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Access to Occupational Therapy practice: A review of current licensing processes in the
United States

by

Melissa Groth and Martha Scoby

Advisor: Janet Jedlicka, PhD, OTR/L, FAOTA

A Scholarly Project

Submitted to the Occupational Therapy Department of the University of North Dakota

In partial fulfillment of the requirements

for the degree of

Master of Occupational Therapy

Casper, Wyoming

May, 2019

This scholarly project, submitted by Melissa Groth, MOTS and Martha Scoby, MOTS in partial fulfillment of the requirement for the Degree of Master of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.



Faculty Advisor

4-15-19

Date

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Title: Access to Occupational Therapy practice: A review of current licensing processes
in the United States

Department: Occupational Therapy

Degree: Master of Occupational Therapy

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ACKNOWLEDGEMENTS

We would like to first acknowledge our advisor, Dr. Janet Jedlicka, for her constant guidance, encouragement, and expertise throughout this project. Secondly, we would like to thank those who provided feedback, input, and education on the topics of study. Lastly, we would like to thank our family, friends, and professors that supported and encouraged us throughout the project. Without these individuals, this project would not have been possible.

ABSTRACT

Title: Access to Occupational Therapy practice: A review of current licensing processes in the United States

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Purpose

This study was conducted to gain insight on the 50 United States and Washington D.C. occupational therapy (OT) licensure application process. This study sought to examine the accessibility of the OT licensure websites as well as the compliance each OT state licensure application has with the Americans with Disabilities Act (ADA). The researchers predicted that, while the profession of OT seeks inclusion for all individuals, there is discrimination prominent in the OT state licensure process for individuals living with disabilities.

Methodology

A two-fold process was used to collect information regarding accessibility and accommodation within licensing processes for OT licensure applications. First, 51 United States/territories were examined using the Website Content Accessibility Guidelines (WCAG) 2.1. These guidelines, published in 2018, focus on allowing greater accessibility for individuals with disabilities through use of Level *AAA*, items of highest rigor, and the three of the four corresponding principles: Perceivable, Operable, and Understandable (Bradbard & Peters, 2010). Using these guidelines as a checklist, each principle was assessed for each corresponding website and data was recorded. After

examined using these guidelines, each website URL was placed into the WAVE© accessibility tool from www.webaim.org to in order to triangulate the data and increase the rigor of this study (WebAIM, 2018).

Secondly, 41 of the 51 United States/territories OT applications were examined for compliance with the ADA with use of two articles, one published by Schroeder et al. (2009) and the other published by Jones et al. (2018). Ten of the 51 applications were removed from use in this study as those applications were not directly available via download on the state website and the state regulatory board either did not respond to requests for the application in an alternative format or the application was not available in an alternative format.

The Schroeder et al. (2009) article defined four categories of questions in regard to licensure applications and the ADA: permissible, likely permissible, likely impermissible, and impermissible. Using this information, along with information from Jones et al. (2018), the categories for this research project were created, and 41 of the 51 OT United States/territories licensure applications were reviewed and data was recorded.

Results

Use of WCAG 2.1 guidelines indicates that many states appear to meet Level *AAA* standards of accessibility. The lowest score obtained was 6 out of 11 checkpoints, held by just two states. Seven states scored 100% with the guidelines. It was found that the majority of states met Principle 1 and 3 guidelines: Perceivable and Understandable. Many states were observed to have difficulties meeting Principle 2: Operable; this was often evidenced by websites that were inaccessible for use with a variety of devices such as a mouse and keyboard, touchscreen, desktop, mobile device, or tablet. Under the third Principle: Understandable, many states failed to provide context-sensitive help, or

technological assistance within the webpage. Through use of the WAVE© checker, results were only categorized in terms of Level *A* or *AA*. The most common issues resulted in difficulties with use of screen readers and alternative mechanisms.

Nineteen states, or approximately 46% of the applications reviewed, asked questions that are impermissible or likely impermissible, indicating noncompliance or potential noncompliance with the ADA. Additionally, 17 applications contained questions that were permissible, 10 of those applications (24%) asked solely permissible questions in regard with the ADA. An additional 12 applications (29%) were unable to be placed into the categories created by the two guides used in this study, indicating that roughly 54% of the applications are compliant with the ADA. Therefore, results show that 22 of 41 applications reviewed (54%) were compliant with the ADA and 19 of 41 applications reviewed (46%) were either likely noncompliant or noncompliant with the ADA in regard to the questions asked on the application.

