

Listener Impressions of Spasmodic Dysphonia: Symptom Severity and
Disclosure of Diagnosis During a Job Interview

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Abstract

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The U.S. government has attempted to address inequality in the workforce for those with disabilities through the passage of the Americans with Disabilities Act of 1990 (ADA). Because the ADA is a complex legal document, Chapter 1 is presented as a review article, serving as a tutorial for speech-language pathologists as to how the tenants of the ADA might be applied to individuals with voice disorders. Under the ADA, disclosure of a disability is not mandated. However, job-related accommodations can only be requested if the presence of a disability is disclosed. This decision to disclose a disability during the hiring process is likely complex, involving variables related to the setting, the motivation behind the disclosure, as well as the specific medical condition. Chapter 2 proposes a theoretical model that summarizes the factors an individual with a communication disorder might consider prior to making a disclosure decision during the hiring process. In this proposed model, the apparentness of symptoms is believed to factor heavily into disclosure decisions. Individuals with health symptoms that are more hidden may have the option to refrain from disclosure, whereas those with more apparent disabilities (i.e., stuttering) do not have the option of concealing what is already evident to the

observer. Chapter 3 attempts to provide a baseline for how speakers with a particular communication disorder (spasmodic dysphonia or SD) are perceived by unfamiliar listeners pre-disclosure, when no information about the condition is provided. In general, speakers with SD were judged more negatively on certain traits, suggesting that the presenting symptoms of this voice disorder are noticeable and can lead to negative judgments by communication partners. However, the results of Chapter 3 suggest that it is the severity of symptoms that may be important to consider, as some speakers with very mild SD were not penalized by listeners. Chapter 4 explores the issue of symptom severity in greater depth within the context of a simulated job interview. Listeners consisting of human resources personnel (HRP) with experience in hiring were asked to discuss their reactions to the same job applicant with SD in one of two listening conditions: pre-BOTOX/severe or post-BOTOX/mild. Prior to any disclosure, HRP noticed the voice to a different degree and described the voice of the applicant differently between the two conditions. A unique subset of employer concerns emerged for the applicant with severe symptoms. Upon an eventual disclosure of SD, those same HRP rated their preferences for supplemental information and stated their rationale for or against disclosure in both severity conditions. Findings suggest that severity may play an important role in whether or not disclosure of SD is ultimately recommended by employers. Earlier disclosures were preferred most often in the severe condition, while disclosure was often discouraged when symptoms were mild. This suggests that the symptoms of each individual patient with SD must be taken into account in lieu of making unilateral disclosure recommendations in this population.

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Introduction **(Plain Language Summary provided at defense)**

Many individuals with disabilities have a difficult time securing work. In the U.S., the government has tried to address this issue by passing a law called the Americans with Disabilities Act (ADA). The ADA states that an individual does not need to disclose the presence of any medical condition during a job interview. This makes sense for hidden conditions, such as when a person has diabetes, dyslexia, fibromyalgia, arthritis, or is HIV positive. But what if the disability is apparent? Many studies on visible or overt disabilities (i.e., wheelchair use, stuttering) have shown that acknowledging a condition that is clearly evident might be more advantageous than not addressing it. What is currently unknown is how individuals with voice disorders might be perceived during job interviews, and whether or not disclosing a specific voice disorder (spasmodic dysphonia or SD) would be recommended by the average employer.

Because not mentioning a condition is always an option under the ADA, we first examined how multiple speakers with SD might be judged differently in a pre-disclosure state, when no information about the presence of a voice disorder was provided. A neutral reading passage was used, and the listeners (primarily college students) judged the speech samples. Next, two groups of employers heard a job applicant with SD give a hypothetical interview. One group heard the applicant when her symptoms were milder, while the other group heard that same applicant when her symptoms were more severe. Employers: 1) described her voice in both conditions, 2) mentioned any concerns they had, and 3) guessed what medical condition they thought might be responsible for her voice quality. A disclosure of SD occurred, and employers rated a series of statements about SD in terms of importance. Finally, employers were

asked about the timing of the disclosure (earlier vs. later) and for their overall recommendation regarding whether or not the applicant should have addressed her SD during the interview.

We learned the following from these studies:

1. Without any information (pre-disclosure), college students rated speakers with SD as sounding older, more effortful, more tearful, and less confident than people without voice disorders. However, a few SD speakers with the mildest symptoms were not penalized.
2. Virtually all employers (15/16) immediately commented on the voice of the job applicant with SD when her symptoms were worse. In the severe case, most initially presumed she was either a heavy smoker, had throat cancer, or had emphysema. In the mild condition, no employer ever suspected she had a problem with her voice.
3. Employers preferred disclosure statements that specifically mentioned: 1) whether accommodations would be required, 2) personal assurances that SD would not affect job performance, and 3) a brief, factual description of SD.
4. In the severe condition, 13/16 employers advocated for disclosure, with an earlier disclosure at the outset of the interview recommended most often. Conversely, no employer in the mild condition suggested an earlier disclosure, with the majority believing she should have refrained from mentioning her SD.

These results suggest that a change in symptom severity of a voice disorder can elicit different reactions and recommendations from employers. Additionally, employers had clear preferences for the statements people should use when speaking about their SD during interviews. These results will hopefully be a starting point to help guide speech-language pathologists in counseling voice patients about disclosure during the hiring process.

CHAPTER 1: THE ADA AND VOICE DISORDERS: PRACTICAL GUIDELINES FOR THE SPEECH-LANGUAGE PATHOLOGIST

Introduction

The Americans with Disabilities Act of 1990

The Americans with Disabilities Act of 1990 (ADA) was created by Congress in an attempt to reduce the obstacles faced by individuals with disabilities across many domains. This broadly includes obstacles related to employment discrimination, as well as access to medical care, public facilities, and telecommunication services. Title 1 of the ADA deals specifically with employment related issues, including how individuals with disabilities are to be treated during the job interview process. The purpose of this article is to serve as a resource for practicing speech-language pathologists (SLPs) who might not be familiar with current disability law. More specifically, this article focuses on how the ADA can be applied to individuals with voice disorders, providing information concerning how the designation of disability is assigned under the ADA. The case of individuals with voice disorders is particularly important for speech-language pathologists to understand because the rules and protections under the ADA have been expanded due to the Americans with Disabilities Act Amendments Act of 2008 (ADAAA). Additionally, two individuals with relatively similar voice impairments (e.g., dysphonia severity) may not have the same legal protections under the ADA if one person feels that his/her disorder is not substantially limiting. In addition, voice disorders are also different from most other communication disorders because their severity may fluctuate from moment to moment (e.g., spasmodic dysphonia), day to day (e.g., muscle tension dysphonia), or month to month (e.g., recovery of function in vocal fold palsy). To illustrate how the ADA pertains to voice

disorders, examples of potential accommodations are provided along with resources and websites that both clinicians and clients might find helpful. Finally, conclusions are made as to whether or not the policies outlined in the ADA are truly protective of individuals with voice disorders.

Disability Defined. The term *disability* is defined by the ADA as: “... (a) a physical or mental impairment that substantially limits one or more of the major life activities of an individual; (b) a record of such an impairment; or (c) being regarded as having such an impairment” (ADA, 1990, p. 330). *Major life activities* include, but are not limited to: self-care, manual tasks, hearing, seeing, eating, breathing, sleeping, walking, standing, lifting, bending, **speaking**, learning, reading, concentrating, thinking, **communicating**, and working (Government Printing Office, 2013). To qualify as a *substantially limiting* impairment, expert testimony or physician documentation is not necessarily required. Credible testimony from the individual with a disability is often sufficient. However, companies can request formal medical documentation from the employee if they desire.

The Americans with Disabilities Act Amendments Act of 2008

Due to amendments made to the ADA in 2008 (ADAAA), the extent to which any impairment affects a major life activity is now to be evaluated without consideration of the effect of any mitigating measures, with the exception of ordinary eyeglasses or contact lenses. Mitigating measures in this case refers to such things as pharmaceutical interventions or physical devices. As a concrete example, the limitations that a hearing impairment might impose upon an individual should be evaluated as if that person were not able to use hearing aids (i.e., when the impairment is left untreated). An individual post-laryngectomy might feel that he/she can communicate adequately using a tracheoesophageal prosthesis as an alaryngeal voice source. However, what if that individual were not able to use the prosthesis? This essentially means that

the determination of whether an impairment is considered substantially limiting is to be made with respect to a person's baseline level of functioning. The original ADA of 1990 implied that "temporary, non-chronic impairments of short duration, with little or no long term or permanent impact, are usually not disabilities." (ADA, 1990). Initially, impairments could not be transitory, and symptoms were required generally to persist for longer than 6 months in order to be classified as disabilities. However, this changed as a function of the ADAAA of 2008. The Equal Employment Opportunity Commission (EEOC) issued new regulations pursuant to the ADAAA which explicitly state that temporary impairments *can* qualify. Section 1630.2(j)(1)(ix) of the EEOC regulations states: "The effects of an impairment lasting or expected to last fewer than six months can be substantially limiting" (Government Printing Office, 2013). The definition of disability was therefore broadened to also include temporary conditions that might have a substantial impact on a person's functioning. The wording was also made more inclusive by insisting that the term "substantially limits" should not be construed to mean "significantly restricts." Episodic conditions can also qualify if they substantially limit activities when flare-ups occur. Section 1630.2(j)(1)(ii) of the newest EEOC regulations states:

An impairment is a disability within the meaning of this section if it substantially limits the ability of an individual to perform a major life activity as compared to most people in the general population. An impairment need not prevent, or significantly or severely restrict, the individual from performing a major life activity in order to be considered substantially limiting. . . The term *substantially limits* shall be construed broadly in favor of expansive coverage, to the maximum extent permitted by the terms of the ADA. *Substantially limits* is not meant to be a demanding standard (Government Printing Office, 2013)

An impairment now no longer needs to prevent, or significantly restrict a person from performing a major life activity in order to be considered substantially limiting. Furthermore, in making an assessment of whether the impairment is substantially limiting, a comparison is to be made to most people in the general population without that condition. In making a determination

of whether a person might be substantially limited, the assessment “should not demand extensive analysis” (Government Printing Office, 2013). In looking over the changes made to the ADA as a result of the 2008 Amendments, one can clearly see a trend towards a broader definition of what it means to have a qualifying disability. The ADAAA was actually passed by Congress in direct response to a number of high profile Supreme Court cases which ruled *against* individuals with disabilities. It was deemed that the original definition of disability contained in the ADA of 1990 was too narrow in scope. Thus, Congress passed the ADAAA of 2008 with the express purpose of expanding the notion of what it means to have a disability under the law.

Reasonable Accommodations. Under the ADA, an individual with a disability is entitled to *reasonable accommodations* in the workplace. What constitutes reasonable will be explored momentarily; first, it should be pointed out that not every workplace (or what the ADA labels as a *covered entity*) is mandated to provide such accommodations. A *covered entity* refers only to businesses or organizations that employ more than 15 people (ADA, 1990). This implies that most small business owners need not adhere to the policies laid out under the ADA. However, there may be state laws in place which mandate similar provisions. Ironically, even though the ADA was crafted by the federal government, federal employees are not covered under its policies. The stated rationale for this is that federal employees are instead to be protected according to the guidelines listed under the Rehabilitation Act of 1973. The Rehabilitation Act can be thought of as a precursor to the ADA that initially applied only to organizations that received federal funding. The ADA moves beyond federal employees and stipulates that no covered entity shall discriminate against a qualified individual with a disability during job application procedures, hiring, advancement, discharge, compensation, or training (Government Printing Office, 2013).

Because the ADA is a broad document and includes somewhat nebulous terminology such as "substantially limits" and "reasonable accommodations", a bi-partisan law enforcement agency known as the Equal Employment Opportunity Commission (EEOC) handles many issues related to how the policies of the ADA are enforced. The EEOC is charged with the responsibility of enforcing federal laws that make it illegal to discriminate against a job applicant or an employee because of the person's race, color, religion, sex (including pregnancy), national origin, age (40 years or older), disability, or genetic information. The EEOC also serves as a resource for those with disabilities. Different disabilities might require very specific accommodations. However, one general accommodation that might be common across disability types involves the issue of time off from work. Examples of reasonable time-related accommodations according to the EEOC include "permitting the use of accrued paid leave or providing additional unpaid leave for treatment or recovery related to a disability" (EEOC, 2011, p.15). This includes leaves of absence, occasional leave (e.g., a few hours at a time), and part-time scheduling. Allowing an individual with a disability to change his/her regularly scheduled working hours is also permitted. An example would be an individual who requests to work 10AM to 6PM rather than 9AM to 5PM. One rationale for this flexibility in scheduling stems from the fact that some medications can contribute to lack of concentration or grogginess in the morning. Flexible scheduling can enable some disabled employees to perform essential job functions more easily.

Another agency associated with the ADA is known as the Job Accommodation Network (JAN) and is a service of the Office of Disability Employment Policy of the US Department of Labor. The JAN provides a series of online documents with disease-specific accommodation suggestions, serving as a resource for both employers and workers. It stands to reason that the

accommodations an individual might require for epilepsy might be completely different from those required by a person who has undergone a total laryngectomy, and so the JAN offers online PDF pamphlets of what might be termed reasonable for different conditions. Importantly, an employee cannot request a reasonable accommodation unless that individual first discloses his/her disability to the employer.

The EEOC and the JAN essentially serve as resources and points of contact both for individuals with disabilities and respective employers. Employees must first contact their agency's EEO office and follow identified steps and timelines before filing with the EEOC. An individual typically never sues a company directly citing discrimination under the ADA. Instead, the EEOC first makes attempts at mediation between the two parties. Lawsuits generated by individuals citing unfair treatment under the ADA are the exception, and are only filed through the EEOC once attempts at mediation have failed. Officials at the EEOC essentially act as intermediaries and make the final determination as to whether accommodations are reasonable, given the resources of particular companies.

Disclosure. Although an applicant can choose to disclose the presence of a disability at any time, employers are not at liberty to ask about the nature of any suspected disability during the **pre-employment** phase (Illinois ADA Project, 2013). Legally, any question that may elicit disability-related information is prohibited prior to any conditional offer of employment. If, during the pre-employment phase, an obvious physical disability is apparent, such as an individual using a wheelchair, the employer may only inquire about how the individual might perform a specific job task, or if possible accommodations might be required (ADA, 1990; EEOC, 2005). No questions related to the etiology of the underlying physical condition may be asked. This fact is extremely important to note. Even if a worker willingly brings up a specific

disability during an interview, the employer can *never* legally ask disability-related questions such as “What causes that?” “How is that treated?”, or “What are the symptoms of that disorder?” Individuals who are contemplating disclosure should know that it remains up to the worker to decide how much disability-related information he/she would like to share. However, this also means that the applicant is completely unaware of any concerns that the employer might have, since those concerns and questions can never be verbalized by the person conducting the interview. Employer concerns might be completely unfounded and could be put to rest by the applicant, but since the employer cannot articulate such concerns, the onus is placed on the applicant to preemptively clarify how the condition will/will not interfere with job tasks. Interestingly, after a **conditional job offer** has been made, the employer may then require a medical exam and ask broad questions pertaining to disability in general, but only if this process is standard for all applicants. This fact runs counter to the information commonly found on a number of published websites that states that the only time an employee is ever legally bound to disclose a disability is when he or she is seeking a reasonable accommodation (Indiana Career Services, 2009; Boston University, 2011; University of Montana Career Services, 2011). The right of companies to ask disability related questions during a conditional job offer phase is a detail in the ADA that is not widely publicized. This is perhaps because for the majority of jobs, a medical exam is not a standard prerequisite to a provisional offer of employment. Nonetheless, it does stand in contrast to what is commonly assumed about disclosure as always being subject to the discretion of the applicant. If an applicant is asked disability-related questions during this conditional job offer phase and is disqualified, the reason for disqualification must be consistent with business necessity and must be non-discriminatory (Illinois ADA Project, 2013). Disqualification due to “business necessity” in this case means that “(1) an employee’s ability to

do essential job functions will be impaired by the medical condition; or (2) an employee will pose a direct threat to others or to him/herself due to a medical condition” (Duston, 2011, para.10). Any information regarding the disability that is conveyed to the employer must be kept in strict confidentiality at all times. Confidentiality may only be broken in the event that the disabled person might require emergency services or when governmental officials are investigating compliance with the ADA. Once **on the job**, an employer may only ask for disability related information if the employee appears to pose a risk to the safety of others, appears unqualified for the job, or needs a reasonable accommodation (Illinois ADA Project, 2013).

Application to Individuals with Voice Disorders

Many might erroneously assume that the term disability refers only to individuals with physical impairments that restrict mobility in some fashion. Simply knowing that the terms *hearing*, *speaking*, and *communicating* are considered major life activities under the ADA is fundamental information. Unbeknownst to perhaps many speech-language pathologists (SLPs) and the individuals they serve, these specific terms were only added to the ADA as a result of the Amendments Act in 2008 (ADAAA). As a result, those with voice disorders who feel they are substantially limited in the ability to speak effectively can meet the criteria for having a disability under the law.

It is also important to note that temporary voice disorders that might *not* have initially qualified under the ADA of 1990 can now theoretically be covered due to the ADAAA of 2008. Between 1990 and 2008, an employer technically could have stated that a voice disorder with symptoms expected to last less than 6 months would not entitle a person to accommodations in the workplace. Qualification under the old law seemed to depend more upon duration rather than

severity of symptoms. This prior emphasis on duration is important to note. For example, under the older law, an individual with a vocal hemorrhage or laryngitis would technically not have been entitled to accommodations in the workplace. Even if the person were rendered completely aphonic in either of the aforementioned scenarios, the transient nature of those conditions (i.e., symptoms lasting for less than six months) would have precluded them from qualification under the original ADA. Similarly, a worker who exhibited dysphonia subsequent to thyroid surgery may not have been able to qualify under the original standards. The potential regeneration of the recurrent laryngeal nerve might have given the impression that dysphonia in that case would only be temporary. In contrast, individuals who use alaryngeal speech or who have progressive neurological voice disorders would have easily been granted accommodations because of their chronic nature. Now, however, clinicians and their clients should realize that the playing field has been leveled, and *any* voice disorder can seemingly qualify as a disability worthy of accommodations if the symptoms are substantially limiting to that individual. Also important to note is that disability status is to be granted at baseline functioning prior to any medical intervention. In other words, even if an alaryngeal speaker can communicate rather clearly with an electrolarynx, his/her baseline communication is to be evaluated as if that assistive device were unavailable to that person. Another concrete example might be the use of BOTOX in the treatment of spasmodic dysphonia (SD). Perhaps someone with SD has come to rely on regularly scheduled BOTOX treatments, and the treatments enable her to function fairly well. However, would that individual with SD feel that her speaking would be substantially limited if she could *not* receive her injections? If so, then that individual may be viewed as having a disability under the law. This employee with SD can have an altered workday, or time off to pursue treatment since the condition is to be evaluated at baseline functioning.

Episodic conditions can also qualify as long as they substantially limit functioning when flare-ups occur. This implies that a person with muscle tension dysphonia (MTD) whose symptoms might be more prominent at the end of a workday as opposed to the morning would also qualify as having a disability. There is also no stipulation in the current law that a disability that is self-induced or the result of phonotraumatic behaviors would be excluded from qualification. In fact, alcoholism is listed as a disability under the law, as are COPD and other conditions brought about by smoking. Therefore, individuals with behaviorally-based voice disorders such as MTD, functional aphonia, or vocal nodules should easily be entitled to protection under the ADA. On the Job Accommodation Network website, the pdf referring to voice disorders states the following:

There are many varieties of voice disorders. Some, such as unilateral or bilateral vocal fold paralysis, result from damage to the nerve pathways that control the movement of various parts of the voice box or larynx. Others result from damage to the vocal folds, which are commonly called vocal cords, due to overuse, cancer, acid reflux, and other causes (Job Accommodation Network, 2011).

Since schedule change is considered a reasonable accommodation according to the EEOC, workers with certain voice disorders might benefit from such time-related requests. For example, in the case of SD, BOTOX injection into the intrinsic laryngeal muscles remains the current treatment of choice (Duffy & Yorkston, 2003; Ludlow, 2009). Patients are sometimes subjected to long waits in clinics and/or travel great distances to receive treatment (Baylor, Yorkston, Eadie, & Maronian, 2007). Occasional leave of a few hours for medical appointments and part-time scheduling should technically be granted to employees with SD, without fear of losing their jobs. Not only could time off for doctor's appointments be requested, but working shorter days when speaking becomes more effortful (e.g., at the end of a BOTOX cycle) or more breathy (e.g., immediately post-BOTOX) might be points for negotiation if the employee agrees to work

longer hours when voicing is at its best. Other sample accommodations listed by the JAN for individuals with voice disorders include, but are not limited to, the following suggestions listed in Table 1.1.

Table 1.1

Sample Accommodations for Individuals with Voice Disorders According to the Job Accommodation Network

-
1. Allow increased use of text based communication such as email, instant messaging, and texting
 2. Restructure job to reduce total amount of speaking required
 3. Modify employee's schedule to allow breaks to manage condition by eating, drinking water, using stress reductions techniques or vocal exercises, or resting voice
 4. Allow flexible use of leave time when symptoms are exacerbated or to pursue treatment
 5. Relocate workstation away from sources of background noise
 6. Install noise reduction materials near work area
 7. Allow use of a telephone voice amplification device
 8. Allow use of a portable voice amplifier or a more powerful amplifier such as a PA (public address) system
 9. Reduce background noise by installing noise reduction panels in meeting areas
 10. Change meeting etiquette so only one person speaks at a time
 11. Be prepared to use alternate means of communication such as pen and paper, typing, or an AAC device in cases of extreme vocal fatigue
 12. Modify policies to allow employee to eat or drink at workstation
 13. Allow use of assistive devices such as electrolarynx or AAC devices for employees who use these as a primary means of communication
-

Limitations of the ADA

Undue hardship. One seeming loophole in the ADA is that an accommodation can be refused by an employer who views the particular accommodation as an *undue hardship*, causing

significant difficulty or expense. An assessment of undue hardship is based upon the cost of the accommodation, the size and financial resources of the business, and the impact of the accommodation on company operations. An employer is not obligated to provide an accommodation that would eliminate an essential function of the job or lower production standards. Employers are also not obligated to provide personal use items (e.g., a portable voice amplifier or hearing aid) if those items are also used by the employee *outside* of work. Knowing that the decision of whether or not to accommodate is left up to the employer seems to disempower the very person that the ADA was intended to protect. What might be deemed an undue hardship to one company may seem entirely reasonable to another. However, as mentioned previously, if a company is unwilling to accommodate, it is ultimately the EEOC that makes the final determination as to what is considered reasonable given the resources of each business. If after an investigation the EEOC finds the requested accommodations to be reasonable, yet the business refuses to comply, then procedures for litigation can commence.

Enforcement Issues. Although well-intentioned, the ADA is limited in terms of how its policies can be enforced. If an individual with a voice disorder applies for a job but is not hired, how might the individual prove that disability-related discrimination was the cause? If 50 applicants apply for one job, 49 may be rejected for any number of reasons. Unless an interviewer openly declares that he/she will not hire an individual specifically because of a disability (which would seem unlikely), proving a case for discrimination during hiring seems difficult at best. The ADA was passed in 1990, and yet as of 2011, individuals with disabilities were still employed at less than half the rate of their nondisabled peers (Erickson, Lee, & von Schrader, 2011). This discrepancy exists despite the fact that the majority of those with disabilities report that they would like to be employed (Ali, Schur, & Blanck, 2011). Subtle

forms of discrimination could still be in place during the hiring process without the applicant ever knowing. This could especially be the case for individuals with voice disorders whose impairments may be audibly noticeable to individuals in hiring situations. In fact, a recent study revealed that individuals with speech and voice disorders filed proportionally more discrimination and harassment claims through the EEOC than those with visual or orthopedic impairments (Mitchell, McMahon, & McKee, 2005). Why an individual with a speech or voice disorder should be subjected to proportionally greater hiring discrimination or harassment than an individual who is blind or uses a wheelchair is not clear. However, because this finding was so striking, the authors of that study concluded that across all disability types, those with speech and voice disorders in particular might especially benefit from information and training related to the skills necessary to navigate the job interview process.

Disclosure Dilemma. By focusing heavily on the issue of disclosure, the ADA also seems to cater towards individuals with hidden disabilities. Certain job applicants might be able to easily protect themselves by refraining from mentioning their hidden medical conditions (i.e., epilepsy, arthritis, hemophilia, diabetes, chemical sensitivities, chronic fatigue syndrome). Keeping certain hidden conditions concealable assures the applicant that the medical condition could never be a factor in the ultimate hiring decision. However, choosing when and how to disclose is not necessarily an option if an individual has a more apparent communication disorder. Would an individual with a stutter, ataxic dysarthria, or a severe voice disorder be protected by not having to “disclose” these more noticeable impairments? For example, a law that prohibits an employer from asking a person who has had a total laryngectomy about his visible stoma 1) does nothing to ensure that hiring discrimination will not still take place, and 2) does not take into account the body of social psychology research demonstrating that

acknowledging and discussing an overt disability has seeming advantages over non-acknowledgment (Hastorf, Wildfogel, & Cassman, 1979; Hebl & Kleck, 2002; Hebl & Skorinko, 2005). The ADA implies that the ability to refrain from disclosure is somehow a protective factor for a job applicant, but it may do more harm than good in the case of communication disorders. Research has shown that individuals who stutter, have profound hearing loss, or who use alaryngeal speech were regarded *more* favorably by observers when they *did* discuss their conditions, as opposed to when they said nothing (Blood & Blood, 1982; Blood & Blood, 1999; Collins & Blood, 1990). There is evidence to support that at least in the case of certain communication disorders, refraining from disclosure may not always be protective or advantageous.

Future Directions

With additional studies, we might be able to discover whether refraining from disclosure during a job interview is truly beneficial for individuals with various types of voice disorders. Contrary to hidden disabilities that have been shown to be stigmatizing (i.e., mental illness), we may find that significant numbers of employers prefer a speaker with a voice disorder who does disclose the condition, as compared to that same speaker who says nothing at all. Multiple studies have documented the fact that individuals with voice disorders are often rated more negatively (e.g., less intelligent, less competent, etc.) because of their vocal quality (Altenberg & Ferrand, 2006; Blood et al., 1979; Lass, Ruscello, Bradshaw, & Blankenship, 1991). This includes individuals with poor voice quality secondary to various etiologies (Altenberg & Ferrand, 2006; Blood et al., 1979), such as vocal nodules (Lallh & Rochet, 2000), spasmodic dysphonia (Isetti, Xuereb, & Eadie, 2014; Silverman & Hummer 1989), and alaryngeal speech (Evitts et al., 2007).

Perhaps speakers with severe voice disorders who do not disclose during job interviews might erroneously be regarded as having throat cancer, emphysema, or any number of conditions that may be considered more stigmatizing because of their progressive nature. For example, in a recent qualitative study, Nagle, Eadie, and Yorkston (submitted) investigated listeners' perceptions of speakers with SD. Nine inexperienced listeners were interviewed after judging speech samples from 10 females with ADSD. Results showed that listeners made assumptions about the speakers that went beyond speech characteristics. With no diagnostic information provided to them, listeners assumed speakers were ill, were smokers, or were even "mentally challenged". Thus, disclosure in severe cases may offer clarification for the symptoms that were already apparent to the employer at the outset.

Qualitative research should also be conducted to ascertain what strategies people living with voice disorders are currently utilizing when they do communicate their diagnoses to others. Personal stories of what has contributed to successful versus unsuccessful disclosure experiences in this population could be used to guide future research. In addition, studies that focus on how employers react to the voices of applicants with voice disorders could help us understand the hiring concerns that might be present, as well as the specific strategies that employers might recommend to applicants.

Clinical Implications for SLPs

Whether or not the ADA is actually effective in ameliorating hiring discrimination is beyond the scope of this review. However, it could at least be argued that a thorough knowledge of what constitutes a disability under the law and what types of accommodations can be requested have the power to influence disclosure decisions in the workplace. Individuals who mention that they are experiencing difficulty at work may not even realize that under the law, a

voice disorder that substantially limits their ability to communicate entitles them to accommodations. Having clinicians keep a brochure on hand from the Job Accommodation Network (www.askjan.org) with a list of sample accommodations for individuals with voice disorders would be helpful in this regard. It is unknown just how familiar most SLPs are regarding the policies laid out under the ADA. One basic clinical implication is that SLPs themselves might need to have a firmer understanding of disability law and become better advocates for those they serve. For example, in a recent study, 58% of patients with SD who were being treated successfully with BOTOX injections still reported decreased productivity at work (Meyer, Hu, & Hillel, 2013). SLPs should therefore be prepared to address patient concerns in this area.

In all probability, most individuals will not be actively on a job search when they seek treatment for their voice disorders. The vast majority will already be currently employed or will perhaps be retired. For the former group, counseling on disclosure becomes less about how to do so within the context of an initial interview, and instead becomes more about informing them of their rights and potential accommodations in their current jobs. They should be told that disclosure and accommodation requests can occur at *any* time, and not just upon hiring. On a personal note, the author (DI) recently conducted an interview with a physical education teacher who had been diagnosed with SD for over 10 years. She mentioned that it was only during her most recent visit to the otolaryngology clinic that she realized her condition entitled her to an amplification device that she could use when teaching her students outdoors. Instead of having a fellow teacher take over her class when her voice quality was poor, she was now thrilled that she had a piece of technology that was paid for by her school. While the specifics are unknown,

(perhaps she would not have needed it years ago), it does lead one to question if an earlier accommodation suggestion from an SLP could have saved her years of struggling at work.

Because individuals with voice disorders often self-select for treatment and are commonly diagnosed in outpatient clinics, the SLP and otolaryngologist are typically the entire treatment team (Eadie & Hapner, 2013). Referrals for vocational services that help individuals with voice disorders cope with changes in work-related functioning are not standard. However, when placed within the context of other disability groups, individuals with voice disorders might have more work-related concerns than we realize. Consider the fact that in an acute setting, the impact of a severe burn or amputation on work-related functioning would be obvious. It would be expected that a patient with a spinal injury would be provided with resources about how to reintegrate into the working world. Although voice disorders may not restrict mobility, an impairment in the ability to communicate effectively can have devastating effects on an individual's quality of life (Cohen, Dupont, & Courey, 2006; Hogikyan & Sethuraman, 1999). An increasing number of jobs in today's workforce rely upon communication skills and voice use (Titze, Lemke, & Montequin, 1997). Therefore, a patient-centered, holistic approach to intervention calls upon SLPs to recognize that although we are not vocational counselors, we can and should offer job-related resources in order to produce the best outcomes for those we serve.

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Chapter 2: FACTORS AFFECTING THE DECISION TO DISCLOSE A COMMUNICATION DISORDER DURING A JOB INTERVIEW: A PRELIMINARY THEORETICAL MODEL

Introduction

With the passage of the Americans with Disabilities Act of 1990 (ADA), individuals with a wide range of chronic health conditions immediately became entitled to employer-provided accommodations under the law. The terms *speaking*, *hearing*, and *communicating* were written into the ADA as a result of amendments made in 2008, and these domains are now individually regarded as “major life activities” under the law. Therefore, a communication disorder that substantially limits an individual’s ability to speak, hear, or communicate may be classified as a disability from a legal perspective. This is fundamental information since many individuals in the community might erroneously assume that having a disability must imply some kind of restriction in physical mobility, or that to be disabled means that a person is incapable of holding a job (Scotch, 2000). Additionally, many clinicians and patients alike may not realize that the designation of disability under the ADA is to be made without regard to any mitigating measures. In other words, an individual with a hearing impairment who hears fairly well *with* hearing aids should actually be evaluated for having a disability at baseline, when the hearing aids are *not* being used.

One key component of Title 1 of the ADA deals with the issue of disclosure during the hiring process. Disclosure of any disability is not required, and an employer cannot ask about the presence of a disability during an initial job interview. This statute was intended as a protective measure for the job applicant. However, this becomes difficult terrain to navigate for job seekers when one considers that the only way accommodations can be requested is if disclosure actually does occur. The legal ability to refrain from disclosure does make intuitive

sense for individuals who have completely concealable conditions. For example, an individual who is not required to mention his/her learning disability, past cancer diagnosis, or history of epilepsy can rest assured that the person's medical history will not be used as a means to disqualify the candidate. However, individuals with more apparent disabilities do not have the opportunity to keep their conditions hidden. Would an individual who severely stutters be protected by not having to "disclose" the fact that he is, in fact, stuttering throughout the interview? Would an individual with ataxic dysarthria be able to conceal the fact that her speech pattern contains numerous speech sound distortions? Or would an individual with a severely strained voice secondary to spasmodic dysphonia be perceived more favorably during the interview if he or she disclosed that diagnosis to the interviewer? These questions are important for speech-language pathologists (SLPs) to consider when counseling individuals with communication disorders. Clearly, there are a great number of factors that contribute towards the decision to disclose a communication disorder during the hiring process.

Discrimination During Hiring

The fact that individuals with various communication disorders often cannot conceal their symptoms may be one reason that lawsuits involving hiring discrimination are disproportionately high in this population. A series of large scale studies examined the number and type of discrimination lawsuits filed through the Equal Employment Opportunity Commission over an 11 year period (McMahon, Edwards, Rumrill, & Hursh, 2005). One offshoot study specifically examined the number of lawsuits filed by individuals with voice, articulation, and fluency disorders, which were collectively grouped together as "speech disorders" (Mitchell, McMahon, & McKee, 2005). Mitchell et al. (2005) found that proportionally more lawsuits involving hiring discrimination and harassment were filed by those with speech disorders as compared to those

with visual or orthopedic impairments. Why an individual with a speech disorder should be subjected to proportionally more hiring discrimination or harassment than an individual who is blind or uses a wheelchair is not clear. However, because this finding was so striking, the authors of that study concluded that across all disability types, those with speech disorders in particular might especially benefit from information and training related to the skills necessary to navigate the job interview process.

