

# **African Americans and Audiological Issues**

**Alissa Wallace, AuD student  
University of Colorado, Boulder  
Department of Speech, Language & Hearing Sciences  
May, 2008**

## **Demographic Information**

- In 2000, there were about 35 million African Americans in the U.S., accounting for 12.3% of the total U.S. population (U.S. Census Bureau, 2001).
- 97% of African Americans were born in America as descendants of people that were in slavery, the remaining 3% are immigrants from Africa or the Caribbean (Willis, 2004).
- The majority of African Americans live in the South (54.8%) while the fewest live in the West (8.9%) (U.S. Census Bureau, 2001).
- Almost twice as many African Americans are unemployed and live below the poverty level compared to the general population. In 2000, 24.9% of African Americans were at the poverty level compared to 12.9% of the overall U.S. population. African Americans had a 6.9% unemployment rate in 2000 compared to 3.7% of the total U.S. population (Bishaw & Iceland, 2003, and Clark & Weismantle, 2003).
- The highest level of education completed for African Americans in 2000 included: 72.3% high school, 42.5% some college or more, 14.3% Bachelor's degree or more, 4.8% advanced degree. Educational attainment of high school through bachelor's degree is about 10% lower than the overall U.S. population, while advanced degree is about 50% lower than the total U.S. population (Baughman & Graf, 2003).
- The highest level of education completed for elderly African Americans (age 60 and older) is lower than for the general African American population. 32% have completed less than junior high, 43% have completed high school, 17% have completed college, and 7% have a postgraduate degree (Pugh & Crandell, 2002).
- African Americans have a high rate of infant mortality (14.6 per 1,000 births in 1999 compared to 5.8 per 1,000 Caucasian births) (U.S. Department of Health and Human Services, 2002).
- African Americans have a higher rate of premature births and low birth weight than the general population, which increases the risk of hearing loss (Scott, 2005).

# Hearing Loss Prevalence

- Approximately 2 million African Americans have a serious enough hearing loss to need medical and educational attention. Of these 2 million, approximately 22,000 are estimated to be profoundly deaf (Hairston & Smith, 1983).
- The prevalence of hearing loss in African American children ages 6-19 is estimated at 17 in 1,000 (Lee, Gomez-Marin, & Lee, 1996).
- The prevalence of moderate or greater hearing loss is about twice as high for African Americans compared to Caucasians (7.6 per 1,000 and 3.7 per 1,000, respectively) (Lee, Gomez-Marin, & Lee, 1996).
- The 2006-2007 Annual Survey of Deaf and Hard of Hearing Youth reported that 15.1% of all deaf or hard of hearing youth were African American (Gallaudet Research Institute, 2007).
- The prevalence of hearing loss in elderly African Americans has been estimated at 26% (Bazargan, Baker, & Bazargan, 2001).

## Etiologies of Hearing Loss

- African Americans have a lower incidence of presbycusis, otosclerosis, and noise-induced hearing loss than Caucasians. African American children have the lowest rates of otitis media in the general population, regardless of SES (Van Keulen, Weddington, & DeBose, 1998).
  - *Elderly African Americans and Presbycusis:*
    - In a study of subjective well-being in elderly African Americans, 26.1% reported having fair or poor hearing. Of these, only 3.1% reported using hearing aids. Studies examining hearing aid use in elderly Americans in the general population of the United States, report that 10-21% of elderly Americans use hearing aids. Therefore, the African American elderly with hearing loss are much less likely to receive treatment for hearing loss. It is also important to note that subjective reports of impairment tend to be an underestimate of the true prevalence of impairment in a population (Bazargan, Baker, & Bazargan, 2001).
    - Elderly African Americans tend to underuse medical services in general, which is consistent with the low prevalence of hearing aid use in this population. Cost is the main reason given by elderly African Americans for not wearing hearing aids, followed by perceived stigma of wearing

hearing aids and a lack of knowledge about amplification (Bazargan, Baker, & Bazargan, 2001).

- Several subjective quality of life studies have demonstrated that untreated hearing loss has a negative impact on the quality of life for elderly African American people. Specifically, hearing impairment was found to significantly impact overall well-being, religious participation, social support, perceived cognitive deficit, daily activities, energy/vitality, perceived physical limitation, and mental health (primarily depression) (Bazargan, Baker, & Bazargan, 2001; Pugh, 1994; Marcus-Bernstein, 1986; Pugh & Crandell, 2002).
- Since hearing loss has been demonstrated to have a significant impact on quality of life for elderly African Americans, yet there are few that are receiving treatment for hearing loss, audiologists should strive to provide community outreach to this population. Providing free information about hearing loss, hearing screenings and referrals, and communication strategies may help to reduce the number of elderly African Americans that are not receiving audiological care.
- African Americans have a higher incidence of hearing loss related to sickle cell anemia and HIV/AIDS than Caucasians. Due the high number of African Americans living in poverty and lack of access to medical care, the incidence of hearing loss related to CMV and meningitis is also higher among African Americans (Scott, 2005).