Conclusion

The results of this study indicate that the majority of OT licensure websites are minimally accessible to individuals with disabilities. However, the national guidelines for website accessibility remain at WCAG 2.0 Level *AA*, and few states currently do not communicate these standards or offer increased assistance for those who may need it. Therefore, increased compliance with this standard, WCAG 2.1 Level *AAA* would allow greater accessibility to websites for those living with disabilities.

The applications for licensure, however, have a vast discriminatory basis to individuals living with disabilities and are not compliant with the ADA. Nineteen of the 41 states reviewed asked questions that were impermissible or likely impermissible with the ADA. Removing all questions that are not permissible with the ADA would provide

equal opportunity to all applicants as well as eliminate discrimination in the OT licensure application. Additionally, in eliminating discriminatory questions within the application, occupational therapist practitioners may be more open in articulating their needs and seeking services if needed, as fear to lose licensure will no longer exist. In turn, this would also communicate the value of inclusion that the profession of occupational therapy holds to all applicants applying for OT licensure.

CHAPTER 1: INTRODUCTION

Licensure boards serve as the gatekeeper for health care professionals for gaining access to practice in the United States. In the U.S., 9% of individuals living with a disability were unemployed, which was roughly 5% over the national average of unemployment (U.S. Department of Labor, 2019). When approaching graduation and beginning the process of looking regulations for licensure, we recognized discontinuity in the literature and availability of resources for licensure. While information was available for licensure and all applications could be accessed online, little information was available to describe the process of obtaining an occupational therapy practice license if an individual had any sort of disability or was seeking accommodations. These disabilities can include cognitive, physical, or sensorimotor deficits (Bradbard & Peters, 2010); we questioned whether this could also include individuals who have impairments resulting from alcoholism or substance abuse. Secondly, we questioned what a state regulatory board could ask on a licensing application. When related to requirements established by the Americans with Disabilities Act (ADA), there could be questions on licensing applications that set the stage for discrimination without allowing potential licensees to promote their capabilities and ability to perform essential job functions (Hansen et al., 1998; Schroeder et al., 2009). A literature review was conducted, and we identified key issues apparent to individuals living with disabilities and the associated discrimination they face.

This project is focused on looking at the 50 United States as well as Washington D.C. occupational therapy licensure applications and associated websites. First, a review of accessibility and discrimination issues were researched in the areas of employment and disability to gain a better understanding of associated concerns. Next, each homepage website of state OT regulatory boards and licensing application was reviewed to ensure compliance with the current standards. The website homepages for each state occupational therapy regulatory board were reviewed for congruence with the current version of the Website Content Accessibility Guidelines (WCAG) (W3C, 2018).

We hypothesized that not all occupational therapy licensure applications would be compliant with the requirements set by the Americans with Disabilities Act. Therefore, discrimination exists within the profession of occupational therapy, which highly values inclusion of all individuals with varying abilities. We also hypothesized that the state websites offering access to occupational therapy license applications would not be accessible to all individuals with disabilities. We propose that the state licensing boards need to become aware of these potential discrepancies and make needed corrections to allow greater accessibility and inclusion within the application process for occupational therapy licensure in the United States.

Some factors that influence the application of this project's results include lack of awareness of regulation or policies in each state. Although occupational therapy has been a profession for more than 100 years, inconsistencies have existed among states as the profession has grown. For example, it has only been since the year 2016 that state licensure and continuing education has been mandated by each state (AOTA, 2014). Even with these requirements, the requirements for continuing competency are inconsistent across the state regulatory boards (AOTA, 2017). These inconsistencies continue to be

reflected in both the questions asked in and requirements of state licensing applications. The availability of the licensing applications varies from state to state, dependent on the website and modes used for accessing the material, whether online, in print, or available for download. Other factors that may influence application include demographic and cultural factors in each area, as the United States covers a broad spectrum of cultural groups that may be unique from each other.

For this project, two theoretical models were implemented as a framework to guide the process. First, the social model of disability, developed by Mike Oliver in the 1970s, advocates for the rights of individuals with disabilities as a unified group (Shakespeare, 2016). This model looks at the rights of people with disabilities and the barriers they face from society as a whole. By removing these social barriers instead of trying to remove the impairment, individuals can utilize accommodations and strategies to perform necessary and valued activities independently (Shakespeare, 2016).

Secondly, the Website Accessibility Theory was used to examine the homepages and retrieval or utilization of the licensing applications through online access. This theory outlines types of disabilities that may hinder access, such as auditory, visual, cognitive, and sensorimotor (Bradbard & Peters, 2010). This theory then identifies what must be included in a website to make it accessible. The Web Accessibility Initiative (WAI) was formed around the basis of this theory and established guidelines for establishing website accessibility (Bradbard & Peters, 2010). These guidelines were used to review the websites.