Results from the Mitchell et al. (2005) study highlight the vulnerability of individuals with communication disorders, and especially those with speech disorders, during job interviews. However, it is unknown from that study what percentage of the 1,637 plaintiffs with speech disorders disclosed and addressed their communication disorders during the job interview itself. This fact is important to consider because previous research has shown that individuals who stutter, have profound hearing loss, or use alaryngeal speech were regarded more favorably by observers when they *did* discuss their conditions, as opposed to when they said nothing (Blood & Blood, 1982; Blood & Blood, 1999; Collins & Blood, 1990). While the ADA affords the ability to refrain from addressing a medical condition, it is yet uncertain whether this tactic is actually beneficial for individuals with communication disorders.

The Rationale for a Model

Even if the decision to disclose is ultimately left to the discretion of the individual with the communication disorder, SLPs who have a basic understanding of the factors that might influence this decision can assist those who might be struggling in this area. If SLPs accept that they need to help their clients navigate the job interview process as a fundamental communicative environment, then surely disclosure recommendations are an integral part of counseling. Disclosure may play a key role not only in terms of shaping employer perceptions of

the applicant, but disclosure becomes mandatory if any accommodations might be necessary. Being able to counsel an individual with a communication disorder through the disclosure decision making process might help the job applicant to uncover his/her own motivations (i.e., advocacy, accommodations) as well as weigh the potential risks and benefits of that disclosure.

The decision to disclose during the hiring process is likely complex and goes far beyond an understanding of disability law. Use of a theoretical model could help illustrate the nature of known relationships and the multiple factors which influence decisions surrounding disclosure. However, to date, no model has been used to outline the disclosure process during a job interview itself, and further, no model has been proposed that addresses which aspects of the decision-making process might be unique for individuals with communication disorders. As a result, the overall purpose of this article is to summarize key factors that might foster or inhibit disclosure of a communication disorder during hiring. The proposed factors will be illustrated using a theoretical model to help identify areas that should be considered in clinical practice and to illustrate areas in need of further research.

Because of its chronic nature and clear designation as a disability under the ADA, the specific neurological voice disorder known as spasmodic dysphonia (SD) will be used as an exemplar condition throughout the article to provide context, to offer specific scenarios, and to illustrate how the model may be applied. A schematic of the proposed model is presented at the outset (Figure 2.1), illustrating how various components might work together to influence whether or not an individual chooses to disclose the presence of a communication disorder during the hiring process. The discussion is followed by broader implications for counseling those with communication disorders, as well as directions for future research.

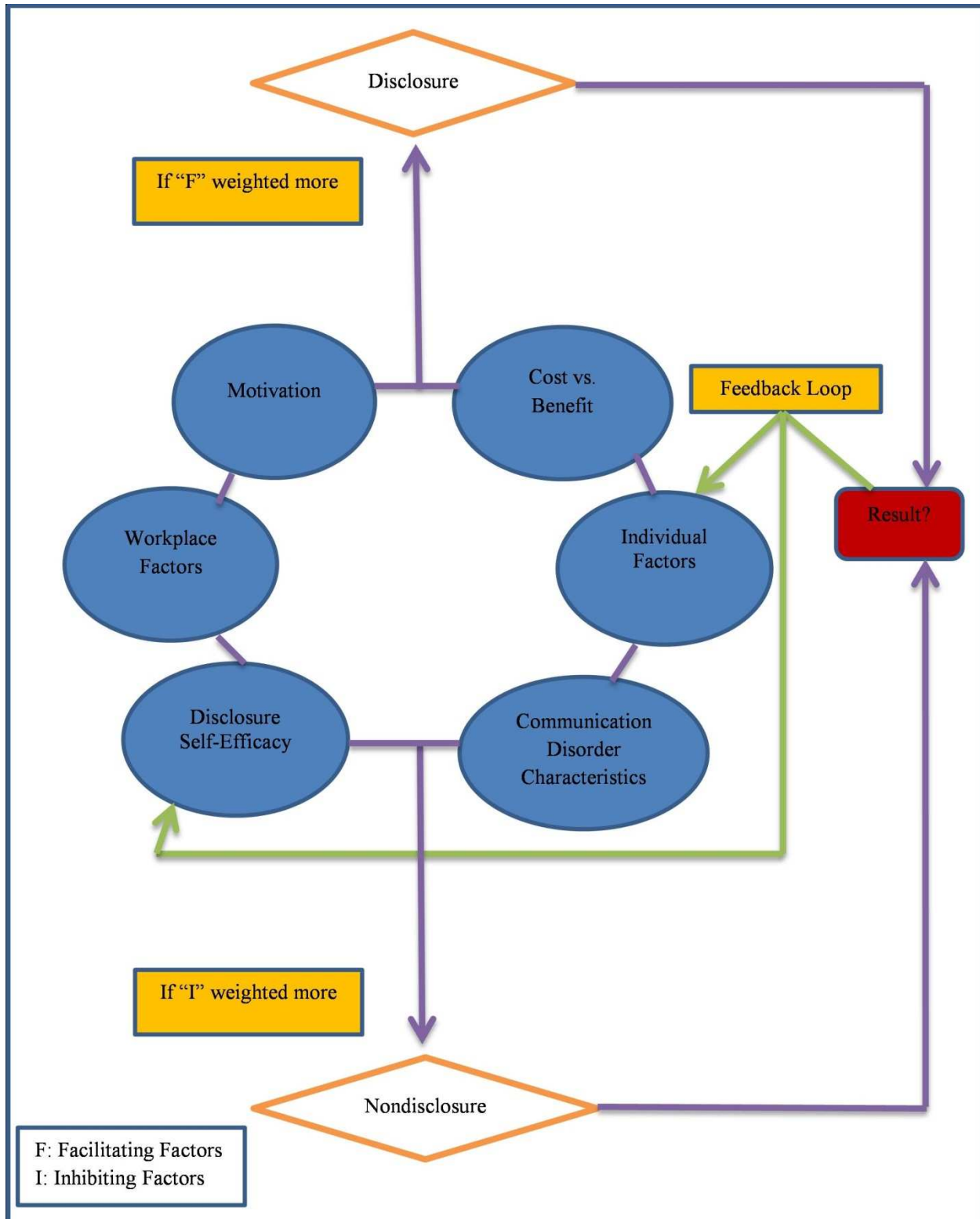


Figure 2.1. A Preliminary Multidimensional Model for Disclosing a Communication Disorder During the Hiring Process

A Preliminary Multidimensional Model for Deciding Whether to Disclose a Communication Disorder

At its core, disclosure is fundamentally a communicative act, as it involves the sharing of new or secret information (Disclosure, 2014). However, disclosure of a communication disorder is a unique phenomenon in the disability literature. Unlike many other health conditions, the mechanism that is typically involved in disclosure (i.e., speech, voice, language) is precisely what is impaired in individuals with communication disorders. Therefore, although the proposed model (see Figure 2.1) might be helpful in framing disclosure decisions across virtually any health condition, its focus remains on aspects of this process that are particularly salient for individuals with communication disorders.

The proposed model was developed on the basis of a literature review that revealed factors shown to affect the decision-making process in disclosing a disability. Components of this model have been adapted from other models conceptualizing the general disclosure decision-making process for invisible stigmas (Chaudoir & Fisher, 2010) or health conditions (Greene et al, 2009). As can be seen in Figure 2.1, the disclosure process involves multiple components, with mediating and inhibiting factors throughout. The model includes both *facilitating factors* (those that would theoretically contribute to disclosure), and *inhibiting factors* (those that might result in nondisclosure). In this model, it is not the sheer number of these facilitating or inhibiting factors that drives a disclosure decision. Rather, the fundamental premise is that it is how these factors are weighed by the individual during a cost/benefit analysis that ultimately determines the final decision to disclose. Keeping the major components of the model broad in scope allows for greater flexibility in terms of specific circumstances that might arise for individual job applicants across a wide range of communication disorders. A summary of each of the components in the

proposed model will now be presented citing various diseases that may result in communication disorders, with a special focus on spasmodic dysphonia to provide specific contextual examples.



Individual factors broadly encompass the *personality traits*, *personal characteristics*, and *prior disclosure experiences* of the individual with the communication disorder. Individual factors are addressed first because prior to the existence of any impairment, a person carries a set of intrinsic personality traits that were arguably present prior to that diagnosis. Even in cases of congenital conditions such as cerebral palsy, certain personal factors are independent of the disorder itself (e.g., gender, age).

Personality traits

An extremely shy individual might behave quite differently in an employment interview as compared to a more talkative person who feels comfortable speaking freely about aspects of his/her life. Additionally, disability disclosure is at its core the sharing of information. Certain people are more private and selective when discussing their lives in general (Matsushima, Shiomi, & Kuhlman, 2000). If a person fundamentally believes that an illness is a private condition, then data from the disability literature show that he/she is less likely to disclose that condition (Joachim & Acorn, 2000).

Self-monitoring has also been implicated in the disclosure decision-making process (Clair, Beatty, & MacLean, 2005). Self-monitoring generally refers to the degree to which someone observes, regulates, and controls how well he/she is fulfilling social expectations within a particular context (Snyder, 1987). Those who are high self-monitors closely gauge how they are perceived in their interactions with others. In contrast, low self-monitors are not as concerned with how socially appropriate their behavior is and often act in a manner more “true to themselves” (Kilduff & Day, 1994). Using this rationale, individuals who are low self-monitors may choose to speak about their communication disorder simply because it is part of who they are, regardless of what repercussions might result. This aspect of the model holds unique significance when one considers that self-monitoring and inhibition might actually be impaired in certain individuals with cognitive communication impairments. An individual with a traumatic brain injury, for example, might struggle with impulsivity and therefore behave quite differently in a job interview as compared to someone with a voice disorder such as spasmodic dysphonia, who may not have any other health conditions affecting cognitive function.

Individuals have also been shown to vary in their propensity for *risk-taking* when it comes to decision-making. In the stigma literature, those who are risk averse are less likely to reveal

information that could lead to negative reactions at work (Sitkin & Weingart 1995). To speak about a communication disorder during the employment process would seem to warrant a willingness on the part of the applicant to risk potential rejection. All of these personality factors are important to consider when determining whether an individual will disclose during an interview. This is also an important consideration in particular communication disorders such as primary muscle tension dysphonia or vocal nodules, where certain personality types may be prevalent (Roy, Bless, & Heisey, 2000).

Personal Characteristics

Although not thoroughly studied as of yet, there might be *age, gender, and cultural factors* that differentially contribute to the disclosure process. Speaking outwardly about one's communication disorder might be frowned upon in certain cultures. For example, the Chinese term for disability is *canfei* and translates to “useless.” In some parts of the world, disability is often hidden, regarded with shame, and is thought to arise from transgressions or bad behavior in past lives (Lam, 1992).

Aside from cultural factors, gender dynamics between the applicant and the employer might either foster or inhibit disclosure. For example, a female job applicant may be inclined to speak more freely in a job interview about her multiple sclerosis if the person interviewing her were also female. How gender affects dynamics in a job interview is also important to consider in communication disorders such as spasmodic dysphonia, where the proportion of females to males is 4:1 (Pitman, 2011). In a survey administered to over 700 university employees in the UK, females were found to disclose their chronic illnesses to their managers to a greater extent than males. This trend occurred despite the fact that males in the survey reported a greater frequency of symptoms and more missed days due to chronic illness (Munir, Pryce, Haslam,

Leka, & Griffith, 2006). Similarly, male and female college students reacted differentially to a male confederate who disclosed his HIV status. Specifically, female students reported the discloser as being more trustworthy and likeable, and females were also more willing to meet with the discloser for a follow-up study than were males (Wilson et al., 2013). The last study mentioned encroaches on elements that extend to the characteristics of the disease (such as HIV), which will be addressed later, but nonetheless the genders of both parties in the interview process could potentially play a role in disclosure decisions.

The *personal stakes* one has around securing employment could differentially impact disclosure decisions during job interviews. The higher the stakes, the more likely an individual will not want to risk jeopardizing the chance to be hired. The stakes around a job interview can be shaped by the *personal finances* of the applicant. Someone who is financially secure through other means (e.g., family inheritance) might apply for a job not out of necessity, but instead to keep busy or make new friends. This person might be more comfortable disclosing since he/she has less to lose. Although speculative, common sense dictates that someone who is less invested in securing a particular job might feel empowered to make more demands during the interview (i.e., higher salary, extra vacation time, etc.). Disclosing and asking for any accommodation necessary in this circumstance might be more likely, given that rejection would be less significant. Similarly, someone who is already currently employed but who is going on job interviews to simply explore other options might feel more inclined to disclose. This person is simply looking for a better alternative to his/her current situation. Contrast these hypothetical examples with a person who has been unemployed for months and is desperate for income. This is an important consideration for individuals with communication disorders, who may have difficulty maintaining jobs while they are undergoing treatment for a health condition, or just

dealing with the symptoms themselves. For example, Baylor, Yorkston, and Eadie (2005) reported in a qualitative study the impact of SD on the lives of six individuals. One of the subthemes included social role restrictions; in particular, participants reported that because of SD, they quit jobs that they otherwise would have continued, and avoided pursuing new career paths that interested them.

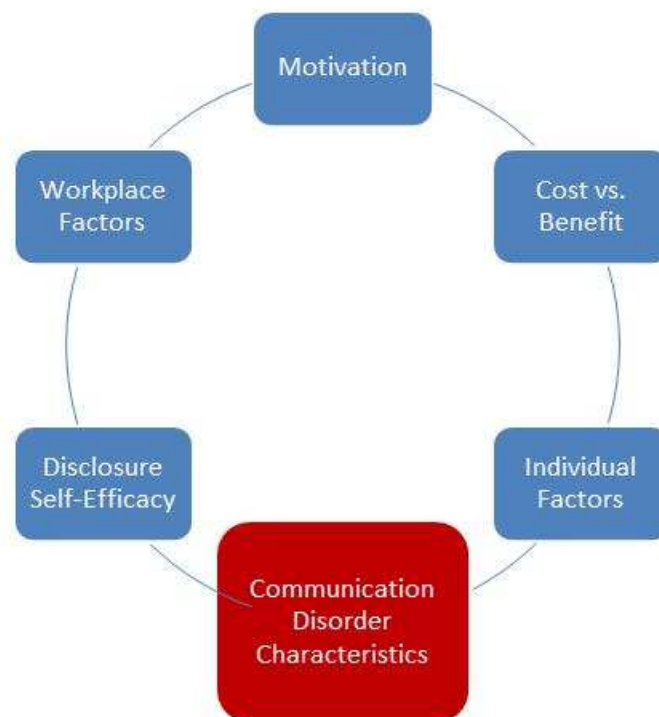
Personal knowledge about the disclosure process in the eyes of the law could also influence disclosure decisions. Individuals with multiple sclerosis have been encouraged to educate themselves on the policies outlined in the ADA (Donoghue, 1994). An individual who is unaware of the ADA statutes might feel that it is his or her obligation to come forth with a disability. Someone more versed with the law realizes that disclosure is not required during an initial interview. However, the reverse could also be true. If an individual has studied the ADA and is well aware of the types of accommodations that can be requested to facilitate a more productive work environment, that individual who once might have kept quiet and suffered through the workday might instead opt for disclosure. Knowledge of the ADA can therefore facilitate or inhibit disclosure. This knowledge simply allows an individual to make a more informed choice.

Prior Disclosure Experiences

Finally, any *prior disclosure experiences* deemed either positive or negative in the eyes of the individual might theoretically influence the disclosure experience. Consider, for example, an individual who became the subject of office gossip after the knowledge of his prior stroke was leaked by management. Such an experience could theoretically stop an individual from ever disclosing in the future. The reactions of others and the repercussions of speaking about their illness have been shown to influence the future disclosure decisions of those with epilepsy

(Tröster, 1997). Individuals who have been surveyed across a wide variety of disabilities report that disclosure experiences in the past heavily influence future decisions (von Schrader, Malzer, Erickson, & Bruyere, 2011). Prior disclosure experiences in this component of the model could refer not only to personal experiences, but also to what has occurred when others around the discloser have mentioned their communication disorders in the past. (e.g., “Sally told our boss that she has mild word-finding difficulties, and she told us how she was denied promotions. It hurt Sally’s chances, so it might hurt mine.”) Simply witnessing discrimination that is directed towards others is often a sufficient barrier to disclosure (Ragins, 2008).

Communication Disorder Characteristics



Moving away from the individual, we next arrive at the characteristics associated with the communication disorder itself. Greene (2009) points out that there are certain key factors one

must consider before choosing to disclose any health condition: *stigma, prognosis, relevance,* and *symptoms*.

Stigma

Stigma has been referred to as the process whereby a person feels that he is regarded as less than whole, discredited, or devalued by society (Goffman, 1963). The social stigma associated with HIV status, obesity, and mental illness has been well established (Corrigan, 2006; Hebl & Kleck, 2002; Hult, Wrubel, Bränström, Acree, & Moskowitz, 2012; Peterson, Currey, & Collings, 2011). It is believed that the greater the social stigma attached to a condition, the less likely disclosure becomes (Goffman, 1963). In terms of potential stigma, it would seem that many communication disorders would not carry a great deal of social stigma as compared to sexually transmitted diseases or mental illness. However, stigma in this case should also be examined from the perspective of the person with the condition, and not just how that disease is generally viewed by society.

A thorough background on stigma is well beyond the scope of this article, but researchers have identified several aspects of stigma that can be analyzed separately. When stigma is viewed from the perspective of the individual with a particular condition, this is primarily referred to as *anticipated or perceived stigma*. This occurs at an individual level when there is an awareness that a negative stereotype or discrimination could potentially result from an illness (Earnshaw, Quinn, Kalichman, & Park, 2012). Before a person who has had a total laryngectomy discloses his condition, does he worry that a communication partner will assume that smoking was the cause, resulting in an unsympathetic response? If the anticipated reaction actually does occur and an overt act of discrimination takes place, this is known as *enacted stigma*. Finally, if an individual internalizes a negative stereotype, the final step in the process can result in

internalized or *self-stigma* (e.g., “Maybe they are right. Maybe I am a worthless person because of my condition”; Rao et al., 2009).

Stigma in general has not been thoroughly examined among various communication disorders, but there is surely individual variability across patients. For purposes of disclosure in a hiring context, perhaps the most salient aspect of stigma would be the amount of perceived stigma (what *could* occur) associated with the condition. People with epilepsy disclosed more and anticipated more positive social consequences from disclosure when it was felt that there was less perceived stigma attached to their condition (Tröster, 1997). Researchers have created scales specifically to assess perceived stigma in chronic and neurologic diseases, yet only select conditions that involve impaired communication (e.g., ALS, multiple sclerosis, stroke, Parkinson’s disease) were included in their sampling groups (Earnshaw et al., 2012; Rao et al., 2009). One can only speculate as to whether patients with certain communication disorders might have levels of perceived stigma above and beyond what might be expected for other health conditions. For example, there may be different reactions towards individuals who have voice disorders with a behavioral etiology (e.g., laryngeal cancer secondary to smoking; vocal nodules secondary to phonotraumatic behaviors) when compared to other disorders that are neurologic and considered “uncontrollable” in origin (e.g., SD). Discovering how perceived stigma might relate specifically to the decision of whether to mention a communication disorder during hiring warrants further investigation.

Prognosis

Prognosis may come into play in cases of terminal illness, whereby an applicant could believe that an employer may be less likely to hire someone with a shorter life expectancy. Revealing a diagnosis of a progressive degenerative communication disorder implies that the

accommodations made presently by the employer may not suffice in the long term. This could constitute a “risky” hire in the eyes of the employer. Prognosis in terms of communication disorders plays a dual role, for it can either act to facilitate or inhibit disclosure depending upon the circumstances. Knowing that symptoms will persist indefinitely might compel an individual with a chronic communication disorder (i.e., spasmodic dysphonia, dysarthria secondary to Parkinson’s disease) to come forth during the interview process. Many communication disorders are not temporary impairments, and if accommodations are required for long-term success at work, then the chronic nature of the impairment becomes one reason to disclose. However, some applicants may feel that a prospective employer will view a chronic condition as a liability and instead opt for nondisclosure.

Communicative Effort

Individuals with communication disorders are unique compared to other disability groups because the mechanism that is typically used in disclosure (speaking/language) is impaired in this population. An effortful speaking voice is often a hallmark of some voice disorders (Cannito et al., 1997). The amount of self-rated *speaking effort* on the part of the applicant might also theoretically influence the decision of whether or not an individual chooses to speak about the condition. Some individuals with communication disorders have reported an avoidance of situations that would require speaking in general due to the physical and mental effort involved (Baylor et.al, 2005). The proposed disclosure model (Figure 2.1) is based on the assumption that a job interview is already in place, and a person is either going to disclose or not during this interview. However, the following quote illustrates that avoidance of speaking can be so strong in individuals with communication disorders, that a job interview may never even take place:

“I actually avoided getting a new job for a long time because I just didn’t want to go through the interview” (Baylor et.al, 2005 pg. 404).

The above example, stated by an individual with SD, suggests that simply attending an interview itself would be prohibitive. Speaking effort or fatigue might not factor as much into the one extra minute that is required to explain one's diagnosis in an interview, but might more indirectly affect disclosure by causing individuals to avoid interviews entirely.

Apparentness/Visibility

Thus far, the symptoms and relevance of those symptoms have been implicated in the disclosure decision-making process. Greene's (2009) focus on the symptoms of a health condition could also be extended to highlight the importance of the *visibility* of those symptoms. An individual with a very mild communication disorder might potentially be able to "pass" undetected. Those with mild symptoms might choose not to address the issue during an interview and hope that the disorder is not noticeable. For example, on rare occasions, the voices of some speakers with mild spasmodic dysphonia were not judged differently from control speakers on dimensions such as perceived vocal effort, age, confidence, and tearfulness (Isetti, Xuereb, & Eadie, 2014). Still, others may want to clarify why they sound the way that they do based upon the cues or immediate feedback they receive from the employer (e.g., body language, a confused facial expression; Jans, Kaye, & Jones, 2012).

Individuals with ataxic dysarthria who have repeatedly received comments or quizzical looks when speaking might feel compelled to address the source of their speech errors at the outset of the interview. They may want to clarify misperceptions or preemptively address a common question concerning their communication. An informational DVD published by the National Spasmodic Dysphonia Association contains a patient testimonial that states, "If I had a dollar for every time somebody asked me what's wrong or why was I crying, I would just be so

rich I could maybe find a cure for this thing” (National Spasmodic Dysphonia Association, 2006). This testimonial was supported experimentally when listeners rated multiple speakers with SD as sounding significantly more tearful compared to controls (Isetti et al., 2014). A preemptive disclosure could theoretically occur as a means of addressing employer misconceptions before they have even been verbalized. Successfully employed individuals across a wide variety of disabilities stated in focus groups that those with more obvious impairments thought it was important to disclose early on in the hiring process. *“I say it one time and it is over. I am here to do the job, and now it is on the table”* (Jans et al., 2012). Individuals with communication disorders who have extremely apparent symptoms might also share this same philosophy.

Social psychologists have explored a phenomenon known as the “acknowledgment tactic” for individuals with apparent conditions (Hastorf et al., 1979). An individual with a profound stutter, for example, does not even have the option to refrain from disclosing. Instead, addressing the condition during the interview would be merely acknowledging what was already clearly evident. Stuttering is rare among communication disorders, however, in that most laypeople would immediately be able to recognize an act of stuttering when it occurs. No new diagnostic information is being provided through the acknowledgment. However, the symptoms associated with someone with high functioning autism, traumatic brain injury, a voice disorder, or dysarthria may not immediately convey clear diagnostic information to the employer. Many communication disorders are low incidence conditions with symptoms that might be mysterious to the average employer. For example, a person’s voice may sound similarly dysphonic due to laryngitis, laryngeal cancer, or even as a result of heavy smoking. It is unknown how the nature

and severity of symptoms might differentially impact disclosure outcomes in individuals with various communication disorders.

As discussed earlier, an individual with a disability has the right under the ADA to refrain from disclosure, to keep his/her disability private, unless accommodations are required. However, not addressing the symptoms might have detrimental consequences in certain cases. What if not disclosing the source of a highly strained, strangled voice actually subjects an applicant with SD to even greater discrimination? Numerous studies have documented the negative attributes that are assigned to speakers with voice and speech disorders. Specifically, listeners have rated individuals with communication disorders as sounding less attractive, less confident, less friendly, and less intelligent than control speakers (Altenberg & Ferrand, 2006; Blood et al., 1979; Jaywant & Pell, 2010; Lallh & Rochet, 2000; Lass et al., 1991). Speakers with SD have described their own voices as shaky, cracking, quavering, having tremors, screeching, lacking projection, and containing voice breaks (Baylor et al., 2005). Isetti et al. (2014) found that listeners who were not given any background on the speech samples that were presented to them unknowingly rated speakers with SD as sounding significantly older, more effortful, and less confident than control speakers. Perhaps bringing the diagnosis out into the open in severe cases is less risky than the alternative of saying nothing at all and leaving the employer to form his or her own conclusions. Some applicants with communication disorders may feel that failing to explain the source of their symptoms may leave an employer distracted or confused during the interview. Ultimately and rather ironically, it may be discovered that even if the ADA affords someone the ability to refrain from disclosure, saying nothing may be counterproductive in the case of severe communication disorders.

Disclosure Self-Efficacy



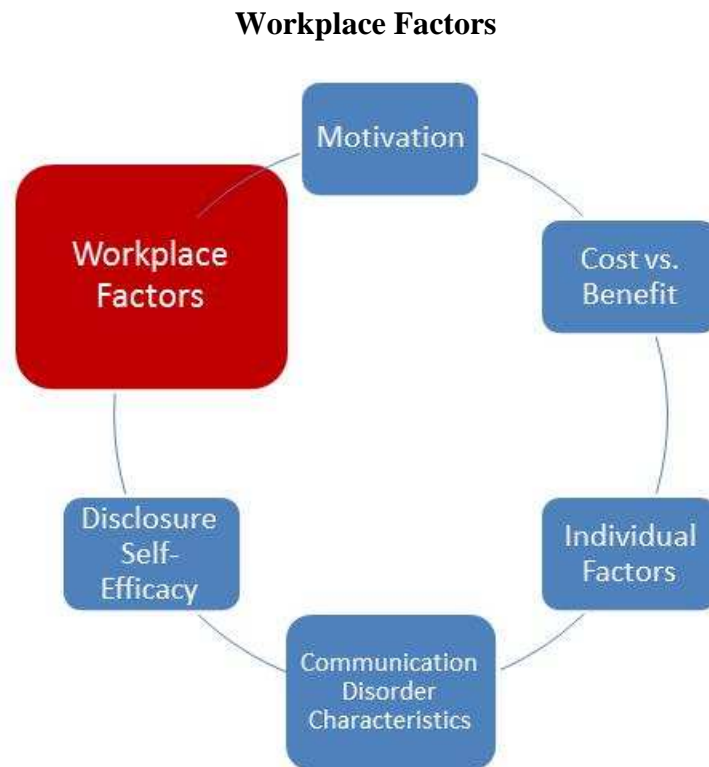
Thus far in the proposed model, we have addressed how Individual Factors and Communication Disorder Characteristics can influence disclosure decisions. The next question becomes: Can this individual, diagnosed with a communication disorder, confidently relay information about the condition to someone else? A person’s perception of his or her ability to share the diagnosis in order to produce the desired result is known as *disclosure self-efficacy* (Greene, 2009). Disclosure self-efficacy involves not only the choice of words that are selected for disclosure, but also the confidence that they will produce the desired outcome.

The three elements that contribute to disclosure self-efficacy might include: 1) factual knowledge of the medical condition, 2) word selection, and 3) confidence in a positive response. Without at least a fundamental knowledge of the etiology and nature of a particular communication disorder, a person cannot effectively disclose the diagnosis to another person. In terms of word selection, consider the efficient use of words in the phrases “I have diabetes” or “I have arthritis”. In three words, a typical listener automatically has a reference for the condition,

realizes they are not contagious, is familiar with the common symptoms, may name some tasks that might be difficult for a person with such a diagnosis, and may even be aware of potential treatments (insulin, anti-inflammatories, etc.). In the case of many communication disorders, the explanation becomes more complicated as many are low incidence conditions. Stating "I have spasmodic dysphonia" is not sufficient for the average communication partner. The precise cause of SD is still unknown (Pitman, 2011), and if the individual with the condition is unclear about how to articulate aspects of the etiology and symptoms, this uncertainty could feasibly affect the decision to disclose.

Disclosure is fundamentally a communicative act, so consider cases of individuals with aphasia who may want to convey their diagnosis, but struggle to find the words to do so. Some individuals in other disability groups rehearse disclosure with trusted others first to help choose the best words to use, while others may go so far as to develop scripts (Jans et al., 2012; Greene, 2009). There may be a correlation between length of time since diagnosis and disclosure self-efficacy. Perhaps those who have lived with their communication disorders for longer periods would be able to accrue more knowledge or discover methods of explaining their condition that result in the least amount of confusion on the part of the listener. Some people do show a reduction in anxiety after the first few disclosure attempts (Greene, 2009). However, length of diagnosis does not automatically translate into a greater number of disclosure experiences. For example, one individual may be living with the residual effects of a traumatic brain injury for 10 years but has told no one other than his wife; another individual diagnosed for only two years may have had numerous disclosure experiences. Because disclosure in the current model is a continual process that is cyclical in nature, it is proposed that the feedback one receives from each disclosure experience, either positive or negative, differentially affects disclosure self-

efficacy. Self-efficacy should increase with each person that seems to understand the discloser's explanation and with each person who reacts in the anticipated manner. Other researchers have found that those who were more confident in their ability to share a diagnosis were also more likely to disclose (Affifi & Stuber, 2009; Greene, 2009).



Workplace factors is kept intentionally broad for the purposes of the model, and can encompass anything from the logistics of the actual building (handicap accessibility), management characteristics, company policies, or even personal assurances made by the person conducting the interview.

Organizational Policies

The pervasive assumption is that revealing any medical diagnosis during the employment process poses a potential risk. However, in some cases, disclosure might actually be

advantageous, depending upon the organization. Certain companies receive grant funding or tax credits contingent upon hiring a certain number of employees with disabilities, and having a communication disorder might be advantageous when applying for state and federal government jobs (Jans et al., 2012).

“I was hired due to my disability so it was a big factor. If I was applying somewhere else I would not disclose it”(von Schrader et al., 2011, p.23).

“I work in an office where all of us are disabled and it is a requirement to have a disability to work here. However if I had to work in a "regular" atmosphere I would never disclose my disability due to the fear of being singled out”(von Schrader et al., 2011, p.23).

The above examples would arguably be rare cases, but companies that either market to individuals with medical conditions or create products specifically for people with disabilities might prefer to hire someone who is, in fact, disabled. A parallel to this phenomenon in the stigma literature would be the example of an LGBT (lesbian, gay, bisexual, transgender) advocacy organization that hires openly gay applicants. Studies have shown that disability disclosure decisions are also strongly influenced by nondiscriminatory policies and workplace culture (Gignac & Cao, 2009; Jans et al., 2012). Nondiscriminatory statements on company websites or even verbal assurances by the interviewer during the employment process might be facilitative factors for disclosure. This could broadly be interpreted as the perceived social support available for workers.

Relevance to Job/Job Duties

How applicable or *relevant* a communication disorder might be for a particular job may also factor into the decision-making process. Individuals with multiple sclerosis are counseled specifically to consider whether disease symptoms will directly affect job performance before disclosing (Donoghue, 1994). A man with unilateral vocal fold paresis might feel that his

communication disorder has no bearing on his skills for a data entry job, and so disclosure would be unwarranted. That attitude might change, however, if he were to apply for a position that would require extensive voice use.

Because a growing number of jobs rely on communication skills as opposed to manual labor tasks (Titze, Lemke, & Montequin, 1997), a diagnosis of a communication disorder could be relevant for a great number of jobs in today's workforce. Those with spasmodic dysphonia have reported speaking voices that are both weakened and effortful (Smith et al., 1998), with some individuals experiencing breathlessness and fatigue in occupations that require extended voice use (Baylor, Yorkston, & Eadie, 2005). Fatigue has been implicated as a major barrier to workplace integration across a number of different communication disorders (Garcia, Laroche, & Barrette, 2002). Therefore, how relevant symptoms might be for a particular job could factor into the decision of whether or not to disclose during the interview. The proposed model also includes specific *job duties* under Workplace Factors. While relevance to job and job duties are obviously related, they might enter into the model at different periods. For example, in looking through various postings for an administrative assistant job, an applicant already has an idea about whether or not speech symptoms of SD are relevant to that type of position. An applicant may feel that disclosure is completely unnecessary if typing speed and knowledge of Excel/Microsoft Word are primarily what the job would entail. During the actual interview, however, it is revealed that screening calls for 10 executives is also required. This new information (precise job duties) then enters into the equation, and the applicant must now re-evaluate whether or not disclosure is truly necessary.

Motivational Factors



Motivational factors in the model refer to the specific goals or fears a person might have as to why disclosure should either take place or be avoided. In examining motivational factors in the broadest sense, research suggests that all disclosure goals can be grouped generally into those that are either approach-focused or avoidance-focused (Chaudoir & Fisher, 2010). Approach-focused goals seek to create something positive as a result of the disclosure; avoidance-focused goals aim to prevent a negative occurrence from taking place.

To put this into context, two individuals with spasmodic dysphonia (SD) named Joan and Mike decide to tell their employers about their voice disorder. Joan decides to disclose to her boss using approach-focused goals. She wants to invoke her rights under the ADA and have some time off from work to schedule her BOTOX injections. Talking through her diagnosis will also allow her to spread awareness about her condition, about which she and other members of her SD support group are passionate. The other person, Mike, decides that he must tell his boss immediately because he feels that the short breaks he is taking to rest his voice throughout the

day might be perceived as laziness. Unless Mike discloses, he fears he will be fired. Mike uses an avoidance-based strategy, since he is disclosing as a means of preventing a perceived negative outcome. These two individuals have the same diagnosis and yet their goals behind disclosure are vastly different.

