

ECHO

E-Journal for Black and Other Ethnic Group Research and Practices in Communication Sciences and Disorders

*ECHO is the Official Journal of the
National Black Association for Speech, Language and Hearing*



E-Journal for Black and Other Ethnic Group Research and Practices in Communication Sciences and Disorders

Table of Contents

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To navigate through this document, use the scroll bar in the right hand column and observe the page indicator at the bottom of the screen.

Cover Page.....	1
Table of Contents	2
Editorial Board	3
Editor's Notes	4
About the Journal	5
Manuscript Submissions	6
Copyrights and Permissions.....	7
Sponsoring Organization	8
Current Issue.....	9
Public Knowledge of Voice Disorders	
(Abstract)	10
(Article).....	11

E-Journal for Black and Other Ethnic Group Research and Practices in Communication Sciences and Disorders

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Editor's Notes

*As an electronic journal **ECHO** provides an economical vehicle for disseminating relevant and timely articles that address the research interests and clinical practice patterns of Communication Sciences and Disorders professionals, particularly those serving Black and other ethnic group populations.*

***ECHO** will continue to use a digital format to introduce the breaking research and clinical methods of scholars and practitioners addressing the communication needs of Black and other ethnic groups. As we merge our efforts with the new technologies, we hope any occasional blunder will be met with your patience and tolerance.*

Ronald Jones, Ph.D., Managing Editor

About the Journal

ECHO: E-Journal for Black and Other Ethnic Group Research and Practices in Communication Sciences and Disorders is a professional publication that hosts scientific articles on research and clinical practice patterns, which impact racially, culturally and linguistically diverse populations in America. **ECHO** welcomes submissions from any communication science and disorders specialist, researcher and/or scholar, regardless of their race or ethnic background.

Although the National Black Association for Speech, Language and Hearing (NBASLH) has adopted **ECHO** as its official journal and will sponsor its publication, the journal remains ecumenical. **ECHO** invites submissions from other organizations whose members represent the communication interests and concerns of other racial, ethnic and/or linguistically diverse populations. Submissions to **ECHO** may include such topics areas as:

- Scientific research
- Assessment procedures
- Treatment & Prevention techniques
- Cultural, social, professional issues
- Professional issues
- Supervision & Administration
- Other related topics

Contributed manuscripts may take the form of

- Clinical forums and reviews
- Scientific research reports
- Case studies
- Position papers
- Digital presentation
- Letters to the editor
- Other related formats

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Manuscript Submissions

All manuscripts should be accompanied by a cover letter (e-mail) in which the corresponding author:

- Requests that the manuscript be considered for publication;
- Affirms that the manuscript has not been published previously, including in an electronic form;
- Affirms that the manuscript is not currently submitted elsewhere;
- Affirms that all applicable research adheres to the basic ethical considerations for the protection of human or animal participants in research;
- Notes the presence or absence of a dual commitment,
- Affirms that permission has been obtained to include any copyrighted material in the paper; and
- Supplies his or her business address, phone and fax numbers, and e-mail address.

All manuscripts must be submitted electronically and should follow the style and preparation presented in the Publication Manual of the American Psychological Association (latest edition); see Journal for exceptions to APA style). Particular attention should be paid to the citing of references, both in the text and on the reference page. Authors requesting blind review must specify and prepare their manuscripts accordingly. Manuscript submissions and inquiries should be addressed to: [nbashl@nbashl.org](mailto:nbaslh@nbashl.org).

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National Black Association for Speech, Language and Hearing
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E-Journal for Black and Other Ethnic Group Research and
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Current Issue

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Public Knowledge of Voice Disorders, Robert Mayo, University of North Carolina at Greensboro, Greensboro, NC; Carolyn M. Mayo, University of North Carolina at Chapel Hill, Chapel Hill, NC; Karen Dacons Brock, North Carolina Central University, Durham, NC

ECHO

PUBLIC KNOWLEDGE OF VOICE DISORDERS: A SURVEY OF AFRICAN AMERICANS

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ABSTRACT

This study examined African Americans' knowledge of voice disorders. A 14-item survey instrument was distributed to 490 vocally healthy African American adults. Of the 366 participants who completed the questionnaire, most reported knowing someone with a voice disorder and were aware of common conditions or activities that can cause voice disorders. Most female participants demonstrated limited awareness of their increased risk for voice disorders relative to males. Over one-half of all respondents felt that whites were at greater risk for voice disorders than African Americans. Two-thirds of participants felt that voice disorders require treatment and most cited the speech-language pathologist as the professional who would provide services for a person with a voice problem. The majority of adults indicated a preference for behavioral management if they should ever have a voice disorder. The public education and professional practice implications of these findings are discussed.