- *Sickle Cell Anemia:*

- Sickle cell anemia is a genetic disorder that is characterized by abnormally shaped red blood cells (sickle cells). The sickle cells occlude the vascular system, creating a variety of associated problems, including organ damage (Burch-Sims & Matlock, 2005).
- Sickle cell anemia is the most common genetic disorder in the United States. 1 in 400 African Americans have sickle cell anemia; 1 in 10 African American carry the sickle cell trait (Burch-Sims & Matlock, 2005).
- A meta-analysis of studies examining hearing loss in patients with sickle cell anemia reported a prevalence of SNHL between 0 and 66% (Burch-Sims & Matlock, 2005; Schreiberstein, MacDonald, Cox, McMahon, & Bloom, 1997).
- Sickle cell anemia may produce sudden SNHL. The degree and pattern of hearing loss is variable, ranging from mild to moderate unilateral to profound bilateral and may affect only the high frequencies. The hearing loss can be temporary or permanent, depending on whether the cause is a

temporary blockage or a hemorrhage of the stria vascularis (Burch-Sims & Matlock, 2005).

- Not all African Americans with sickle cell anemia are aware that they have the disease, especially if they have a milder version. The audiologist should refer any African American patient with a sudden SNHL to a physician. An MRI is used to confirm vascular hemorrhage in the cochlear labyrinth (Schreibstein et al., 1997).

○ *HIV/AIDS:*

- In 2002, the CDC reported 886,575 cases of AIDS in the United States. Of these, 39% of patients were African American (Centers for Disease Control and Prevention, 2003).
- Several etiologies of hearing loss related to HIV/AIDS exist, including: chronic otitis media, cholesteatomas, Eustachian tube dysfunction, recurrent bacterial and viral infections of the ear, and sensorineural hearing loss (Madriz & Herrera, 1995).
- Abnormal P300 latencies have confirmed hearing loss due to central pathology in some cases, so the audiologist may want to add this test to the audiological assessment battery when testing a patient with HIV/AIDS (Madriz & Herrera, 1995).

## **Perspectives on Medical Care, Disability, and Hearing Loss**

- African Americans may prefer natural holistic treatments, such as herbal remedies, teas, mentholated petroleum jelly, dried fruit, roots, and vinegar as an alternative to traditional medicine. This is most common in the rural south (Willis, 2004).
  - The patient may prefer to try alternative remedies to “cure” the hearing loss instead of hearing aids and aural rehabilitation. The audiologist should counsel the patient about the benefits of hearing aids and rehabilitation. If the patient is insistent on trying the natural holistic treatments, he/she should be encouraged to try hearing aids and aural rehabilitation in combination with the holistic treatments.
- Many African Americans have inadequate access to medical care. Lack of money, lack of knowledge about health care and disease, and lack of motivational resources to seek treatment are the primary reasons. African Americans that lack the financial resources to seek health care are often more motivated to seek care for their children than themselves, even if they find the process of applying for outside assistance frustrating and offensive (Willis, 2004).

- African Americans' perspectives about disability are closely related to their religious beliefs. The majority of African Americans are Protestant Christian (80%); 55% of the Protestants are Baptists and 13% are Methodist (Willis, 2004).
  - Disability may be viewed as a punishment for disobeying God, work of the Devil or evil spirits, misfortune or bad luck, and “sins of the fathers” (Willis, 2004).
  - If a particular family member is blamed for the hearing loss, the audiologist may need to refer the family to counseling services.
  
- *Perspective on Deafness/Hearing Loss:*
  - Deaf African Americans are considered a minority within a minority (Hairston & Smith, 1983).
  - The majority of deaf African Americans identify with being African American first, Deaf second (Hairston & Smith, 1983).
  - Due to being a minority within a minority, the potential for isolation is very high in deaf and hard of hearing African American children. Therefore, it is important to find deaf and hard of hearing African American role-models for these children (Hairston & Smith, 1983).
  - The National Black Deaf Advocates (NBDA) organization provides support to African Americans who are deaf or hard of hearing, parents of deaf/hard of hearing African American children, and professionals that work with this population.

## **African American English (AAE)**

- AAE has been in the United States for over 400 years. AAE developed during the slavery period when slaves were not allowed to speak to each other in their native African language. Since African Americans were not allowed to use their native language, they instead chose to incorporate syntactical rules found in their native languages into English, thereby creating AAE (Willis, 2004).
- AAE is a dialect of Standard American English (SAE); therefore, AAE is considered a language difference, not a language disorder (Van Keulen, Weddington, DeBose, 1998).
- Primarily, African Americans with a lower SES speak AAE (Van Keulen, Weddington, & DeBose).

- However, a study examining lower and middle SES African American children found that 93.75% chose to speak AAE over SAE when asked to read a passage out loud (Craig, Thompson, Washington, & Potter, 2003).
- Many African Americans will code switch between AAE and SAE depending on the social context (Willis, 2004).
- Phonemic and morphosyntactical features of AAE that were observed in the Craig et al. (2003) study are presented below in tables 1 and 2.

Table 1. Phonemic features and examples of AAE (from Craig et al., 2003).