Definition of Key Terms

Disability: an individual who is experiencing, has a record of having, or who is regarded as having a physical or mental impairment that interferes with one or more life activities.

Drug addiction and alcoholism are considered a disability under Title II of the ADA (Walker, 2004).

Impairment: The inability to safely and skillfully complete essential functions of the job due to a mental illness, physical disability, or excessive or habitual use of substances or alcohol (Walker, 2004).

Americans with Disabilities Act (ADA): An act created in 1990 “to establish a clear and comprehensive prohibition of discrimination on the basis of disability” (Equal Employment Opportunity Commission, 1990, para. 5).

Substance Use: Individuals who are using prescription medications improperly, using illegal substances, or those engaging in excessive consumption of alcohol (Crist and Stoffel, 1992).

Website Content Accessibility Guidelines 2.1: A set of guidelines created in 2018 to allow greater website accessibility to individuals with disabilities on laptops, tablets, and cellular phones. The disabilities that are addressed in these guidelines are individuals with low vision or blindness, deafness or hearing loss, motor impairments, speech difficulties, photosensitivity, and learning and cognitive disabilities (W3C, 2018).

Chapter 2, the literature review, describes key issues experienced by individuals living with disabilities as covered by the ADA. The theoretical models used in this project are discussed in detail as related to the purpose for this project. Different impairments and how they are addressed in the ADA and accessibility are discussed. Finally, the impact of the ADA accommodations in relation to occupational therapy practice is addressed.

Chapter 3 describes the methods used to complete the project, including a rationale for the methodology used. As well as a summary of the specific steps used in

reviewing of licensing applications and respective website. The results are shared in Chapter 4, along with a discussion of the results and application. For the final product of this project, two articles designed for publication in the *OT Practice* are written and included in Appendices B and C. Chapter 5 provides a summary and recommendations for the profession of occupational therapy as well as the state licensing and regulatory boards.

CHAPTER 2: LITERATURE REVIEW

Occupational therapy (OT) is a thriving profession that began during World War I efforts to return soldiers to their work environment on the battlefield (Cole & Tufano, 2008). The therapists used arts and crafts as a means for engaging these recovering individuals. As the profession of occupational therapy developed and expanded, a need to unify the profession developed. What did occupational therapy mean, how could one practice occupational therapy, and who could practice occupational therapy?

Licensing of Occupational Therapy Practitioners

In order to practice occupational therapy, one must follow the guidelines established by the American Occupational Therapy Association (AOTA), the National Board for Certifying Occupational Therapists (NBCOT), and specifically state regulatory agencies (AOTA, 2019). The Model Occupational Therapy Practice Act states that one must be in good standing, with the individual's license, certification, or registration not suspended by any state regulatory agency (AOTA, 2007). To obtain a license, an individual must first obtain the required education at an accredited educational program, complete required fieldwork experiences, and pass the examination of the National Board for Certification in Occupational Therapy (NBCOT). Then the individual is able to seek licensure in the state, and each state sets the requirements for practicing in that state (AOTA, 2019). Information for licensure in each state is determined by its own regulatory board and can be found on their individual websites. Little information is found regarding consistencies in establishing guidelines for licensure in OT.

As a profession, occupational therapy seeks to uphold best practice by regulating their licensing and requirements for continuing education (Hall, Crifasi, Marinelli, & Yuen, 2016). Licensure, including the specific requirements, is established by state regulatory boards from the state department of health, occupational therapy advisory councils, state medical boards, or administrative officials (Willmarth, 2011, p. 457-458). Practice acts are set in place by state regulatory boards and legislators to establish a scope of practice for occupational therapy practitioners and to distinguish the profession from others by articulating the profession's domain. Nongovernmental entities such as NBCOT create standards for initial examination and certification for occupational therapy practitioners. Although ongoing certification is not required, initial licensure requires certification from NBCOT (Willmarth, 2011, p. 458).

Practitioners seeking to maintain licensure must abide by the regulations determined by that state (Hall et al., 2016). This is to ensure that practitioners continue to meet the requirements and standards of practice for the profession of occupational therapy. The requirements delineated by each state are not consistent with each other (Hall et al., 2016). Before 2016, there were six states that still did not require continuing education to maintain licensure. Those remaining states since then have developed policies and regulations for licensure, but the policies are unique and individual to the state (AOTA, 2017). These discrepancies show the lack of continuity for regulation of occupational therapy practitioners throughout the United States.