Chaudoir and Fisher (2010) believe that it is precisely these antecedent goals (approach vs. avoidance focused) which influence perceived outcomes in the mind of the discloser. Approach-focused goals inherently involve attention to positive stimuli, whereas avoidance-focused goals are associated with attention to negative stimuli and negative affect. In Chaudoir and Fisher's view, the goal behind the disclosure influences whether or not the discloser views the experience as a success. Joan from our previous example would be attending more to signs of support from her boss, whereas Mike would already be primed to look for clues of disapproval from his. The authors suggest that by bringing a person's goals into conscious awareness, avoidance-based goals can potentially be transformed into those that are more approach-based.

Support

In their Disclosure Process Model (DPM), Chaudoir and Fisher (2010) highlight social support as a common goal and mediating factor involved in disclosure for those with invisible stigmas. Most people might immediately interpret social support in a narrow sense, referring primarily to the emotional support received by family members or close friends. It is important to be able to process and share a stigmatizing trait with a confidant, and numerous studies have shown the beneficial impact of emotional disclosure on physical and psychological health. For example, disclosure has been linked to higher T-cell counts in patients with HIV (Petrie, Fontanilla, Thomas, Booth, & Pennebaker, 2004) and improved physical functioning in those with arthritis (Kelley, Lumley, & Leisen, 1997). Disclosure of private information has been

linked to feelings of increased intimacy in personal relationships as well (Gilbert, 1976). Entire books have been devoted to the link between emotional disclosure and well-being (*Emotion, disclosure, & health*, 1995).

However, the typical motivational factors behind personal disclosures in intimate relationships may not hold true within a hiring context. Being able to talk about one's disability and express emotions with a confidant is important, but it is doubtful that a job applicant would choose an employment interview as an opportune time to process one's emotions or seek intimacy, especially with a stranger. Therefore, motivational factors that are typically at play with regard to disclosure in intimate relationships and other models (like the Disclosure Process Model) may not apply when disclosing to a stranger in a position of authority during hiring. The unique constraints of a job interview are encapsulated by the following statement from a speaker with multiple sclerosis:

“Telling family, friends, even someone you are beginning to love, involves telling people you know and trust and who (you hope) care for you. The emotional climate of the workplace is different. There you confront the question of disclosure in the context of concern about your present and future livelihood” (Donoghue, 1994, pg. 13)

Accommodation Needs

Social support is an incredibly broad construct, and when it takes the form of physical, tangible assistance it can be termed *instrumental support* (Barrerra & Ainlay, 1983). Desire for instrumental support more likely influences disclosure decisions during an initial job interview, since the most frequently cited reason to disclose across disability groups has been the need for accommodations (Jans et al., 2012). The amount of perceived support that is available was mentioned under Workplace Factors, yet disclosure is likely shaped by not only what is clearly made available by the employer (perceived support), but also by what is required for the applicant to function successfully (needed support). A person with SD might request a flexible

work schedule, time off for injections, an amplification device, or short breaks to prevent vocal fatigue. No studies have been conducted specifically on the reasons why those with communication disorders might disclose at work. However, out of 200 individuals with SD, 92.7% of men and 77.4% of women reported that their symptoms seriously interfered with job performance (Izdebski, Dedo, & Boles, 1984). This study was conducted prior to the passage of the ADA and before BOTOX injections became a standard method of treatment for SD, but the data suggest that accommodations might certainly be helpful for a number of patients with voice disorders. More recently, in a cohort of working patients who were receiving BOTOX ($n=72$), 58% reported that their SD still affected their work productivity, 30% reported reduced hours, and 26% reported sick leave due to SD and its treatment (Meyer, Hu, & Hillel, 2013). What is unknown from both of the aforementioned studies is the proportion of those who had disclosed their diagnoses to their employers. Perhaps the percentages would have been lower in a subset of patients who were open with their employers and who were consequently able to receive accommodations and instrumental support of some kind.

Self-Advocacy

Although the need for accommodations might be an obvious motivational factor, individuals with communication disorders may also disclose for entirely different (but still approach-focused) reasons. Some may share the same sentiments expressed by other disability groups, feeling compelled to advocate for others and spread awareness about their conditions (von Schrader, Malzer, Erickson, & Bruyere, 2011, p.22):

“I am an advocate, so I disclose to make an example of myself. I believe I am a good example of how people with disabilities can be very valuable employees.”

“Because I am not ashamed of my disability, and I would hope that my disclosure would help someone else with a disability in seeking employment.”

“I desire to serve as a role model for others, showing them it is possible to rise above one's disability.”

“Unless I speak out, I cannot change the way others get viewed with a disability.”

The above examples illustrate how advocacy is closely linked with education, and this might be a motivating force for some individuals contemplating disclosure. An individual with spasmodic dysphonia in a study by Baylor et al. (2007) felt that educating her coworkers about her voice disorder alleviated some of the pressure that often accompanied speaking. She felt that the disclosure allowed her coworkers to be more forgiving of the way she sounded.

Some applicants might disclose simply to acknowledge their communication disorder as being one aspect of themselves, out of a sense of being honest and true to who they are (von Schrader et al., 2011; Jans et al., 2012). If an interviewer utters the classic line “So, tell me a little bit about yourself,” some job seekers may feel disingenuous in leaving out the fact that they have lived with a communication disorder for 20 years. The National Center on Workforce and Disability (NCWD) mentions that another goal for disclosing might include the full freedom to discuss specific health insurance benefits as they may relate to a particular condition. For example, someone with SD might want to confirm that the insurance offered by the prospective employer would be comprehensive enough to cover BOTOX injections.

Fear-based Motivations

Equally important to consider are the typical motivational factors behind nondisclosure within a hiring context. Fear around discrimination and not getting hired appear to be common themes expressed across disability groups (von Schrader, S., Malzer, V., Erickson, W., & Bruyere, S., 2011) and those with invisible stigmas (Ragins, 2008). Other reasons for nondisclosure beyond simply not getting hired have included the belief that the employer will

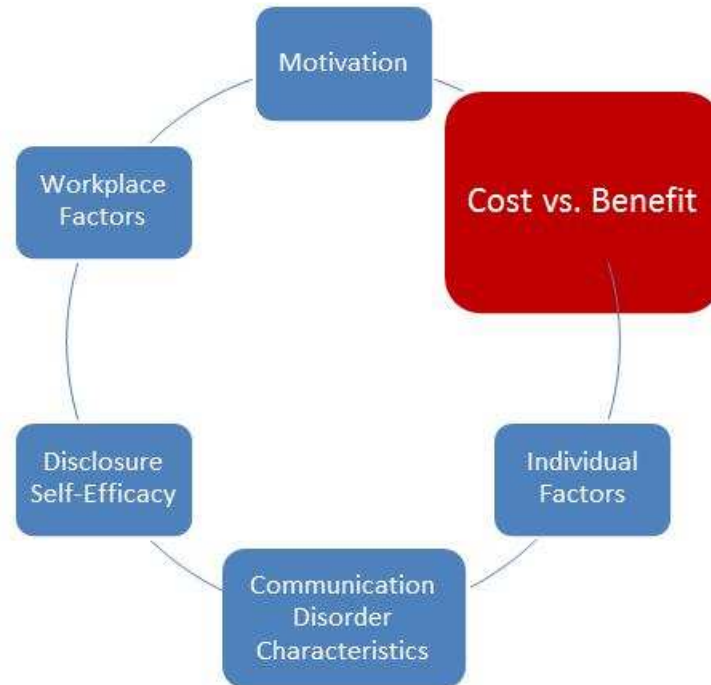
focus solely on the disability rather than the person, the prospect that one might lose health coverage, or that upward mobility/promotions down the road might be limited (von Schrader et al., 2011, pg 24):

“Once you disclose your disability it can affect your long term promotions. The employer will always be aware of this no matter how hard you work”

“Discrimination occurs right from the moment of disclosure. Although there are efforts to end this discrimination, it remains and companies just try to cover it up. I had a promotion taken away from me, and employees have been hired at higher levels with higher pay when I am more qualified and have done more. This is seen repeatedly and occurs throughout the company where I work.”

Applicants might also feel that rights to privacy are being violated on some level, or that confidentiality could potentially be broken. The NCWD suggests that other potential risks for disclosure include the belief that an applicant will be defined by the disability or that a person could become an object of curiosity. It should be noted that although *prior disclosure experiences* were already listed under Individual Factors, individuals do not necessarily need to experience or witness the negative consequences of disclosure first hand. Simply the fear of an anticipated negative reaction may be strong enough to motivate individuals to remain silent (Ragins, 2008).

Cost-Benefit Analysis



The fears and/or goals mentioned above must be taken into consideration at an individual level. The current model being presented is based upon the premise that along the path to a disclosure decision, any number of facilitative or inhibiting factors may be in place. It is being proposed that it is how these factors are weighted, however, and not just the relative number of each type of factor that is most important. Even if virtually every single facilitative factor were in place (knowledge of ADA, a need for accommodations, a disability friendly workplace, etc.), if one inhibiting factor were weighted strongly enough (highly stigmatizing condition) then nondisclosure could be the outcome. Balancing the risks vs. rewards of disclosure has been cited as a tactic employed by individuals across a wide range of disabilities (von Schrader et al., 2011).

A cost-benefit analysis has been implicated in the decision of whether or not to reveal a chronic illness or a hidden social identity (i.e., gay/lesbian) in the workplace (Clair et al., 2005; Ragins, 2008). It is during this cost-benefit analysis that factors are weighted differentially by

the person with the disability. Addressing a communication disorder in a job interview is not likely a spur of the moment decision. However, if an individual is vacillating, there could be final adjustments to this cost-benefit analysis (Workplace Factors such as a remark an interviewer makes, seeing other people with disabilities in the office, a poster about the ADA on the wall, etc.) that could tip the balance and alter disclosure decisions seemingly at the last minute. This part of the model deals with the delicate balance of weighing the risks versus rewards and incorporates all of the other components of the model up until this point. Important to note, however, is that although all of the prior components mentioned have the capability of influencing disclosure decisions, not all aspects of the model operate at a conscious level. This is especially true of certain individual characteristics that were mentioned at the outset. For example, a person's gender, cultural practices, or risk-aversion may serve to facilitate or inhibit disclosure, but these particular elements are not always under a person's conscious awareness in the way that a desire for accommodations might be.

Disclosure Event/Result

We finally arrive at a point in the model in which all of the preceding factors culminate to produce a discrete dichotomous outcome: either a disclosure event or nondisclosure. If the facilitating factors outweigh the inhibiting factors throughout this entire process, a disclosure event will theoretically occur. A reversal in weighting will result in nondisclosure.

Until now, there has been an assumption that disclosure must take place verbally. However, it bears mentioning that this need not necessarily be the case. Some applicants may choose to disclose their disability in a cover letter prior to any face-to-face interview. This technique may seem preferable for applicants who desire to script their words carefully or for

those who wish to prepare the interviewer in advance to alleviate any shock that may arise from arriving at the interview with an unanticipated physical impairment. In fact, written disclosure might appeal to those with some communication disorders precisely because it would not require them to speak. In general, however, the only time that advanced written disclosure is suggested would be in cases where an accommodation would need to be in place *during* the actual interview (e.g., a sign language interpreter) or when the disability is an asset for the job (e.g., a visually impaired counselor for the visually impaired; Ryan, 2004). Although disclosing in writing via a cover letter may seem to be an alternative option for an applicant with a communication disorder, this strategy may prevent an initial interview from ever occurring. Revealing a disability in a cover letter diminished an applicant's chance of being called in for an interview by over 50% (Pearson et al., 2003).

Once a disclosure event takes place, there are two ways in which the perceived result can be analyzed. The first method of interpretation is dichotomous in nature: either the hire or rejection of the applicant. If the applicant is hired, then the disclosure experience was successful. If the individual is rejected for the position, there might always be a suspicion that it was *because* he/she chose to disclose a disability that the rejection took place. Whether or not this was actually the case is irrelevant. One could argue that simply because disclosure was linked with rejection in the mind of the applicant, this has the power to shape future disclosure decisions. One reported downside to disclosure is this uncertainty as to whether the rejection was due to lack of qualifications or because a disability was mentioned (Rutgers Career Services, 2011). Using this rationale, getting the job = a positive outcome, whereas not getting the job = a negative outcome.

Theoretically, however, the results of disclosure can be interpreted in much more subtle ways. If the applicant gets the job but only some, rather than all, of the requested accommodations are provided, this may be perceived as a mixed result. If the interviewer seemed confused by the diagnosis, asked numerous questions when the applicant thought he had been clear, this could affect disclosure self-efficacy for future interactions as well. The prior quote (pg. 52) about being denied a promotion at a previous job also illustrates a mixed result. The person secured the job in question, but because he mentioned his disability, it prevented him from receiving the promotions he felt he deserved.

Feedback Loop

Although this model is presented sequentially outlining the steps that might occur prior to one moment of disclosure, this entire process is iterative and cyclical in nature. Each disclosure event has the potential to influence each subsequent disclosure decision when interviewing for jobs. The average person in the United States holds 11.3 different jobs from the ages of 18-46 (Bureau of Labor Statistics, 2012). Consider the number of interviews that a person might have experienced in order to secure those 11.3 jobs. It has been suggested that the ratio of job interviews to job offers during a recession is as high as 17 to 1, and as low as 6 to 1 during prosperous times (Neece, 2009). Given these statistics, it seems that there might be more opportunities for disclosure during a job interview than one realizes. For a person with a disability, an analysis of whether or not the disclosure was successful becomes part of that individual's disclosure history (von Schrader et al., 2011). The following quote illustrates just how strongly prior experiences can shape future disclosure decisions:

“No need to disclose, and would not disclose because whenever I have disclosed, such activity has created unnecessary pain, grief, and agony for me. Disclosure for all

disabling conditions is not worth the gamble or the risk” (von Schrader et al., 2011, p. 24).

In developing this model, a two-pronged feedback loop was utilized. One could argue that the feedback received from a job interview would have a direct and immediate effect on Disclosure Self-Efficacy (e.g., “When I told him about my diagnosis of Parkinson’s, his tone changed and he ushered me out the door pretty quickly. Maybe I could have phrased things differently.”) Disclosure self-efficacy might suffer immediately based upon the reaction of the interviewer. However, to let the feedback from the outcome of the interview only affect Disclosure Self-Efficacy and completely bypass Individual Characteristics does not make intuitive sense. Individual factors as well as disease states continue to evolve over time, and therefore the perceived outcome of the disclosure should also influence that individual’s *disclosure history*, under Individual Characteristics.

Interestingly, neither of the referent models that have been mentioned, including Greene (2009) or Chaudoir and Fisher (2011), incorporate nondisclosure into the feedback loop. For completely concealable disabilities, this might seem reasonable. If the employer would have absolutely no way of discerning a disability, then the applicant should blend in with all other applicants without disabilities. No disclosure equates to no feedback on the effectiveness of that disclosure. Consider, however, the following case that might be more applicable to those with communication disorders. An applicant who stutters specifically opts to not address his dysfluencies, but notices quizzical looks on the part of the employer during the interview, and subsequently does not get the job. Perhaps the employer begins to finish his sentences for him or cuts the interview short. That applicant *is* getting subtle feedback on nondisclosure. The same

could be said of a person who has undergone a total laryngectomy who says nothing, but notices that the employer continually stares at the stoma.

Successfully employed individuals with disabilities have stated that being sensitive to nonverbal signs, or “reading” the interviewer was a skill that was useful for obtaining feedback (Jans et al., 2012). If unexpressed questions and/or discomfort are sensed, the applicant might reevaluate his/her strategy and instead consider the idea of disclosing at the next interview. Keep in mind that the overarching goal of any job interview is to obtain employment. Therefore, there are cases in which individuals with more visible/apparent communication disorders may get feedback in subtle ways about their decision to say nothing. For these applicants, analyzing the results of nondisclosure could also shape future disclosure decisions.

Conclusion

Counseling Implications for SLPs

Throughout each component of this proposed model, there are a number of direct clinical implications. Beginning with *Individual Factors*, SLPs can start by simply assessing a patient’s knowledge of the ADA. An individual may not even realize that a communication disorder may qualify as a disability under the law. There are a number of online resources available to clinicians and patients alike, such as the Equal Employment Opportunity Commission (eoc.gov) and the Job Accommodation Network (askjan.org). Knowing the types of accommodations that can be requested will assist individuals in making informed decisions surrounding disclosure. Also, although this model centers on the job interview itself, it should be stressed that disclosure can occur at *any* time, even after a person is on the job. This means that accommodation-related resources can be provided to all working individuals with communication disorders, and not simply to those who mention they are actively on the job search. Starting broadly with a question

such as “Does your communication disorder interfere in any way with your work?” may lead to a discussion about accommodations that the person never even knew were available.

In terms of *Communication Disorder Characteristics*, clinicians can play a key role in helping the patient determine just how apparent his/her symptoms are. Have strangers commented on the person’s speech/voice quality in the past? If so, what have they said? Since it has been suggested that individuals with disabilities are often poor judges of how obvious their conditions are (Jans et al., 2012), and the visibility of symptoms is a clear factor in the decision of whether or not to disclose, it might be beneficial for the SLP to openly but delicately discuss severity level. In the voice community in particular, auditory-perceptual evaluation of voice is considered an essential component of a thorough voice evaluation (Kempster, Gerratt, Verdolini Abbott, Barkmeier-Kraemer, & Hillman, 2009). However, severity markers are often made for the benefit of the clinician to chart effectiveness of intervention and may not always be discussed with patients. An individual with a voice disorder may lack the objectivity to rate his or her voice relative to all individuals with the condition, and an SLP might be extremely qualified in this regard.

Certain individuals may have symptoms that are so mild that they may be able to pass undetected and disclose later after a job offer has been made. Others with more noticeable symptoms may not have that luxury, and SLPs who have been exposed to a continuum of severity levels can assist in making that determination. This is a delicate situation, however, since some patients may want honest feedback from the clinician regarding how obvious their symptoms are, while others might be devastated to learn that what they “think” sounds great to their ears is still very noticeable to others. This topic would therefore need to be broached on a case-by-case basis.

SLPs can also play a key role in helping to foster *Disclosure Self-Efficacy*. Although disclosure is always a personal decision, a client who is unsure about how to articulate details about a condition might not be able to effectively disclose even if he/she wanted to. This would be especially true for newly diagnosed patients who are still gathering facts related to their impairment. Has the person had any particularly positive or negative experiences when he/she has spoken about the diagnosis? Perhaps individuals have adopted key phrases or strategies that have proven successful in the past. Simply bringing up the topic of disclosure during a speech therapy session would allow the clinician to see if a particular individual is struggling in this area.

As was illustrated in *Workplace Factors*, there might be aspects related to the particular job that would also be important to discuss. Does the business have organizational policies in place that protect individuals with disabilities? Is this a type of company that receives federal funding contingent upon hiring a certain number of individuals with disabilities? A communication disorder that might initially be perceived as a liability has the potential to be an asset in certain cases. Also, it may be important to discuss the precise job duties that would be required. If the nature of the job is such that verbal communication is at a minimum, then this could shape whether or not accommodations would need to be requested.

Perhaps most important of all is to assess the *Motivational Factors* that are in place for a particular individual. Patients have reported that they would appreciate greater support in dealing with the impact of their communication disorders on their professional lives (Baylor et al., 2007). Do people at the person's place of work know about the diagnosis? What are the typical reasons that a person chooses to bring up the communication disorder in conversations? This type of inquiry addresses the approach vs. avoidance-focused goals that form the

cornerstone of the Disclosure Process Model (Chaudoir & Fisher, 2010). If an individual is planning to disclose to his/her employer, but mentions negative/avoidance-based reasons for doing so, this might be an opportunity to instead reframe the disclosure in terms of potential benefits. As a concrete example, an individual might say: “I’m thinking I need to say something to my boss because he’s been noticing the breaks that I’m taking. If I don’t talk to him about my spasmodic dysphonia, I might get fired. He probably just thinks I’m lazy.” A clinician might follow up with “So what you’re saying is that these breaks actually allow you to do your job better than if you didn’t take them, correct? Well perhaps mentioning your SD within the context of how these breaks actually improve the quality of your work might be a helpful strategy. In disclosing, you’re really informing your boss about how these breaks enable you to do your job better.” Past disclosure experiences that have not gone well from the individual’s perspective can also be reviewed so that new strategies may be discussed.

Implications for Future Research

One aim in proposing this model was to identify areas in need of future research. As was stated in the introduction, there is at least some preliminary evidence suggesting that acknowledging one’s communication disorder might be more advantageous than not addressing it (Blood & Blood, 1982; Blood & Blood, 1999; Collins & Blood, 1990). However, the aforementioned studies were not conducted within a hiring context, and the outcomes were primarily based on preferences for future social interaction.

Addressing the presence of a communication disorder within the constraints of a job interview setting may pose its own set of risks. With additional studies, we might be able to demonstrate whether employers prefer applicants with communication disorders who do disclose their conditions, and whether disclosure is beneficial with some, but not all disorders. Might a

disclosure of a traumatic brain injury or high functioning autism elicit more employer concerns than a disclosure of unilateral vocal fold paralysis?

Because the apparentness of symptoms has been implicated in the decision to disclose, this variable should also be explored from a hiring perspective. Mentioning a mild communication disorder might only draw undue attention to an impairment that would have gone unnoticed, and hence this might not be a recommended strategy. However, if that same applicant had symptoms that were simply more pronounced, perhaps disclosure would serve to clarify any misperceptions made by the employer. A speaker with a benign vocal lesion who does not disclose might be regarded as having throat cancer, Parkinson's disease, or any number of conditions that might be considered more stigmatizing because of their progressive nature. Many communication disorders are low incidence conditions. It is unknown what the average employer might even believe is responsible for the symptoms associated with disorders such as dysarthria, spasmodic dysphonia, or apraxia.

Since disclosure is not mandated under the ADA, research should be conducted concerning how employers initially perceive these applicants at baseline, prior to any mention of the disorder. At the opposite end of the continuum, research could also be conducted from the perspective of successfully employed individuals with various communication disorders. What disclosure tactics/strategies are these people using when they do communicate their diagnoses to others? This information could potentially prove valuable in assisting others to navigate the interview process.

In conclusion, it must be emphasized that disclosure is fundamentally a personal choice, and certain individuals might never risk discussing their impairments at work. Regardless of what future research might reveal, it will never be a clinician's role to coach a reluctant person to

disclose. For those who are contemplating disclosure, however, more research needs to be conducted on the strategies that can facilitate the most positive outcomes. Much of the online advice surrounding disclosure is neither evidence-based, nor disease-specific at this point. Therefore, it may be difficult for SLPs to foster disclosure self-efficacy without a firm understanding of which statements are most advantageous to use during a job interview. Future research should be directed toward precise, tangible strategies that individuals with communication disorders could use during interviews to alleviate any unfounded fears, create more favorable impressions, and ultimately lead to better hiring outcomes.

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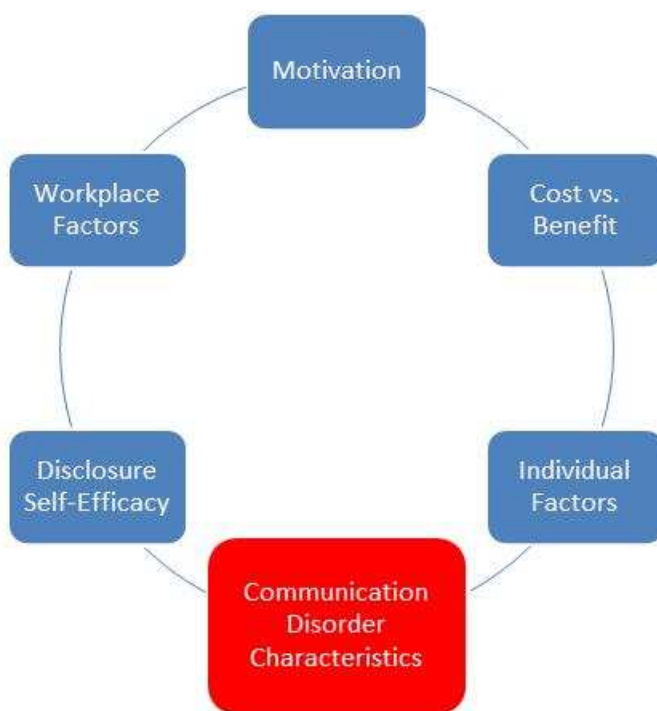
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CHAPTER 3: INFERRING SPEAKER ATTRIBUTES IN ADDUCTOR SPASMODIC DYSPHONIA: RATINGS FROM UNFAMILIAR LISTENERS

Preamble

One of the major components of the model presented in the prior chapter was labeled *Communication Disorder Characteristics*. This component dealt with the visibility or apparentness of symptoms, highlighting the fact that how noticeable a particular disability is can factor heavily into disclosure decisions (Jans et al., 2012).



Thus, when the model is applied to individuals with specific communication disorders, it becomes crucial to examine how the characteristics of that particular condition might cause someone to be perceived. Since the option to say nothing at all is always available to a person, we must first understand how those with spasmodic dysphonia are typically perceived by

communication partners *prior* to any disclosure of diagnosis. If disclosure is fundamentally a choice, in what ways might speakers with this voice disorder be perceived differently if they choose *not* to mention their condition?

Note: The following chapter has been previously published in the American Journal of Speech Language Pathology: Isetti, D., Xuereb, L., Eadie, T. (2014) Inferring Speaker Attributes in Adductor Spasmodic Dysphonia: Ratings from Unfamiliar Listeners. *American Journal of Speech-Language Pathology*, Vol 23 (2), 134-145.

Introduction

Spasmodic dysphonia is a focal laryngeal dystonia of unknown pathophysiology. However, recent research suggests that individuals with spasmodic dysphonia display abnormal brain activation in areas associated with the basal ganglia, sensorimotor cortex, thalamus, and cerebellum (Simonyan & Ludlow, 2010, 2012). The most common variant of this voice disorder is known as adductor spasmodic dysphonia (ADSD), which accounts for approximately 80% of all reported cases (Rubin, Wodchis, Spak, Kileny, & Hogikyan, 2004). In ADSD, the vocal folds hyperadduct during connected speech due to involuntary spasms in the laryngeal adductor musculature. This often results in a strained, strangled voice quality with intermittent pitch breaks (Cannito et al., 1997).

The current gold standard treatment consists of botulinum toxin (BOTOX) injections into the thyroarytenoid muscles (Duffy & Yorkston, 2003; Ludlow, 2009; Lundy, Lu, Casiano, & Xue, 1998). While management of ADSD using BOTOX appears to improve voice quality, speech intelligibility, and psychosocial outcomes (i.e., traditional ADSD outcomes; Damrose,

Goldman, Groessl, & Orloff, 2004), most studies show that even individuals being treated with BOTOX continue to function at levels below those of healthy controls (Bender, Cannito, Murry, & Woodson, 2004; Cannito, Doiuchi, Murry, & Woodson, 2012; Rubin et al., 2004). It also remains critical to consider the proportion of individuals who choose not to undergo BOTOX injections who therefore live with their symptoms continually.

A recent qualitative study revealed that individuals with ASD often feel that their voices do not accurately portray their emotions, capabilities, or personality to others. Baylor, Yorkston, and Eadie (2005) performed phenomenological interviews with individuals with ASD and found that their communication-related quality of life was influenced by many factors, including those that were physiological (e.g., voice quality, effort, voice dependability), personal (affective responses, changes in self-view, coping strategies), and social (physical environment, participation, and other people). One of the major themes in the Baylor et al. (2005) study related to the environment and how communication partners play a strong role in determining how individuals with ASD consider their own well-being. For example, all participants in the study reported having received unpleasant comments from others regarding their voices, and many felt that their capabilities were called into question. Some participants felt that they were perceived by their coworkers as being unskilled or even unintelligent, when in reality they were fully qualified to perform a particular task. Understanding how others actually perceive ASD speech, including attributes that go beyond voice quality, would give credence to these patient perceptions and have implications both for counseling and treatment in this population. The overall purpose of this study is to investigate whether listeners make judgments about speakers with ASD that go beyond voice quality, and to determine how these judgments relate to traditional voice-related outcome measures. Before introducing the research questions for this

study, it is first important to examine what is known about listener impressions of speakers with other types of communication disorders.

Listener Impressions Among Communication Disorders

Communication partners often evaluate speakers based upon observable physical features and mannerisms. However, individuals with communication disorders may find that their manner of speaking and/or voice quality can be a potential source of conscious or unconscious bias on the part of the listener (Allard & Williams, 2007; Blood et al., 1979; Evitts, Gabel, & Searl, 2007; Jaywant & Pell, 2010; Silverman, 1976). In particular, a large number of studies have documented the negative attitudes of those who communicate with individuals who stutter (Collins & Blood, 1990; Guntupalli, Everhart, Kalinowski, Nanjundeswaran, & Saltuklaroglu, 2007; Hughes, Gabel, Irani, & Schlagheck, 2010; Panico, Healey, Brouwer, & Susca, 2005; Patterson & Pring, 1991; Susca & Healey, 2001; Woods & Williams, 1976). While the cause of these negative attitudes may be multifactorial, many studies have shown an association between the severity of the presenting symptoms with the impressions of the communication partner (Altenberg & Ferrand, 2006; Blood, Blood, & Danhauer, 1978; Panico et al., 2005). Thus, beyond the mere presence of a communication disorder, the severity of the presenting symptoms appears to be intricately related to negative reactions from listeners.

Many studies have noted that listeners ascribe certain personal characteristics to speakers based upon audio samples alone, which supports the contention that biases may be based on voice or speech severity. For example, Allard and Williams (2007) found that listeners judged a control speaker as having higher self-esteem than when that same individual simulated a voice, fluency, or articulation disorder. Similar negative perceptions have been found for children with dysarthria, adults with Parkinson's Disease, and those with hearing impairments; specifically,

listeners have judged speech samples from these individuals as being lower in intelligence and achievement (Blood et al., 1978), less friendly (Jaywant & Pell, 2010), or less attractive (Lass, Ruscello, & Lakawicz, 1988; Ruscello, Lass, Hansen, & Blankenship, 1992) when compared to healthy controls. The results of these studies have important social implications for all individuals with communication disorders.

A limited number of studies have examined the impact of voice disorders on communication partners' impressions of personality traits. These studies have revealed negative listener impressions of speakers with poor voice quality secondary to various etiologies (Altenberg & Ferrand, 2006; Blood et al., 1979; Lass, Ruscello, Bradshaw, & Blankenship, 1991), including vocal nodules (Lallh & Rochet, 2000), and alaryngeal speech (Evitts et al., 2007). Only one study has investigated listener impressions of ADSD that extend beyond speech and voice quality (Silverman & Hummer, 1989). In that study, Silverman and Hummer (1989) asked 20 unfamiliar listeners to make 81 bipolar attribute ratings (e.g., natural/unnatural) for a single female speaker with spasmodic dysphonia. Median scores were calculated for all attributes; scores that differed from the center of the scale by .75 or more were considered significant for that trait. Based on this interpretation, results revealed that 42 out of 81 ratings were significant. The female speaker with ADSD was regarded as: depressed, emotional, feminine, handicapped, incompetent, inhibited, insecure, mature, nervous, old, sincere, tense, disfluent, monotonous, slow, soft, unintelligible, and unnatural, among many others.

While the Silverman and Hummer (1989) study provides some preliminary results about listeners' reactions to ADSD speech, several limitations must be acknowledged. First, results were based on judgments about a single female speaker who exhibited severe voice symptoms. Therefore, generalizations cannot be made to males with ADSD, or to those with mild to

moderate forms of the disorder. Second, no control speakers were utilized, which begs the question of how this speaker would have compared to a same-aged female without ASD. Third, the rationale for the selected trait pairs was not provided and did not appear to have a theoretical or empirical basis in the ASD population. In addition, the use of such a large number of traits could have overinflated the chance of finding significant results. Finally, it is unknown how these judgments might relate to standard voice-related outcomes in ASD. These limitations will be addressed in the current study.

Purpose of the Study

Qualitative data suggest that the negative reactions of others is a common experience in the lives of those living with ASD (Baylor et al., 2005; Baylor, Yorkston, Eadie, & Maronian, 2007). However, it is difficult to ascertain both the accuracy and magnitude of these perceived listener reactions. It could be argued that those with ASD overgeneralize negative comments that are made in isolation and assume that all communication partners feel similarly. These impressions have yet to be investigated in a controlled manner in this population. It is also unknown how the severity of ASD symptoms might influence a listener's ratings and whether perceptions are based upon voice quality alone. Therefore, the objectives of this study were to quantify specific perceptions of ASD from the viewpoint of the listener, and then to compare how those perceptions might relate to standard voice measures, including voice handicap. The present study was designed to investigate listener ratings of the following parameters: relative age, confidence, tearfulness, and perceived vocal effort. The selection of these parameters was based upon qualitative interviews of speakers with ASD (Baylor et al., 2005) as well as salient perceptual characteristics of ASD (Cannito et al., 2012). For example, one of the most common clinical complaints among individuals with ASD is the perceived weakness

of the speaking voice (Smith et al., 1998). If a weakened speaking voice is equated with a lack of confidence, it might explain why those with ADSD have reported feelings of being erroneously viewed as unconfident (Baylor et al., 2005).

Second, perceptual characteristics such as breathiness, aperiodicity, vocal fry, and vocal tremor have been associated with both ADSD and the aging voice (Cannito et al., 1997, 2012; Hollien, 1987). Speakers with ADSD also have described their own voices as shaky, cracking, quavering, tremulous, screeching, lacking projection, and containing voice breaks (Baylor et al., 2005). Thus, listeners may judge individuals with ADSD as sounding older than age-matched controls, which has social implications for those with ADSD. Therefore, relative age was selected as an additional parameter for investigation.