Definition	Example
<b>1. Postvocalic consonant reduction</b> Deletions of consonant singles following vowels	“mouth” /maY/ for /maYT/
<b>2. “g” dropping</b> Substitutions of /n/ for /N/ in final word positions	“waiting” /wetIn/ for /wetIN/
<b>3. Substitutions for /T/ and /Δ/</b> /t/ and /d/ substitute for /T/ and /Δ/ in prevocalic positions, /f/, /t/, and /v/ substitute for /T/ and /Δ/ in intervocalic positions and in postvocalic positions	“this” /dIs/ for /ΔIs/ “birthday” /bΦfde/ for /bΦTde/ “both,” “with” /bof/ for /boT/ , /wIt/ for /wIT/
<b>4. Devoicing final consonants</b> Voiceless consonants substitute for voiced following the vowel	“his” /hIs/ for /hIz/
<b>5. Consonant cluster reduction</b> Deletion of phonemes from consonant clusters	“world” /wΦl/ for /wΦld/
<b>6. Consonant cluster movement</b> Reversal of phonemes within a cluster, with or without consonant reduplication	“escape” /Ekskep/ for /Eskep/
<b>7. Syllable deletion</b> Reduction of an (unstressed) syllable in a multisyllabic word	“became” /kem/ for /bikem/
<b>8. Syllable addition</b> Addition of a syllable to a word, usually as a hypercorrection	“forests” /forIstsIz/ for /forIsts/
<b>9. Monophthongization of diphthongs</b> Neutralization of diphthong	“our” /ar/ for /aYr/

Table 2. Morphosyntactical features and examples of AAE (from Craig et al., 2003).

Definition	Example
<b>1. Ain't</b> <i>Ain't</i> used as a negative auxiliary in <i>have+not</i> , <i>do+not</i> , <i>are+not</i> , and <i>is+not</i> constructions	"you <u>ain't</u> know that?"
<b>2. Appositive pronoun</b> Both a pronoun and a noun, or two pronouns, used to signify the same referent	"and the other people <u>they</u> wasn't"
<b>3. Completive done</b> <i>Done</i> is used to emphasize a recently completed action	" <u>done</u> set the fire"
<b>4. Double marking</b> Multiple agreement markers for regular nouns and verbs, and hypercorrection of irregulars	"he <u>tries</u> to <u>kills</u> him" "two people <u>felled</u> "
<b>5. Double copula/auxiliary/modal</b>	"I'm <u>is</u> the boy"
<b>6. Existential it</b> <i>It</i> is used in place of <i>there</i> to indicate the existence of a referent without adding meaning	"I think <u>it's</u> a girl or a boy is yelling"
<b>7. Fitna/sposeta/bouta</b> Abbreviated forms coding imminent action	"he <u>fitna</u> be ten" "he <u>bouta</u> fall"
<b>8. Preterite had</b> <i>Had</i> appears before simple past verbs	"he flew with a strong stick in his claws while the turtle <u>had</u> held the stick fast in her mouth"
<b>9. Indefinite article</b> <i>A</i> is used regardless of the vowel context	"one day she met <u>a</u> eagle traveling to a far-away lands across the sea"
<b>10. Invariant be</b> Infinitival <i>be</i> coding habitual actions or states	"and they <u>be</u> cold"
<b>11. Multiple negation</b> Two or more negatives used in a clause	"it <u>not</u> raining <u>no</u> more"
<b>12. Regularized reflexive pronoun</b> <i>Hissself</i> , <i>thysself</i> , <i>theirselves</i> replace reflexive pronouns	"bouta fall and trying to hold <u>hissself back up</u> "
<b>13. Remote past been</b> <i>Been</i> coding action in the remote past	"I <u>been</u> knew how to swim"
<b>14. Subject-verb agreement</b> Subjects and verbs differ in marking of number	"Our cat Mimi like_ to sit on the roof"
<b>15. Undifferentiated pronoun case</b> Pronoun cases used interchangeably	" <u>her</u> fell"
<b>16. Zero article</b> Articles are variably included	"this cake is ( <u>the</u> ) best present of all"
<b>17. Zero copula/auxiliary</b> Copula and auxiliary forms of the verb <i>to be</i> are variably included	"but she always comes down when it ( <u>is</u> ) time to eat" "then you' ( <u>ll</u> ) have to wear the brown ones instead"
<b>18. Zero -ing</b> Present progressive <i>-ing</i> is variably included	"It was go( <u>ing</u> ) to be a good birthday"
<b>19. Zero modal auxiliary</b>	"he might _ been in the car"

<i>Will, can, do, and have</i> are variably included as modal auxiliaries	
<b>20. Zero past tense</b> -ed markers are variably included on regular past verbs and present forms of irregulars are used	“as soon as she open(ed) her mouth, she <u>fall</u> straight into the ocean below”
<b>21. Zero plural</b> -s is variably included to mark number	“Father went out to buy some pretty flower “
<b>22. Zero possessive</b> Possession coded by word order so –s is deleted or the case of possessive pronouns is changed	“The boy’(s) grandmother showed him how to put worms on the hook”
<b>23. Zero preposition</b> Prepositions are variably included	“she sits and looks ( <u>at</u> ) birds”
<b>24. Zero to</b> Infinitival <i>to</i> is variably included	“that man right there getting ready _ slip on his one foot”

## Cultural Attitudes and Issues Applied to Audiology Practice

- *Waiting Room/Telephone “Hold” Music:*
  - Many African Americans feel out of place and uncomfortable when typical waiting room/telephone “hold” music is played (classical and easy-listening) (Terrell, Battle, & Grantham, 1998).
  - Since the waiting room and contact via telephone are typically the first impressions the patient will have of the audiology practice, it is important to ensure that the patient feels comfortable prior to the appointment.
  - African American patients may feel more comfortable if jazz or blues music is played in the waiting room/on the telephone as an alternative to classical or easy-listening. However, the audiologist should ensure that the jazz/blues artists featured are African American. Some African Americans find it offensive if the jazz or blues artists are not African American, since these music genres originated in African American culture (Terrell, Battle, & Grantham, 1998).
  