KEY WORDS: voice disorders, public perceptions, African Americans

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ECHO

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INTRODUCTION

Voice disorders are among the most commonly cited reasons for patient visits to otolaryngologists, accounting for some 292,000 office visits annually (Woodwell, 1992). Approximately 3 to 9 percent of the total population of the United States has a voice disorder (Ramig & Verdolini, 1998). Moreover, voice disorders appear to be more prevalent in persons between the ages of 4 to 14 years and 40 to 70 years (Marge, Boone & Johnston, 1985; Marge, 1991; Woodwell, 1992). Epidemiological data suggest that in adults, the prevalence of voice disorders ranges between 2 to 6.5 percent (Brindle & Morris, 1979; Laguaite, 1972; Roy, Merrill, Thibeault, Parson, Grey & Smith, 2004). Estimates also suggest that African American adults exhibit non-cancerous phonatory problems at either the same or slightly higher levels as the general American population (ASHA, 1996). However, this matter has yet to be verified.

Voice disorders can have a profound impact on reported job functioning and quality of life (National Institute on Deafness and Other Communication Disorders, 2006; Verdolini and Ramig, 2001). It has been suggested that nearly 30 percent of the working population in the United States, or 37 million people,

depend on voice as a critical aspect of their job (Titze, Lemke, & Montequin, 1997). Smith, Verdolini, Gray, et al. (1996) surveyed 174 adults seeking treatment for voice problems on the effects of their conditions on work and quality of life. The investigators reported that nearly 75 percent of respondents felt that their voice negatively affected social interactions, leading to social isolation. Additionally, the majority of their patients (65%) described moderate or worse depression due to voice, as well as moderate or worse negative professional self-esteem because of voice problems.

While the causes of voice quality disturbances are numerous, most appear linked to speakers' hyperfunctional use of the voice through vocal abuse or misuse (Boone, McFarlane, & Von Berg, 2005; Herrington-Hall, Lee, Stemple, Niemi, & McHone, 1988; Marge, 1991). Environmental conditions such as airborne pollutants, toxins, and allergens may also serve to trigger behaviors (e.g., excessive coughing and throat clearing) that cause and maintain voice quality disturbances (Child & Johnson, 1991). Likewise, there is growing awareness of the effects of lifestyle including diet, smoking, rest and sleep, drug use, exercise and alcohol consumption on the

ECHO

functions of the larynx (National Institute on Deafness and Other Communication Disorders, 1995; Verdolini, 1998). Within the general American population, African Americans may be unique in their exposure to conditions that increase their risk of incurring laryngeal pathology. African Americans are more likely to live and work generation after generation in minimally-healthy environments (Bullard, 1993; USDHHS, 2000; Wiley, 1991), exist on inadequate diets (Barnes & Schoenborn, 2003), or engage in behaviors that decrease their physical and vocal health, such as early use of tobacco products and alcohol consumption (American Lung Association, 2006; Feigelman & Gorman, 1989; Thomas, Fick, Henderson, & Doherty, 1990).

African American men experience a higher incidence of laryngeal and lung cancer, placing them at greater risk for partial or complete laryngectomies (American Cancer Society, 2005; USDHHS, 2000). Moreover, among African Americans, laryngeal cancer occurs at an earlier age, is identified later, and yields a lower five-year survival rate for this population than any other cultural group in the United States (American Cancer Society, 2005; Murdock & Gluckman, 2001; USDHHS, 2000). These health conditions are further exacerbated by the fact that nearly a quarter of African Americans lack or have extremely limited access to health insurance coverage for preventive health care services, early disease detection services, or medical treatment modalities that could reduce the frequency and severity of conditions associated with voice quality disturbances (U.S. Bureau of the Census, 2000). This situation is problematic because (a) quality of life may be adversely affected in many persons with voice disorders (Smith, Verdolini, Gray, et al. 1996; Titze, Lemke, & Montequin 1997), and (b) most voice disorders are preventable (Marge, 1991).

As with many other forms of health care interventions, voice therapy may have little success unless the voice clinician possesses an understanding of the knowledge, attitudes, and beliefs that may facilitate or hinder a patient's personal motivation to maintain or change health beliefs and/or vocal practices. In 1980, following what he termed an exhaustive review

of the literature, Taylor wrote, "no published reports were found that describe the characteristics of Black perceptions of abnormal intensity, quality, or pitch of the voice, nor of the priorities placed on improving obvious voice pathologies." (p. 81). Unfortunately, some two and a half decades later, that same situation exists. Similar to the United States population as a whole (ASHA, 1987; Killarney & Lass, 1981), African Americans appear to possess limited knowledge and awareness of communication disorders in general. However, African American perspectives on communication disorders have rarely been solicited. Using focus group methodology to evaluate attitudes and awareness of communication disorders among African Americans and other underrepresented groups, Smith (1992) found that members of these "multicultural" populations had little concern about communication problems such as fluency disorders or hearing loss until the potential negative effects of such problems on educational attainment, socialization, and employability were explained.

Although Smith (1992) did not specifically query his respondents about voice disorders, his findings suggest that the average voice clinician could be faced with an African American client who, (a) like his/her counterpart from the majority culture, has little understanding about his/her voice problem and (b) may have sought out that clinician only because "My doctor told me to come to you." Moreover, our limited understanding of African American attitudes toward voice disorders and the priority they place on seeking clinical services for such conditions may result in the rejection of a vocal rehabilitation program, unwillingness of a parent to follow a clinician's recommendation for a physician-performed laryngoscopic examination of a child subsequent to that child's failing a voice screening exam, or failure to comply with the instructions of a vocal hygiene program. Therefore, clinicians must gain an understanding of the knowledge of voice disorders possessed by African Americans and ultimately use that information to successfully engage African American patients in the vocal education/rehabilitation process and develop voice disorder prevention programs and

strategies for this population. The purpose of this study was to obtain information on African Americans' knowledge of voice disorders using survey research methodology.