The strain and voice breaks associated with ADSD might also make speakers sound as if they are upset or tearful. An informational DVD published by the National Spasmodic Dysphonia Association (NSDA) contains a patient testimonial that states, “If I had a dollar for every time somebody asked me what’s wrong or why was I crying, I would just be so rich...” (Understanding Spasmodic Dysphonia, 2006). Thus, the third parameter included a “verge of tears” quality, which was labeled “tearfulness” for the purposes of this study.

The final listener variable involved a rating of perceived vocal effort. A feature of ADSD is that the vocal folds spasm during connected speech, leading to a more effortful speaking voice (Cannito et al., 2012; Nash & Ludlow, 1996). Vocal effort is also a quality that is routinely assessed by speech-language pathologists both to gauge the severity of ADSD and to track the effectiveness of BOTOX injections. An association may exist between vocal effort and the other parameters under investigation. That is, as the perception of vocal effort increases, speakers may be rated as sounding older, less confident, and more tearful. Examining the nature of these

associations was also a focus of this investigation.

An important final question was to explore the potential association between a speaker's own perception of vocal effort and voice handicap with other listeners' impressions. While associations between speaker-rated vocal effort and voice handicap with listener-rated voice quality has been examined previously (Eadie et al., 2007), it is unknown how speaker-rated dimensions might relate to attributes that go beyond voice quality. Understanding how attitudes might relate to patients' perceptions is critical to rehabilitation. Consequently, the following questions were investigated in this study:

1. As compared to age- and sex-matched controls, do unfamiliar listeners judge the voices of individuals with ASD as sounding older, less confident, and tearful?
2. What are the associations among listener impressions of age, confidence, and tearfulness with perceived vocal effort in ASD? That is, are listeners' impressions of traits solely associated with the overall severity of voice symptoms?
3. How do listeners' judgments compare to speakers' own judgments of vocal effort as well as voice handicap?

Methods

All methods and procedures used in this study were approved by the Institutional Review Board at the University of Washington.

Participants

Three groups of participants included 1) 20 individuals diagnosed with ASD; 2) 20 age- and sex-matched controls with no vocal complaints; and 3) 20 unfamiliar listeners. All participants were monolingual speakers of American English and passed hearing screenings at 25db for the octave frequencies from 250 to 4000Hz. No history of speech, language, or voice

disorders was reported by any participants, other than the diagnosis of spasmodic dysphonia for the ADSD speaker group. All speakers and listeners were paid for their participation.

ADSD speakers. The first group of speakers included 20 individuals (10 males, 10 females) with a confirmed diagnosis of ADSD and a mean age of 58.5 years (range 37-80 years). The speech samples from these speakers were obtained from a corpus used by the last author in a prior study (Eadie et al., 2007). All participants were recruited from the Department of Otolaryngology – Head and Neck Surgery at the University of Washington Medical Center. Speakers had received a diagnosis of ADSD based on an assessment by a board certified laryngologist and two experienced speech-language pathologists (SLPs). Diagnoses were made via a thorough case history, videolaryngostroboscopy, auditory-perceptual assessment (including assessment of voice breaks), and fine-wire laryngeal electromyography. Speakers reported no pain upon speaking and swallowing, and no excessive supraglottic tension was noted. No speakers were receiving speech therapy for the reduction of symptoms associated with accompanying muscle tension dysphonia. All participants were receiving BOTOX injections for ADSD, reported a reduction in their symptoms with injections, and had been living with their diagnoses on average for 9.29 years (range 1-16 years) before study participation. We excluded individuals who had been diagnosed for less than 12 months to control the fluctuations in symptoms and voice-specific quality of life often observed within the first year of BOTOX treatment (Rubin et al., 2004). Recordings were obtained at the end of a BOTOX cycle, just prior to the next injection. Adequate representation across a continuum of severity was assured based upon the average perceptual judgments of eight experienced SLPs who reported an average of 15.63 years (range 5-30 years) working with individuals with voice disorders. Speakers with ADSD were rated using the Consensus Auditory-Perceptual Evaluation of Voice, or CAPE-V (Kempster et al.,

2009). For the purposes of ensuring adequate representation across severity, ADSD speech samples were categorized as perceptually within normal limits (WNL), mild, moderate, or severe based upon the mean overall severity scores of the eight experienced clinicians. Scores of 0-9 were considered WNL, 10-29 were considered mild, 30-59 moderate, and 60-100 severe (see Table 1). These cutoff values were established based upon how scores on the CAPE-V tend to correlate with general categorical ratings on other scales (Karnell et al., 2007).

Because vocal tremor accompanies spasmodic dysphonia in 26%-50% of cases (Verdolini, Rosen, & Branski, 2005; White et al., 2011), speakers with co-existing vocal tremor were not excluded. Presence and evaluation of tremor was examined in two ways. First, two second segments of sustained vowels (“ah”) were analyzed acoustically using the Praat speech analysis program (Boersma & Weenink, 2010). Cycles of fundamental frequency (F0) and intensity modulation were examined for each segment to determine an estimate of vocal tremor rate for each speaker. This method has been employed by other researchers to quantify the degree of tremor in sustained vowels (Barkmeier-Kraemer, Lato, & Wiley, 2011; Lester, Barkmeier-Kraemer, & Story, 2013). Analysis of the extended vowel recordings revealed that tremor between 3-5.5 Hz was present in six of the 20 speakers (30%). Secondly, three experienced blinded SLP judges completed independent perceptual evaluations of the sustained vowels, which included a categorical rating of tremor (none, mild, moderate, severe). Judges were in 100% agreement about the presence of tremor in these same six speakers. It has been shown that the degree of severity of vocal tremor may differ between sustained phonation and connected speech contexts (Lederle, Barkmeier-Kraemer, & Finnegan, 2012). Therefore, we also sought to determine the presence and severity level of tremor in connected speech, which was the stimulus used in the present experiment. Despite 30% (n=6) of our speakers with ADSD exhibiting tremor

in sustained vowels, expert judges determined that only 10% (n=2) (Speakers 3 and 18) had some level of perceptible tremor during the sentence presented to listener subjects.

Control speakers. A second group of speakers included 20 age- and sex-matched controls with no history of voice disorders or present vocal complaints (mean age = 57.4 yrs, range 35-76 years). The control speakers were recruited from the broader Seattle community, and were perceptually screened by a certified speech-language pathologist (the first author) to fall within normal limits.

Demographic characteristics of the ADSD and control speakers including age, sex, presence (or absence) of tremor on sustained vowels, and overall severity are reported in Tables 3.1 and 3.2.

Table 3.1

Demographic Characteristics of Speakers with Spasmodic Dysphonia

ADSD Speakers	Sex	Age(y)	Severity	VHI	Self-effort	Tremor
1	F	56	Severe	79	30	None
2	F	50	Mild	36	28	None
3	F	62	Severe	89	64	Moderate
4	F	58	Moderate	51	26	None
5	F	59	Moderate	54	19	None
6	F	58	Severe	33	33	None
7	F	37	Moderate	70	54	Mild
8	F	47	Mild	59	35	None
9	F	77	Moderate	63	0	Moderate
10	F	66	Severe	74	59	None
11	M	39	WNL	37	19	None
12	M	80	Severe	46	73	None
13	M	62	WNL	65	50	None
14	M	64	Mild	63	46	None
15	M	61	Severe	109	76	None
16	M	61	Severe	84	59	Moderate
17	M	57	Mild	66	15	None
18	M	56	Moderate	111	45	Moderate
19	M	68	Moderate	64	22	None
20	M	51	Moderate	85	38	Mild

Table 3.2

Demographic Characteristics of Control Speakers

Controls	Sex	Age(y)	VHI	Self-effort
1	F	53	2	12
2	F	48	0	0
3	F	63	2	18
4	F	56	5	0
5	F	57	0	4
6	F	56	4	0
7	F	35	8	10
8	F	48	7	71
9	F	75	2	14
10	F	65	57	29
11	M	36	11	6
12	M	76	1	19
13	M	63	7	18
14	M	65	0	9
15	M	60	6	9
16	M	61	13	3
17	M	56	2	20
18	M	55	0	2
19	M	71	6	26
20	M	49	3	12

Unfamiliar listeners. Twenty listeners (10 males, 10 females) with no prior experience or coursework in voice disorders were recruited from the student population and surrounding community at the University of Washington (mean age, 24.4 years; age range, 19-45 years).

Data Collection for Speakers

Voice handicap. All speakers completed the *Voice Handicap Index* (VHI) (Jacobson et al., 1997) to measure the effect of vocal function on voice-specific quality of life. The VHI is a validated 30-item voice-specific quality of life scale with strong reliability and validity, and it is the most frequently used measure to gauge the psychosocial impact of a voice disorder (Francic, Bramlett, & Bothe, 2005). Participants respond to each item on a 5-point scale, with total scores ranging from 0 (no voice handicap) to 120 (worst possible voice handicap). While sub-domain scores (physical, emotional, and functional) may be generated for the VHI, only total scores were utilized for this study because some previous studies have called into question the construct validity of the three sub-domains (J. A. Wilson et al., 2004). VHI scores are included among the speaker demographics in Table 1.

Speech recordings and perceived vocal effort. ADSD and control speakers provided sustained vowel recordings and speech samples of Fairbanks' Rainbow Passage (Fairbanks, 1960). The speakers were recorded via a headset microphone (AKG C420) using a Tascam digital audio tape recorder (model DA-P1) at a sampling rate of 44.1 kHz. Recordings were made in a quiet room with low levels of ambient noise.

Immediately after recording each speech sample, all speakers (controls and ADSD) were asked to judge their own overall vocal effort. For the purpose of this study, vocal effort was defined as the perceived effort in producing speech (Verdolini, Titze, & Fennell, 1994). Speakers were familiarized with the definition of vocal effort, and then rated their own vocal

effort using a 100 mm visual analog scale, with endpoints ranging from *not effortful* (0 mm) to *extremely effortful* (100 mm).

Speech samples from both groups of speakers were normalized for peak intensity using sound-editing software (Sony Soundforge), converted into WAV files, and edited to only include the second sentence of Fairbanks' (1960) Rainbow Passage "The rainbow is a division of white light into many beautiful colors". The sentences were subsequently entered into a custom-made computer software program (www.rubyonrails.org) designed to randomize speaker presentation and obtain listener responses on rating scales.

Listening Procedures

The listening experiment was completed during one session that lasted approximately 40 minutes. Listeners were not given any diagnostic information prior to beginning the experiment, but were merely told that they would be evaluating speech samples of adult speakers. No mention of voice disorders was made. The session was divided into four listening blocks, separated by short breaks to prevent fatigue. Every block used the same stimuli, but listeners only rated one parameter per block (i.e., relative age, confidence, tearfulness, or vocal effort). Before each block, listeners received both written and aural instructions about the specific parameter they would judge. They were then presented speech stimuli over headphones (Samson RH600) at a comfortable volume. Listeners made judgments of each sample based on a single presentation of each stimulus.

The first parameter judged by all listeners included ratings of relative age. This parameter was rated first to maintain task consistency and promote listener reliability. Each ADSD speaker was specifically paired with an age- and sex-matched control (unbeknownst to the listener), with each of the paired samples being separated by 0.5 sec. Listeners judged which speaker sounded

older using a paired comparison paradigm on 100 mm visual analog scales (0 = speaker 1 sounds much older; 50 = speakers sound the same age; 100 = speaker 2 sounds much older). Listeners were instructed that they could move the cursor to any point along the 100 mm scale. Speaker order (ADSD vs. control) was randomized across trials and across listeners. For the purposes of intrarater reliability, 25% (n=5) of the 20 randomly presented pairs were repeated, for a total of 25 speaker pairs judged per listener.

The presentation order for the remaining parameters of confidence, tearfulness, and vocal effort was counterbalanced across listeners. For these three parameters, listeners rated individual speech samples because absolute (vs. relative) measures were the targeted dependent variables. Listeners made judgments of each speech sample using undifferentiated 100mm visual analog scales with marked endpoints (0 = not confident/not upset/not effortful; 100 = extremely confident/extremely upset/extremely effortful). For the parameter of tearfulness, “upset” was the endpoint marked on the visual analog scale; however, listeners were specifically instructed to listen for a “verge of tears” quality in a person’s voice. The same 40 speech samples (20 ASD, 20 control) were used for every listening block, but presentation order was randomized within blocks. To assess intrarater reliability for the three parameters of confidence, tearfulness, and vocal effort, 25% (n=10) of the 40 samples in each block were repeated, for a total of 50 samples per listening block. The total number of stimuli judged by each listener was 175 [N = 25 pairs for age + (50 stimuli x 3 parameters of confidence, tearfulness, and vocal effort)].

Data Analysis

Relative age was analyzed uniquely since it was the only parameter rated by listeners that used a paired comparison paradigm. Since a rating of 50 at the middle of the scale meant that the two speakers were perceived to be the same age, a rating below 50 meant that speaker 1 was

perceived to be older. Likewise, a rating above 50 would imply that speaker 2 was perceived as being older. Therefore, if a rater scored a 71 for a particular pair, the other speaker in the pair was automatically given a 29 ($100-71=29$).

All other parameters (confidence, tearfulness, and vocal effort) were presented as individual speech samples and the raters had full use of the visual analogue scale for rating purposes (0-100). Group means of listeners' ratings were obtained by first calculating the mean rating for each individual speaker. Then the mean scores for all individual speakers were averaged across the grouping variable of interest (either ASD diagnosis or control). No analyses were performed to determine differences as a function of tremor (within the larger ASD group) because of the small number of subjects within this subgroup. As a result, no conclusions can be made about the relative contribution of tremor for this subset of subjects. There were no significant differences as a function of speaker sex ($p > .05$); consequently, analyses were based on the total sample of all speakers collapsed across the ASD or control groups. For the parameters of vocal effort and tearfulness, a higher rating on the scale was associated with a more negative quality (100mm=extremely effortful or extremely tearful). However, for confidence, a higher value was associated with a positive quality (100mm=extremely confident). To ensure consistency of interpretation across parameters, ratings of confidence were reverse coded during analysis (i.e., 100mm=not confident). For all four parameters under investigation, the mean ratings of speakers with ASD were compared with the mean ratings of control speakers using four independent *t*-tests with Bonferroni corrections.

To determine associations among listeners' rated parameters, multiple Pearson's correlations were performed. Next, total VHI scores were calculated for all of the speakers

(control and ADSD), as well as self-rated vocal effort. To determine associations between self-rated and listener-rated dimensions, multiple Pearson's Correlations were performed across listeners' ratings of confidence, tearfulness, and vocal effort with the two speaker self-report measures (self-rated vocal effort; VHI total scores). Because control speakers should report lower overall VHI scores as a group, an additional correlational analysis was performed using all speakers with ADSD and only four randomly selected control speakers. By including only a few speakers (controls) with scores at the healthy/normal end of the scales, this second analysis ensured a relatively normal distribution across all the measures. A pre-determined level of statistical significance ($p < .01$) was used because multiple correlations were used.

Reliability

To determine reliability of listeners' judgments, intraclass correlation coefficients (ICCs) were calculated. Because scaled data such as those gathered for the current auditory-perceptual parameters are usually employed as group mean ratings for research purposes, the group reliability coefficients are more descriptive than the reliability of individual raters. As a consequence, ICC models (1, k) and (3, k) were used to determine intrarater reliability and interrater reliability respectively (Rankin & Stokes, 1998).

Intrarater reliability was calculated by repeating 25% of the speech stimuli in each listening block to determine how consistently listeners rated a speech sample the second time it was presented. The ICC (with 95% confidence intervals) was .856 (.787, .903) for relative age, .840 (.789, .879) for confidence, .771 (.698, .827) for tearfulness, and .938 (.918, .953) for vocal effort.

Interrater reliability of listeners' judgments (consistency across listeners) was determined using ICCs (and 95% confidence intervals) for each perceptual dimension. The ICC was .954

(.918, .979) for relative age, .960 (.939, .976) for confidence, .924 (.886, .955) for tearfulness, and .988 (.983, .993) for vocal effort.

Results

ADSD Speakers vs. Control Speakers

Listeners rated speakers with ADSD ($n=20$) as sounding significantly older ($t(38) = 12.81$, $p < .01$), less confident ($t(38) = 7.01$, $p < .01$), and more tearful ($t(38) = 6.58$, $p < .01$) than age- and sex-matched control speakers. Speakers with ADSD were also judged as having significantly more effortful speech than control speakers ($t(38) = 7.94$, $p < .01$). Means and standard deviations on all parameters for both speaker groups are presented in Table 3.3.

Table 3.3

Means and Standard Deviations for Ratings of Relative Age, Confidence, Tearfulness, and Vocal Effort for Speakers with Spasmodic Dysphonia and Control Speakers

Speaker Group	Relative Age	Confidence	Tearfulness	Vocal Effort
ADSD ($n=20$)	67.50 (SD=8.64)	62.06 (SD=12.91)	33.66 (SD=12.72)	57.33 (SD=24.31)
Controls ($n=20$)	32.50 (SD=8.64)	32.09 (SD=14.08)	10.18 (SD=9.63)	11.52 (SD=8.61)

Note. Confidence scores were transposed so that higher values reflect less confidence.

Individual speaker data were also examined in addition to group data to determine whether listeners systematically rated speakers with ADSD more negatively than their age- and sex-matched controls. When specific speaker pairs were analyzed, individuals with ADSD were rated more negatively between 90% to 100% of all instances. Specifically, ADSD speakers were rated as sounding older in 20/20 (100%) instances, less confident in 19/20 (95%) instances, more

tearful in 18/20 instances (90%), and as having more effortful speech in 19/20 (95%) instances. Figures displaying how each individual speaker with ASD compared with the age- and sex-matched control are presented in Figures 3.1, 3.2, 3.3, and 3.4. The six speakers with ASD plus tremor (3, 7, 9, 16, 18, 20) are also demarcated with an asterisk, and in general, show a similar pattern to those with pure ASD symptoms.

Figure 3.1. Speaker pairs (ASD vs. controls) with means presented for listeners' judgments of relative age (0= speaker younger; 100= speaker older). In 20/20 instances when means were matched for age and gender, listeners rated those with ASD as sounding older. * Indicates ASD speakers noted to have concomitant tremor on sustained vowels.

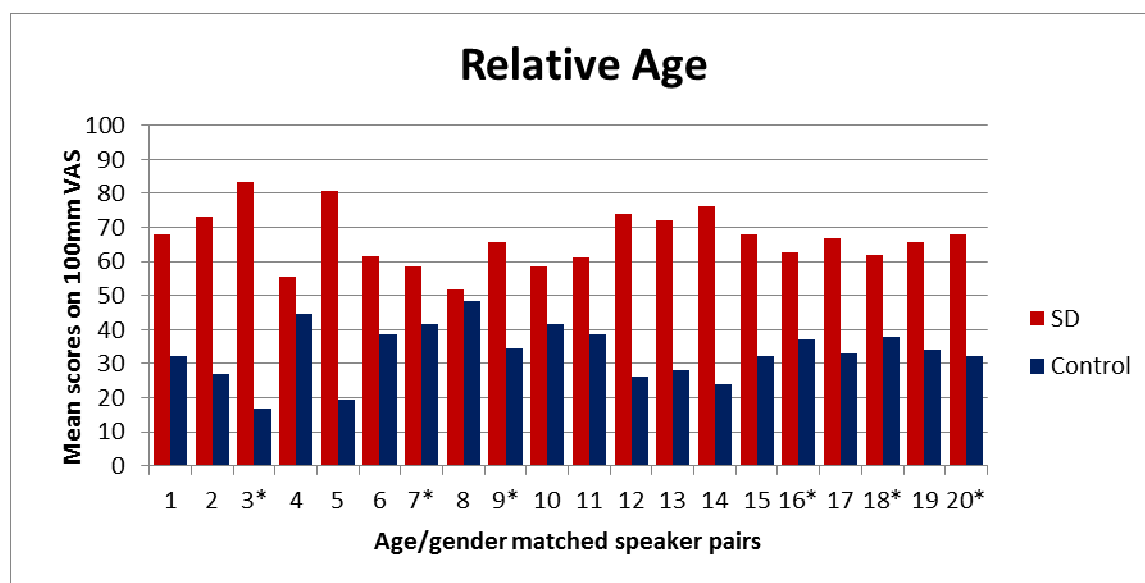


Figure 3.2. Speaker pairs (ASD vs. controls) with means presented for listeners' judgments of confidence (0= not confident at all; 100= extremely confident). In 19/20 instances when individual means were matched for age and gender, listeners rated those with ASD as having less confidence. * Indicates ASD speakers noted to have concomitant tremor on sustained vowels.

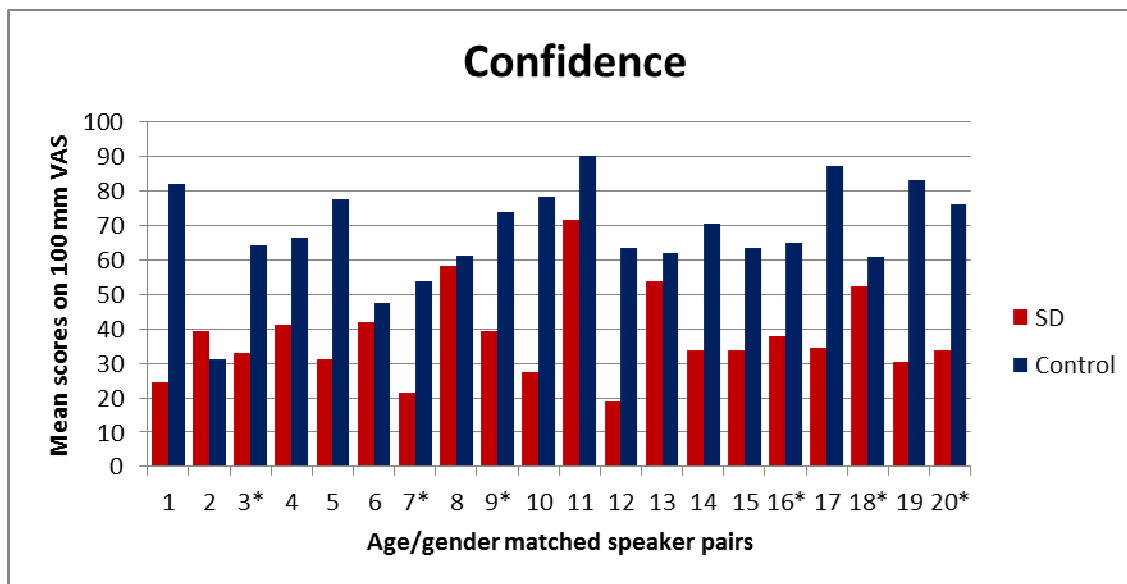


Figure 3.3. Speaker pairs (ADSD vs. controls) with means presented for listeners' judgments of tearfulness (0= not tearful at all; 100= extremely tearful). In 18/20 instances when individual means were matched for age and gender, listeners rated those with ASD as sounding more tearful. * Indicates ASD speakers noted to have concomitant tremor on sustained vowels.

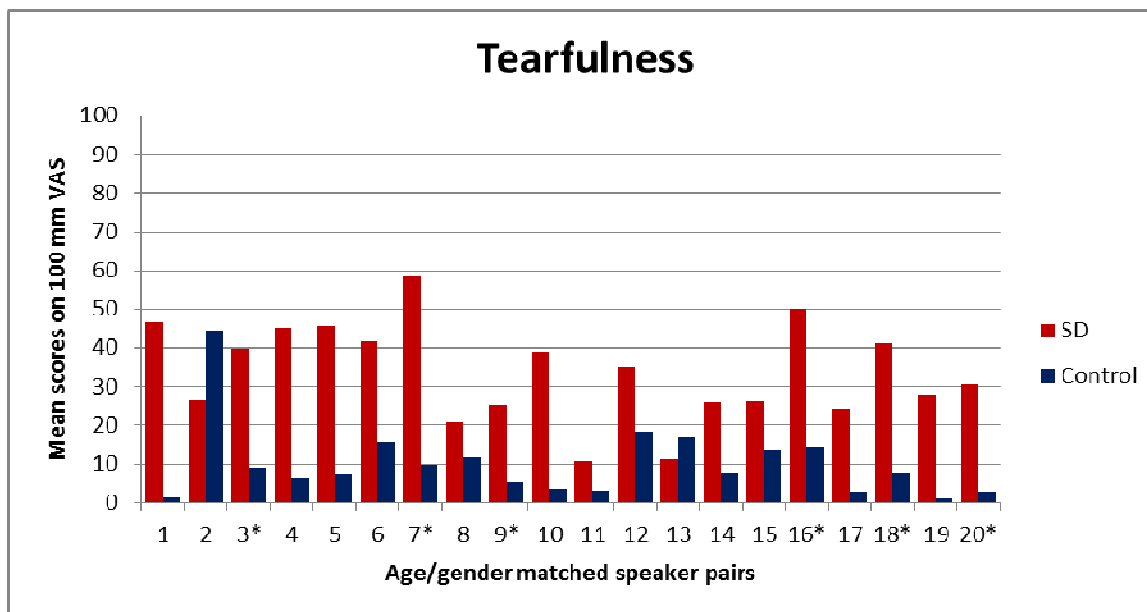
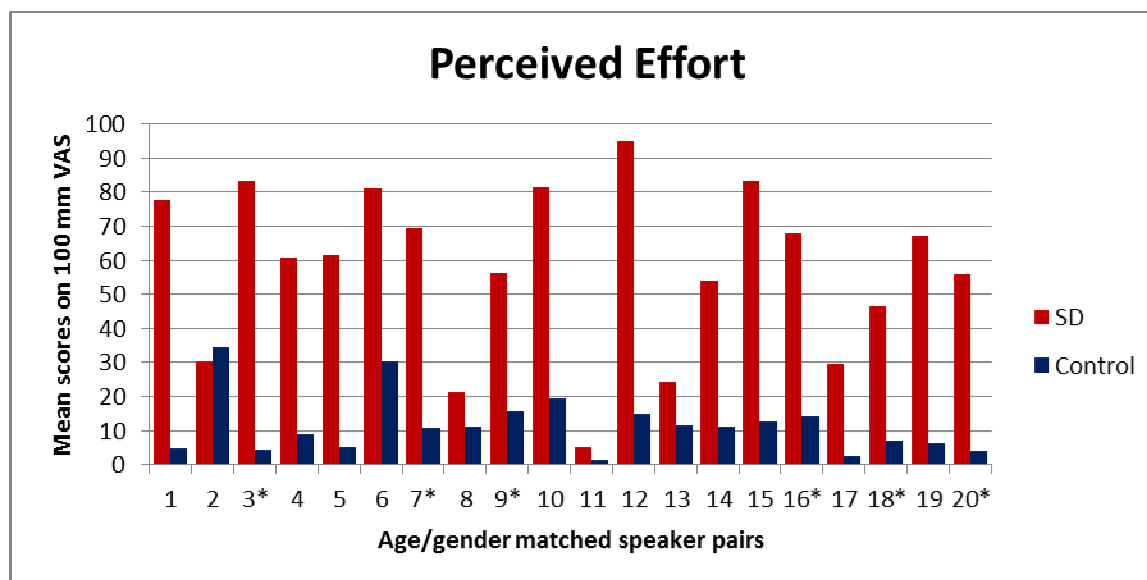


Figure 3.4. Speaker pairs (ADSD vs. controls) with means presented for listeners' judgments of perceived effort (0= not effortful at all; 100= extremely effortful). In 19/20 instances when individual means were matched for age and gender, listeners rated those with ASD as sounding more effortful. * Indicates ASD speakers noted to have concomitant tremor on sustained vowels



In the minority of instances in which a speaker with ASD was actually rated more favorably than a control speaker of the same age and sex, it was always the case that the speaker with ASD fell into the perceptually normal or mild category. Specifically, the same speaker with mild ASD (speaker 2 from Table 1) was judged more favorably than her control speaker for every parameter except relative age. For the parameter of tearfulness, both speaker 13 and speaker 2 were rated as less tearful than their age- and sex-matched controls. In general, however, all other speakers with ASD (including those with tremor) were consistently rated more negatively than controls.

Associations Among Listeners' Perceptions

Associations among listeners' ratings of confidence, tearfulness, and vocal effort were calculated using multiple Pearson's Correlations. Results revealed significant and strong associations among ratings of confidence, tearfulness, and perceived vocal effort ($p < .01$; see Table 3.4). Results were consistent across the entire sample, as well as the sample that only included 4 control speakers.

Table 3.4

Pearson Correlation Coefficients Across Parameters of Confidence, Tearfulness, and Effort

Correlated Dimensions	All Speakers	ADSD plus 4 Controls
Confidence vs. Tearfulness	0.865*	0.826*
Confidence vs. Effort	0.876*	0.887*
Tearfulness vs. Effort	0.853*	0.832*

*Correlation significant at $p < .01$ level (2-tailed)

Associations Between Listener- and Speaker-Rated Voice Outcomes

The mean VHI totals for the control speakers was 6.8 (SD = 12.39) and the mean for ASD speakers was 66.90 (SD = 21.75). Associations between listeners' ratings and self-report ratings (VHI; speaker-rated vocal effort) were determined using Pearson's Correlations (see Table 5). Associations were moderate between listeners' ratings of confidence and tearfulness with VHI scores ($r = .65 - .70$ for both parameters). Speakers' judgments of self-effort were only moderately related to listeners' ratings of confidence and tearfulness ($r = .45 - .52$; see Table 3.5). Like associations among listeners' perceptions, the strengths of the associations with speaker-rated outcomes did not appear to change as a function of the sample (ASD and 4 controls vs. all speakers).

Table 3.5

Pearson Correlation Coefficients of Listener Parameters with Self-Report Ratings (Voice Handicap Index and Self-Rated Effort).

Correlated Dimensions	All Speakers	ADSD + 4 Controls
Confidence vs. VHI	0.661*	0.699*
Tearfulness vs. VHI	0.664*	0.647*
Confidence vs. Self-Effort	0.486*	0.515*
Tearfulness vs. Self-Effort	0.468*	0.451*

*Correlation significant at $p < .01$ level (2-tailed)

Discussion

Listener Attributes: ASD Speakers vs. Control Speakers

Results from this study revealed that listeners rated speakers with ASD as sounding significantly more effortful than controls. This result was not surprising, given that a common feature of ASD is strained, effortful speech (Cannito et al., 1997, 2012). These results are also consistent with those reported by others who have indicated a significant difference in voice quality between ASD speakers and their age- and sex-matched controls (Cannito et al., 2012). More interestingly, results from this study found that listeners perceived ASD speakers as sounding significantly older, less confident, and more tearful than age- and sex-matched peers. That is, judgments extended beyond voice and speech quality, revealing negative biases by communication partners. These results are consistent with listener biases reported for individuals with communication disorders, including other types of voice disorders (Altenberg & Ferrand, 2006; Blood et al., 1979; Lallh & Rochet, 2000).

The fact that speakers with ASD were rated as sounding relatively older than control speakers is consistent with the qualitative data that speakers with ASD think that their voices do not accurately represent them (Baylor et al., 2005). Our results are also consistent with findings reported by Silverman and Hummer (1989), who investigated listener impressions of a single female speaker with ASD. In that study, sounding “old” was one significant attribute reported for that speaker. Findings from this study are supported by acoustic and perceptual studies that suggest that ASD speech is characterized by increases in voice breaks, tremor, perturbation, and noise to harmonics ratio (Langeveld, Drost, Frijns, Zwinderman, & Baatenburg de Jong, 2000; Sapienza, Cannito, Murry, Branski, & Woodson, 2002), which are similar acoustic events associated with the aging voice (Hollien, 1987). How these parameters, including tremor, might contribute towards an age bias should be investigated in future studies. Beyond an age bias, we predicted that the vocal qualities associated with ASD (shaking, cracking, quavering, etc.) would cause speakers with this disorder to be judged as sounding tearful and less confident than their age- and sex-matched peers. Our results were consistent with these hypotheses and with qualitative data reporting that speakers with ASD often feel that others view them as less confident (Baylor et al., 2005). In general, our findings are consistent with other literature indicating that listeners make judgments about individuals with voice and speech disorders that extend beyond characteristics of their speech (Blood et al., 1979; Collins & Blood, 1990; Jaywant & Pell, 2010; Lallh & Rochet, 2000; Ruscello et al., 1992). How these dimensions relate to the severity of the voice is examined next.

Associations Among Confidence, Tearfulness, and Perceived Effort

In the present study, results showed that an increase in perceived vocal effort was strongly associated with a speaker sounding less confident and more tearful. These associations were

consistent not only across the entire group of speakers, but also when the ASD speakers were grouped with a smaller subset of control speakers. However, we need to recognize that perception of a high degree of vocal effort does not necessarily *cause* that person to be perceived as less confident or more tearful.

Vocal effort or strain is a quality routinely assessed by SLPs who evaluate individuals with voice disorders. Increased vocal effort is often considered a feature of ASD and factors into clinician judgments of overall severity, particularly for individuals who remain untreated (Cannito et al., 2012). Our results indicate that more negative listener ratings were strongly related to the severity of ASD symptoms. The association between severity of speech and voice symptoms with other attributes has been demonstrated previously both for other voice disordered populations as well as in the stuttering literature (Altenberg & Ferrand, 2006; Collins & Blood, 1990; Panico et al., 2005).

The association between perceived vocal effort and ratings of confidence and tearfulness has implications for how individuals with ASD are counseled about available interventions. The gold standard treatment method for ASD is BOTOX injections (Duffy & Yorkston, 2003; Ludlow, 2009). The aim of these injections is to reduce effort in speaking and to reduce the psychosocial effects of the disorder (Duffy & Yorkston, 2003; Rubin et al., 2004). A potentially unrecognized benefit to continued injections may be that a reduction in perceived vocal effort may be associated with a voice that sounds more confident and less tearful to an unfamiliar communication partner. However, this potential rests on the contention that the voice is equally effortless for those who undergo BOTOX injections (at the optimal part of the BOTOX cycle) when compared to their age- and sex-matched peers. This result has not been borne out in previous studies (Bender et al., 2004; Rubin et al., 2004), and was not tested in the current

investigation. How individuals with ASD compare to age- and sex-matched peers throughout their BOTOX cycle should therefore be a focus of future research.