- *Family-centered Practice:*
  - The audiologist will see a variety of family structures among African American patients. The extended family is valued in African American culture and is often has as much familial influence as the nuclear structure (Willis, 2004; Terrell, Battle, & Grantham, 1998).
  - Since the extended family is often extensively involved in the child rearing, their input about the child’s hearing may be invaluable (Willis, 2004).

- The clinician should involve any extended family in aural rehabilitation therapy that wish to participate, since they may be providing a lot of care for the child (Willis, 2004).
- *Establishing Rapport:*
  - African American patients may be distrusting of white people or white institutions (including healthcare settings), since previous interactions may have resulted in discrimination, humiliation, and frustration (Levy, 1985).
  - The audiologist should strive to establish a rapport with the patient to help reduce and hopefully eliminate feelings of distrust. This may include having an open discussion about the feelings of distrust. If distrust does not improve, the patient may need to be referred to an audiologist that he/she feels more comfortable with.
  - Formality and good manners will help establish rapport. Many African Americans dislike the use of first names or nicknames because it is considered disrespectful. The audiologist should address the patient by his/her proper title and last name (Mr., Mrs., etc.) until the patient gives permission to call him/her by something else (Terrell, Battle, & Grantham, 1998).
- *Financial and Emotional Considerations:*
  - Due to the economic and social hardships that some African Americans have faced, they may have developed a sense of hopelessness, frustration, and despair which may have an impact on audiological services, including missed appointments, non-compliance with treatments, and not fully expressing concerns about the hearing loss to the audiologist (Levy, 1985).
  - If the patient misses an appointment or is not following the treatment plan, it is important for the audiologist to express disappointment without conveying guilt. Making the patient feel guilty when he/she may already be overwhelmed in other areas of life will only contribute to feelings of despair or passiveness (Levy, 1985).
  - Several African American children may come from single parent households that are economically disadvantaged. Be considerate of the family's level of financial and emotional resources. When deciding on a treatment plan with the patient, make sure that the treatment is something that the patient has the appropriate amount of energy resources and coping skills to successfully undertake. If the proposed treatment is unrealistic for the family's circumstances, the patient may give up on treatment altogether (Levy, 1985).

## **Communication Strategies**

- *Eye Contact:*
  - African American patients may not make eye contact with the audiologist, because eye contact is considered disrespectful (Terrell, Battle, & Grantham, 1998; Willis, 2004).
  - When providing aural rehabilitation therapy, the therapist may need to stress the importance of eye contact for visual information during therapy.
  
- *“Silent Code”:*
  - African American patients have developed a communication strategy of a silent code, which is to reveal as little as possible about themselves. The silent code is used when the patient is unsure how the information collected will be used, and relates to the distrust of white institutions (Terrell, Battle, & Grantham, 1998).
  - The audiologist should explain the importance of the case history to the patient and how the information will be used to assist with diagnosis and treatment.
  - The silent code can also affect diagnostic testing. Audiological results may not reflect the patients’ true capabilities if the silent code is being utilized.
  - Establishing rapport is the most effective method for overcoming the silent code.
  
- *Shutdown of Communication:*
  - African Americans will use a number of verbal and non-verbal communication strategies to demonstrate a shutdown of communication.
  - African Americans are heavily reliant on non-verbal communication. This is a remnant of the slavery period when African Americans would communicate non-verbally with each other in the presence of the slave owner in order to have privacy (Terrell, Battle, & Grantham, 1998).
  - Several verbal and nonverbal behaviors can be used to demonstrate a shutdown of communication. These behaviors may be reflexive or purposeful (Willis, 2004).
    - Verbal behaviors include: giving incorrect responses, refusing to respond, and answering impulsively (Willis, 2004; Terrell, Battle, & Grantham, 1998)
    - Nonverbal behaviors include: an expressionless, blank face, arms folded across the chest, eye-rolling, exhalations of air, and looking upward (as if wishing for divine intervention) (Willis, 2004; Terrell, Battle, & Grantham, 1998)

- The audiologist should pay attention to these behaviors and try to determine why a behavior is occurring so that the breakdown in communication can be repaired quickly.
- Shutdown in communication may be due to a variety of factors, including disagreement about treatment recommendations, confusion about instructions, and feeling overwhelmed by the amount of treatment options and information being presented (Willis, 2004).

## **Counseling Considerations for the Audiologist**

- *Do not stereotype:*
  - There is much heterogeneity in African-American culture, regardless of socioeconomic status (Levy, 1985; Willis, 2004).
  - Poverty does not always equal dysfunction. Many African American families living in poverty are able to provide quality, nurturing care for their children (Willis, 2004).
  - Stereotyping could lead to the audiologist assuming that he/she knows what the best treatment for the patient is and not presenting all options to the patient.
- *Patient-Physician Relationship:*
  - Partnership in the patient-physician relationship as a function of race was examined. Results indicated that African American patients had a less participatory relationship with white physicians than African American physicians, regardless of socioeconomic status and patient educational level (Cooper-Patrick, Gallo, Gonzales, Vu, Powe, Nelson, et al., 1999).
  - While research has not examined the patient-audiologist partnership between African American patients and white audiologists, results are likely similar. Improving the partnership between African American patients and audiologists may result in better adherence to treatment plans, higher level of patient care, and better treatment outcomes.
  - Audiologists should make sure that the patient is actively involved in the decision-making process about treatment options. Audiologists can improve their partnership with African American patients by recognizing unconscious racial biases that may contribute to the relationship being less participatory, gaining a better understanding of African American culture's perspective about hearing loss, and recognizing that the patient's objectives for visiting an audiologist may be different than the audiologists' goals.