METHOD

Survey Instrument and Participants

The initial survey instrument developed for this study contained twenty-four items. Field testing of the instrument with a group of twenty African American adult members of the general public revealed that the tool was viewed as too long or delved into information considered private (e.g., annual income). In response to the feedback provided the group, six of the original survey items were eliminated. The survey instrument was also reviewed by a faculty member with extensive experience in the development and use of surveys in social science research. Her consultative feedback suggested that four of the survey items were redundant and could be eliminated. The resulting questionnaire was a fourteen-item self-administered survey instrument. The questions contained in the survey instrument queried respondents about (a) their familiarity with voice disorders; (b) conditions or activities that cause voice disorders; (c) their knowledge of those groups that are at high risk of developing voice disorders; and (d) the relative influence of voice disorders on a person's educational success, vocational advancement, and self-concept. The subjects were also asked questions such as whether or not voice disorders require treatment and who would provide such treatment. Additionally, subjects were asked to rank order the severity of five forms of cancer of which, laryngeal cancer was included. Finally, subjects rated their willingness to engage in twelve activities that have been commonly associated by speech-language pathologists with either the prevention and/or treatment of voice disorders (e.g., vocal abuse reduction, vocal rest, etc.).

The survey was distributed to 490 African American adult subjects. These participants resided in the Raleigh-Durham-Chapel Hill, North Carolina Metropolitan Statistical Area (MSA). According to U.S. Census Bureau data, African Americans accounted for nearly

one-quarter (i.e., 228,227) of the total population (i.e., 969,387) of that MSA at the time of this study (U.S. Bureau of the Census, 2001). The subjects were recruited from local community activities centers. The survey instrument was distributed and collected by the principal investigators and trained research assistants affiliated with the project. The investigators administered the survey instrument to groups of no less than five or no more than 25 persons. Each questionnaire contained the following printed definition of a voice disorder adapted in part from the American Speech-Language-Hearing Association (1993):

A voice disorder is defined as any condition that results in a speaker having difficulty with the pitch, loudness or quality of his/her voice when talking. 'Pitch' problems may include the use of a voice that is too high or low for the speaker's age or sex. 'Loudness' problems may include the use of a voice that is too loud or too soft for the speaking situation. 'Quality' problems may include such conditions as hoarseness or breathiness in a person's speaking voice.

The definition was read aloud to the subjects and the investigators provided examples of the voice problems cited in the definition. So as to not influence their response to one of the survey questions, the subjects were not informed that speech-language pathologists were conducting the study. Rather, they were only told that they were participating in a 'health awareness survey.'

All of the returned questionnaires were reviewed independently by the investigators for completeness. It had been determined a priori, that those questionnaires containing items that were not completed would not be included in the analysis. Inter-investigator reliability for the independent review was high ($r = .935$). One week after independent review, the returned surveys underwent a group review by the investigators. The group review provided an opportunity to obtain consensus agreement on questionnaire completeness. Only those questionnaires that were unanimously agreed upon as complete were included in the analysis.

Survey Return Rate and Data Analysis

Of the 490 survey instruments distributed, 366 (75%) of those returned were usable. Of those subjects who participated, 240 were female (66%) and 126 were male (34%). Women represent approximately 51 percent of North Carolina residents (U.S. Bureau of the Census, 2001). Thus, it should be noted that females were over sampled in this study. All subjects had at least a high school diploma and just over one half had a two- or four-year college degree. The latter figures appear to be a reflection of the Raleigh-Durham-Chapel Hill region which is a hub for research, technological innovation, healthcare, and education and thus, a magnet for college-trained individuals. Subjects ranged in age from 18 to 61 years (mean age: 32 years). It should be noted that 62 percent of adults residing in North Carolina are between the ages of 18 to 64 years (U.S. Bureau of the Census, 2001). Thus, in terms of age distribution, the adult population of that state was well represented in the present investigation. Subjects were represented in the occupational categories shown in Table 1 and as can be seen, 56 percent were in jobs that required voice use as a primary tool of trade (Titze, Lemke, & Montequin, 1997). The survey data were examined descriptively and are reported in the next section as totals, percentages, and averages for the subjects.

RESULTS

The following is a summary of the major findings of the survey.

Personal Familiarity and Comfort Level with Persons with Voice Disorders

The first five survey items were directed toward determining subjects' personal familiarity and comfort level with persons with voice disorders. As shown in Table 2, in response to the question of whether or not they had ever known someone with a voice disorder, the majority of the subjects responded affirmatively. Moreover, most of these subjects stated that they knew more than one such person. Those subjects who knew someone with a voice disorder were asked to describe the nature of their relationship with the person(s) and were allowed to provide more than one

response to the item. The subjects indicated that the person(s) with a voice disorder whom they knew was most frequently a friend, acquaintance, or a stranger. When asked to describe how that person sounded, just over one-half of the subjects stated that he/she sounded hoarse. Approximately 41 percent of subjects affirmed exposure to someone who had undergone a laryngectomy and used a form of alaryngeal communication.