Our results also speak to the importance of evaluating perceived vocal effort when gauging the severity of vocal symptoms. Although a diagnosis of ASD might be disheartening for many individuals with this disorder, our results could be reassuring for individuals with mild symptoms who are perceived to have very little vocal effort. For example, some individuals who are familiar with their dosing regimens may not wait for their symptoms to fully return before coming in for their next BOTOX injection (Baylor et al., 2007). When individual speaker pairs in this study were examined, it was discovered that in some exceptional instances, unfamiliar listeners rated ASD speakers with very mild voice symptoms at least as favorably as their age- and sex-matched controls. This means that a blanket diagnosis of ASD does not automatically mean that a communication partner will judge that individual differently than peers. To understand the broad implications for counseling a person with ASD, however, auditory-perceptual outcomes must also be reconciled with speaker-rated outcomes.

Associations Between Listener- and Speaker-Rated Voice Outcomes

We obtained two self-report measures from the 40 speakers in this study: 1) the VHI, a validated voice-specific quality of life measure; and 2) a self-rating of vocal effort. We then compared these two speaker measures with ratings obtained from listeners. How confident and tearful a speaker was rated by a listener was moderately correlated to the degree of vocal handicap.

The present results indicate that the impact of a voice disorder on a person with ASD is not entirely predicted (i.e., with about half of the variance accounted) by other listeners' judgments of the attributes in question. These findings support the contention that psychosocial

outcomes, such as voice-specific quality of life, and auditory-perceptual outcomes should be considered independently.

Results from this study also showed that speaker-rated vocal effort was moderately related to listeners' ratings of confidence and tearfulness. These data indicate that how much vocal effort a speaker feels is not always an accurate indicator of how that speaker is perceived by a listener. This makes sense intuitively in that speakers with ASD may have become accustomed over time to the amount of effort that is required to speak, and that speaker judgments are based on different cues than those used by listeners. The perceptual and acoustic basis of these judgments needs further investigation.

Limitations and Future Directions

Results from the present study must be interpreted with some limitations in mind. First, only a small number of personal attributes were examined. Although these attributes were carefully selected with regard to ASD symptoms reported in the literature (Baylor et al., 2005; Cannito et al., 1997; Silverman & Hummer, 1989), they should not be thought to encompass all inferences that might be made about speakers with this voice disorder. Next, it is unknown how our results might extend to experienced listeners (such as clinicians) or familiar listeners. For example, with increased knowledge of a disorder such as ASD, judgments surrounding personal attributes could change. In the current study, the unfamiliar listeners consisted of primarily younger, college-aged individuals (mean age 24.4 yrs). Future studies should investigate how judgments of relative age and other attributes might be affected by using listeners who are closer in chronological age to the speakers themselves. These results might then extend to interactions with same-aged peers.

The precise effect of concomitant tremor on listener ratings cannot be determined using the current research design. Although our results suggest that speakers with ASD plus tremor were penalized compared to controls, we cannot determine to what degree this was due specifically to the diagnosis of ASD, the presence of tremor, or both. Further investigations should explore the specific contribution of tremor in this population using a controlled design. For example, one potential way to address the particular influence of tremor would be to perform an experiment with three diagnostic groups (pure ASD, vocal tremor, ASD plus tremor) and examine group differences.

A final limitation of this study was that we recorded speakers with ASD at the end of their BOTOX cycles, when their voices were at their worst. To determine whether results may generalize over time, future studies might examine speakers with ASD on the parameters of relative age, confidence, tearfulness, and vocal effort both pre- and post- BOTOX injections.

Implications

Our results have three major implications. First, individuals with ASD could be counseled that their vocal quality might be interpreted as sounding tearful, older, and unconfident. Knowing what an unfamiliar listener might incorrectly infer about a speaker with ASD is the first step in being able to correct these misperceptions. This would have implications for both public education as well as counseling. We also found that negative ratings appear to be strongly correlated with the degree of perceived vocal effort that is involved in speaking, suggesting that severity may play a role in these perceptions. However, associations do not imply causality; as such, they must be interpreted with caution.

Second, our results provide a starting point for examining how negative listener impressions may adversely affect everyday communicative interactions for individuals with

ADSD. For example, some studies have documented the employment difficulties faced by those with ADSA (Meyer, Hu, & Hillel, 2013; Izdebski, Dedo, & Boles, 1984; Smith et al., 1998).

Although the present study did not assess perceived employability, a voice disorder that makes a person sound older, unconfident, tearful, and strained might adversely affect employment opportunities. This hypothesis needs testing in future studies.

Last, our results provide the basis for public education efforts to potentially reduce biases from communication partners. Our listeners were unaware that half of the speakers were diagnosed with spasmodic dysphonia. We actively sought out listeners with no prior experience or coursework in voice disorders. We are currently investigating whether education regarding the etiology of ADSA or knowledge of diagnosis might affect listener ratings. Knowledge about how these biases affect both the person with ADSA as well as his or her communication partner may lead to better outcomes in this clinical population.

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CHAPTER 4: EMPLOYER REACTIONS TO AN APPLICANT WITH SPASMODIC DYSPHONIA: SYMPTOM SEVERITY AND DISCLOSURE OF DIAGNOSIS DURING A PHONE INTERVIEW

Preamble

The results from the previous chapter provide preliminary evidence that in a pre-disclosure condition (no information provided), speakers with ADSD were judged more negatively on specific parameters (relative age, tearfulness, confidence, and vocal effort). It appears that these negative listener ratings are strongly associated with severity of ADSD symptoms, with a small minority of mild speakers not penalized compared to controls. However, it is difficult to extrapolate the results of Chapter 3 to determine how symptom severity may differentially affect perceptions of an individual with ADSD within a hiring context. The listeners used in the prior study were not in positions to hire, nor was any information provided about the nature of the voice disorder in question. Exploring this issue of symptom severity and doing so within the context of an employment interview is the focus of Chapter 4. Chapter 4 extends the findings of the previous chapter by gauging employer perceptions of a speaker with ADSD in two severity conditions (mild/severe), and does so within the context of a simulated telephone job interview. Instead of assigning specific parameters in advance (i.e., confidence, vocal effort), Chapter 4 utilizes elements of a qualitative research design, allowing employers to describe the voice of an applicant with ADSD prior to any mention of the voice disorder. A disclosure of diagnosis then follows, and employers are able to rate their preferences for any supplemental information to accompany that disclosure. Finally, employers are provided an opportunity to make general recommendations for/against disclosure in either a mild or severe condition.

Introduction

Disclosure and the Americans with Disabilities Act

The Americans with Disabilities Act of 1990 (ADA) was created by Congress in an attempt to reduce the obstacles faced by individuals with disabilities across many domains. This law not only ensures that those with disabilities are entitled to medical services and given access to public facilities, but the ADA also specifically addresses the issue of disability-related employment discrimination. One fundamental tenant in the ADA stresses that a job applicant with a disability need not disclose that disability during the hiring process. This right to privacy was intended by lawmakers to protect individuals with disabilities from potential discrimination.

Research on invisible disabilities such as mental illness has found that this right to refrain from disclosure may indeed be protective. Revealing hidden disabilities, especially those that are highly stigmatizing, may induce fears of employer prejudice (Dalgin & Bellini, 2008; Penn & Couture, 2002; Peterson et al., 2011). Disclosing a hidden disability in a cover letter diminished an applicant's chance of being called in for a job interview by over 50% (Pearson et al., 2003). If an individual could refrain from mentioning a medical condition (e.g., diabetes, mental illness, migraines, epilepsy) during a job interview, he could then be assured that the medical condition could not possibly be used against him in hiring. From this perspective, the ADA serves to protect an individual's right to privacy. However, is an applicant who is blind, missing a limb, or in a wheelchair protected in any way because he does not need to "disclose" his already visible condition during a job interview? Likewise, is a person with audibly different speech or voice also protected by the right to refrain from disclosure under the law? And relatedly, does it matter how much that person's speech or voice deviates from typical expectation (i.e., does severity matter)? It is the overall purpose of this study to investigate how symptom severity of a

voice disorder might differentially impact disclosure outcomes within a hiring context. However, it is first important to examine what is known about the ADA and disclosure within the broader disability literature.

Visible disabilities. Visible disabilities are those that are already apparent to the observer, and thus the fundamental right to refrain from disclosure under the ADA is not a viable option. Ironically, although the ADA allows for a person with a visible disability to refrain from addressing the condition during an interview, a growing body of research has suggested that openly acknowledging an overt, physical disability has seeming advantages over non-acknowledgment (Belcrave & Mills, 1981; Hastorf et al., 1979; Hebl & Kleck, 2002; Hebl & Skorinko, 2005). Addressing the condition through acknowledgement is thought to improve social interaction by reducing the uncertainty that a non-handicapped individual experiences as a result of meeting someone with an apparent, physical disability (e.g., wheelchair use) for the first time. Offering information about the visible condition is thought to ease tension by providing a glimpse into how well-adjusted the individual with the disability has become (Thompson, 1982).

Openly addressing a visible condition, known as the “acknowledgement tactic” by social psychologists, has proven to be an effective strategy for those in wheelchairs (Hastorf et al. 1979, Hebl & Skorinko, 2005). This presents an interesting paradox in terms of the disclosure statutes under the ADA. What the law seems to imply as being a protective factor (the right to refrain from discussing a disability), might not be the best strategy to use in the case of visible impairments. Important to note is that the acknowledgment tactic has also been demonstrated to have success among some communication disorders. Individuals who stuttered, had profound hearing loss, or used alaryngeal speech were regarded more favorably by observers when they *did* discuss their conditions, as opposed to when they said nothing about them (Blood & Blood,

1982; Blood & Blood, 1999; Collins & Blood, 1990). It should be mentioned though that the individual who acknowledged his laryngectomy in the Blood and Blood (1982) study had a visible stoma (i.e., an opening at the base of the neck used for breathing), and the individual who acknowledged hearing loss had large, visible bilateral hearing aids (Blood & Blood, 1999). Therefore, although subjects in those studies acknowledged the presence of a communication disorder, these were instances in which the observers were given visual cues in advance of any presenting symptoms.

Disclosure Strategies. The precise wording that accompanies an acknowledgment or disclosure has also received some attention. The broader disclosure literature has suggested that a number of techniques could potentially make one disclosure more effective than another. Statements that have been found to be helpful when accompanying a disclosure include such things as: normalizing statements which downplay a condition (Clair, Beatty, & MacLean, 2005), an emphasis that a person is receiving treatment (Gabel, 2006), brief factual statements about the medical condition (Donoghue, 1994), assurances that the disability will not affect job performance (NCWD, 1985), and statements that highlight the uncontrollable nature of a particular disability (Bazakas, 1979).

Even the timing of acknowledgment may play an important role. Hebl and Skorinko (2005) performed a study in which an applicant in a wheelchair acknowledged her disability at two different time points in an interview. Results showed that when the applicant acknowledged her disability at the outset of the interview, she was perceived as significantly more happy and capable than when the same individual acknowledged her disability at the end. This finding suggests that small timing variations in acknowledgment have the potential to affect how individuals are perceived during job interviews. Hebl and Skorinko (2005) theorized that early

disclosure may quickly alleviate the uncertainty that arises when first meeting someone with a physical handicap. Specifically, higher levels of psychological well-being were attributed to the applicant who acknowledged in the early stages of the interview, which in turn led her to be viewed more favorably on a hiring composite score.

Disclosure and Voice Disorders

While the disability literature has suggested that acknowledgment may be best for more overt or visible impairments, it is unknown how these results can be applied to those with health conditions that may vary along a covert-overt continuum, such as voice disorders. It makes sense that acknowledgment has proven to be effective for a communication disorder such as stuttering, since most laypeople would be familiar with most characteristics of stuttering. Acknowledgment of stuttering addresses symptoms that are mostly identifiable to the average observer and does not provide any new diagnostic information. The presenting symptoms and etiology of voice disorders are likely more mysterious. Dysphonia can be attributed to any number of medical conditions, from laryngitis, to papilloma, to carcinoma, to Parkinson's disease. Dysphonia may also occur simply as a result of increased muscle tension (i.e., functional dysphonia).

Voice disorders are defined by how much the voice deviates from typical expectations. As such, communication partners detect voice disorders primarily through auditory rather than visual cues, and are therefore not primarily visible conditions. Despite their nonvisible nature, studies have demonstrated that signs of dysphonia can be quite apparent to listeners, and that voice disorders can have negative consequences on a person's physical, social, and emotional well-being (Hogikyan & Sethuraman, 1999; Cohen et al., 2006). Listeners have rated individuals with various voice disorders as sounding significantly less attractive, less confident, and less intelligent than control speakers, based on auditory presentation alone (Altenberg & Ferrand,

2006; Blood et al., 1979; Isetti, Xuereb, & Eadie, 2014; Lallh & Rochet, 2000; Lass et al., 1991). Thus, even without visual cues, judgments made about speakers with voice disorders may potentially affect communication in a variety of life situations, including the success of a job interview.

Although the ADA maintains an individual's right to refrain from disclosure during hiring, to not address the source of a dysphonic voice during a job interview may have deleterious consequences for a speaker. It is unknown what could potentially be assumed about a job applicant with a voice disorder if he/she does not address symptoms during the interview. Further complicating this issue is the fact that more companies are turning to phone interviews as a cost-effective means of pre-screening applicants (Blackman, 2002). In these instances, the quality of an applicant's voice arguably becomes even more salient, as the employer cannot rely on visual cues. In fact, individuals with communication disorders may be especially penalized by phone interviews, since those with overt, physical disabilities (e.g., blindness, paraplegia) are typically perceived as nondisabled over the phone. Phone interviews may not level the playing field for individuals with voice disorders, but instead may place more of a focus and burden on the impaired mechanism.

Spasmodic Dysphonia. One specific voice disorder that has received increasing attention in recent years is known as adductor spasmodic dysphonia (ADSD). ADSD is a chronic, neurologic voice disorder characterized by involuntary spasms of the vocal folds during speech. This frequently results in an effortful, strained voice quality (Cannito et al., 1997) and a decrease in voice-related quality of life (Murry, Cannito, & Woodson, 1994). The gold standard treatment for ADSD includes botulinum toxin (BOTOX) injections into the intrinsic laryngeal musculature (Duffy & Yorkston, 2003; Ludlow, 2009). BOTOX temporarily weakens the laryngeal muscles,

and thereby reduces the symptoms of ADSD. Side effects (e.g., breathiness) are commonly reported following an injection, with an optimal period of approximately 4 months before symptoms return (Pearson & Sapienza, 2003). Management of ADSD using BOTOX appears to improve voice quality, speech intelligibility, and psychosocial outcomes (Bender et al., 2004; Bhattacharyya & Tarsy, 2001). However, most studies show that individuals being treated with BOTOX continue to function at levels below those of healthy controls (Bender et al., 2004; Rubin et al., 2004). In addition, many individuals with ADSD choose to live without treatment due to the discomfort, side effects, and expense of BOTOX (Baylor, Yorkston, Eadie, & Maronian, 2007). Thus, it is important to consider how individuals with ADSD function across a wide range of voice severity levels.

Listener Perceptions of ADSD. Qualitative data suggest that the negative reactions of others is a common experience in the lives of those with ADSD, particularly when interacting with unfamiliar communication partners (Baylor, Yorkston, & Eadie, 2005). In addition, individuals with ADSD often report that symptoms are worse when under stress or on the telephone. Beyond changes in voice quality, individuals with ADSD also have reported feelings of being viewed as unconfident and nervous, despite feeling capable (Baylor et al., 2005). One of the first studies to examine how listeners might perceive the voice of someone with ADSD was conducted by Silverman and Hummer (1989). That study found that a single female speaker with severe spasmodic dysphonia was rated negatively on 42 out of 81 bipolar adjective traits. Specifically, the speaker was regarded as sounding: handicapped, incompetent, insecure, nervous, old, and unnatural, among many others. The authors concluded that females with severe ADSD will likely be regarded negatively by communication partners and perceived to have “undesirable personality traits.”

In a more recent study, Isetti et al. (2014) examined inexperienced listener impressions of 20 speakers with ASD compared to age- and sex-matched controls (see Chapter 3). Listeners were asked to make judgments of the speech samples using 100mm visual analogue scales, not only for voice quality (vocal effort/strain), but also for attributes that extended beyond voice quality. The results of this study showed that listeners rated speakers with ASD as sounding significantly older, more effortful, more tearful, and less confident than control speakers. Sounding relatively older than a person of the same age may have important implications related to hiring. Ageism is highly prevalent in the workplace, as studies have documented that older applicants are subjected to discrimination both in terms of hiring and advancement (Berger, 2009; Dennis & Thomas, 2007). In addition, speakers who are perceived as more tearful (or emotional) and less confident than their peers may be penalized in similar work situations.

The results from the Isetti et al. study highlighted an additional finding: judgments of personal attributes (confidence, tearfulness) were strongly associated with perceived voice severity (correlations between vocal effort and ratings of confidence and tearfulness ranged from $r = .83 - .88$). Like some other communication disorders (Altenberg & Ferrand, 2006; Collins & Blood, 1990; Gabel, 2006), severity may be important to consider when determining whether ASD expresses as a covert or overt disability or as a continuum that varies with severity. For example, although as a whole speakers with ASD in the Isetti et al. study were rated as sounding more effortful, more tearful, and less confident, a select subset of ASD speakers with mild symptoms were rated at least as favorably as healthy speakers on these same dimensions. This result suggests that it is not a blanket diagnosis of ASD that might subject someone to negative ratings, but rather that the severity of presenting symptoms may be extremely critical to consider.

Purpose of Study

The ADA maintains an individual's right to refrain from disclosing a medical condition during a job interview. However, individuals with overt or visible conditions do not have the option of keeping their disabilities private, and thus acknowledgment of the disability is often a recommended strategy. Those with ASD present a unique population in terms of disclosure, because unlike discrete disabilities that are either visibly apparent (paraplegia, amputation) or completely hidden (fibromyalgia, dyslexia), the variable of symptom severity may be ultimately responsible in determining whether disclosure is recommended by employers. Evidence exists that those with ASD might be perceived negatively pre-disclosure, but we do not know the effect that acknowledgment might have within the context of a job interview. When Silverman and Hummer (1989) discovered that a single speaker with ASD was rated negatively in their study, they speculated that addressing the condition might have a positive effect:

Acknowledging the problem- i.e., bringing it out into the open- is one strategy that may be useful for coping with it. They (people with SD), like persons who stutter, may benefit from bringing it out into the open by wearing a T-shirt containing a message acknowledging it. (Silverman & Hummer, 1989, pg. 288)

Although a T-shirt stating "I have spasmodic dysphonia" might not be the most practical way to disclose one's diagnosis during a job interview, studying the effects of disclosure on potential employers warrants investigation. The context of a telephone job interview appears to be particularly salient for investigating disclosure preferences in ASD because of the increase in symptoms that individuals often experience when communicating with unfamiliar partners, during times of stress, and/or on the telephone (Baylor et al., 2005). Although the literature has suggested certain strategies (e.g., timing, specific statements) that might improve disclosure success for other conditions, it is unknown what strategies might be preferred by employers who encounter an applicant with ASD. To date, no known studies have been conducted to gauge the

questions and concerns employers might have upon a disclosure of this neurological voice disorder. Disclosure among this population is likely complex, potentially because ASD may not conform to a discrete categorization structure (overt/covert). In some cases, the symptoms of ASD will be clearly apparent, but not so in others. As a result, this study aims to provide some preliminary descriptive data that might determine a) how severity may influence employers' descriptions of the voice of an applicant with ASD (pre-disclosure); b) if severity of ASD symptoms might elicit different concerns from employers about the voice; and c) what specific supplemental information might be deemed important to employers upon hearing an applicant disclose a diagnosis of ASD.

Finally, it is important to examine if disclosure of ASD is discouraged or recommended by employers unilaterally, regardless of presenting symptoms. Perhaps disclosure in a mild case of ASD might reveal a voice problem that was not initially apparent, and consequently would not be a recommended strategy. Yet, if that same speaker simply exhibited symptoms that were more severe (as is common towards the end of a BOTOX cycle), it may be found that openly addressing the diagnosis is preferred by employers. In this instance, a disclosure would serve to clarify a voice problem that was already apparent at the outset. An employer may initially imagine that something more life-threatening, progressive, or stigmatizing is responsible for the dysphonia. Therefore, revealing the diagnosis of a voice disorder that responds to treatment may be appreciated.

In this study, questions were explored experimentally through the manipulation of symptom severity within the same speaker, holding all other factors constant (speaker, diagnosis, interview, and outcome measures). Symptom severity can be explored using a within-subjects design due to the fact that the same speaker with ASD often experiences mild symptoms at an

optimal point in the BOTOX cycle, and more severe symptoms prior to the next injection (Ludlow, 2009). Results will determine how severity may affect disclosure outcomes, and will ultimately impact how we view ASD in the disability literature (i.e., in whether it may manifest as a covert or overt disability, or potentially as both).

As a result, this study addresses the following questions in a two part study:

- 1) *Phase 1, Pre-Disclosure*: During a simulated over-the-phone job interview, what is the effect of ASD symptom severity on:
 - a) comments made by employers. Will the manipulation of symptom severity in the same job applicant with ASD cause employers to notice and comment on the voice to a different degree? How would employers describe the voice of an applicant with ASD in a mild vs. severe case if the applicant chose *not* to mention the condition?
 - b) presumed diagnosis. Prior to any mention of ASD, what will employers initially believe is responsible for the voice quality in a mild vs. severe case?
- 2) *Phase 2, Post-Disclosure*: If disclosure of ASD does occur during a job interview, how might severity of the presenting symptoms influence:
 - a) the types of concerns employers might have regarding this condition? Might an applicant with a severely dysphonic voice elicit different concerns from employers compared to that same applicant with milder symptoms?
 - b) the essential information to include. What specific statements accompanying a disclosure of ASD would employers regard as most important?
 - c) overall disclosure recommendations. Will the eventual disclosure of an ASD diagnosis be recommended in both a mild and severe case?

Methods

The current experiment used a mixed methods approach within the context of a structured interview. The study simulated an over-the-phone interview involving a single female speaker with ASD recorded at two time points during her BOTOX cycle. The listeners included those with hiring experience (human resources personnel). Methods and recruitment strategies were approved by the Institutional Review Board at the University of Washington.

The rationale for a study involving two experimental phases (a pre- and post-disclosure phase) lies in the fact that the initial experimental questions (1a-b) rely upon listeners having no background on the voice disorder in question. It is important that no mention of ASD or disability be made at the outset of the interview, in order for listeners to have the opportunity to comment on voice quality if it is noticeable. Under the ADA, it is always an applicant's option to refrain from disclosure during a job interview. Therefore, the pre-disclosure portion of this study (Phase 1) was designed to gauge how employers might react to the voice of an applicant with ASD (mild or severe) if no mention of the condition was made. The post-disclosure questions (2a-b from Phase 2) assess how the average employer might react upon hearing a diagnosis of ASD for the first time. This secondary phase also reveals whether or not disclosure would be recommended regardless of severity level (2c). A schematic of the overall study design is presented below in Figure 4.1. Pre-disclosure outcomes and time-points are indicated in blue (Phase 1, questions 1a-b); post-disclosure outcomes and time-points are indicated in red (Phase 2, questions 2a-c).

Figure 4.1. Schematic of study design



Phase 1: Employer Reactions to an Applicant with ADSD Pre-Disclosure

Participants

Speaker with ADSD. One female speaker with ADSD was recruited for study participation. A female speaker was selected on the basis that ADSD affects women at a rate four times that of men (Pitman, 2011). Recruitment targeted a female between the ages of 45-65, as mean age of onset for ADSD is typically 45-46 (Schweinfurth, Billante, & Courey, 2002; Tanner et al., 2011) and many individuals remain in the workforce until at least the retirement age of 65. The speaker was selected from a pool of patients who receive BOTOX injections for ADSD at the University of Washington Medical Center, Laryngology clinic. The speaker had received a diagnosis of ADSD based on an assessment by a board certified laryngologist and two experienced speech-language pathologists (SLPs). The diagnosis was made via a thorough case history, videolaryngostroboscopy, auditory-perceptual assessment (including assessment of voice breaks), and fine-wire laryngeal electromyography. Concomitant vocal tremor was not noted. The individual was a native speaker of American English and reported no other conditions beyond ADSD that affected voice or speech. To ensure that recordings were obtained without bias, the precise nature of the experiment was not revealed to the speaker at the outset.

Overall severity of the speaker's voice was ascertained through the average perceptual ratings of three experienced speech-language pathologists (SLPs). These SLPs were asked to listen to three potential speakers with ADSD who met the gender and age inclusion criteria. Each of these three speakers was recorded at two time points, pre- and post-BOTOX injections. Specifically, the pre-BOTOX condition was recorded just prior to each speaker's next injection (i.e., at the worst point in their BOTOX cycle). The post-BOTOX condition was approximately 4 weeks after their injection, during a phase when the speakers considered their voice quality to be

optimal. All three speakers in the potential subject pool had been receiving BOTOX for at least a year to allow for an adjustment period.

SLP raters selected one speaker from among the three speakers. The selected speaker exemplified the largest difference in overall voice severity between the pre/post BOTOX recordings, and met the criteria for having a mild and severe voice at the two designated time points. Ratings were performed using the *Consensus Auditory-Perceptual Evaluation of Voice* (CAPE-V; Kempster et al., 2009). All three expert raters were in agreement that one speaker in particular represented the greatest spread of symptom severity between the two recording periods (see Table 4.1). This 58 year old female had been living with ADSD for approximately 9 years since her diagnosis, and had been on a stable regimen of BOTOX for many years. She was a nonsmoker and reported no other conditions beyond ADSD that affected her voice or speech. Prior to each recording, this speaker completed the Voice Handicap Index-VHI (Jacobson et al., 1997) to measure the psychosocial impact of her voice disorder (0= no voice handicap; 120 = severe voice handicap). She also completed a self-evaluation of her own vocal effort and perceived voice severity using 100mm visual analogue scales (0 = normal quality/no effort; 100 = severe voice quality/extremely effortful; Eadie et al., 2007). All measures indicated that the symptoms of her voice disorder and its impact on her life were quite different between the two recording sessions. Speaker measures are reported in Table 4.1.

Table 4.1

Speaker Measures by Severity Level Condition

	Pre-BOTOX	Post-BOTOX
CAPE-V mean overall severity from expert raters	76.3/100	14/100
Self-report effort	89/100	10/100
Self-report severity	90/100	10/100
VHI	105	34

Speaker Stimuli and Preparation. Two recordings were made of a scripted interview (see *Script* below). One recording took place at the end of a BOTOX cycle prior to the next injection (i.e., at the “worst” time in the speaker’s BOTOX cycle). The second was made approximately one month post-injection in order to allow for the therapeutic effects of the injection to take place (i.e., at the “best” time in the BOTOX cycle).

Script: A script was prepared to simulate an over-the-phone job interview using a subset of three questions from *Fifty Commonly Asked Interview Questions* (Glassdoor.com). The questions included: “What are your strengths?”, “What are your weaknesses?”, and “Are you a leader or a follower?” The entire script has been included in the Appendix as a reference. The answers to these questions were based loosely upon *Top Ten Interview Questions and Best Answers* (About.com). The script was prepared so as not to be specific for a particular job, but instead included general questions and answers that permitted the applicant to address some of her personal qualities. The script was worded to depict a competent applicant, and the same script was utilized for both listener groups (see *Listening Procedures*). In this manner, script content could be strictly controlled across both conditions.

The female speaker with ADSD was recorded reading the same script twice, once at each of the two time points (pre- and one month post-BOTOX injection). She was allowed to practice reading from the script until comfortable in both instances. An interviewer (not the author) read the scripted interview questions. The questions posed to the speaker were recorded only once and then were subsequently edited using audio software (Sony Soundforge) and included in both sets of final interviews (pre- and post-Botox). This ensured consistency in terms of the manner in which questions were posed across both recording conditions. The same speaker, interviewer, and script were held constant and used in both recordings so that severity was the only manipulated variable. All recordings were made in a quiet room with low levels of ambient noise via a headset microphone (AKG C420) using a Tascam digital audio tape recorder (model DA-P1) at a sampling rate of 44.1 kHz and 16 bits quantization. Both interview recordings were normalized for peak intensity using sound-editing software (Sony Soundforge) and converted into WAV files.

Listener Participants. Thirty-two listeners from the broader Seattle community were recruited for participation. All listeners were recruited from a pool of human resources personnel (HRP) with experience in phone interviews. All listeners completed a demographic form detailing the number of years in the hiring field, as well as the types of jobs for which they hired. HRP passed hearing screenings at 30 dB for the frequencies of 500, 1000, 2000, 4000, and 6000 Hz and were native English speakers. The 32 HRP were first matched pairwise for gender, age, experience, and job types for which they hired to reduce the effect of these extraneous variables on the outcome measures. Next, each participant was randomized to one of two groups. One group ($n=16$ HRP) was presented with a recording of the speaker with ADSD pre-injection (severe) and the other group ($n=16$ HRP) heard a recording of that same speaker post-injection (mild). Each

person in each group participated in an individual session (see procedures below). Many HRP reported that they hired for more than one type of job (e.g., sales, marketing, finance, and administrative). Demographic characteristics of HRP as well as the types of jobs for which they hired are reported in Tables 4.2 and 4.3.

Table 4.2

Human Resources Personnel Demographics by Severity Level Condition

	Mild condition	Severe condition
Gender	5M, 11F	5M, 11F
Age	<i>M</i> = 44.9 (range 30-59)	<i>M</i> = 44.4 (range 29-60)
Years of Hiring Experience	<i>M</i> =14.8 (range 3-25)	<i>M</i> = 11.6 (range 3-25)

Table 4.3

Job Types for which Human Resources Professionals Hired by Severity Level Condition

Severe condition	Mild condition
manufacturing, quality assurance, management	social media coordinator, editors, software engineering, administrative
technology, human resources, administrative, finance/accounting, sales/marketing, executive	reservations, customer service, marketing, accounting
administrative, office staff, managers, executive, manufacturing	technology, administrative, executive, management
data entry, receptionist, management, retail, human services	administrative, receptionist/exec. assistant, office staff
engineering, manufacturing, information tech	information tech, customer support, office staff
software engineering, sales, executive	software development, sales, human resources, marketing, financial
sales, retail	manufacturing, information technology, office staff
management, software dev., accounting/finance, information tech, customer support	information tech, human resources, marketing, accounting, finance, sales, manufacturing
management, finance, technology, call center, legal, insurance	executive, management, administrative, pharmaceutical sales
executive, management, administrative, pharmaceutical sales	administrative, technology, management, executive, manufacturing
legal, administrative, information technology	administrative, management, customer support, human resources, engineering
administrative, executive, sales, financial	information tech, call center, administrative
software development, social media, sales, administration, editors	graphic designers, marketing, copywriters
executive assistant, administrative, grant writer, patient services coordinator	nursing, physician assistants, human services, executives
human resources, accounting, finance, executive, administrative, customer support	secretarial, office, analysts, communications
human resources, analysts, managers, communications	human resources, administrative, management

Data Collection

To ensure that the methods employed would be clearly understood by a larger pool of HRP, all of the following procedures were first pilot tested on three participants. Questions were asked regarding the appropriateness of the wording used in the interview script itself, as well as the clarity of all rating tasks.

Regardless of group assignment, human resources personnel (HRP) were told that the purpose of the study was to evaluate the effectiveness of an over-the-phone job interview in assessing their impressions of a job candidate. Both experimental phases took place within the context of a single structured interview lasting approximately one hour. HRP were told that they would be evaluating a short audio sample from a scripted phone interview involving a hypothetical applicant. They were told that the applicant's responses may appear rehearsed rather than spontaneous, but this was due to the fact that the applicant was permitted to write down her responses on paper prior to being recorded. No mention of a disability or voice disorder was made at the outset. HRP listened to one of the two pre-recorded interviews via headphones (Samson RH600) at a comfortable volume on a laptop computer. Interviews were conducted in private offices at the HRP's place of employment, or in a private office at the University of Washington. All sessions were audio recorded for subsequent analysis.

Phase 1: Questions Posed to Participants

1. Detection of Voice Problem. After listening to phase 1 of the interview (in one of two conditions), employers were first asked the open-ended question “*Was there anything you noticed or were wondering about the applicant that stood out as you were listening?*” This

question was designed to give employers in either severity condition the opportunity to remark if they noticed a problem with the applicant's voice.

2. *Voice Description.* All participants were then asked to describe the applicant's voice using whatever terms they felt appropriate.

3. *Perceived Etiology.* After describing the voice, they were asked to make a guess as to why the person's voice sounded the way that they had described it.

Data Analysis

Quantitative Analysis

Frequency counts were calculated for the percentage of HRP who initially remarked upon the voice for the mild vs. severe condition (Question 1). A Chi-Squared analysis was performed to ascertain whether these differences were attributed to chance alone. Descriptive data for the voice description (Question 2) and perceived etiology (Question 3) also were summarized in tables.

Pre-Disclosure Results

Question 1: Detection of Voice Problem

After listening to the recorded interview script, all HRP were asked "*Was there anything that you noticed or were wondering about the applicant that stood out as you were listening?*"

The number of HRP who commented about the voice in response to that general question differed across the two severity conditions (Table 4.4).