The Americans with Disabilities Act (ADA)

According to the U.S. Equal Employment Opportunity Commission (EEOC), in 2017, there were 84,254 charges filed regarding workplace discrimination (U.S. Equal Employment Opportunity Commission, 2017). Of those 84,254 charges, 26,838 involved

a disability (EEOC, 2017). The creation of Title I of the Americans with Disabilities Act (ADA) in 1990 was the first law to make it illegal for an employer in a business with greater than 15 employees to discriminate against a qualified individual within the private sector, local and state government, and labor unions based on their disability (ADA.gov, 2008). This workplace discrimination includes but is not limited to hiring, firing, pay, training, promotions, layoffs, and job responsibilities (ADA.gov, 2008). However, there is limited information available regarding the types of workplace environments in which these charges of discrimination occur. Limited literature exists to connect licensing of occupational therapists to compliance with ADA.

In 2011, the unemployment rate for individuals living with a disability was 14.5 percent; this was over 5 percent higher than the unemployment rate for those living without a disability (Fraser, Ajzen, Johnson, Hebert, & Chan, 2011). Currently, the unemployment rate has decreased to 9% for individuals living with a disability, which is still more than double that of those living without a disability (U.S. Department of Labor, 2019). These statistics may include the individuals who were unable to obtain licensure as a result of a disability, although other factors may be involved. State licensing boards are tasked with ensuring those who are practicing different health professions within the state will be practicing safely. Through this process, applications must be completed and returned to the state licensing board; however, it is important that the applications are also adhering to the guidelines of the ADA while also ensuring to ask questions regarding the safety of a future therapist.

Under the ADA, a disability is defined as “(A) a physical disability or mental impairment that substantially limits one or more of the major life activities of such individual; (B) a record of such an impairment; or, (C) being regarded as having such an

impairment.” (U.S Department of Justice, 2009, Sec. 12102). Additionally, individuals with a diagnosis of a substance use disorder, who are currently not engaging in illegal substance use, who have successfully completed a drug rehabilitation program or are currently being supervised in a drug rehabilitation program are also covered under the ADA (Americans with Disabilities Act Title II Regulations, 2016; U.S. Equal Employment Opportunity Commission [EEOC], 2011). Alcoholism is also covered under the ADA if it substantially limits one or more major life roles or has limited a major life role in the past (EEOC, 2011).

While the ADA was created to protect individuals with disabilities from discrimination, it is the duty of each state to ensure licensure of those individuals who are safe to practice in health professions including, but not limited to, occupational therapy (Walker, 2004). Title II requires that “[a]ny department, agency, special purpose district, or other instrumentality of a State... or local government” not discriminate against qualified individuals with a disability (Walker, 2004, p. 463; EEOC, 1990). Under this statute, a “qualified individual with a disability” is defined as an individual who can perform the essential job functions with or without reasonable accommodation (Walker, 2004, p. 463; EEOC, 1990). Each state government gives control to licensing boards to regulate who may practice within a particular profession to ensure safety to the general public; state licensing boards are Title II entities and subjected to compliance with the ADA (Chanatry & Cronin, 2017). Courts have upheld that state licensing boards are subject to Title II of the ADA as benefits, services, and programs must be provided by the licensing boards themselves, such as testing accommodations (Chanatry & Cronin, 2017).

Licensure applications were created to ensure those practicing a profession within the state are legally able to practice and pose no obvious threat to the public by practicing

in the profession. If a person is found to be a direct threat to the public, as determined by the state board after review of the individual's application, the individual will be unable to obtain licensure to practice within the healthcare field (Americans with Disabilities Act of 1990, As Amended, n.d.; Walker, 2004).

It is important to note that there is a fine line between the questions that can be asked under the ADA to ensure public safety while also not discriminating against individuals living with a disability. The judicial courts, as well as some state organizations, have set the tone for licensure application questions, stating that questions regarding treatment or hospitalization for a disability or substance use is not compliant with the ADA as there has been little evidence to support recurring functional impairment (Bumgarner, 1997; Polfiet, 2008). Some of the questions might ask about disabilities or hospitalization/treatment, but they must include follow up questions related to function or space within the application to elaborate on answers in order to ensure compliance with ADA (S. Hanebrink, personal communication, October 2018).

When asking about mental illness and physical disability in state licensure applications, questions may be asked regarding how a certain illness or physical disability can relate to current functional abilities (Jones et al., 2018; Schroeder et al., 2009). While the ADA does protect the rights of individuals with disabilities, public safety is also a concern when licensing someone to work within the health care setting. Therefore, certain diagnoses that are not protected under the ADA, specifically sexual behavior disorders, can be asked about on licensing applications without consequence (Schroeder et al., 2009).