Those subjects who knew someone with a voice disorder were also asked to indicate their level of comfort interacting in public with that person(s). Subjects were allowed to choose their particular level of comfort by checking one of five choices ranging from 'very comfortable' to 'very uncomfortable'. As seen in Table 3, slightly more than one-half of the subjects indicated that they felt either 'somewhat' or 'very' comfortable talking in public to a person with a voice disorder.

Personal History of a Voice Disorder

The subjects were asked if they had ever had a voice disorder. Table 4 reveals that almost three-quarters of the subjects stated they had never had a voice disorder. When those persons who responded 'yes' to this question were asked to describe their condition, most listed hoarseness and problems with loudness control. It is interesting to note that a few of the subjects listed as voice problems, conditions that are not generally viewed as phonatory disorders per se, e.g., "slurred speech", "stuttering", "lisping". When the latter individuals were dropped from the analysis (N= 9), it was found that 25 percent of the subjects reported they had in the past experienced problems with their voice. None of the subjects indicated presently having a voice disorder.

Knowledge of Conditions or Activities That May Cause Voice Disorders

The subjects were also queried about their knowledge of conditions or activities that may cause voice disorders. Subjects were provided with a list of factors that have been commonly identified as having a negative affect on the human voice (Andrews, 1995;

Aronson, 1990; Boone, McFarlane, & Von Berg, 2005; Child & Johnson, 1991; Johnson, 1991; Kaufman & Johnson, 1991; Marge, 1991) and were asked to select from among these factors. Table 5 provides a rank ordering of the subjects' responses to this item. The subjects identified vocally abusive behaviors such as screaming and shouting as having a causal relationship with voice disorders (i.e., 63.5%). However, activities such as coughing and throat clearing, which have been indicted as maintaining or aggravating voice quality problems, were less frequently seen by subjects as contributors to voice disorders (i.e., 30% and 27%, respectively). Likewise, the subjects' knowledge of the possible link between exposure to airborne pollutants and voice problems was limited (i.e., 47%).

Knowledge of Groups at Risk for Developing Voice Disorders

The subjects were asked their opinion on which groups of persons appear to be at risk for developing voice disorders. Subjects were provided with six paired-choice responses to select (e.g., men----women). As seen in Table 6, over half of the respondents indicated that they believed that males were at greater risk than females and that adults were more susceptible to voice disorders than children. Older adults were viewed as at greater risk for voice disorders than young adults by nearly 75 percent of the subjects. The majority of subjects (i.e., 98%) believed that cigarette smokers were more vulnerable to voice disorders than non-smokers. Additionally, singers were seen as at risk for phonatory problems by 85 percent of the subjects. Finally, 53 percent of the subjects stated that they believed that whites were at greater risk for voice disorders than African Americans.

Relative Severity of Five Forms of Cancer

The subjects were given a list of five forms of cancer (i.e., lung cancer, breast cancer, ovarian cancer, prostate cancer, and laryngeal cancer) and asked to rank them in terms of their severity, using a 5-point scale. A rank of '1' was most severe while a rank of '5' was least severe. As seen in Table 7, the subjects felt that lung cancer was the most severe form of the

disease and laryngeal cancer was the least severe of the five types of cancer. As might be expected, females and males differed in their rankings. Women ranked breast cancer and ovarian cancer after lung cancer as the most severe forms. After lung cancer, men viewed prostate cancer as the most severe form of the disease.

Influence of Voice Disorders on Life Areas

The subjects were also asked their opinions on the relative influence of voice disorders on personal life areas such as educational success, vocational advancement, self-concept, social life, and activities of daily living (e.g., talking on the telephone). They were asked to use a 5-point rating scale (1 – no negative influence, 2 – minimal negative influence, 3 – moderate negative influence, 4 – very negative influence, 5 – extreme negative influence) to respond to this item. As seen in Table 8, subjects felt that overall, voice disorders were not likely to have more than a moderately negative influence on any of these personal life areas (i.e., >3 rating). They indicated that an individual's job prospects/advancement, self-concept, and social life were the personal life areas that were most likely to be negatively affected by a voice disorder. Women and men differed slightly in the manner in which they prioritized their ratings. Women indicated that a voice disorder would have a moderately negative influence on job prospects/advancement followed by self-concept. The male subjects viewed a voice disorder as likely having only minimal negative impact on job prospects/advancement. In the opinion of the male subjects, voice disorders were likely to have their greatest negative influence on an individual's social life.

Willingness to Engage in Voice Disorder Prevention and Treatment Activities

Subjects were asked to indicate their willingness to engage in twelve activities that have been commonly associated by speech-language pathologists with either the prevention and/or treatment of voice disorders in adults (Boone, McFarlane, & Von Berg, 2005; Chan, 1994; Marge, 1991; Mueller & Larson,

1992; Murray & Woodson, 1992; Roy, Gray, Simon et al. 2001). The responses to this item are summarized in Table 9. The overwhelming majority of subjects indicated a willingness to read or view educational materials that would increase their understanding about voice disorders; voluntarily reduce the loudness levels of their speaking voices; engage in relaxation training sessions; reduce throat clearing and coughing behavior; and decrease the amount of talking that they do. Up to three-quarters of the subjects indicated a willingness to undergo counseling activities to help manage a voice problem or engage in vocal hygiene or voice therapy activities (e.g., changing habitual pitch level). Only half of the subjects were willing to have surgery to manage a voice disorder. Finally, only one-third of subjects indicated a willingness to engage in complete voice rest for a period of up to one week.