Table 4.4

Initial Voice-Related Comments by Severity Level

	Severe condition	Mild condition
Initially commented on voice	15/16, or 94%	0/16, or 0%

A Chi-Square statistical analysis revealed that the percentage of participants who noticed the voice differed by severity condition, $\chi^2(1, N=32) = 28.24, p < .001$. Specifically, all but one HRP in the severe condition immediately brought up the woman's voice (94%, 15/16), whereas no HRP made comments about the speaker's voice in the mild condition (0%, 0/16). Of those in the severe condition who did mention the quality of the applicant's voice, in many cases the voice and/or perceived medical issue were the *only* things the HRP discussed in response to that initial line of inquiry (60%, 9/15). In other words, multiple HRP in the severe condition discussed the voice and nothing else (i.e., no content-related comments). Conversely, in the mild condition, all answers to the initial open-ended question pertained to the content of the responses provided by the applicant during the interview.

Question 2: Voice Description

HRP in both groups were then asked to describe the applicant's voice. All terms that were used to describe the voice in both conditions are listed in Table 4.5. The terms are categorized according to whether they were positive/neutral, or negative.

Table 4.5

Pre-Disclosure Voice Descriptors by Severity Level

Severe condition		Mild condition	
<i>Positive/Neutral</i>	<i>Negative</i>	<i>Positive/Neutral</i>	<i>Negative</i>
Honest	Old/Older (7)	Pleasant/Pleasing (5)	Not confident (3)
	Weak/Weakness (5)	Clear (4)	Little raspy (3)
	Raspy (3)	Soft (3)	Nervous (2)
	Gravelly (3)	Articulate (3)	Older (2)
	Katharine Hepburn (2)	Well-spoken (2)	Little shaky (2)
	Out of breath (2)	Soft-spoken (2)	Some scratches (2)
	Scratchy (2)	Methodical (2)	Bland
	Crackly (2)	Precise (2)	Little stressed
	Challenged (2)	Good Modulation (2)	Not lots of energy
	Struggled for Breath (2)	Prepared (2)	Monotone
	Slow Delivery (2)	Young	Little bit of gravel
	Little Red Riding Hood's Grandmother	High	Little congestion
	Lack of resonance	Upbeat	Not strong
	Labored	Not shrill	Not commanding
	Hesitant	Uninflected	Getting over cold
	Wobbly	Positive	Dry
	Sick	Strong	Quaver
	Medical Abnormality	Motherly	Tickle in throat
	Smoker	White	Thin
	Medical Condition	Suburban	
	Bedridden	Metered/Reading Cadence	
	Not Clear	Docile	
	Tired	Friendly	
	Not forceful	Good Listener	
	Stressed	Relaxed	
	Struggled	West Coast	
	Strained	Good Diction	
	Unhealthy	Nice	
	Not good energy	Mid America/Flat Accent	
	Unsteady	Self-confident	
	Broken speech	Calm	
	Lack of flow	Soothing	
	Painful/In pain	Consistent	
	Monotone	Not Rushing	
	Going to hack up a lung	No Nervousness	
	Boring		
	Rough		
	Low pitched		
	Wavering		
	Hard for her to talk		
	Needed to catch breath		
	Gasping		

More negative descriptors (42) were used by HRP in the severe condition. In fact, only one positive descriptor (honest) was used by a single participant in the severe condition. One descriptor warrants clarification. The employer who remarked that the applicant's voice sounded like "Little Red Riding Hood's Grandmother" went on to specify that the severe applicant sounded as if she were 82 years old and bedridden. Conversely, multiple descriptors (35) that were deemed either positive or neutral were used by HRP who heard the applicant with milder symptoms. The most commonly used descriptors in the severe condition were "old" and "weak", whereas "pleasant" and "clear" were used most often in the mild condition. However, it should be noted that some HRP in the mild condition did use some negative descriptors (19) when addressing the applicant's voice. They described her voice as sounding "not confident" and a "little raspy" most often.

Question 3: Perceived Etiology

After describing the voice, HRP were asked to make a guess as to why the person's voice sounded the way they had described it. All potential reasons are listed in Table 4.6 for both conditions, in order from most to least cited. There are more potential etiologies than participants because many HRP suspected that the vocal quality could be due to more than one issue.

Table 4.6

Perceived Reason for Vocal Quality Pre-Disclosure from Most to Least Cited

<i>Severe Condition</i>	<i>Mild Condition</i>
Long Term/Heavy Smoker (7)	Nerves/Nervous (5)
Older (7)	Needed a Drink of Water (2)
Throat Cancer (4)	Just Her Natural Voice (2)
Emphysema (2)	Just Reflects Her Personality (2)
Lung Cancer (2)	Older (2)
Abnormal/Damaged vocal cords (2)	Little stressed (1)
Nervous (2)	Baby Boomer (1)
Laryngitis (2)	Tickle in Throat (1)
Lots of Whiskey (1)	Just Genetics (1)
Reading Difficulties (1)	Nothing Stood Out (1)
Parkinson's Disease (1)	Had Material in Front of Her (1)
Asthma (1)	Getting Over Cold (1)
Cold (1)	Just Hasn't Interviewed in a Long Time (1)
Whatever Katharine Hepburn Had (1)	Rehearsed/Canned Answers (1)
On a Respirator/Tracheostomy (1)	

Note. Some participants offered up multiple reasons for the applicant's vocal quality and thus the number in parentheses exceeds the total number of participants

The most common surmised etiology in the severe condition was that the applicant might have been a heavy smoker or someone who was older. Only two HRP actually suspected that the perceived vocal quality was related to (mis)functioning of the vocal folds, with more people suspecting either throat cancer or issues related collectively to respiratory impairment (i.e., emphysema, lung cancer, asthma). Under the severe condition, "reading difficulties" warrants further explanation. One HRP in the severe condition noted that the slight pauses that were occurring between words and sentences could either be due to a lung issue such as emphysema, or he believed that if the applicant were reading her responses, the effortful cadence might also reflect a poor degree of reading proficiency.

Although “nerves” was the most commonly suspected etiology in the mild condition, it should be noted that statements like “just her natural voice”, “just reflects her personality”, “just genetics”, “had material in front of her”, “rehearsed/canned answers”, and “nothing stood out” reflect the general consensus that the applicant’s voice quality was not indicative of a medical condition.

Discussion

The purpose of Phase 1 was to gauge employer perceptions of a single female speaker with ASD in two severity conditions (mild/severe) within the context of a simulated telephone job interview. Results showed that in contrast to the mild condition, employers in the severe group focused almost exclusively on negative characteristics of the speaker’s voice, to the detriment of the content of her responses.

Pre-Disclosure Reactions According to Severity Condition

Results from this study revealed that a greater number of potential employers commented on the voice of an applicant with SD when her symptoms were more severe. More specifically, 94% or 15/16 HRP immediately brought up the applicant’s voice in the severe condition, while none mentioned the voice of that same applicant just four weeks later when her symptoms were milder. These results are consistent with auditory-perceptual studies that suggest that within an individual speaker, severity of speech varies significantly over the course of a BOTOX cycle (Bender et al., 2004; Rubin et al., 2004). These results also further validate the selection of this speaker as being representative of two different severity levels, as perceived by experienced clinicians and self-ratings of voice quality and quality of life.

Once attention was directed specifically to vocal quality, employers described the applicant’s voice differently across the two conditions. Almost exclusively negative terms were

used in the severe condition, whereas primarily positive/neutral descriptors were used for the mild (Table 4.5). These results lend support to recent qualitative evidence suggesting that unfamiliar listeners can react strongly to the voices of some speakers with severe ASD, describing these voices as sounding unnatural and impaired (Nagle, Eadie, & Yorkston, submitted).

The current investigation is the first to indicate that listeners' perceptions and reactions (beyond voice quality) can vary as a function of severity within the same speaker with ASD. The adjective "older" was used most often in describing the applicant in the severe condition. This supports past research which suggested that prior to their BOTOX injections, speakers with ASD were rated as sounding significantly older than healthy age-matched controls (Isetti et al., 2014). The present results are also consistent with findings reported by Silverman and Hummer (1989), who found that sounding "old" was one significant attribute reported for a severe female speaker with ASD.

In this study, not only was the speaker's voice in the severe condition described more often as sounding older, but advanced age (along with smoking) were the two most commonly perceived etiologies for her vocal quality. Since age is relative, one could argue that the chronological age of the speaker used in this study (58 years) might be perceived as someone who is indeed older as compared to some of the younger HRP listeners. However, the key finding here was that the same speaker was described as sounding older to a greater degree in the severe condition. One HRP even imagined that the severe speaker was most likely in her 80's, which far exceeds her actual age of 58. Although speculative, this suggests that speakers with ASD who are asked to give phone interviews when their symptoms are more severe (i.e., towards the end of the BOTOX cycle) may potentially be perceived as older than when their

symptoms are milder. This could be a crucial finding, since employers are not allowed under current law to ask a person's age during an interview. Age must always be inferred. Phone interviews in particular do not allow the benefit of visual cues, so sounding older than one's chronological age could lead to age-related discrimination. This has important implications since ageism is highly prevalent in the workplace (Berger, 2009; Dennis & Thomas, 2007).

No employer correctly guessed that spasmodic dysphonia was the specific reason for the vocal quality. This may not be surprising, given that dysphonia can be attributed to any number of more common ailments. Instead, most HRP in the severe condition assumed the vocal quality was due to advanced age, heavy smoking, throat cancer, or issues related collectively to respiratory impairment (e.g., lung cancer, emphysema, asthma). It was unexpected that the speaking effort so commonly associated with ADSD would be linked more to breathing difficulty rather than the laryngeal mechanism. Whether this was a finding unique to this particular applicant's speaking pattern is unknown. However, in a related study, the voices of multiple speakers with ADSD were defined as being "challenged" and also as potential "smokers" (Nagle et al., submitted). Since smoking has an obvious impact on the respiratory system, it is likely that these perceptions were not unique to the single speaker used in the present investigation.

Collectively, these results suggest that severity may play an important role in how an applicant with ADSD might be perceived prior to any mention of the disorder. In some severe cases of ADSD, if a person opts for nondisclosure, incorrect (and presumably stigmatizing) assumptions can potentially be made about that person's health status. The severe applicant was not only perceived to have an entirely different illness such as lung or throat cancer, but habits that were not accurate (i.e., smoking) were erroneously assigned to the speaker. These assumed

health conditions could also be detrimental in a hiring context, since issues related to health insurance are becoming more important to consider when hiring employees (see Phase 2 of this study). As a result, lack of disclosure in this condition (severe voice) could result in some unfavorable consequences within the context of a phone interview.

Conversely, no serious medical condition was ever assigned to the mild speaker who was recorded just four weeks later, post-BOTOX injection. At worst, one employer assumed that the mild applicant may have been getting over a cold, and at best, many employers assumed that no health issue was present at all. However, it should be noted that although HRP in the mild condition did not detect a medical condition or “problem” per se, there were perhaps more subtle manifestations of her ASD. Despite the mild speaker’s voice being described using positive terms in many instances, there were still 19 different negative terms used to describe her voice. Some HRP did state that she sounded a little raspy, nervous, and unconfident. In fact, the most common negative descriptor in the mild condition dealt with the speaker’s own lack of perceived confidence, while the most commonly suspected reason for her vocal quality was that the mild applicant was nervous during the interview. This result indicates that the voice of the mild applicant caused HRP to make inferences about the *personal* qualities of the speaker herself, rather than a disease state. This was an intriguing finding, since Isetti et al. (2014) previously found that multiple speakers with ASD were evaluated as sounding significantly less confident than healthy controls. Baylor et al. (2005) also found that speakers with ASD often felt that their level of confidence was questioned, or that they were perceived as being nervous or untruthful when, in fact, they were quite honest and capable individuals. Other studies have also noted that listeners tend to assign negative attributes to individuals with voice disorders (Altenberg & Ferrand, 2006; Blood et al., 1979; Lallh & Rochet, 2000; Lass et al., 1991).

Despite not being perceived as having a health issue, comments about the mild applicant being stressed, nervous, and unconfident reveal that negative inferences can still be made even when voice symptoms are more subtle. These results alone have clinical implications for counseling individuals with ADSD.

Phase 2: Employer Reactions to the Disclosure of an ADSD Diagnosis During a Job Interview

Results from Phase 1 suggest that prior to mentioning her disorder, the voice of the job applicant with ADSD was judged more negatively in the severe condition. However, the HRP during that portion of the experiment were not aware of the true nature of her voice quality, nor were they asked for their opinions regarding whether or not the applicant should have addressed her symptoms during the interview. Therefore, Phase 2 was designed to examine the following questions:

If disclosure of ADSD does occur during a job interview, how might severity of the presenting symptoms influence:

- a) the types of concerns employers might have regarding this condition? Might an applicant with a severely dysphonic voice elicit different concerns from employers compared to that same applicant with milder symptoms?
- b) the essential information to include. What specific statements accompanying a disclosure of ADSD would employers regard as most important?
- c) overall disclosure recommendations. Will the eventual disclosure of an ADSD diagnosis be recommended in both a mild and severe case?

Methods

After completion of the pre-disclosure outcome measures from Phase 1, HRP in both severity conditions (pre- or post-Botox) were told that there was a final portion of the phone interview that needed their attention. The participants were presented with an auditory stimulus that included the following question posed by the interviewer on the recording: *“Before we end, is there anything else you would like to tell me about yourself?”* The applicant stated *“Well, before we end, I should probably mention that I have something called spasmodic dysphonia”*. The audio recording immediately terminated, and HRP were presented with a series of questions to gauge their reactions to the disclosure.

Phase 2: Questions Posed to Participants

4. *Apparentness of Symptoms.* Immediately after the applicant disclosed her diagnosis of spasmodic dysphonia, participants were then told by the investigator that the diagnosis is a type of voice disorder. Participants were asked if this disclosure: 1) clarified a voice problem that was noticed earlier (to cross check with earlier *Detection of Voice Problem* question from Phase 1), or 2) revealed a voice problem that would not have been noticed.

5. *Information Needed/Job-Related Concerns.* Employers were asked two open-ended questions about what they might appreciate knowing about this condition within the context of a job interview. The questions were *“What else might you like to know about this condition?”* and *“What are your concerns about how this condition might relate to the specific jobs for which you hire? Please be as specific as possible.”*

6. *Disclosure Statement Preferences.* A series of paper-based statements, each on a 100mm visual analogue scale (Nyren, 1988) were presented to HRP. These 13 statements were comprised of factual statements about the voice disorder, personal statements, and job-related statements that could potentially accompany a disclosure of ADSD during a job interview. These

statements were selected either based upon the factual characteristics associated with SD (e.g., “It’s a voice disorder that causes spasms of the vocal cords”) or based upon the strategies that have been suggested to be helpful for other conditions (e.g., a mention of treatment; Gabel, 2006), “I’m currently receiving treatment that involves injections of BOTOX into my voice box.”) HRP were also told that they could add a potential statement of their own if they felt it would be important to address a particular issue. All statements can be found in Table 4.7.

Table 4.7 Disclosure Statements Rated by Employers

Statements Rated By Employers

Factual Statements

It’s a voice disorder that causes spasms of the vocal cords.

It’s not contagious.

It’s a chronic condition with no cure.

It’s not a progressive condition.

Personal Statements

I’m currently receiving treatment that involves injections of BOTOX into my voice box.

My voice quality may vary, but with continued treatments, people seem to understand me.

It’s actually not a big deal anymore, since I’ve adapted pretty well.

My last boss can attest to the fact that I was a great employee.

It’s uncontrollable, so you should know that I didn’t cause this myself.

Job-Related Statements

I feel that it won’t affect my ability to do my job.

In my case, I won’t require any accommodations at work.

Once every 4 months, I may need a couple hours off in order to receive my treatments.

I would need to make sure that the insurance plan at this job covers my treatments.

HRP rated each individual statement using a 100 mm visual analogue scale with endpoints marked as “Not important to mention at all” to “Extremely important to mention”.

7. *Timing Preferences.* One question related to the timing of the disclosure was posed to HRP. The options included whether earlier disclosure in the interview would have been better, at the end seemed best, earlier or later makes no difference, or it would probably be best to refrain from disclosing at all. HRP were asked to then verbally explain their timing recommendation.

8. *Overall Disclosure Recommendation.* A final question asked participants to discuss whether they felt that this particular applicant should have disclosed her spasmodic dysphonia during the job interview. Using an open-ended format, HRP were given the opportunity to explain their rationale for or against disclosure in the case of this particular applicant.

Debriefing

After completing all outcome measures, the investigator debriefed the participants about the purpose of the experiment. Each participant was also asked to provide information related to prior exposure to spasmodic dysphonia and/or coursework in voice disorders. HRP were asked if they had ever known someone with a speech, language, or hearing disorder. Questions also were asked regarding familiarity with the Americans with Disabilities Act. Any participant who was familiar with spasmodic dysphonia (through education) or who had personal experience with the disorder (self/family/acquaintance) would have been excluded from analysis. No participant reported having such experiences.

Data Analysis

Quantitative Analysis

A Chi-Square statistical analysis was performed to indicate whether or not the percentage of HRP who felt that the disclosure clarified a voice problem differed from chance between the two severity conditions (Question 4). Ratings on the 100 mm visual analogue scales for each supplemental disclosure statement (Question 6) were individually calculated and then averaged across all HRP within each group. Multiple t-tests using Bonferonni corrections ($p = .05/13$) were conducted to ascertain if there were significant differences between the two groups of HRP on the mean scores for each statement. Frequency counts illustrating the timing preferences (Question 7) and ultimate recommendations for/against disclosure (Question 8) were calculated for both severity conditions.

Qualitative Analysis

The audio recorded verbal response portions (Questions 5, 7, and 8) were transcribed verbatim by the first author. Transcripts were analyzed using the steps involved in qualitative content analysis (Braun & Clark, 2006; Hsieh & Shannon, 2005). Over a series of face-to-face meetings, two additional researchers (along with the first author) helped establish the preliminary codes. Prior to each of these meetings, individual researchers were asked to independently analyze portions of transcripts and assign their own codes based upon participants' responses. As a concrete example, if a participant during an interview said "Just what type of potential accommodations might there need to be?" a research team member might assign the code "Accommodations" to that remark. Researchers performed this task independently, and then met subsequently to discuss the types of codes that each researcher had generated. Using this approach over multiple meetings, the lead author established an initial coding dictionary in which a specific definition was provided for each code. (Note: The finalized code dictionary is provided for reference in the Appendix for committee members, but will not be included in the

eventual publication). This process was iterative in nature following established protocols (Coffey & Atkinson, 1996), in that team members were assigned additional portions of transcripts to ascertain whether the new transcripts could be coded using the labels in the code dictionary.

Once a finalized code dictionary had been established and agreed upon by the three team members, these codes were applied electronically to the transcripts using a qualitative data analysis software program (Dedoose; dedoose.com). In this manner, the frequency of codes could be determined across both severity conditions. Next, coded passages were sorted into categories by the first author. Each category along with the supplementary quotes was then reviewed by the other two team members. A fourth researcher also examined this document to ensure that the excerpted quotes were illustrative of the categories to which they had been assigned. This technique, referred to as “peer debriefing” by Lincoln and Guba (1985), allows for a researcher who was not associated with the initial qualitative analysis to look over the data from a more objective standpoint. It is an additional method that establishes the credibility and confirmability of the data.

Dependability

During the structured interviews, all HRP were required to complete pencil and paper tasks associated with each qualitative response. Requiring participants to fill out a paper-based questionnaire during the audio recorded interview helped alleviate any gross misinterpretation of opinion on the part of the research team. The dependability of participants’ responses was supported by the addition of these paper-based measures, as well as the field notes that were taken in real time by the lead author during each interview. Two audio recorders were utilized in the event that one recorder distorted the signal for any particular portion. Upon completion of

each transcribed interview, the first author replayed the recording while reading through the text a second time. Accuracy of transcripts was later verified by a lab assistant who was randomly assigned a portion of interviews (16/32, or 50%). No discrepancies were noted through this verification process.

Credibility

The data obtained during qualitative research must meet standards of credibility if expected to authentically represent the viewpoints of the targeted group. Credibility of data was ensured in multiple ways. The use of three researchers during the initial coding phase of analysis allowed for a process known as triangulation to occur (Lincoln & Guba, 1985). Having three coders analyze transcripts independently and then agree on common codes helped to minimize any bias that might result from the use of a single coder. It is crucial to determine that the data collected during qualitative interviews is accurate in reflecting the opinions of the stakeholders (Hammell, Carpenter & Dyck, 2000; Lincoln & Guba, 1985). Therefore, member-checking took place during the interviews themselves by having the investigator paraphrase and restate key comments made by HRP (i.e., “So what I’m hearing from you is that you are concerned about whether this disorder would cause her to lose her voice completely.”) Once codes had been sorted into categories, emails were sent out to all study participants to verify that the categorical data were authentic representations of their concerns and recommendations for the applicant. Although not all of the participants took the time to respond to the email, those that did respond ($n=14$) had feedback that was both positive and confirmatory.

Transferability

The term transferability is used in qualitative research to refer to the process that the reader or consumer of such research uses in attempting to apply the findings of the study to his/her own

life or experiences (Barnes et al., 2005). To allow for potential transferability to occur, a researcher is charged with the task of “purposeful sampling” to ensure that the data base (i.e., participant demographics) can allow for consumers of such research to make potential transferability judgments (Lincoln & Guba, 1985). The HRP participants in this study represented a wide variety of ages (29-60) and years of hiring experience (3-25). More females than males were included, yet this was deliberate as the latest figures indicate that approximately 72% of human resources personnel in the United States are female (Dill, 2014). Groups were balanced as much as possible in terms of job-type, with the following jobs being represented in both conditions: social media, manufacturing, sales, accounting, human resources, executive, administrative, information technology, software development, engineering, finance, management, marketing, analysts, customer service, and general office staff. Although not all potential job types were represented, the diversity of jobs and levels of hiring experience that were included helped to ensure a wide range of perspectives on the benefits and risks of disclosure across a number of professions.

Post-Disclosure Results

Question 4: Apparentness of Symptoms

HRP in both conditions were told through the applicant’s disclosure that she had a diagnosis of spasmodic dysphonia. They were then told by the investigator that the diagnosis the speaker mentioned is a type of voice disorder. HRP were then asked if this disclosure 1) clarified a voice problem they had noticed earlier during Phase 1, or 2) revealed a voice problem that they would have not noticed. Responses across both groups of participants can be found in Table 4.8.

Table 4.8

Apparentness of Symptoms by Severity Level

	Mild condition	Severe condition
Disclosure clarified a voice problem noticed earlier	0% (0/16)	94% (15/16)
Disclosure revealed a voice problem that would not have been noticed	100% (16/16)	6% (1/16)

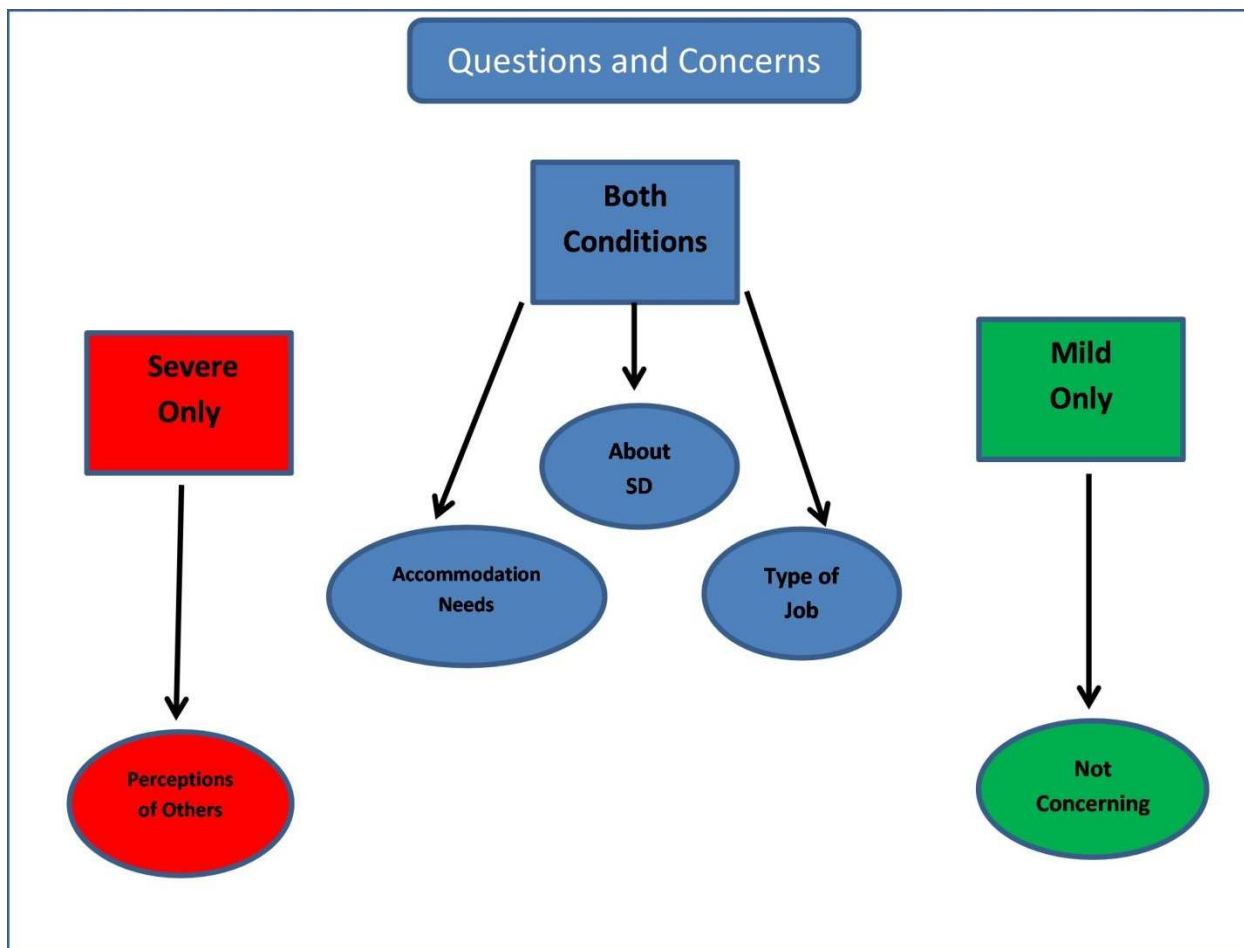
A Chi-Square statistical analysis revealed that there was a significant difference in the percentage of participants who initially noted a problem with the applicant's voice; HRP in the severe condition found that disclosure clarified a voice problem significantly more than HRP in the mild condition, $\chi^2 (1, N=32) = 28.24, p < .001$. The one person in the severe condition who said the disclosure revealed a voice problem stated that she had initially attributed the quality of the applicant's voice to advanced age, rather than the presence of a disorder or "voice problem" per se. Conversely, all participants in the mild condition stated that this disclosure revealed a voice problem they would not have noticed.

Question 5: Information Needed/Job Related Concerns

At this point in the experiment, human resources personnel (HRP) had only been given the name of the diagnosis (spasmodic dysphonia) and the fact that it was a voice disorder. Therefore, HRP in both conditions were asked whether they had any questions or concerns about SD. Hearing only "spasmodic dysphonia" and "voice disorder" raised some similar issues for all HRP, regardless of which severity condition they were assigned. Therefore, results of common questions/concerns that emerged across both groups are presented first, followed by the specific

issues that were unique to either the mild or severe condition. A schematic of categories for these employer questions and concerns is presented in Figure 4.2.

Figure 4.2. Schematic of categories for employer questions and concerns



Questions and Concerns Across Both Conditions

Job Type/Performance

It was deemed important to HRP across both groups (78%, $n=25$) that they know the type of position for which the applicant was interviewing. Often, the questions and concerns were tied to specific jobs and the ability to perform those roles. Jobs that required a greater amount of

speaking elicited a greater degree of concern. For example, S9 felt that a job that involved minimal communication did not raise the same concerns as one where “she’s going to be greeting the public,” working “as a trainer”, or doing any kind of “public speaking.” There also tended to be general concerns related to positions that were client-facing, sales oriented, or involved public contact in general. However, some noted that there are certain jobs where a voice disorder should not pose that much of a problem. M9 felt that “it’s going to be particular to the job. . . because there are plenty of roles in an organization that are very much computer, e-mail, spreadsheets, online systems, etc.” Specific jobs mentioned that elicited fewer concerns for someone with a voice disorder were jobs in human resources, accounting, software engineering, lab work, manufacturing, data entry, warehouse, and jobs internal to an organization (rather than public-facing.)

There were specific work tasks, however, that were repeatedly mentioned as being potentially problematic for a person diagnosed with a voice disorder. Phone use (53%, $n=17$), presentations (25%, $n=8$), and meetings (13%, $n=4$) were cited most consistently. Participant S3 went as far as saying that his ultimate decision to hire the applicant would depend on whether she was required to spend time on phones.

Accommodation Needs

Another consistent concern across both severity conditions was a desire to know how SD would impact a person’s ability to work. Half of all HRP (50%, $n=16$) framed this question in the form of inquiring about whether the applicant might need a reasonable accommodation. In some cases, this desire for accommodation information was so strong that it was the only concern present. For example, in response to the investigator asking if there was anything else she would be curious to know about, M14 responded with “No. As a trained HR person it’s

really about the accommodation more than anything else.” Of those who inquired about a general need for an accommodation, 44% ($n=7/16$) wondered about the specific type of modifications that could be made. There was often an underlying concern that someone with a voice disorder could have difficulty speaking for extended periods, and thus accommodations might need to be in place to address this limitation. Participant S9 actually jumped to the conclusion that “first of all, you’re going to put her on breaks.” Putting the applicant on breaks to rest her voice (16%, $n=5$) and/or a special phone (6%, $n=2$) were the accommodations that most HRP imagined she might require.

Questions/Concerns About SD

A majority of all employers (88%, $n=28$) had questions related to the nature and etiology of SD. These questions were either general (i.e., “What is it? What does it mean?”), or more specifically related to how the symptoms might manifest on the job for a person with this condition (69%, $n=22$). Specific questions could be broken down into those involving the course of disease (e.g., progressive, episodic), the outward symptoms (e.g., volume issues, intelligibility, speaking time), and the personal consequences on the applicant (e.g., soreness, fatigue, choking, willingness to speak). There seemed to be a special emphasis on what might trigger an episode and/or exacerbate existing symptoms. Some HRP wondered if symptoms could be triggered by emotional factors (e.g., fatigue, anger, excitement) or environmental irritants (e.g., dust, perfumes, heating vents, air quality). HRP often tried to use clues within the label “spasmodic” to infer what might occur:

M1. I mean when I hear like spasmodic I think her throat is gonna be spasming and like. . could she choke? What. . Does this mean she needs to be drinking lots of fluids? Does this mean she can only talk a certain amount of time per day?

A number of employers (32%, $n=10$) actually wondered if this diagnosis might mean that she would lose her voice entirely:

M16: Will all of a sudden they won't be able to speak? You would need to know that. . . Or even if it's spasmodic. . . which kind of gives me the impression that it's kind of random. Sometimes. . . but not other times. Will she just be having a conversation and maybe her voice. . .it won't work anymore?

Condition Dependent Concerns

Some of the concerns noted by HRP were condition-specific. Those in the pre-BOTOX (i.e., severe) group had concerns about how others would perceive the applicant, whereas a subset of HRP in the post-BOTOX (i.e., mild) group had no concerns whatsoever. These findings are outlined below.

Severe: Perception of Others

There was an increased emphasis in the severe condition about how the applicant's voice might cause her to be perceived by communication partners. Sixty-three percent of HRP in the severe condition ($n=10$) raised concerns with how she might be perceived during the interview, by co-workers, or by the public.

HRP repeatedly spoke about how the sound of the severe applicant's voice might directly affect the dynamics of the job interview itself. S13 said that for the first 30 seconds of the interview, "during the entire time that they were talking about their strengths" she was wondering "Do you need to take a break every hour to go out for a smoke break?" Some felt that there was a mismatch between what the applicant was saying during the interview and the thoughts that were running through their minds:

Her actual content about being able to jump in there and organize a closet . . . I remember thinking 'If you're a smoker, can you really just jump in there? . . . 'Oh are you older? Can you really? Do you need assistance?' That's why I hate to say it.

Because as HR people we really should be just observing the content, but part of it is like reading the person over the phone (S13).

Beyond the interview itself, many HRP speculated about how the severe applicant might be perceived by co-workers. S6 feared that the severe applicant's voice would cause her to not receive as much respect from her peers at work. Specifically, it was noted that the speech was "slow", "challenged", "strained", and involved "just too much effort" to the point that her co-workers would "lose patience." S8 spoke about how the applicant's co-workers in the tech world may not react favorably to her "delayed communication" during quick 5-10 minute exchanges known as scrum meetings. He thought that "maybe people will avoid asking her questions because they don't want to deal with that delayed response." Many HRP expanded that line of reasoning to speculate how the applicant's voice might cause her to be perceived by the public as well. S7 wondered "Will they (the public) not listen at all to what she's saying because they're so concerned about how she sounds?" S10 had the following to say:

She might not come across well on the other side. . . If someone calls in to our tech support and they would get this person on the phone they would be like "Who's this granny? And what does she know? . . . Does she really know the back end of our software?" . . . Well if you think of the computer age of where we are, there are not many in that 65 to 75 and older that really get computers, right?

Two HRP in the severe condition also brought up scenarios related specifically to how the non-native English speaking public might potentially perceive the applicant. The fear was that the quality of the applicant's voice might cause her to not be understood by non-native speakers.

In two cases, however, it bears noting that the voice of the severe applicant was thought to potentially influence the perceptions of others in a positive, rather than negative, manner. S16 thought that being perceived as a smoker might be an asset if the person were hired to work in the HR department and cater to certain employees with a high smoking prevalence. S4 thought

that her slower cadence might actually be advantageous if she needed to convey numbers over the phone.

Mild: Not Concerning

As was mentioned earlier, there were a number of questions across both groups dealing with whether the applicant might need a potential accommodation and/or whether specific job tasks (i.e., phone use) might be problematic. However, it was only in the mild condition that some HRP (25%, $n=4$) could unilaterally state that the applicant's voice did not cause any concerns at all:

Her speech pattern seemed completely reasonable. Very clear and the pacing was good. So even in a job where she would have regular contact with people, I wouldn't have any concerns about what she sounded like here (M12).