- *Knowledge about Noise-Induced Hearing Loss:*
  - African American students were less likely than Caucasian college students to respond that NIHL could not be cured (75% compared to 95%). Eleven percent said that hearing loss could be cured by bed rest, 8% by medication, and 6% by a doctor (Lee, Gomez-Marin, & Lee, 2004).
  - African American students were less able to identify symptoms of NIHL than Caucasian students (Lee, Gomez-Marin, & Lee, 2004).

## **Diagnostic Testing and Aural Rehabilitation Considerations**

- *Diagnostic Testing:*
  - High-technology medical devices can be associated with trauma since there is a high incidence of violence, accidental death, and premature births in the African American population (Willis, 2004).
    - The audiologist should thoroughly explain each diagnostic test and the equipment prior to testing to ensure that the patient understands there is no trauma involved.
  - Phonemic features of AAE may make interpretation of speech and word recognition testing challenging, since it may be difficult to distinguish whether the patient's response is due to hearing loss or the language difference.
    - The audiologist may consider closed-set word recognition testing to overcome this issue, if age-appropriate.
- *Aural Rehabilitation:*
  - The clinician providing aural rehabilitation therapy should be familiar with AAE and sensitive to maintaining the values of the family and patient. The clinician should ensure that aural rehabilitation therapy preserves the patient's use of AAE (Terrell, Battle, & Grantham, 1998).
  - The audiologist and aural rehabilitation therapist should consider the patient's preferred learning style when developing an aural rehabilitation treatment plan. Both African American adults and children may prefer group therapy over individual therapy. Research has demonstrated that group therapy can help reduce distrust of the clinician, while individual therapy may lower self-esteem and increase feelings of isolation in African American patients. Additionally, African Americans value social, interpersonal interactions and group cooperation (Terrell, Battle, & Grantham, 1998).

- *Language Assessments:*
  - When administering and interpreting language assessments, it is important to consider the validity of the assessment. The clinician should examine the normative data to determine whether African Americans were included in the sampling. If separate norms exist for AAE speakers, these may be helpful in interpreting the language assessment. If there are no norms for AAE speakers, the clinician may wish to establish local normative data (Terrell, Battle, & Grantham, 1998).
  - Dialectal variations due to AAE should also be considered when administering a language assessment. The clinician may wish to analyze each question for possible AAE responses based on the phonemic and morphosyntactical features (see tables 1 and 2) prior to administering the test and score the assessment according to accepted SAE and AAE responses (Terrell, Battle, & Grantham, 1998).

## **Research Article Abstracts**

**Bazargan, M., Baker, R.S., & Bazargan, S.H. (2001). Sensory impairments and subjective well-being among aged African American persons. *Journal of Gerontology: Psychological Sciences*, 56B(5), 268-278.**

The limited number of studies concerning the prevalence of hearing loss and vision impairment and their causes, and the lack of strategies to prevent or treat the deleterious effects of hearing loss and vision impairment, point to a significant gap in the knowledge base concerning aged minority populations. This cross-sectional study evaluated the relationship between vision and hearing impairment and psychological well-being among a sample of 988 elderly African American persons. Fair or poor vision or hearing was reported for 36.5% and 26% of our sample, respectively. Reported prevalence rates for these impairments are considerably higher than rates previously documented in comparable studies of elderly people conducted in general (i.e., predominantly White) populations. Eighty-four percent of our study participants attempted to improve their vision through the use of eyeglasses. By contrast, only 4.3% of individuals in the study who described their hearing as poor reported using hearing aids. Using multivariate analysis and other related variables that have previously been identified as common predictors of psychological well-being, the findings of this study suggest that poor vision is independently associated with a lower level of psychological well-being among aged African Americans even after adjusting for sociodemographic characteristics, functional limitations, perceived health status, and cognition. Poor hearing was also found to be associated with a lower level of psychological well-being; however, this relationship was not independent but was mediated by the effect of hearing on functional status. These data indicate considerable potential for improved psychological well-being for African American elderly people through visual and audiological rehabilitation.

**Burch-Sims, G.P., & Matlock, V.R. (2005). Hearing loss and auditory function in sickle cell disease. *Journal of Communication Disorders, 38, 321-329.***

Sickle cell disease was first reported in 1910 by J. Herrick, and since then, various associated conditions and complications have been described. Sickle cell disease is a hereditary disorder characterized by abnormality of the hemoglobin in the red blood cell. During periods of decreased oxygen tension in the red blood cell's environment, the abnormal hemoglobin within the red blood cell polymerizes and causes it to assume its sickled shape. This morphological change and its associated physiological changes drastically reduce the ability of red blood cells to navigate and deliver oxygen throughout the body.