Do Voice Disorders Require Treatment?

Subjects were asked if in their opinion, a voice disorder requires treatment. Responses to this item revealed that 61 percent of subjects (i.e., 225) felt that voice disorders do require treatment. Approximately 35 percent of the subjects (i.e., 128) did not feel that a voice disorder warranted treatment. Only four percent of the adults indicated that they did not know if a voice disorder merited treatment.

Knowledge of Whom Provides Service for Voice Disorders

Subjects' knowledge of which professional(s) should provide services for persons with voice disorders was also examined. In this open-ended response item, subjects were allowed to provide the name of more than one professional. The majority of subjects (i.e., 313 or 85%) viewed the 'speech pathologist' or 'speech therapist' as the professional who provides voice intervention services. 'Voice coach/trainer' was listed by a substantial number of subjects (i.e., 247 or 65.5%) as a voice disorder service provider; followed by 'physician' (i.e., 198 responses or 54%), 'teacher' (i.e., 79 responses or 21.6%), 'registered nurse' (i.e., 40 responses or 11%), and 'social worker' (i.e., 20 responses or 5.4%).

DISCUSSION

There are some possible limitations to this investigation that should be considered. First, twice as many female subjects participated in the study compared to males. Future studies with equal numbers of females and males may yield findings which differ from those reported herein. Second, the percentage of subjects with college degrees (just over one-half) was somewhat higher in this study compared to others that have surveyed adults from the general population (e.g., Roy, Merrill, Gray, & Smith, 2005). However, there is evidence to suggest that college-educated individuals are more likely to be employed in occupations which require extensive use of voice thus placing them at greater risk for voice problems than adults who have not attended college (see Roy, Merrill, Gray, & Smith, 2005). Additional study of the specific effect of educational level on adults' knowledge of voice is recommended.

With these caveats in mind, the findings of this study suggest that most African Americans know someone with a voice disorder, most often in the form of a quality disturbance or pitch control problem. Moreover, only half are generally comfortable interacting with such persons. How this level of tolerance (or intolerance) among African American adults for persons with voice disorders compares to that of other cultural groups is unknown. Bebout and Arthur (1992) reported that as a group, North American populations (i.e., U.S. and Canada) have a more positive attitude toward persons with speech disorders (i.e., stuttering, articulation, cleft palate) compared to members of Latin American and Asian cultures born outside of this continent. However, studies of untrained listeners from North America specifically, suggest they harbor negative attitudes about the intelligence, competence, honesty, and attractiveness of persons with voice quality disorders (Blood, Mahan, & Hyman, 1979; Lallh & Rochet, 2000; Lass, Ruscello, Bradshaw, & Blankenship, 1991; Ruscello, Lass, & Podbesek, 1988). Thus, further culture-specific study of personal acceptance of voice disturbances appears indicated.

While about one quarter of our subjects had experienced an actual voice problem of their own,

ECHO

it is interesting to note that the majority of these individuals stated that the phonatory problem had been of a temporary nature, tied most often to an upper respiratory infection or situational vocal abuse (e.g., yelling at a ballgame or hyperfunctional use of voice at work). Only two of the subjects reported experiencing a voice problem significant enough to warrant intervention (e.g., nodules). Caution should be exercised in attempting to view these results as 'incidence' data as we relied solely on the recollections of our participants. What can be gleaned from these findings is that many but not most African Americans have experienced some degree of communication limitation due to voice problems with the primary symptoms being hoarseness and loudness control difficulties. In terms of the vocal symptoms reported by our subjects, our findings are similar to those described by Smith et al. (1996) for a primarily white adult population (N = 174). Over 60 percent of their subjects reported experiencing hoarseness and 47 percent cited loudness problems ("weak voice") as their primary vocal symptoms.

Voice clinicians providing services to African American adults may find that members of this population are quite aware of common, well publicized conditions or activities that can cause voice disorders (e.g., smoking tobacco products, screaming). However, our findings also suggest that African American adults may not be similarly aware of the link between hyperfunctional activities such as coughing and throat clearing which can further irritate laryngeal tissues and maintain or exacerbate a voice disorder. Moreover, their awareness may need to be heightened by speech-language pathologists regarding the potentially harmful effects on the vocal folds and respiratory support system of inhaling environmental pollutants (e.g., dust, toxic-noxious fumes) and exposure to unhealthy outdoor and indoor air quality to eliminate or reduce their risk. While behavioral change can alter risk, it should be noted that much of the response to ecological hazards such as air pollution must involve the coordinated efforts of government agencies and nongovernmental organizations (USDHHS, 2000) in developing policies

and strategies to minimize environmental hazards that contribute to unhealthy voices.