Question 6: Disclosure Preferences

After addressing their concerns, HRP rated a series of supplementary disclosure statements that the applicant (in that condition) could potentially mention during the interview. These 13 statements were rated individually on 100 mm visual analogue scales in terms of perceived importance. The specific instruction was "*Rate how important you feel it would be for the applicant to mention each of the following statements during the interview.*" Independent t-tests conducted for each statement individually using Bonferonni corrections revealed that there were no significant differences between mean scores of each statement as a function of severity condition ($p > .05$). Additionally, when the statements were rank ordered in each severity condition from high to low according to mean scores, the same 4 statements made the top 5 in both conditions. Therefore, scores were pooled across groups. Mean scores of each statement summed across all participants are presented in Table 4.9.

Table 4.9

Preferences for Specific Disclosure Statements Among All Employers

Statements	Mean Score on VAS
In my case, I won't require any accommodations at work	81.5 (SE=3.84)
I feel that it won't affect my ability to do my job	66.1 (SE=5.60)
My voice quality may vary, but with continued treatments, people seem to understand me	66.0 (SE=3.85)
My last boss can attest to the fact that I was a great employee	65.6 (SE=6.17)
It's a voice disorder that causes spasms of the vocal cords	63.0 (SE=4.98)
Once every 4 months, I may need a couple hours off in order to receive my treatments	56.0 (SE=5.90)
It's not a progressive condition	55.8 (SE=5.72)
It's actually not a big deal anymore, since I've adapted pretty well	55.1 (SE=5.78)
I would need to make sure that the insurance plan at this job covers my treatments	42.7 (SE=5.68)
It's a chronic condition with no cure	39.4 (SE=5.76)
It's not contagious	35.0 (SE=6.31)
I'm currently receiving treatment that involves injections of BOTOX into my voice box	17.4 (SE=4.0)
It's uncontrollable, so you should know that I didn't cause this myself	13.6 (SE=3.66)

SE=standard error of mean

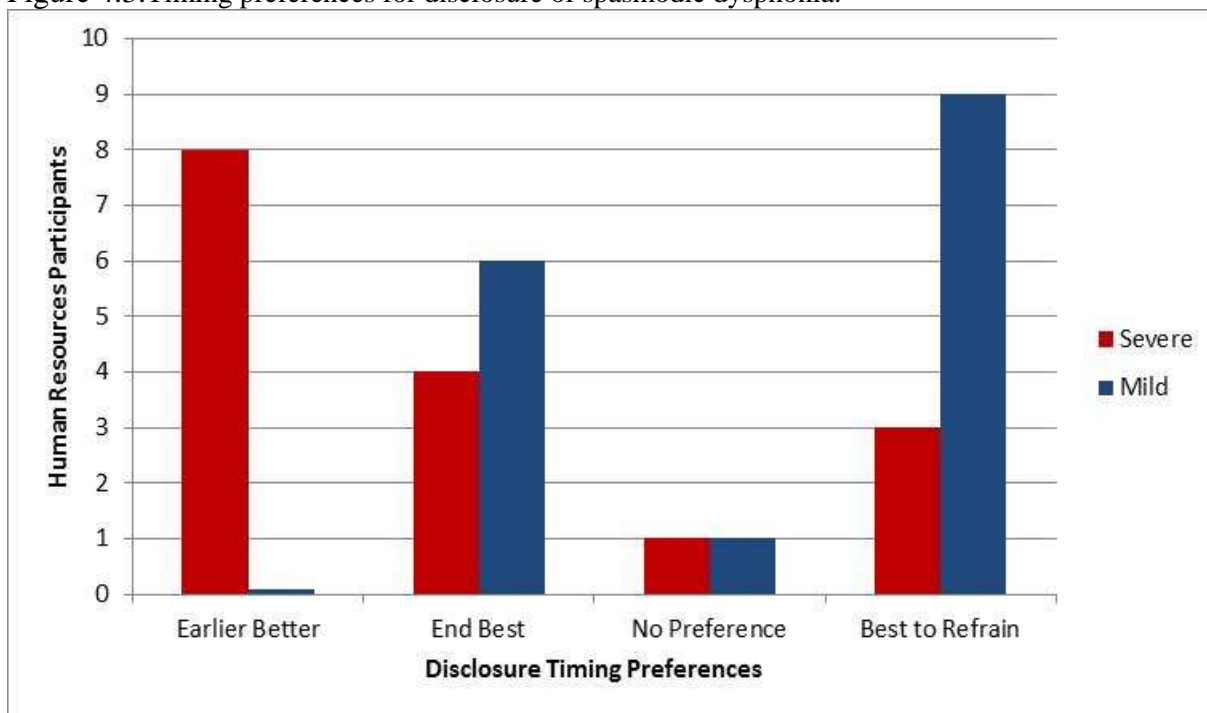
Additional Statement Suggestions. A few additional statements were also suggested by participants. One potential statement brought up by the very first HRP participant was “There is nothing environmentally at the workplace (i.e., dust/perfumes) that could exacerbate my symptoms.” This was subsequently offered as a potential statement to all other subsequent HRP participants. Participants were divided on that particular statement suggestion, with approximately half of all HRP feeling that technically this should already be covered under “In my case, I won’t require any accommodations at work.” There were two other additional suggestions that involved the applicant’s present level of functioning. Some participants wanted

clarification regarding the “My voice quality may vary” statement, and suggested things such as “My voice right now is the worst it will ever get” or “The voice you’re hearing right now is my 80% voice”. Knowing how the current voice that the employers were hearing over the phone would relate to the best/worst the voice could possibly get was deemed important to know. One participant was curious specifically about the length of time since the applicant’s diagnosis and whether she had stabilized. If the applicant had said “I’ve had this for 20 years. It’s not getting any better. It’s not getting any worse. If somebody had told me that right up front I’m like ‘Oh cool. You can work for 10 years then.’”(S15).

Question 7: Timing Preferences

HRP were given the opportunity to express whether or not the timing of the applicant’s disclosure was appropriate. The options were “*Earlier would have been better*”, “*At the end seemed best*”, “*Earlier or later makes no difference*”, and “*Probably best to refrain from disclosing at all*”. The timing preferences across both severity groups are presented in Figure 4.3.

Figure 4.3. Timing preferences for disclosure of spasmodic dysphonia.



The most requested strategy for HRP who heard the applicant in the severe condition was that she should have disclosed earlier in the interview (50%, $n=8/16$). In contrast, the most recommended strategy for the applicant in the mild condition was that she refrain from disclosing entirely (56%, $n=9/16$).

Question 8: Overall Disclosure Recommendation

HRP were required to discuss their thoughts as to why this applicant should or should not have disclosed as well as their timing justification. Dichotomous results for whether disclosure was ultimately recommended are presented in Table 4.10.

Table 4.10

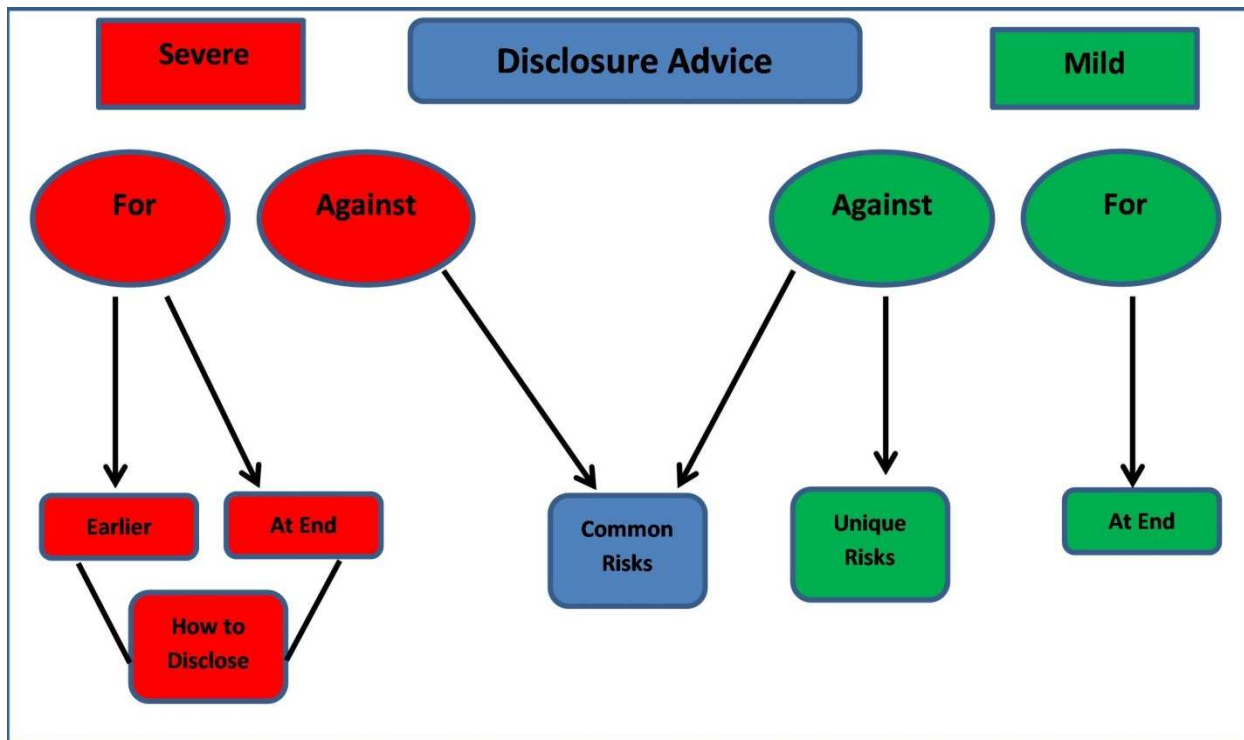
Overall Disclosure Recommendation by Severity Level

	Mild condition	Severe condition
Disclosure recommended	7/16, or 44%	13/16, or 81%
Disclosure not recommended	9/16, or 56%	3/16, or 19%

In the severe condition, disclosure was preferred to nondisclosure 81% to 19%. However, results were more equally divided in the mild condition, with refraining from disclosure being slightly preferred, 56% to 44%.

Qualitative data related to the underlying rationale for disclosure recommendations in each severity condition were also analyzed. The major categories are presented in the schematic in Figure 4.4.

Figure 4.4. Schematic of disclosure advice



Timing and Disclosure Advice

Condition-Specific Advice

Severe Condition

With virtually all employers having immediately commented on the severe applicant's voice quality during the initial interview (Experiment 1), the overarching rationale in advocating for disclosure in the severe condition was that revealing the diagnosis served to address and clarify what was already noticeable to employers at the outset. Although 81% or 13/16 HRP in the severe condition ultimately suggested that the applicant disclose, differences were noted as to when this disclosure should occur. Those who recommended an earlier disclosure (62%, $n=8/13$) mentioned that the applicant's symptoms were noticeable, often distracting, or may lead

to misperceptions about the applicant. Participant S11 equated the applicant's speaking voice to "jingling your earrings" or "doing something that's distracting throughout the interview."

Participant S4 chose to offer personal advice to the applicant:

What would I tell her? I would say that first off it's going to be noticed, and if you don't kind of handle it right at the beginning, then I'll spend more of my attention during the interview thinking about it. It's possible it'll distract the interviewer from actually listening to what you're saying.

Beyond just the fact that the voice quality was distracting, many HRP talked about the misperceptions and judgments that were made about the applicant based upon the way she sounded. S8 suggested she should "get it out in the open . . . or talk about the elephant in the room in advance. So that way the other person on the line isn't going to like form judgments or jump to conclusions that aren't true." Participant S1 confessed that he wondered if the applicant were "very sick" and actually thought that she might have been smoking during the interview itself. If the applicant had disclosed earlier, S13 felt that "it would have helped me pay attention more actually to the content." S11 talked about how essential it was that the employer not be led to believe that throat cancer or another serious illness could be responsible for the vocal quality. Her fear was that this applicant might automatically be misperceived as being a high risk for the company's insurance plan.

Those in the severe condition advocating for a disclosure at the end (31%, $n=4/13$) stressed that the diagnosis itself, as unfamiliar as it was, could divert focus. Some HRP brought up the tendency to use the internet during phone interviews. Waiting until the end would at least prevent the employer from searching the internet for clues about the disorder while the applicant was still speaking. Some argued that merely bringing up a diagnosis at the outset of the interview could take focus away from the applicant's answers. Participant S7 stated that "I think if she started

that way (with a disclosure), it sets the tone for the interview that serves as a ‘I have this thing’ . . . I think that keeping the focus on you and your skills is really at the forefront.”

In summary, reasons for favoring a disclosure (regardless of timing) in the severe condition were similar. All HRP wanted the focus to remain on the applicant’s answers. However, those favoring early disclosure felt that the *voice quality* was distracting them from listening, whereas those favoring later disclosure felt that the *diagnosis* itself might divert focus.

How to Disclose

Because more employers in the severe condition advocated for disclosure overall (81%, $n=13/16$), employers in the severe group tended to offer tangible advice in terms of the manner in which the disclosure should occur. In general, there was an emphasis on disclosures being brief, with some HRP choosing to incorporate some of the statements about SD that they had just rank ordered:

S4: Give it a name. Take away any concerns, and then turn it to the idea of “This thing isn’t going to affect my work and you could talk to my last boss about that.” . . . And I guess I picked the five things that I did in the order that I did (disclosure statements), because that would be my advice to her. So you say what it is. You get that very brief. . . and then finish off with it doesn’t affect my work and my last boss can attest to that. So by the time I’m done all I’m hearing is this thing isn’t a problem . . . Now we can talk about how I do the job.

Some HRP wove the fact that voice symptoms were noticeable into the disclosure itself. S4 mentioned that the applicant could say “You probably notice that my voice has a little different sound to it and explain it away.” S8 offered “So just to throw this out there, I have this disorder. So if I sound a little funny that’s why.” Similarly, S2 suggested “I have this condition that affects the way that I’m communicating to you right now. . . I don’t want you to have unanswered questions or assumptions.” S3 and S11 argued that the applicant would not necessarily even have

to use the term spasmodic dysphonia itself. Using more layman's terms like it's "a cramp in my vocal cords that doesn't affect any other part of my body" was offered as a potential suggestion.

Mild Condition

In contrast to the severe condition, a slight majority of HRP in the mild condition believed the applicant would be better served by not revealing her diagnosis (56%, n=9/16). It was precisely because symptoms were *not* apparent, that disclosure was often felt to be unnecessary or entirely irrelevant. M11 noted that if it had been "noticeable, you know, that would've been a different thing. If they had to stop or there was some stuttering and they had to explain." M7 felt that "if you feel that your interview went great, and somebody didn't notice, don't tell. Don't tell! Because we aren't supposed to know it anyway. So don't tell us! . . . I'm not allowed to ask, so I'd prefer that you not tell me." An unnoticeable disorder for which accommodations would not be required was by extension entirely irrelevant to both M15 and M12:

M12: Because I've heard people that probably almost certainly don't have spasmodic dysphonia sound worse than that. . . so I wouldn't have noticed a thing. I don't think she should say it. . . I don't think it's relevant. I don't think it's any more relevant than saying I've got diabetes.

M11 mentioned that it would be akin to bringing up the fact that the applicant relies on spell check. "It's irrelevant to the whole situation, but all of a sudden you're thinking 'Well, this guy's got a writing problem.' No I'm like everyone else! I rely on spell check and calculators. But I brought it up." Bringing up a disorder that was not noticeable and seemingly irrelevant, could paint the applicant as someone who simply overshares unnecessary information. M11 made a comparison with regard to oversharing unnecessary information:

And sometimes people will go "Well, I don't feel right not sharing that." So if you're selling a car, and someone's buying a Corvette, why bring up its poor performance as an off-road vehicle? I was never going to use it as that. It never

bothered me. It really drives people crazy. So disclosing it. . . a disability. . . If it's irrelevant to the entire situation, does fall into that category of 'Well, this person just likes to talk about. . . It's all about them. They want to talk about their health issues, or their personal problems, or whatever the deal is.' Because that was completely irrelevant to the business. Business is about being efficient. . . So to me this is just an example of something that comes up every day. Of people having a misplaced belief about honesty which falls into oversharing.

However, numerous HRP in the mild condition *did* appreciate her disclosure (44%, $n=7/16$), stressing that it allowed them to better prepare for future circumstances and that it conveyed honesty on the part of the applicant. M6 stated "It just shows that you are up front. You're honest." HRP also felt that disclosure helped them to better plan for future circumstances and support that worker to a better degree. M13 noted that she appreciated the disclosure because "if something comes up down the line, then I'm aware of this issue." All HRP who recommended that the mild applicant disclose brought up imagined future circumstances. They mentioned various scenarios, many of which were fear-based, regarding how this voice disorder could *potentially* manifest on the job:

M1: While someone might say 'I don't need an accommodation', but if something happened at work. . . like she's sitting next to an air vent and that triggers it. I mean. . . She didn't tell me . what if she's sick and she is out? This is a work-related. . . you know like we've triggered this. So it brings up the "You know you really should have told us something in the beginning."

M6 explained that most people in a hiring position would rather know up front that a condition "is not going to affect anything, than to have it come back to them later. . . 'Oh why didn't you ever tell me about this?'" It is important to note that of the employers assigned to the mild condition who appreciated the disclosure, none felt that it should have come earlier in the interview. The most popular timing request in the severe condition (earlier disclosure) was never

suggested for the mild applicant. M5 even provided an example for why there would be absolutely no need for the applicant to address her condition at the outset:

M5: Easily at the end seems best. . . Because it doesn't appear to be a major problem. In other words I haven't been spending the whole interview struggling to understand her. Or wondering. There wasn't any lingering questions during the interview of "Why does she sound like that?" So I don't need to know that at the beginning. . . Whereas you know it would be like you just came from getting a root canal, and you got on the phone and you are a little slurred sounding, you would want to say right at the very beginning. . . But there was none of those questions implicit in the sound of her voice. So at the end is a fine time.

Common Risks in Disclosing: Both Conditions

Across both severity conditions, many employers cited the same two fundamental risks in disclosing. These two risks were: 1) Disclosure can put the interviewer in an uncomfortable position, and 2) Disclosure may directly hurt the applicant's chances for hire.

The precise reason for this discomfort for HRP in all cases stemmed from the legal implications surrounding disclosure and the laws that prohibit employers from asking questions about medical conditions during job interviews. When applicants do bring up disability information, some HRP stated that they would prefer to not hear it or at least not dwell on the topic. S4 mentioned "Because you want to be careful not to disclose too much. You'll find that a lot of us HR folks, we don't want to know some stuff. We don't want to hear it." S16 said "Perhaps if somebody disclosed something and they went into a lot of detail I would ask them maybe to even stop. . . We haven't collected that information, but they are sharing it." Discomfort also manifested in fears surrounding potential lawsuits. Upon disclosing, an applicant now has grounds to file a discrimination claim against the company if he/she is not hired. This scenario actually occurred for one employer, and in her opinion there are individuals who deliberately disclose medical conditions as a strategic move:

S5: So I think it's fair, you know, to think that somebody who does that (discloses) wants to try to secure a position. And that they know that by disclosing it, you potentially can't discriminate against them, or that they may have a case against you to discriminate. So it's definitely a concern that the people who do that are doing it intentionally. . . . And that has proven in my past to be the case. Where somebody disclosed something and then said 'Well because I said this, you didn't hire me.' . . . Even if you're not doing it intentionally, you might cause an employer to then feel uncomfortable.

M10 felt similarly and added that "it puts the interviewer in a very peculiar and uncomfortable predicament If she mentions that, and she's not hired, she could come back and sue the company for wrongful hiring."

The second major risk was that disclosure may directly hurt the applicant's chance for hire. Even if under the law a disability should not be used against someone, multiple HRP in both groups could easily imagine scenarios where the disclosure might prevent someone from being hired:

S14: There might be somebody who says 'I'm not going to touch this. I'm not going to go anywhere near it. We're just going to move her over to this other pile.' . . . I think you're putting yourself a little bit more at risk by doing it (disclosing) that early in the process.

Participant S9 said that revealing the diagnosis of SD would mean that this applicant "already got one click mark against her" and that applicants are often better off "not saying anything at all until you get the job actually. Because it's not supposed to be a biased environment, but this is the real world."

Unlike the severe condition, where the applicant might be subjected to discrimination based upon the way she sounded at the outset, some felt that the mild applicant would not have been discriminated against *until* she brought up the disorder. M10 remarked "It turned a good interview, an otherwise pretty fair interview into. . . and people may not say that they won't hire

her, but they would put her application at the bottom of the stack.” In bringing up her spasmodic dysphonia, M10 felt that the momentum of the interview came to a halt:

M10: I think she did the interview questions very well. . . I think that she answered very articulately. She gave some great answers. She was nailing it until she got to the end. She went from 60 to 0 when she mentioned ‘Oh, and by the way I’m sick.’ . . . And you want to always end on a good note. Things are great, and then at the end when they say is there anything else you wanna mention? It’s not about illness.

Two employers specifically mentioned the new Affordable Care Act (ACA) as a potential reason for disqualification. They felt that employers are only going to want to hire healthy applicants:

M10: An interviewee thinks about insurance. . . Because I’m not going to hire someone that I know initially is going to need to use our benefits. Because right now with the way that the benefits cost, and the ACA, and everyone has to be covered. Everyone. . . So benefits are a great concern to every company now. It’s going to mean more to them than salary. . .and they definitely want to be assured that a person is not coming into the company using their benefits.

Discussion

The purpose of Phase 2 was to gauge employer reactions to a disclosure of ADSD within the context of a simulated job interview. A mixed method design was used to measure a number of post-disclosure outcomes between the two severity conditions (mild vs. severe). In general, most employers in the severe condition recommended that the applicant disclose earlier during the interview due to the distracting nature of her symptoms. In contrast, all employers in the mild condition were not initially aware of a voice problem, and a slight majority suggested that she refrain from mentioning her disorder. These results need comparison with studies from the broader disability literature to interpret meaning and generate clinical implications for those with ADSD. In addition, limitations and future directions will be discussed.

Post-Disclosure Reactions According to Severity Condition

Every HRP who heard the mild applicant stated that the eventual disclosure of spasmodic dysphonia revealed a voice disorder they would not have noticed. The opposite trend occurred for the HRP assigned to the severe condition. This result suggests that unlike a discrete disability that is either clearly apparent/overt (e.g., wheelchair use), or completely concealable/covert (e.g., migraines), the variable of symptom severity may determine whether or not a voice disorder is detectable by the average employer. This also implies that in certain cases, it is at least feasible that a person with ASD who has a good outcome at some point during the BOTOX cycle may have the option of refraining from disclosure without the employer ever detecting a vocal impairment. The concerns, preferences, and recommendations that employers might have regarding a disclosure of ASD are discussed next.

Information Needed/Job-Related Concerns. Many of the HRP in both conditions had similar concerns related to how the symptoms of ASD might manifest on the job, how the disorder might impact specific work tasks (e.g. phone use, meetings, presentations), and whether or not accommodations would be required.

However, there were some concerns that were unique to the severe condition. HRP assigned to the severe condition were concerned about how listeners (e.g., interviewers, co-workers, public) might interpret the severe speaker's vocal quality, whether it would send the "right message", and whether or not that type of voice might pose intelligibility issues for people who are non-native English speakers. Even post-disclosure, when all HRP were provided the same diagnosis, the severe applicant's symptoms elicited a unique subset of concerns. Applicants with ASD may think that if they simply explain their diagnosis during the interview, any concerns as to why that person sounds dysphonic will immediately be addressed. However, this study demonstrated that while employers themselves received that clarification,

many were still worried about how others *without* the benefit of disclosure would react to the speaker's voice. Unfortunately, there may not be an easy method to remedy this type of concern. For example, one previous study (Gilmore, 1974) investigated how information might affect attitudes of business professionals toward two individuals who used esophageal speech after total laryngectomy. Consistent with the present study, the business professionals assigned these esophageal speakers to jobs that required little social contact, indicating that they too were concerned about others' perceptions.

It is also important to note that when provided the name of the diagnosis alone, many HRP tried to infer what the disorder might entail based on the term "spasmodic". Some HRP wondered if "spasmodic" might mean that it is triggered by emotions (e.g., excitement, anger,) or environmental factors (e.g., poor air quality). Others questioned whether the applicant might lose her voice entirely or if her voice might progressively deteriorate over time. Few, if any, of these concerns are actually grounded in the reality of how the symptoms of ASD manifest (Tanner et al., 2011). These findings illustrate that the revelation of the diagnosis alone may lead to lingering questions and/or unnecessary fears about this particular disorder. The fundamental lack of information that these employers had regarding the nature of this voice disorder provides justification for education efforts in this area. HRP who are actively involved in the hiring and accommodation requests of applicants with disabilities could benefit from training focused on increased awareness of voice disorders. Furthermore, none of the questions that were raised by HRP during this study could ever be verbalized during an actual job interview. This is because the only question an employer is legally allowed to ask upon disclosure of a disability is whether the applicant might need a reasonable accommodation to perform job tasks (ADA, 1990; EEOC, 1995). Even when a disability is mentioned, an employer cannot ask a single question related to

the cause, treatment, or symptoms of a health condition. Job applicants with ASD now have insight into the concerns employers might have, when these concerns would otherwise have remained hidden. When and how a person might disclose a diagnosis of ASD is the focus of the next section.

Disclosure Statements. A rating task assessed employer preferences for the types of statements deemed most important to use in a disclosure. Many individuals contemplating a disclosure of ASD may not have realized that from a hiring perspective, a mention of accommodations appears to be just as critical as an explanation of what the disorder entails. The results of the rating task in this study seemed to imply a certain strategy in terms of how disclosure information might be presented. More specifically, if the top 5 highest rated statements are examined, HRP in this study thought it was important to: 1) Mention whether accommodations would be required, 2) Make personal assurances that the condition will not affect job performance, and 3) Give a succinct description of what the condition involves. Points 2 and 3 from above are strategies that have been recommended for other disability groups (Donoghue, 1994; NCWD, 1985), but the strong emphasis on accommodation needs above all else was an unexpected finding in the current investigation. Knowing what HRP are hoping to hear, and the relative importance of that information could be helpful in counseling individuals with voice disorders who are contemplating disclosure. Whether this applies to other communication disorders should be a focus of future study.

Timing Preferences. Although HRP in both conditions were not unanimous in their timing preferences, some clear trends emerged. The fact that the most recommended strategy for the severe applicant (earlier disclosure) was not recommended by a single employer in the mild condition is important to note. Earlier disclosure was recommended exclusively on the basis of

symptoms being noticeable and/or distracting in the severe condition. Since a vocal impairment was not apparent in the mild condition, there was simply never a need for an earlier, preemptive disclosure. This was perhaps the clearest indication that the apparentness of symptoms plays a large role in terms of timing preferences.

However, caution must be taken before assuming that an earlier disclosure is always best in severe cases. The concerns raised by some HRP regarding easy access to the internet during phone interviews casts some doubt as to whether a preemptive disclosure, even when symptoms are clearly apparent, is truly best. Individuals with ADSD might be counseled that because their voice disorder is rare, they do run the risk of encountering an employer who may become so intrigued that he/she begins to search the internet during the phone interview itself. However, this phenomenon should only occur during phone rather than face-to-face interviews. One potential compromise might be to mention to the employer at the outset that voice quality might sound unusual, but to use a more layman's description of the condition. This tactic was actually suggested by certain participants, but was not specifically tested in the current investigation. Not divulging the actual diagnostic label would at least ensure that internet searches involving ADSD could not occur during the interview itself.

Overall Disclosure Recommendations. HRP who heard the applicant in the severe condition were most consistent in their opinions, with 81% (13/16) recommending that she disclose. This falls in line with the literature on apparent disabilities, since individuals who used wheelchairs or who stuttered benefitted by acknowledging their conditions (Collins & Blood, 1990; Hastorf et al., 1979; Hebl & Skorinko, 2005). However, HRP in the mild condition were almost equally divided in terms of whether or not the applicant should have mentioned her condition, with slightly more HRP suggesting that she refrain. The situation becomes more conclusive,

however, when a key point is taken into consideration. Even if some of the HRP in the mild condition felt that her ultimate disclosure was helpful because it provided information about her condition, it would never have been *noticed*. These HRP never suspected that the mild applicant had a vocal impairment in the first place. So although some claimed to have appreciated the knowledge of ASD and the potential ramifications it could have on the job, these were individuals who according to the ADA (1990) were not entitled to know any information at that point. In other words, had the applicant said nothing, HRP in the mild condition would have never suspected a disability.

The nature of this study allowed HRP to be privy to information that they simply would never have known about that applicant. Participant M15 even addressed this fact during his interview by stating “The circumstances that you've set up. There's things that I wouldn't know that I couldn't know. So if she never disclosed it, I don't think it would've made any difference. But I really know it wouldn't have made any difference because I wouldn't have known.” Employers might ideally appreciate having access to an applicant’s entire health history, as that would also help them be informed about any potential issues that could arise. Under current law, however, that practice is illegal. Some HRP in the mild condition claimed to have appreciated the disclosure, but the mild applicant simply could have chosen to disclose after a job offer was made. What this study ultimately revealed is that the applicant with milder symptoms had more options. She could have refrained and her health status would not have been questioned. The applicant in the severe condition simply did not have that choice. She was already labeled as impaired by 15/16 employers at the outset (Phase 1), and her voice quality ultimately distracted the employers from focusing on the content of her responses during the interview.

Limitations of the Study

Using a single speaker with ASD recorded at two time points is perhaps the greatest strength and also the chief limitation of this set of experiments. In using the same applicant, diagnosis, and script across both listening conditions, the variable of symptom severity could be isolated. Using a single speaker could also allow for the selection of certain demographic variables that might hold true for a typical individual with this disorder in a job interview (i.e., female gender, pre-retirement age). However, the danger lies in attempting to generalize these findings to a broader pool of speakers with this same voice disorder. These experiments were exploratory in nature, so while there were noted differences in how the applicant's voice was described, many of these descriptions may not hold true for all individuals with ASD. Yet, because some of these descriptions appear to be consistent with findings from previous studies (Baylor et al., 2005; Isetti et al., 2014; Nagle et al., submitted; Silverman & Hummer, 1989), the validity of the results appear to be strengthened.

This study simulated a phone interview, but the digital recordings were of high quality and the participants listened to the recordings via headphones rather than an actual telephone. It is unknown how the use of a speech coder, to try and better replicate an actual phone call, could have influenced results. There are a number of different speech coders used in our modern telecommunications systems, with some that degrade the audio quality of disordered voices more than others (Jamieson, Parsa, Price, & Till, 2002). Therefore, there would likely be variability in terms of call quality between phone companies as well as between landline versus cell phones. Due to this variability in call quality, Phase 1 attempted to assess how a speaker might be perceived at baseline, without any attempt to degrade the acoustic signal.

Additionally, the 32 employers used in these studies did not hire for all potential job types, nor were they representative of HRP beyond the greater Seattle area. Many of the participants said that because they were in the human resources field, they were accustomed to dealing with applicants who had various health conditions. All HRP stated that they were either familiar or extremely familiar with the Americans with Disabilities Act (1990). Some participants even urged caution in assuming that direct hiring managers would have the same reactions or opinions as individuals who are trained in human resources. One additional requirement was that all HRP in this investigation needed to hire for some jobs that involved a degree of communication with the public. Therefore, any recommendations made for/against disclosure may not hold true for jobs requiring minimal voice use.

Implications and Future Directions

These results have implications in terms of how individuals with voice disorders such as ADSD are counseled regarding disclosure during the hiring process. The majority of studies conducted thus far on disclosure have involved one-dimensional disabilities that are either visibly apparent such as wheelchair use (Hastorf et.al, 1979) or completely hidden such as transverse myelitis (Roberts & Macan, 2006). In those studies, researchers have attempted to use one applicant in order to generalize to an entire population of interest. This study offers preliminary support for the assertion that clinicians should not be able to make a blanket disclosure recommendation for all individuals with ADSD based upon diagnosis alone. This goes back to the nature of the disability itself: in the case of a voice disorder such as ADSD, severity of symptoms seems to strongly determine whether the condition expresses as an overt or covert impairment. If a single applicant with ADSD merely recorded at two different time points in her BOTOX cycle can yield different outcomes in terms of disclosure, then this finding demonstrates

that disclosure should be considered on a case-by-case basis. Voice disorders such as ADSD operate on a continuum of severity, and this variable should not be underestimated when evaluating how an applicant might be perceived and whether disclosure is recommended from an employer's perspective.

What these experiments did not examine are the specific acoustic events that employers used to determine which voices sound impaired compared to others. For example, HRP assigned to the severe condition often speculated that the applicant had an illness that she did not possess. It would be important to know exactly which aspects of the speech signal contributed most to making that determination. With her voice being alternately described as "strained", "weak", "broken", "lacking in flow", "low pitched", and "slow", it is unknown if one specific aspect of her voice contributed most to a negative judgment. Knowing, for example, that it was primarily the voice breaks associated with ADSD rather than a slower rate of speech that contributed most to negative inferences might give clinicians clues as to which patients might be regarded as sounding more impaired than others. As a concrete example, if two individuals both had ADSD, but one person exhibited more strain while the other's voice was characterized primarily by voice breaks, would one person be regarded by listeners as sounding more impaired? A better understanding of what specific acoustic events are associated with a "severe" or "mild" voice disorder might allow clinicians to be able to counsel patients based upon their specific symptoms.

This line of research only examined disclosure from the perspective of the interviewer. Future studies should also explore the disclosure process from the point of view of individuals with various types of voice disorders. Disclosure strategies utilized by successfully employed individuals with ADSD could potentially be helpful for others with this condition. Expanding

this line of research to include other types of voice disorders (i.e., unilateral vocal fold paralysis) or other communication disorders (i.e., dysarthria) could also be a focus of future studies. ADSD is one of many chronic communication disorders with symptoms that exist along a continuum of severity levels. It stands to reason that employers might make very different assumptions about an applicant based upon the etiology of a particular disorder, and the information deemed most important to include in a disclosure may also vary according to diagnosis.