Sickle cell disease is a significant health problem affecting 1 in 400 African-Americans in the United States. One in 10 African-Americans in the United States has sickle cell trait. A variety of hemoglobinopathies are classified as sickle cell disease. Variants that simultaneously occur with hemoglobin S in high frequency are hemoglobins C and  $\beta$  Thalassemia, and less frequently hemoglobin E. Sickle cell disease is characterized by chronic hemolytic anemia, end-organ damage, a heightened susceptibility to infections, and intermittent episodes of vascular occlusion causing both acute and chronic pain. Neurological symptoms are frequent in patients diagnosed with sickle cell disease.

Considering the vaso-occlusive nature of sickle cell disease, the potential for auditory damage is not unexpected. However, the incidence of subjective hearing impairment among sickle cell anemia subjects is very low; therefore, the interest in hearing loss associated with the disease is not in its symptomatology, but in its pathogenesis. The relationship between sickle cell anemia and hearing loss is documented, but little is known about the relationship. Numerous investigations have assessed peripheral auditory sensitivity with a wide disparity of results.

In this article, we will discuss:

- The genetic characteristics and the pathophysiology of sickle cell disease;
- The prevalence and predominate site of hearing loss and/or auditory dysfunction during sickle cell crisis and with the disease under control (non-crisis);
- A model for appropriate audiological assessment and treatment of sickle cell disease patients, including published results of investigations utilizing this model.

In view of the diversity of results and speculative etiology presented here and in the literature, the relationship between sickle cell anemia, auditory sensitivity, and auditory function warrants additional investigation.

**Cooper-Patrick, L., Gallo, J.J., Gonzales, J.J., Vu, H.T., Powe, N.R., Nelson, C., et al. (1999). Race, gender and partnership in the patient-physician relationship. *Journal of the American Medical Association, 282(6), 583-589.***

Context: Many studies have documented race and gender differences in health care received by patients. However, few studies have related differences in the quality of interpersonal care to patient and physician race and gender.

Objective: To describe how the race/ethnicity and gender of patients and physicians are associated with physicians' participatory decision-making (PDM) styles.

Design, Setting, and Participants: Telephone survey conducted between November 1996 and June 1998 of 1816 adults aged 18 to 65 years (mean age, 41 years) who had recently attended 1 of 32 primary care practices associated with a large mixed-model managed care organization in an urban setting. Sixty-six percent of patients surveyed were female, 43% were white, and 45% were African American. The physician sample (n=64) was 63% male, with 56% white, and 25% African American.

Main Outcome Measure: Patients' ratings of their physicians' PDM style on a 100-point scale.

Results: African American patients rated their visits as significantly less participatory than whites in models adjusting for patient age, gender, education, marital status, health status, and length of the patient-physician relationship (mean [SE] PDM score for female, 62.4 [1.3] vs male, 59.5 [3.1];  $P = .03$ ), but gender concordance between physicians and patients was not significantly related to PDM score (unadjusted mean [SE] PDM score, 76.0 [1.0] for concordant vs 74.5 [0.9] for discordant;  $P = .12$ ). Patient satisfaction was highly associated with PDM score within all race/ethnicity groups.

Conclusions: Our data suggest that African American patients rate their visits with physicians as less participatory than whites. However, patients seeing physicians of their own race rate their physicians' decision-making styles as more participatory. Improving cross-cultural communication between primary care physicians and patients and providing patients with access to a diverse group of physicians may lead to more patient involvement in care, higher levels of patient satisfaction, and better health outcomes.

**Craig, H.K., Thompson, C.A., Washington, J.A., & Potter, S.L. (2003). Phonological features of child African American English. *Journal of Speech, Language, and Hearing Research, 46*, 623-635.**

The production of phonological features of African American English (AAE) was examined for 64 typically developing African American children in the 2<sup>nd</sup> through the 5<sup>th</sup> grade. Students read aloud passages written in Standard American English. Sixty of the students read the passages using AAE, and 8 different phonological features were represented in their readings. Phonological features were more frequent than morphosyntactic features. The findings as a whole support use of the taxonomy developed for this investigation in characterizing the phonological features of child AAE.

**Crandell, C., Mills, T.L., & Gauthier, R. (2004). Knowledge, behaviors, and attitudes about hearing loss and hearing protection among racial/ethnically diverse young adults. *Journal of the National Medical Association, 96*(2), 176-186.**

Over 11 million individuals exhibit some degree of permanent noise induced hearing loss (NIHL). Despite such data, there remains a paucity of empirical evidence on the knowledge of noise exposure and hearing protection devices (HPDs) for young adults, particularly those of

diverse racial/ethnic backgrounds. This lack of research is unfortunate, as prior research suggests that the incidence of NIHL can be reduced through educational programs, such as hearing conservation programs (HCPs). Moreover, research also indicates that such educational programs are more beneficial when developed for specific age and/or ethnic/racial groups. The primary aim of this investigation was to determine the knowledge base of 200 college-aged young adults aged 18-29, concerning the auditory mechanism, NIHL, and the use of HPDs. The second aim of this study was to identify race and ethnicity differences or similarities in knowledge of these areas among African-American and Caucasian young adults. Overall, in many instances, a majority of the young adults in our study demonstrated a high degree of knowledge concerning factors associated with exposure to excessive noise and the risk of hearing loss. Yet, the results also revealed significant racial/ethnic differences in knowledge, behaviors, and attitudes about the use of HPDs.