While over half of our subjects felt that males are at greater risk for voice disorders than females, the extant literature suggests the opposite is true (Herrington-Hall, Lee, Stemple et al. 1988; Roy, Merrill, Thibeault, Gray & Smith, 2004; Roy, Merrill, Gray & Smith, 2005). For example, Herrington-Hall, Lee, Stemple et al. (1988), in a study reporting the distribution of laryngeal pathologies by age, sex, and occupation, noted that benign vocal fold lesions were identified in 57 percent of their adult female patients 25 years and older compared to 43 percent of their males. Cooper (1973) reported similar findings. Thus, African American women join females of other cultural groups in their need to be informed about their increased risk for phonatory disorders.

When asked about the association between age and risk for voice disorders, 59 percent of our respondents said that adults were more likely to have a voice disorder than children. Moreover, almost 75 percent of our participants identified older adults as being at greater risk for voice disorders than younger adults. Their assertions are buoyed by the findings of Herrington-Hall, Lee, Stemple et al. (1988) who reported that 87 percent of their 1,262 patients with laryngeal pathologies were adults and of this number, 48 percent were over 50 years of age.

Over half of our respondents felt whites are at greater risk for voice problems than African Americans. However, scant information is available to verify this supposition (ASHA, 1996). In fact, to our knowledge, no cross-cultural data on the epidemiology of benign vocal pathologies in adults have been published. What is known is that African Americans are at greater risk for cancer-related voice disorders than other populations (American Cancer Society, 2005; USDHHS, 2000). Hence, empirical study of the distribution of non-cancerous laryngeal pathologies among African American adults vis á vis other cultural groups is warranted.

Our subjects' ranking of laryngeal cancer as the least severe of five forms of the disease appears to be supported by cancer incidence statistics. Cancers

ECHO

of the lung, breast, ovaries, and prostate have much higher incidence rates among African Americans than laryngeal cancer, combining to yield 45 percent of new cases of cancer annually. In contrast, laryngeal cancer accounts for 2.7 percent of new cases of the disease yearly (Greenlee, Hill-Harmon, Murray, & Thun, 2001; Parkin, Pisani, & Ferlay, 1999). Moreover, if cancer 'severity' can be measured by survival rates at stage of diagnosis, it is noteworthy that laryngeal cancer has the highest rate of survival of the five forms when it is diagnosed late (National Cancer Institute, 1996).

The African American subjects of this study did not appear unduly concerned about the potential negative consequences of voice disorders in specific life areas. In this respect, our findings are similar to Smith's (1992) regarding the limited concern expressed by African Americans about communication disorders in general. This may be an area requiring greater public education in light of existing data. Recall that over half of our participants were employed in jobs that required voice use as a primary tool of trade. Titze, Lemke, and Montequin (1997) reported that about 30 percent of the U.S. workforce is employed in jobs that place their vocal health at risk. Additionally, these researchers note that of this segment of the workforce, up to 57 percent have sought care for a voice problem. Ma and Yiu (2001) stated that patients with voice disorders reported more limitations in daily voice activities (e.g., work and social communication) than adults with normal voices. Smith, Verdolini, Gray et al. (1996) stated that of their 174 adults with voice disorders, 75 percent complained that their phonatory problems negatively affected their social life compared to 11 percent of a control group of 173 vocally healthy individuals. Likewise, Sapir, Atlas, and Shahar's (1990) findings revealed that work performance and efficiency might suffer as a result of a voice disorder. Similarly, most of Smith, Verdolini, Gray et al.'s (1996) 174 adults perceived their voice problem as negatively affecting past (53%), current (49%), and future (76%) work performance. Finally, Roy, Merrill, Thibeault, Gray, and Smith (2004), in a large scale study of educators and members of the general public,

reported that compared to non-teachers, teachers missed more workdays over the year because of voice problems and were more likely to consider changing occupations because of their voice. Thus, adults with clinically significant voice disorders may be at risk of economic disadvantage (Ruben 2000).

Nearly two-thirds of our participants felt a voice disorder requires treatment. Colton and Casper (1996) indicate there is a paucity of hard data to support a position on this question. In point of fact, the necessity for intervention (and the form of treatment) will depend on factors such as the cause of the voice disorder, the patient's occupation (as discussed above), and the severity of the disorder—as perceived not only by the voice specialist but by the patient also. Alterations in vocal quality, loudness, and pitch resulting from transient upper respiratory infections or an acute instance of vocal misuse/abuse may resolve without formal intervention. Conversely, voice problems caused by chronic infectious and inflammatory conditions or malignant growths will almost certainly require medical treatment. Moreover, as Colton and Casper (1996, p. 277) and Colton and Murry (2000) note, voice therapy is almost always the treatment modality of choice for voice problems stemming from behaviors that have been identified as misuse or abuse of the laryngeal mechanism. Lastly, as Murry and Rosen (2000) state, in the absence of significant disease, the severity of the problem, i.e., amount of vocal handicap, as perceived by the patient and need to recover vocal function may determine treatment.