The aim of this research was not to suggest that there is one strategy that will benefit all applicants with a voice disorder such as ADSD. In fact, these results only reinforce the fact that disclosure is a complex process, with benefits and risks that are often dependent upon an individual's symptoms. However, before making such an important decision, it is arguably important to be armed with as much information as possible. Studies of this nature, which reveal the otherwise hidden concerns and preferences of employers, allow applicants with communication disorders to make more strategic and informed decisions surrounding disclosure during hiring.

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Appendix I: Interview Script

Interview Script

1. What are your strengths?

You know, I'm definitely a team player. I really value cooperation and I think that I work very well with others. I think most people would say the same about me. I'm also incredibly organized. Cleaning out my closet would be a fun activity for me, whereas that might be torture for someone else. Let's see. . . I listen really well. There are two sides to every situation, so I try to maintain an open mind and not jump to conclusions about someone. I'm also pretty tolerant. I rarely pass judgment until I have all the information. My mom was a counselor, so I feel like I'm less judgmental because of her.

2. What are your weaknesses?

It's funny. You might not think of this as a weakness, but I tend to have an extremely strong work ethic. . . almost too strong. It's to the point that sometimes I don't make enough time for my friends and family. I can become so devoted to work that I sometimes get consumed by it. I guess I struggle with a work/life balance, and that's a weakness of mine. Oh and chocolate. . . but everyone has a weakness for chocolate, right?

3. Are you a leader or a follower?

Hmm. . that's a great question. I would say that I'm a bit of both. I do love taking charge on projects that I'm passionate about, but I have no problems with authority. I actually love working on the minor details that others might find boring. I guess I would say I'm equally comfortable in both roles. . . either taking charge and delegating, or completing a smaller part of a larger project.

After pre-disclosure reactions were obtained, the following disclosure occurred midway through the experimental protocol:

4. Before we end, is there anything else you would like to tell me about yourself?

Well, before we end, I should probably mention that I have something called spasmodic dysphonia.

Appendix II: Code Dictionary

<u>Code</u>	<u>Description</u>
ACCOMMODATIONS	Information related to what the applicant might need from the employer, or what the employer might be expected to provide related to SD.
JOB ROLE/PERFORMANCE	Referencing the nature of a particular position. Abilities to perform a job, productivity, reliability. Includes any mention of how SD might have impacted prior work history or performance
Job Tasks	Specific job duties/tasks that might be problematic for the applicant (i.e., phones, meetings, sales). Also includes reasons why those tasks might prove problematic (i.e., clarity, intelligibility)
QUESTIONS ABOUT SD	General questions or needing more information related to the cause, nature, treatment, or symptoms of SD. "What is it?" Needing more info about what SD is.
Making inferences about SD	Attempts by employers to infer or assume how SD might manifest. Includes making assumptions about the effects of SD
INTERVIEW DYNAMICS	Related to how the symptoms of SD or the disclosure of SD would affect what occurs during the interview itself. This includes the employer's reactions to the applicant, and what the disclosure might cause the employer to do during the interview itself (i.e., google)
OTHERS PERCEPTIONS	Concerns or scenarios related to how the symptoms of SD might cause others to react in a certain way (i.e., co-workers, the public).
NOT CONCERNING	Any mention that SD or the way the applicant sounds should not pose a problem or does not elicit any concerns. Includes cases where her voice might be an asset.

ADVICE FOR DISCLOSURE

Any rationale or advice for why the applicant would be better served by addressing her condition during the interview. Can include advice as to the wording she should use when disclosing. Includes the risks associated with not disclosing.

Earlier Better

Specific reasons why disclosing SD earlier would be recommended

End Best

Specific reasons why disclosing SD towards the end of the interview would be recommended

How to disclose

Advice for how the applicant should disclose her diagnosis (i.e., wording, length).

ADVICE AGAINST DISCLOSURE

Any rationale or advice for why the applicant would be better served by not addressing her condition during the interview. Includes the risks associated with disclosing.

GOOD QUOTE/STORY

Marker for a particularly good quote or story to illustrate a point

CHAPTER 5: GENERAL DISCUSSION

When taken as a whole, the component parts of this dissertation begin to form a picture of the disclosure process for individuals with voice disorders. Chapter 1 (known as “ADA Tutorial” for purposes of this Discussion) presented an overview of the Americans with Disabilities Act, highlighting the fact that all job applicants have the right to refrain from disclosing a disability during job interviews. Because the terms speaking and communicating were only added to the ADA as a result of amendments made in 2008, the basic yet fundamental information about what constitutes a disability under the law may not even be something that is known to individuals with voice disorders. Speech-language pathologists who have at least a general understanding of the ADA, including the types of accommodations that can be requested, can serve as resources to patients who are struggling at work.

When the ADA is viewed objectively, the right to refrain from mentioning a medical condition during a job interview should be a protective factor for job applicants. However, although disclosure is not mandated under the ADA, it remains an individual’s choice, and many applicants do choose to address their disabilities during interviews. In fact, disclosure becomes essential if any accommodations might be necessary. Chapter 2 (known as “Theoretical Model” for this Discussion) purported that disclosure decisions are often based on multiple factors, including how apparent the symptoms of a particular condition might be. All individuals can refrain from disclosure under the ADA, but those with apparent symptoms often report the need to address what is noticeable during job interviews. What was unknown was how to apply the findings from the broader disability literature to individuals with voice disorders. Therefore, Chapter 3 (known as “Inferring Attributes”) exposed listeners to the symptoms of a particular voice disorder (spasmodic dysphonia/SD) to provide a baseline for how speakers with SD might

be perceived in a pre-disclosure state. If saying nothing is always an option, then it is critical to examine in what ways speakers with SD might be perceived differently. Although speakers were evaluated significantly less favorably on particular dimensions (i.e., confidence, tearfulness, age, vocal effort), there was a strong association between symptom severity and negative ratings. This implies that the severity of symptoms, rather than a blanket diagnosis, might be more important in determining the cause of negative impressions in this particular population.

Chapter 4 (known as “Disclosure” study) reinforced this fact by demonstrating that far fewer employers commented on the voice of a job applicant with SD when her symptoms were milder (i.e., post-BOTOX injection). Her symptoms in the severe condition (i.e., pre-BOTOX) elicited a unique set of employer concerns regarding how the applicant might be perceived by others in the workplace, as well as differences in terms of whether she should have mentioned her diagnosis. Earlier disclosure was recommended by employers more often when severe symptoms were noted at the outset. Conversely, a slight majority of employers in the mild condition felt that the applicant would be better served by not addressing her disorder during the interview.

The ADA Tutorial

The ADA tutorial essentially laid the groundwork for the studies that followed. The basic knowledge of what constitutes a disability and the governmentally approved accommodations that can be requested are key information. This fundamental knowledge surrounding accommodation was a component of Chapter 2 and was theorized to be a major driving force behind an applicant’s decision to disclose in the Theoretical Model (Fig 2.1 Chapter 2). If an individual is simply unaware that his/her medical condition qualifies for accommodations under the law, then that lack of knowledge in turn affects one of the major motivational forces at play

in the Theoretical Model. The ADA Tutorial also mentioned the importance of clinicians becoming more knowledgeable about accommodation resources offered through the Job Accommodation Network and the Equal Employment Opportunity Commission. This in turn impacts the Theoretical Model, since one of the assertions in the model dealt with the need for speech-language pathologists (SLPs) to be able to counsel individuals who might be struggling with the disclosure decision-making process. Having a clinician and patient who are both unfamiliar with disability law makes counseling options in this area difficult.

The ADA Tutorial can also be linked to the results of the Inferring Attributes study found in Chapter 3. The Tutorial stipulated that the fundamental right to refrain from disclosure was intended to be a protective factor for individuals with disabilities. The Inferring Attributes study demonstrated that at least in the case of a voice disorder such as SD, the vast majority of speakers with this condition who did not reveal their diagnosis were still evaluated more negatively because of their vocal quality. No mention of SD was made, and yet pre-disclosure these speakers were penalized compared to healthy controls. This provides preliminary evidence that the right to refrain from disclosure that was highlighted in the ADA Tutorial may not necessarily be helpful for those with SD. Applicants with hemophilia, Crohn's disease, or fibromyalgia could easily refrain from disclosure and be assured that they will not be evaluated negatively because of their hidden conditions. The Inferring Attributes study suggests that while an applicant with SD has the lawful "right" to refrain from disclosure, a typical speaker with SD might still be evaluated more poorly than a healthy speaker without the disorder.

The Theoretical Model

The Theoretical Model of Chapter 2 opened with a discussion of the reasons why according to Mitchell et al. (2005), individuals with speech and voice disorders are subjected to

disproportionate amounts of hiring discrimination as compared to those with orthopedic and visual impairments. The results of the final Disclosure study offered clues as to why an individual with a voice disorder might be the recipient of discrimination during hiring. Prior to mentioning her condition, the applicant with severe SD was thought to be a heavy smoker, have throat cancer, lung cancer, emphysema, or be on a respirator, among many others. Forty-two different negative descriptors were used to describe her voice in the severe condition. Perhaps the most intriguing aspect of these results is that applicants with voice disorders might ultimately be discriminated against for disorders *that they do not even possess*. If the average employer does not know what flaccid dysarthria, spasmodic dysphonia, or unilateral vocal fold paralysis actually sound like, then they may assume that individuals with communication disorders have entirely different illnesses altogether. Although completely speculative, this could at least be one contributing factor to the disproportionate amount of discrimination claims filed by individuals with speech/voice disorders in the Mitchell et al. (2005) study.

Multiple aspects of the Theoretical Model of Chapter 2 were mirrored in the results of the final Disclosure study. Starting with the Personal Characteristics component of the model, it was hypothesized that certain personality traits (i.e., shy vs. talkative) might lead one person to disclose more than another during a job interview. Employers in the Disclosure study touched upon the dangers in being perceived as someone who “overshares” personal health information during interviews. Some participants brought up the inherent discomfort that arose as a result of applicants sharing information that was not deemed essential, and one employer went so far as to say that some job seekers have a “misguided sense of honesty” in feeling they need to disclose something that was never asked of them. The comments made by these employers do support

the assertion made in the model that different personality types may disclose to a different degree during job interviews.

The Communication Disorder Characteristics component of the model dealt with such things as stigma, the prognosis of the disorder, the apparentness/visibility of symptoms, and whether the disorder might be relevant to a particular job. The Disclosure study revealed that these characteristics are not only important from the applicant's perspective, but that these same areas were also points of interest for employers as well. Multiple human resources personnel (HRP) had questions related to the etiology, symptoms, and prognosis of SD, with a special emphasis on whether or not the voice would deteriorate over time. Those who recommended disclosure often cited the fact that symptoms were "noticeable" or "distracting" at the outset. Comments related to how noticeable symptoms were in the severe condition were so numerous that the rationale for early disclosure was built entirely around this issue. This indicates that the apparentness of symptoms plays a key role both from the perspective of the applicant (Theoretical Model) and the employer (Disclosure study). More specifically, how apparent symptoms are dictates whether an applicant feels he/she should address those symptoms during the interview, while at the same time those outward symptoms often dictate whether employers feel that disclosure is ultimately warranted.

In the Theoretical Model, it was suggested that the characteristics of each particular condition (i.e., stigma, etiology) may differentially affect disclosure decisions. While stigma was not addressed directly in the Disclosure study, it was interesting to note that some employers did allude to how stigma might shape decisions:

M3: If this had fallen into a category that's a little more controversial like a mental health issue. . . . If it had fallen into that bucket I might recommend not disclosing. Versus disclosing for something like this is benign really.

Employers were never asked directly how stigmatizing a voice disorder might be as compared to other types of disabilities. Nonetheless, it was interesting to note that employers brought up comparisons between “controversial” versus “benign” disabilities. Similarly, participant M12 mentioned diabetes within the context of speaking about a completely irrelevant disability. Because the mild applicant’s symptoms seemed to be completely irrelevant and unnoticeable to him, he stated “I don’t think it’s any more relevant than saying I’ve got diabetes. . . I don’t care.” Although diabetes qualifies as a disability under the ADA, it was clear at least to M12 that a diagnosis of diabetes did not raise the same concerns that M3 mentioned in relation to mental illness. These types of statements merely reinforce the model’s attempt to convey that the type of disability does seem to play a role in terms of disclosure decisions. Even participant M11 mentioned that if the mild applicant’s symptoms had been more obvious, or if there had been “some stuttering” then she probably would have been better off addressing those symptoms. This indicates that even among communication disorders (stuttering vs. SD) the characteristics of each disorder can shape disclosure recommendations. Exploring recommendations relative to specific communication disorders warrants further study.

The Workplace Factors component of the Theoretical Model dealt primarily with the precise job duties that would be required of the applicant for a particular role. It was hypothesized in the model that if certain tasks involving heavy verbal communication would not be required (i.e., phone use, presentations) then this might lessen an applicant’s need to disclose and ask for accommodations. These very same job tasks were points of concern for employers as well. It was also theorized under the Workplace Factors component of the model that perhaps the organizational policies in place at a particular work setting might be more encouraging of applicants with various disabilities. An individual might feel safer disclosing to an organization

where these policies were clearly being enforced. Although organizational policies were not directly assessed in the final Disclosure study, some employers touched upon this issue on their own during the interviews. For example, M15 took pride in saying:

Maybe this is partly from working with (company name), because we have a very broad race and social justice initiative, accommodation process. . . We have a lot of supported employees. Folks with mental and physical disabilities are very hugely accommodated. So we have a little different attitude towards this.

Similarly, M7 mentioned that her organization employs multiple people with disabilities, and M9 stressed that a “larger organization, with a board, they probably have a ton of people at different levels of accommodations. They are probably big on diversity.” These employers were essentially validating the fact that the organizational policies mentioned in the model do seem to matter when it comes to the issue of disability disclosure.

Disclosure Self-Efficacy from the Theoretical Model dealt with the precise wording of the disclosure itself in terms of word choice and confidence that the intended message was received. The efficient use of the phrases “I have diabetes” or “I have arthritis” were used as examples to illustrate how for many diseases, three simple words can convey clear diagnostic information and even lead to inferences about common treatment options. The Disclosure study revealed just how little diagnostic information is actually conveyed with the phrase “I have spasmodic dysphonia.” Not only were all employers completely unaware that this voice disorder existed, many questioned whether the applicant might choke, lose her voice completely, or whether symptoms might suddenly be triggered by emotions (i.e., excitement), dust, or perfume. The Disclosure study revealed that a complete message could not be conveyed through the diagnosis of SD alone. Instead, the statements employers selected and ranked as being most essential to accompany that diagnosis can be offered to individuals who would like to disclose, but who are unsure where to begin. One of the implications of the Theoretical Model is that disclosure self-

efficacy should be fostered by clinicians. The results of the Disclosure study may be a first step to providing tangible statement suggestions for job seekers with SD to increase that self-efficacy. Knowing what is important to convey from the employer's perspective can enable applicants to help formulate the essential information to be shared.

The Motivational Factors section of the Theoretical Model dealt with the main reasons why an applicant might choose to disclose the presence of a disability during a job interview, as well as the fears that might keep a disclosure from occurring. The fears applicants might have around being labeled, being placed in "another pile", or being immediately disqualified for certain jobs were confirmed by many HRP. The fears expressed by applicants in the model were therefore validated by risks such as "Disclosure may directly hurt the applicant's chances for hire" that were generated out of employer comments. The final study served to illustrate that these are not unfounded fears existing solely in the minds of individuals with disabilities, but are instead grounded in the reality of the hiring process.

Perhaps most interesting of all were the seeming mismatches that existed in the Theoretical Model and the Disclosure study with regard specifically to these motivating factors. It was theorized that many applicants with disabilities might also disclose as a means of self-advocacy, to raise awareness of their particular disease even when accommodations are not required. This may still hold true in some cases, as participant M4 had the following to say:

I do know some employees are very individual people. They want to announce. They want people to know that 'I have this.' Like that disability rights. 'I have multiple sclerosis, and I want you to know. I have cancer. I want you to know.'

However, the results from the Disclosure study indicated that employers may not always respond favorably to this type of advocacy. In fact, immediately following her comments from above, M4 stated:

But as the interviewer in the interviewer role, I think I'm focused on a lot of other things and probably I think that might discolor. . It might. . uhh. . My filters depending upon who I am might go up. In terms of 'Oooh. . How is this going to affect this person?' Or 'Do I need to hire someone with a disability?'

Common concerns across both severity conditions like "Disclosure puts the interviewer in an awkward position" and "Disclosure might hurt the applicant's chance for hire" suggest that disclosure simply for the sake of sharing information might not always be advantageous.

Knowing that disclosure is often an uncomfortable topic for some employers due to fears around lawsuits suggests that although some applicants might want to advocate or spread awareness about their conditions, many employers may prefer to curtail the conversation entirely.

This leads to another interesting mismatch that occurred surrounding motivational factors. Some HRP in the final study suggested that certain applicants might disclose deliberately, with the intention of being able to sue the company if they are not hired. This particular issue was never addressed in the Theoretical Model and arguably would not have come to light without certain HRP claiming to have personal experience with this scenario. The difficulty here is that the discrimination claims reported in the Disclosure study were viewed entirely through the lens of the employer, and so it becomes difficult to ascertain what the true motivation of the *applicant* might have been in those reported cases. Nevertheless, a strategic disclosure designed to somehow threaten the employer if the applicant is not hired was never a motive that was anticipated. As a result, this potential motivating factor deserves future consideration and study before it is incorporated into the model.

Finally, the last conclusions that will be drawn between the Theoretical Model and the Disclosure study deal with the Feedback Loop that was used in the model. It was postulated that each disclosure experience, either positive or negative, has the capability of influencing future disclosure decisions on the part of the applicant. An applicant who discloses, gets the job, and

has a wonderful work experience might be more inclined to disclose at his next place of employment. What the final Disclosure study revealed was that employers themselves may let their own history of disclosure experiences influence their feelings around this issue. Multiple HRP brought up specific instances in which they had hired individuals with disabilities who wound up being valuable team members. For example, participant M7 noted that she had a deaf employee whose use of an interpreter provided little to no barrier to his working for the organization. Yet participant S5 mentioned that she was accused of discrimination by someone who disclosed during an interview, and as a result she felt uneasy about the disclosure process. The model focused solely on the experience of job seekers, but it was interesting to note that positive/negative experiences surrounding disclosure can even affect those in positions to hire as well. As such, it must always be remembered that the context of an employment interview always includes at least two communication partners with previous experiences, biases, etc. This interaction must be considered in predicting outcomes.

Inferring Attributes and Disclosure Studies

One of the more significant findings from the Inferring Attributes study in Chapter 3 dealt with the fact on the whole, speakers with ADSD were rated significantly more negatively than healthy speakers without the disorder. The results of the Disclosure study certainly support that contention, since more than 42 different negative terms were used in describing just one speaker with this condition (see Table 4.6 Chapter 4). Another key finding from Inferring Attributes was that some speakers with very mild SD do not seem to be subjected to these same negative judgments. The question then became whether a mild speaker with SD might also be free of negative judgments within the context of an employment interview.

The final Disclosure study revealed that it is at least feasible that an applicant with mild symptoms will not necessarily be labeled as impaired during a job interview. In fact, 35 positive qualities were assigned to the mild applicant's speaking voice, and not a single employer ever suspected that the mild applicant had a medical problem. However, two of the parameters from the Inferring Attributes study (age and confidence) both played prominent roles in the final Disclosure study. Old age (along with smoking) was the most popular suspected reason for the severe applicant's vocal quality, while lacking confidence was the most common negative descriptor used for the mild applicant. This suggests that even when an applicant with SD is not necessarily labeled as "impaired", there may be more subtle manifestations of the disorder that call into question her personal qualities. During a high stakes encounter like a job interview, all impressions are arguably important, beyond whether or not someone has a noticeable "impairment." Inferring Attributes demonstrated that speakers with SD are often rated as sounding significantly older than their chronological ages, and the Disclosure study revealed how this might actually play out during hiring. One HRP who described the severe applicant's voice as "Little Red Riding Hood's Grandmother" went on to clarify that she thought the applicant sounded as if she were 82 years old and bedridden. A different employer specifically stated that the perception that this woman was elderly would impact how knowledgeable she would sound when answering phones to resolve high-tech software issues. Inferring Attributes took the first step in revealing how old a speaker with SD might be evaluated relative to a same-aged peer (i.e., a 35 year-old female with SD sounded relatively older than a 35 year-old female without). The Disclosure study extended these findings to convey the type of impact this age-related judgment might have during a job interview. Clinically, SLPs do not rate how "old" or "confident" a person might sound. Yet like it or not, both studies in Chapters 3 and 4 revealed

that these particular attributes hold special significance when it comes to how unfamiliar listeners interpret the voices of those with SD. Clinicians can at least play a key role in helping patients determine just how apparent their symptoms are. Since it has been suggested that individuals with disabilities are often poor judges of how obvious their conditions are (Jans et al., 2012), it might be beneficial for the SLP to openly but delicately discuss severity level. Have strangers commented on the person's speech/voice quality in the past? If so, what have they said? These types of questions which gauge how *others* have reacted to a speaker's voice may not be standard protocol, but they could easily be incorporated into therapy sessions. Auditory-perceptual evaluation of voice is considered an essential component of a thorough voice evaluation (Kempster, Gerratt, Verdolini Abbott, Barkmeier-Kraemer, & Hillman, 2009). However, severity markers are often made solely for the benefit of the clinician to chart effectiveness of intervention and may not always be discussed with patients. Individuals with voice disorders are often asked to complete psychosocial measures (i.e., Voice Handicap Index), but patients' self-ratings of voice quality (i.e., severity) are often not in line with clinicians or even lay listeners (Eadie et al., 2007, 2010). Individuals with voice disorders may simply lack the objectivity to rate how their own voices are perceived relative to those in the general public, and SLPs specializing in voice might be extremely qualified in this regard. Certain individuals may have symptoms that are so mild that they may be able to pass undetected and disclose later after a job offer has been made. Others with more noticeable symptoms may not have that luxury, and SLPs who have been exposed to a continuum of severity levels can assist in making that determination.

Conclusion/Future Directions

This entire line of research was driven by qualitative data that was initially collected by Baylor et al. (2005) regarding the lived experiences of individuals with SD. Prior to that seminal work, studies involving SD had largely focused on the cause and treatment of this neurological disorder, rather than the experiences of those living with the disease. Although many forms of research hold value, patient-driven research that is borne out of the feelings and perceptions of individuals with communication disorders is essential to a helping profession such as speech-language pathology (Damico & Simmons-Mackie, 2003). A better understanding about what an unfamiliar listener, including a future employer, might assume about a speaker with a communication disorder provides the first step in being able to correct those misperceptions. However, SD is one isolated disorder among a field of many communication disorders. Unique perceptions, biases, and advice may come to light that are disorder-specific. The opportunity therefore exists to conduct this same type of listener-based research on a wide range of other communication disorders.

Providing disclosure-related information to individuals with communication disorders is only one part of a larger picture. It became clear in the final Disclosure study that information also needs to be disseminated to individuals who are in positions to hire. HRP in the final study knew nothing about SD, and often had concerns that were not grounded in the reality of how the symptoms of this voice disorder manifest. Since questions about medical conditions cannot legally be asked during interviews, one implication is that HRP may need continuing education training regarding communication disorders in general. The Society for Human Resources Management (SHRM) is the governing body for all professional human resources employees, and is similar to ASHA in that members are required to undertake continuing education credits in

order to maintain active membership and certification. National conferences take place and local chapters of SHRM exist in virtually every major city around the country. Being that HR professionals are typically at the front lines of the hiring process, perhaps in-services, online modules, and/or presentations can be created and geared towards these professionals. If the participants in the final Disclosure study knew so little about what a diagnosis of SD actually entails, then it might be safe to assume that many HRP are also lacking in fundamental knowledge surrounding other communication disorders as well. If they are not at liberty to ask questions of applicants who possess communication disorders, then perhaps other methods of disseminating this information are necessary. Yet, how we convey this information, and whether it actually impacts the attitudes of communication partners warrants further investigation (Lallh & Rochet, 2000).

Regarding disclosure in particular, although there were trends in terms of how severity may impact disclosure recommendations, the variety of opinions even among the relatively small cohort of employers in Chapter 4 exemplify just how complex this process can be. One of the aims of the Disclosure study was to demonstrate that unilateral disclosure recommendations should never be made in this population based on diagnosis alone. Instead, decisions will need to be evaluated on a case-by-case basis. The results of the final study seem to support that contention. Since employers in both conditions reacted quite differently and had opposing recommendations for the same speaker recorded just four weeks apart in the BOTOX treatment cycle, this suggests that surely there is not one recommended disclosure strategy that will benefit all speakers with this disorder. However, strong trends were noted which might prove to be of value for those with SD who are struggling with this decision. Most notably, 15/16 employers noticed a problem with the severe applicant's voice, and over 80% of those same employers

ultimately believed that the applicant should have disclosed her diagnosis during the interview itself. Evaluated from a treatment-based perspective, if a particular intervention strategy were found to be 80% effective, one would think that the treatment might benefit some patients. What becomes difficult is that the terms “severe” and “mild” are subjective, and it is unknown how the results of this study can be applied to a larger pool of speakers with this disorder.

The line at which a disorder becomes apparent versus hidden is nebulous and is difficult to quantify objectively. Yet this issue of how “noticeable” a condition is lies at the heart of this research. How detectable the impairment was, and what assumptions might be made about an applicant because of those symptoms, were fundamental to the outcomes of both Chapters 3 and 4. In fact, if anything can be gleaned from this work as a whole, it is that the apparentness of symptoms plays a pivotal role in terms of shaping opinions about individuals with SD. It is perhaps ironic, therefore, that the key component of this research (i.e., how severe/mild a person may sound) is such a subjective, perceptual phenomenon, even if severity does underlie how we both define and evaluate many communication disorders (Kent, 1996).

One potential line of research might involve an investigation into which objective acoustic measures might contribute to one voice sounding more “severe” or impaired than another. For example, Stepp, Sawin, and Eadie (2012) have begun to explore an aspect of the acoustic signal known as relative fundamental frequency (RFF). A statistically significant correlation was found between RFF and vocal effort, which is typically the primary symptom of ADSD. Peterson and colleagues have also recently used a multidimensional measure of overall severity of voice quality called the Cepstral Spectral Index of Dysphonia (CSID) to predict listeners’ detections of voice disorders such as SD with good overall results (Peterson et al., 2013). This type of objective research, linked with listeners’ perceptions, and self-reported measures by patients may

help us learn about which aspects of the signal are really meaningful to both the speaker and communication partners.

Ultimately, the results of the present line of research inform applicants about the reported benefits and risks of disclosure from the perspective of employers. Most major decisions of any kind are best made when adequate information is made available. Being armed in advance with the information that employers might like to know, as well as the concerns they possess and the statements they are hoping to hear, can allow job applicants with voice disorders to make more informed decisions during the hiring process.

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- Member, Actor's Equity Association (Union of Professional Stage Actors)
- California State SLP License
- Washington State SLP License
- Continuing Education beta tester, *Perspectives on Voice and Voice Disorders*, American Speech-Language-Hearing Association, 2011–2012.
- Dysphagia Support Group member, Univ. of Washington
- Member, Northwest Chapter of the Voice Foundation

Supervisory/Teaching Coursework:

- Attended 4 workshops on clinical supervision for CE credit offered by the Univ. of Washington
- Instructional Development Forum: 4 quarters of coursework devoted to effective teaching practices

Peer-Reviewed Publications

Isetti, D., & Meyer, T. (2014) Workplace Productivity and Voice Disorders: A Cognitive Interviewing Study on Presenteeism in Individuals with Spasmodic Dysphonia. *Journal of Voice*. Article in Press
doi:10.1016/j.jvoice.2014.03.017

Isetti, D., Xuereb, L., & Eadie, T. (2014) Inferring Speaker Attributes in Adductor Spasmodic Dysphonia: Ratings from Unfamiliar Listeners. *American Journal of Speech-Language Pathology*, Vol 23 (2), 134-145.

Hu A., **Isetti, D.**, Hillel, A., Waugh, P., & Meyer, T. (2013) Disease-Specific Self-Efficacy in Spasmodic Dysphonia Patients. *Otolaryngology-Head and Neck Surgery*, 148 (3),450-455.

Magazine Interviews

Mullin, E. (2014, July) Life With an Uncontrollable Voice. *The Atlantic*. Retrieved from
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Peer-Reviewed Presentations

Isetti, D., Rajabzadeh, R., Eadie, T. (November, 2014) *The Effect of Information on Attitudes Towards Spasmodic Dysphonia*. Poster presentation at the Annual Convention of the American Speech-Language-Hearing Association, Orlando, FL.

Rajabzadeh, R., **Isetti, D.**, Nevdahl, M., Baylor, C., Eadie, T. (October, 2014) *How Does Information Affect Listener Attitudes Towards Spasmodic Dysphonia?* Podium presentation at the Fall Voice Conference, San Antonio, TX.

Isetti, D., Rajabzadeh, R., Nagle, K., Sawin, D., Bolt, S., Eadie, T. (June, 2014) *Does Knowledge of Diagnosis Affect Inexperienced Listeners' Judgments of Spasmodic Dysphonia?* Poster presentation at the 43rd Annual Voice Foundation Symposium, Philadelphia, PA.

Nagle, K., **Isetti, D.**, Eadie, T. (March, 2014) *Everyday Listeners' Perceptions of Adductor Spasmodic Dysphonia Speech*. Poster presentation at the Motor Speech Conference, Sarasota, FL.

Isetti, D., Meyer, T. (November, 2013) *The ADA and Voice Disorders: Exploring Workplace Productivity Issues in Individuals with Spasmodic Dysphonia*. Oral presentation at the Annual Convention of the American Speech-Language-Hearing Association, Chicago, IL.

Meyer, T., **Isetti, D.** (October, 2013) *Impact of Voice Disorders on Workplace Productivity: Interviews with Individuals with Spasmodic Dysphonia*. Poster presentation (invited, but did not attend) at the Fall Voice Conference, Atlanta, GA.

Isetti, D., Nagle, K., Sawin, D., Eadie, T., (November, 2012) *The Effect of Diagnostic Information on Judgments of Spasmodic Dysphonia*. Poster presentation at the Annual Convention of the American Speech-Language-Hearing Association, Atlanta, GA.

Hu A., **Isetti, D.**, Hillel, A., Wagh, P., & Meyer, T. (September, 2012) *Disease Specific Self-Efficacy in Spasmodic Dysphonia Patients*. Presentation at the American Academy of Otolaryngology Conference, Washington D.C.

Eadie, T., Nagle, K., Day, A., Sawin, D., **Isetti, D.**, Lamvik, K., & Doyle, P. (July, 2012). *Auditory-perceptual speech outcomes and quality of life after total laryngectomy*. American Head and Neck Society's 8th International Conference on Head and Neck Cancer, Toronto, Ontario, Canada.

***Isetti, D.**, Xuereb, L., Nagle, K., Sawin, D., Merati, A. Eadie, T. (June, 2012) *Inexperienced Listener Impressions of Speakers with Spasmodic Dysphonia*. Poster presentation at the 41st Annual Voice Foundation Symposium, Philadelphia, PA. ***David Brewer Honorable Mention Poster Award**

Xuereb, L., **Isetti, D.**, Eadie, T. (May, 2012) *Do Listeners' Perceptions of Confidence Relate to Self-Perceived Handicap in Spasmodic Dysphonia?* Poster presentation at the Undergraduate Research Symposium, Seattle, WA.

Hu A., **Isetti, D.**, Hillel, A., Wagh, P., & Meyer, T. (October, 2012) *Disease Specific Self-Efficacy in Spasmodic Dysphonia Patients*. Oral podium presentation at the Fall Voice Conference, NYU Medical Center, NY, NY.

Lamvik K., Nagle, K., Sawin, D., **Isetti, D.**, & Eadie, T. (November, 2011) *Speech intelligibility, acceptability, and quality of life among alaryngeal speakers*. Poster presentation at the Annual Convention of the American Speech-Language-Hearing Association, San Diego, CA.

Willet, D., Nagle, K., Lamvik, K., **Isetti, D.**, & Eadie, T. (November, 2011) *How auditory anchors affect judgments of breathiness and roughness*. Poster presentation at the Annual Convention of the American Speech-Language-Hearing Association, San Diego, CA.

Laboratory Research Experience

2010-2014 *Vocal Function Lab*
(UW Dept. of Speech and Hearing Science; Dr. Tanya Eadie, PI)

Univ of Washington Medical Center, Dept. of Otolaryngology:
I have collaborated with Dr. Albert Merati, Dr. Amanda Hu, and Dr. Tanya Meyer on various studies examining both self-efficacy and employment in patients with spasmodic dysphonia.

Mentoring As a doctoral student, I mentored an undergraduate honors student with her project "Do Listeners' Perceptions of Confidence Relate to Self-Perceived Handicap in Spasmodic Dysphonia?"

SPECIALIZED TRAINING

CELTA Certificate (Certificate of English Language Teaching to Adults), Madrid, Spain 2010.

Hanan training at Bright Start Therapies in Sacramento, CA.

Intermediate Spanish Skills

Independent study with Dr. Albert Merati, chief laryngologist at UWMC, 2011

AWARDS/HONORS

2013 ASHA New Century Doctoral Scholar Award (\$10,000)

The Dystonia Coalition Travel Award (\$750)

David W. Brewer Award, Honorable Mention for Best Poster at 41st Annual Voice Foundation in Philadelphia, PA (2012)

Travel Award Winner – Olswang Endowed Graduate Student Conference Fund, 2013

U.C. Berkeley Alumni Scholar