Recent estimates suggest that more than 11 million individuals in the United States exhibit some degree of NIHL. Moreover, 40 million individuals work in environments that contain potentially harmful noise levels, and over 50 million Americans routinely use firearms—a common cause of noise-induced hearing impairment. A specific hallmark manifestation of NIHL is a permanent decrease in hearing sensitivity from 3,000-6,000 Hz, with a characteristic notch at 4,000 Hz. Additional effects of exposure to high noise levels include physiological changes in heart rate and blood pressure, decrease in work productivity, and an interference with communication that results from the masking of speech.

With these considerations in mind, the purpose of this study was to investigate the knowledge, behaviors, and attitudes of a young-adult population in the United States concerning the factors that contribute to NIHL and the use of hearing protection. Additionally, this study was interested in whether there were racial/ethnic differences or similarities in knowledge of hearing loss and the use of HPDs among African-American and Caucasian young adults.

**Lee, D.J., Gomez-Marin, O., & Lee, H.M. (1996). Prevalence of childhood hearing loss: The Hispanic health and nutrition examination survey and the national health and nutrition examination survey II. *American Journal of Epidemiology*, 144(5), 442-449.**

Comparative analysis of the epidemiology of childhood hearing loss was undertaken among African-American, Hispanic-American, and non-Hispanic white children. Audiometric data on children aged 6-19 years were obtained from 688 African Americans, 330 Cuban Americans, 2,602 Mexican Americans, 1,025 Puerto Ricans, and 3,243 non-Hispanic whites who participated in either the National Health and Nutrition Examination Survey II, 1976-1980, or the Hispanic Health and Nutrition Examination Survey, 1982-1984. Hearing loss was defined as a pure-tone decibel hearing threshold level (averaged over 500, 1,000, and 2,000 Hz) greater than 15 in the ear with the best response. The prevalence (per 1,000) of bilateral hearing loss was 17.0 for African-American, 68.3 for Cuban-American, 27.6 for Mexican-American, 57.7 for Puerto Rican, and 15.5 for non-Hispanic white children. Differences in prevalence by ethnicity/race diminished when a more stringent definition of hearing loss (i.e., moderate or greater than 30 dB hearing threshold level) was used. There were no adolescent African-American males aged 16-19 years who had a hearing loss. After adjustment for age, the odds of hearing loss was significantly greater in males than in females only in non-Hispanic whites (odds

ratio = 2.2; 95% confidence interval 1.6-3.3). On the basis of 1993 census population estimates in the United States, over 819,000 children aged 6-19 years have some degree of hearing impairment, and over 216,000 of these children have moderate or greater hearing impairment.

**Levy, D.R. (1985). White doctors and black patients: Influence of race on the doctor-patient relationship. *Pediatrics*, 75, 639-643.**

Effective communication between doctor and patient, a skill not emphasized in medical education programs, is essential for patient satisfaction and optimal patient care. In many teaching hospitals, the doctor is commonly white and middle class and the patient black and indigent. Racial differences, even in the absence of social class differences, may have a negative impact on the quality of the doctor-patient relationship. The impact of racism is reviewed, and recommendations to enhance the relationship between white doctors and black patients, are made.

**Madriz, J.J., & Herrera, G. (1995). Human immunodeficiency virus and acquired immune deficiency syndrome AIDS-related hearing disorder. *Journal of the American Academy of Audiology*, 6(5), 358-364.**

After a brief discussion of the nature of the human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) disease process and its consequences, the article considers implications for the ear and hearing. One of the newest etiologic considerations for audiologists is pediatric autoimmune deficiency syndrome (PAIDS). Babies born to HIV-AIDS-positive mothers, and children who have acquired the disease, represent a new challenge to clinics. Symptoms, audiologic care, and management are considered.

**Marcus-Bernstein, C. (1986). Audiologic and nonaudiologic correlates of hearing handicap in black elderly. *Journal of Speech and Hearing Research*, 29, 301-312.**

The purpose of this study was to explore the contributions of audiologic and nonaudiologic factors, including medical, social, economic, and psychological, towards understanding hearing handicap in black elderly. One hundred hearing-impaired black elderly subjects from Harlem Hospital were given audiologic evaluations, including speech recognition tests under varied conditions. Audiologic factors were significantly related to hearing handicap, measured by the Hearing Handicap Scale (HHS) and the Hearing Handicap Inventory for the Elderly (HHIE), with stronger correlations for speech recognition measured at 50 dBHL in a sound field than at 40 dBHL under earphones. Once hearing loss was taken into consideration, nonaudiologic factors (measured on the Multidimensional Functional Assessment Questionnaire), particularly the dependability dimension of social support and the lethargy and paranoid dimensions of mental health, emerged as contributing predictor variables for HHS and HHIE scores. These findings suggest that a multidimensional approach is key to understanding and remediating hearing handicap in black elderly.