One unexpected result of this investigation was the level of awareness of our subjects of the speech-language pathologist's role in the management of persons with voice disorders. Again, our adults were not informed that speech-language pathologists were conducting the study. In this respect, their level of awareness of speech-language pathologists exceeded that of adults residing in urban and rural settings as described in previous investigations (Pearlstein, Russell, & Fink, 1977; Killarney & Lass, 1981). A possible explanation for this finding may be the educational level of our respondents. Just over half had

ECHO

a two- or four-year college degree. Thus, our sample of adults may have possessed greater sophistication regarding health matters and health care professionals than is typical. It is also possible that our participants benefited from exposure to electronic and/or print media coverage of prominent persons with voice disorders, such as former President Clinton, popular singers and entertainers, the first successful recipient of a laryngeal transplant, etc. Likewise, it is possible that our adult respondents were exposed to public service announcements about voice disorders produced by the American Speech-Language-Hearing Association or the National Center for Voice and Speech. We also cannot discount the likelihood that participants' knowledge of speech-language pathologists was heightened by either their own experience or that of a relative/friend with a voice problem requiring voice therapy by someone in the profession. Further efforts to determine if this level of awareness exists in other cultural groups, how they developed this knowledge, and where they would seek the assistance of a voice clinician appear indicated as they have important implications for accessing vocal healthcare services.

The results of this study suggest that voice clinicians will find most African American adults with voice disorders willing to engage in behavioral management as a form of intervention, i.e., vocal hygiene or voice therapy. The underlying implication of this finding is that African Americans may be receptive to culturally appropriate vocal health education programs designed to prevent phonatory problems among this population. This statement is underscored by Smith's (1992) finding that when African Americans are educated (i.e., their knowledge is increased) about the potential functional limitations of communication disorders, they express a desire to learn more about identifying and treating these problems. In the single study that examined as a function of culture, treatment-seeking behaviors or intention to seek treatment among African American and white singers exhibiting hoarseness, White and Verdolini (1995) reported that African American singers were, on average, neutral in their likelihood of seeking treatment for a voice problem (neither strongly likely nor strongly unlikely). Additionally, it

was found that for the African American singers, the experiences and opinions of others about treatment appeared to predict the likelihood of seeking treatment for a current voice problem. As noted by White and Verdolini (1995), if their findings are replicated in larger populations (and we would add, with members of the general non-performer population needing voice treatment), further effort toward developing culturally appropriate models for vocal health promotion in African American communities would be warranted. The development of such models will require exploration (through surveys and/or focused interviews) of the beliefs and practices of African American communities related to health and communication (Airhihenbuwa, 1992).

Finally, while research efforts over the last decade have increased, much more needs to be known about the efficacy of treatment for voice disorders (National Institute on Deafness and Other Communication Disorders, 2006; Pannbacker, 1998; Ramig & Verdolini, 1998). National health status reports such as Healthy People 2010 (USDHHS, 2000) point out that limited inclusion/participation of African Americans in treatment efficacy studies has, among other factors, contributed to disparities in health and health outcomes between this cultural group and majority adults. Many of the disease states that disproportionately impact African Americans affect the phonatory and respiratory support systems. Thus, when samples of adults from culturally-linguistically diverse populations are included as clinical participants in published voice therapy outcome studies, they should be identified and their particular response to treatment described.

Two additional strategies that have been suggested to help eliminate these health disparities are to assure the effectiveness of care (Health Resources and Services Administration, 2000) by providing cultural competency training for all health practitioners, including voice clinicians; and to increase the number of individuals from underrepresented minority groups (i.e., African Americans, Native Americans, Hispanics/Latinos, and Asians of the Vietnam War era) who are educated, trained, and employed in

the health professions (Council for Allied Health in North Carolina, 2001; Ross, 2001). Armed with the knowledge that our intervention protocols are effective for members of their communities, it is more likely that culturally diverse clients will fully engage in and cooperate with voice therapy. At the same time, obtaining more information on the knowledge possessed by populations such as African Americans about voice disorders will help to fill a current clinical vacuum.

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Table 1. Occupational categories of the survey respondents.

<i>Occupation</i>	<i>Number and Percent of Responses</i>
*Professional (lawyer, teacher)	92 (25%)
Technical (computer programmer, engineer)	91 (25%)
*Salesperson (sales associate, telemarketer)	71 (19%)
*Office worker (secretary, office assistant)	45 (12%)
Skilled trade (electrician, plumber)	40 (11%)
College student	15 (4%)
Currently unemployed	9 (2%)
Retired	3 (1%)
Total	366

*Occupation wherein voice use required as a 'tool of trade.'

Table 2. Number and percentage of African American adults responding to survey questions about their personal familiarity with voice disorders.

<i>Question</i>	<i>Number and Percent of Responses</i>
Have you ever known anyone with a voice disorder?	
Yes	303 (83%)
No	63 (17%)
How many people with a voice disorder have you known?	
One	49 (16%)
More than one	254 (84%)
What was this/these person's relationship to you?*	
Friend	182 (60%)
Acquaintance	125 (41%)
Relative	99 (32%)
Stranger	83 (27%)
Teacher/Professor	48 (16%)
Clergyperson	10 (3%)

Table 2. Continued

<i>Question</i>	<i>Number and Percent of Responses</i>
How did this person sound?*	
Hoarse	162 (53%)
High pitched	134 (44%)
Used mechanical device	109 (36%)
Too soft	103 (34%)
Too loud	86 (28%)
Breathy	79 (26%)
Low pitched	56 (18%)
Was only able to whisper	48 (16%)
“Burped” air or squeezed air together in the mouth to talk	15 (5%)

*Responses based on 303 persons who indicated knowing someone with a voice disorder. Participants were allowed to provide more than one answer to the question.

