0039
- Hearing Loss Association of America. (2005). *Basic facts about hearing loss*. Retrieved from <http://www.hearingloss.org/content/basic-facts-about-hearing-loss>
- Hear-it. (2016). *Definition of hearing loss*. Retrieved from <http://www.hear-it.org/Defining-hearing-loss>
- Krahn, G. L., Walker, D. K., & Correa-De-Araujo, R. (2015). Persons with disabilities as an unrecognized health disparity population. *American Journal of Public Health, 105*(2), 198-206. doi: 10.2150/AJPH.2014.302182
- Lezzoni, L. L., O'Day, B. L., Killeen, M., & Harker, H. (2004). Communicating about health care: Observations from persons who are deaf or hard of hearing. *Annals of Internal Medicine, 140*(5), 68-75. doi: 10.7326/0003-4819-140-5-200403020-00011
- McCullagh, M. C., & Frank, K. (2013). Addressing adult hearing loss in primary care. *Journal of Advanced Nursing, 69*(4), 896-904. doi: 10.1111/j.1365-2648.2012.06078.x
- Medical Access subcommittee of the National Association of the Deaf Civil Rights subcommittee. (2012). Position statement on health care access for deaf patients.

National Association of the Deaf. Retrieved from: <http://nad.org/issues/health-care/position-statement-health-care-access-deaf-patients>

Munhall, P. (2012). *Nursing research: A qualitative perspective* (5th Ed.). Sudbury, MA: Jones & Bartlett Publishers.

National Association of the Deaf. (2014). Position statement on early cognitive and language development and education in deaf and hard of hearing children.

National Association of the Deaf. Retrieved from <http://nad.org/position-statement-early-cognitive-and-language-development-and-education-dhh-children>

Pereira, P. C. A, & Fortes, P. A. C. (2010). Communication and information barriers to health assistance for deaf patients. *American Annals of the Deaf*, 155(1), 31-37. doi: 10.1353/aad.0.0128

Richardson, K. J. (2014). Deaf culture: Competencies and best practices. *The Nurse Practitioner*, 39(5). 20-28. doi: 10.1097.01.NPR.0000445956.21045.c4\

Saunders, J. E., Molter, D. W., Barrs, D. W. & Barrera, J. E. (2007). *Official journal of the American academy of otolaryngology-head and neck surgery foundation*, 137(2), 82. doi: 10.1016/j.otohns.2007.06.151

Schmidt, N.A. & Brown, J.M. (2012). *Evidence-based practice for nurses: Appraisal and application of research* (2nd ed.). Sudbury, MA: Jones & Barlett Learning.

Schoenborn, C., & Heyman, K. (2008). Health disparities among adults with hearing loss: United States, 2000-2006. *NCHS Health and Stats*. Retrieved from <https://www.cdc.gov/nchs/data/hestat/hearing00-06/hearing00-06.pdf>

- Sheppard, K. (2014). Deaf adults and health care: Giving voice to their stories. *Journal of the American Association of Nurse Practitioners*, 26(9), 504-510. doi: 10.1002/2327-6924.12087
- UCL Deafness Cognition and Language Research Centre. (2013). *Deaf children and development*. Retrieved from <http://www.ucl.ac.uk/dcal/dcal-news/story9>
- Van Cleve, J. V. (2009). Deaf (Deaf). *Encyclopedia of American Disability History*. 232-236. Retrieved from http://go.galegroup.com/ps/i.do?id=GALE%7CCX1698300190&v=2.1&u=lom_emichu&it=r&p=GVRL&sw=w&asid=bd134a4c5bc555988563fe43a7e3ab5a
- Wie, O. B., Pripp, A. H., & Tvette, O. (2010). Unilateral deafness in adults: Effects on communication and social interaction. *The Annals of Otolaryngology, Rhinology & Laryngology*, 119(11), 772-782. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/21140638>
- World Health Organization. (2014). Deafness and hearing loss. *World Health Organization*. Retrieved from <http://www.who.int/mediacentre/factsheets/fs300/en/>