**Pugh, K.C. (2004). Health status attributes of older African-American adults with hearing loss. *Journal of the National Medical Association*, 96(6), 772-779.**

The article describes a study that examined hearing loss and health-related quality of life (HRQoL) attributes of 71 African-American older adults ranging in age from 60 to 89 years. Demographic profiles were used to obtain pertinent case histories, audiometric testing was used to obtain estimates of peripheral hearing sensitivity, and middle-ear integrity was assessed via tympanometry. The health status (i.e., HRQoL) attributes were determined via self-report scores on the Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36). Results from bivariate analyses determined statistically significant correlations between hearing loss and lower SF-36 scores across subscales. Multivariate regression models revealed a statistically significant impact between hearing loss and lower SF-36 scores across subscales, even after controlling for experimental confounds. These findings suggest that hearing loss is capable of contributing to HRQoL deficits in African-American older adults. The importance of these data in terms of pre-existing attitudes of African-American older adults towards hearing healthcare services and long-term effects of untreated hearing loss are considered.

**Pugh, K.C., & Crandell, C.C. (2002). Hearing loss, hearing handicap, and functional health status between African American and Caucasian American seniors. *Journal of the American Academy of Audiology, 13, 493-502.***

This investigation examined the relations among hearing loss, handicap perception, and functional health status of 152 African American and Caucasian American seniors ranging in age from 60 to 89 years. Subjective measures were obtained from self-report scores on the Hearing Handicap Inventory for the Elderly (HHIE), the Medical Outcomes Study 36-Item Short Form Health Survey (SF-36), and demographic profiles. Results indicated the following: (1) both subject groups exhibited nearly identical degrees of sensorineural hearing loss consistent with presbycusis; (2) African American seniors reported significantly lower levels of completed education than did Caucasian American seniors; (3) differences between groups in self-report scores of hearing handicap (HHIE) were not statistically significant; (4) differences across groups in self-report scores of functional health status (SF-36) were not statistically significant; and (5) increasing levels of hearing loss produced significantly higher HHIE scores and significantly lower SF-36 scores in each group. These findings are discussed.

**Schreibstein, J.M., MacDonald, C.B., Cox, L.C., McMahon, L., & Bloom, D.L. (1997). Sudden hearing loss in sickle cell disease: A case report. *Otolaryngology-Head and Neck Surgery, 116(4), 541-544.***

No abstract available.

**Scott, D.M. (2005). Hearing research: Children from culturally and linguistically diverse populations. *The ASHA Leader, 4, 22-23.***

No abstract available.

## **Book References:**

- Hairston, E., & Smith, L. (1983). *Black and Deaf in America: Are we that different*. Silver Spring, Maryland: T.J. Publishers, Inc.
- Terrell, S.L., Battle, D.E., & Grantham, R.B. (1998). African American cultures. In D.E. Battle (Ed.), *Communication Disorders in Multicultural Populations* (pp. 31-71). Boston: Butterworth-Heinemann.
- Van Keulen, J.E., Weddington, G.T., & DeBose, C.E. (1998). *Speech, language, learning, and the African American child*. Boston: Allyn and Bacon.
- Willis, W.O. (2004). Families with African American roots. In E.W. Lynch & M.J. Hanson (Eds.), *Developing cross-cultural competence: A guide to working with children and their families* (pp. 141-178). Baltimore: Paul H. Brookes Publishing Co.

## Internet references

### *Statistics:*

- Baughman, K.J., & Graf, N.L. (2003, August). *Educational attainment: 2000*. Retrieved April 13, 2008 from the U.S. Census Bureau, <http://www.census.gov/prod/2003pubs/c2kbr-24.pdf>
- Bishaw, A., & Iceland, J. (2003, May). *Poverty: 1999*. Retrieved April 13, 2008 from the U.S. Census Bureau, <http://www.census.gov/prod/2003pubs/c2kbr-19.pdf>
- Centers for Disease Control and Prevention. (2003). *Basic statistics*. Retrieved April 26, 2008, from <http://www.cdc.gov/hiv/stats.htm>
- Clark, S.L., & Weismantle, M. (2003). *Employment status: 2000*. Retrieved April 13, 2008 from the U.S. Census Bureau, <http://www.census.gov/prod/2003pubs/c2kbr-18.pdf>
- Gallaudet Research Institute. (2007). Regional and national summary report of data from 2006-2007. Annual Survey of Deaf and Hard of Hearing Youth. Washington D.C.: Gallaudet University.
- U.S. Census Bureau. (2001, May). *Profiles of General Demographic Characteristics*. Retrieved April 13, 2008 from <http://www.census.gov/prod/cen2000/dp1/2kh00.pdf>
- U.S. Department of Health and Human Services. (2002). *Child health USA*. Washington, DC: Author.

### *Resource for Professionals:*

- National Black Association for Speech-Language and Hearing (NBASLH) is an association for African American SLPs and audiologists. <http://www.nbaslh.org/>

*Resource for deaf and hard-of-hearing African Americans:*

National Black Deaf Advocates (NBDA) <http://www.nbda.org/index.html>

From NBDA's website: "The Mission of the National Black Deaf Advocate is to promote the leadership development, economic and educational opportunities, social equality, and to safeguard the general health and welfare of Black deaf and hard of hearing people."

"The National Black Deaf Advocates (NBDA) is the oldest and largest consumer organization of deaf and hard of hearing black deaf people in the United States. Black deaf leaders were concerned that deaf and hard of hearing African-Americans are not adequately represented in leadership and policy decision-making activities affecting their lives so they established NBDA in 1982....Membership includes African-American adults who are deaf and hard of hearing; parents of African American children who are deaf or hard of hearing; professionals who work with deaf and hard of hearing children and adults, people of color, and other interested individuals."