Table 3. Number and percentage of African American adults responding to the survey question about their level of comfort with persons with voice disorders.

<i>Question</i>	<i>Number and Percent of Responses</i>
If you know (or have known) anyone with a voice disorder, how comfortable do (or did) you feel talking to this person in public?	
Very comfortable	100 (33%)
Somewhat comfortable	57 (19%)
Neutral (does/did not bother me one way or the other)	100 (33%)
Somewhat uncomfortable	41 (14%)
Very uncomfortable	5 (1%)

ECHO

Table 4. Number and percentage of African American adults responding to the survey question about their personal history of a voice disorder.

<i>Question</i>	<i>Number and Percent of Responses</i>
Have you ever had a voice disorder?	
Yes	99 (27%)
No	267 (73%)
Describe the condition:	
“Hoarse”	53 (53%)
“Volume problem”	18 (18%)
“Laryngitis”	16 (16%)
“Other”:	12 (12%)
i.e. Stuttering	6
Lisp	1
Vocal nodules	1
Bogart-Bacall syndrome	1
Anxiety (choked up when nervous)	1
Glands swelled up and was unable to speak clearly	1
Slurred speech	1
Do you currently have a voice disorder?	
Yes	0 (0%)
No	366 (100%)

Table 5. Number and percentage of African American adults responding to the survey question about conditions or activities that may cause voice disorders.

<i>Question</i>	<i>Number and Percent of Responses</i>
To your knowledge, what conditions or activities cause voice disorders?	
Screaming	253 (69%)
Cancer	247 (67%)
Smoking	234 (64%)
Aging	231 (63%)
Shouting	213 (58%)
Sinus conditions	197 (54%)
Environmental pollution (e.g., smog, chemicals)	172 (47%)
Allergies	159 (43%)
Singing	150 (41%)
Coughing	109 (30%)
Throat clearing	100 (27%)

Table 6. Number and percentage of African American adults responding to the survey question ‘Who is more likely to have a voice disorder?’

<i>Question</i>	<i>Number and Percent of Responses</i>
Who is more likely to have a voice disorder?	
Men	210 (57%)
Women	156 (43%)
Adults	215 (59%)
Children	151 (41%)
Young adults	98 (26%)
Older adults	268 (74%)
Non-smokers	8 (2%)
Cigarette smokers	358 (98%)
Singers	310 (85%)
Non-singers	56 (15%)
Whites	194 (53%)
African Americans	172 (47%)

Table 7. African American respondents' rank ordering of the severity of five forms of cancer (1 – 'Most serious' to 5 – 'Least serious').

<i>Rank Order by Gender</i>	<i>Form of Cancer</i>	<i>Rank</i>
Females (N = 240)		
	Lung cancer	1.71
	Breast cancer	2.61
	Ovarian cancer	2.97
	Prostate cancer	3.48
	Laryngeal cancer	4.14
Males (N = 126)		
	Lung cancer	1.60
	Prostate cancer	2.93
	Breast cancer	3.01
	Ovarian cancer	3.38
	Laryngeal cancer	4.00

Table 8. African American participants' responses to the question: 'How negatively do voice disorders influence the following areas in a person's life?'

<i>Rank Order by Gender</i>	<i>Life Area</i>	<i>Mean Rating</i>
Females		
1	Job prospects/Advancement	3.53
2	Self-concept	3.25
3	Social life	2.94
4	Activities of daily living	2.89
5	Academic success	2.07
Males		
1	Social life	2.87
2	Self-concept	2.86
3	Job prospects/Advancement	2.21
4	Academic success	2.21
5	Activities of daily living	1.74

Table 9. African American participants' responses to the item: 'If I had a voice disorder, I would be willing to do the following to make my voice better'.

<i>Activity</i>	<i>Yes</i>	<i>No</i>
1. Read educational brochures/booklets or view videotapes that will increase my understanding about voice disorders	335 (92%)	31 (8%)
2. Not talk as loudly as I usually do	330 (90%)	36 (10%)
3. Participate in classes that teach me how to relax more	317 (87%)	49 (13%)
4. Reduce the amount of throat clearing and coughing	301 (82%)	65 (18%)
5. Reduce the amount of talking that I do	295 (81%)	71 (19%)
6. Talk to a counselor or psychologist	288 (79%)	78 (21%)
7. Talk at a higher or lower pitch level	271 (74%)	95 (26%)
8. Stop singing for several months	260 (71%)	106 (29%)
9. Have surgery on my vocal cords	187 (51%)	179 (49%)
10. Open my mouth wider when I talk to people	183 (50%)	183 (50%)
11. Keep a strict written record of the number of times a day that I cough, yell, or talk or laugh loudly	182 (49%)	184 (51%)
12. Stop talking completely for up to one week	126 (34%)	240 (66%)