Substance Use and Alcoholism

Massengill (2005) found, after reviewing multiple lawsuits regarding alcoholism and employers, that alcoholism may be classified as a disability but needs to be openly recorded and communicated with the employer. This process is to indicate that the alcoholism is altering the life responsibilities and roles of the individual, such as the ability to be an employee and engage in the occupation of work (Massengill, 2005). Giving this information to the employer will then allow the individual to be protected by the ADA and receive benefits. It is, however, expected that the individual with alcoholism be able to complete the essential job tasks required of those without alcoholism; this includes, but is not limited to, timeliness and regular attendance (EEOC, 2017). Individuals who do disclose this information to their employer will have increased opportunity to receive assistance, if needed, such as an employee assistance program (EEOC, 2017). Individuals with a diagnosis of alcoholism may receive reasonable accommodation from their employer, but the employer may also discipline the individual if alcohol is interfering with the essential job functions (Massengill, 2005).

It should also be noted that a public entity is prohibited from discriminating against someone who has previously engaged in use of illegal substances and is seen as having an addiction to those illegal substances, but has since successfully completed a drug rehabilitation program or is currently being supervised in a drug rehabilitation program and is currently not using illegal substances (Americans with Disabilities Act of 1990, As Amended, n.d.). As long as an individual is not currently engaging in use of illegal substances, they will continue to be protected under the ADA from discrimination due to the fact that addiction is seen as a disability (Americans with Disabilities Act of 1990, As Amended, n.d.).

Mental Illnesses and the ADA

In a given year within the United States, approximately 26.2 to 32.4% of individuals are diagnosed with a mental illness (Chang, 2015). For these individuals, work reintegration is important to increase mental well-being and assist with the integration into society (Chang, 2015). According to Draper, Hawley, McMahon, and Reid (2012), one of the largest indicators for unemployment of individuals with a disability or history of a disability is due to the associated conscious or unconscious social stigma.

Besides the individual receiving accommodations, others involved in this process include the coworkers and employers (Kensbok, Boehm, & Bourovoi, 2017). Coworkers may have negative perceptions of injustice—that they may have to work harder to make up for slack or that valuable resources are given to the employee with accommodations. Employers may foster poor relationship quality, perceiving the employee to be dependent on them to complete their work, and the employer may feel that the accommodations are working against goals of cost effectiveness or efficiency in the workplace. This could cause the employer to have reservations regarding the employee requiring accommodations (Kensbok et al., 2017). While the employer is required to provide reasonable accommodations per ADA, the employer may not have a healthy or trusting working relationship with the employee.

Social Model of Disability

One perspective examining the accessibility of licensing applications for occupational therapy practitioners comes from the social model of disability. This model was developed by Mike Oliver in 1983 from the rise of Paul Hunt's Union of Physically Impaired Against Segregation (UPIAS) in the 1970s (Shakespeare, 2016). The goal of this movement was to give opportunities for people with impairments and disabilities to

“participate fully in society, to live independently, to undertake productive work, and to have full control over their own lives” (p. 196). The Liberation Network of People with Disabilities also grew out of this movement, pushing the agenda that social divisions grew out of economic factors. Oliver’s social model of disability held several distinctions, one of which was using the term “disabled people” versus “individuals with disabilities.” Oliver made this distinction in this model between disability and impairment, suggesting that disabled people were a group distinct from non-disabled people, facing the barrier of oppression. The Federation of State Medical Boards has indicated a definition of impairment that is consistent with the ADA in terms of medical practice. Impairment is defined as the inability to safely practice medicine due to a mental illness, physical condition, or excessive or habitual substance use or alcohol abuse (Federation of State Medical Boards of the United States, 1996; Walker, 2004). As a result of Oliver’s distinction, the model advocated for a civil rights movement to remove these barriers of discrimination and social oppression that disabled people face (Shakespeare, 2016).

Some arguments that scrutinize this model suggest that there is no place for impairment and that it fails to consider the uniqueness and individuality of disabled people, presenting them as one solid group and, therefore, an incomplete picture (Oliver, 2013). This model emphasized the political agenda advocating for disabled people and developing a collective consciousness for the disabled. While medical models highlight things that people cannot do with their deficits and incompetency’s, the social model advocates for society to become more accessible for people with disability (Coles, 2001; Oliver, 2013).

Questions that Cannot be Asked

Schroeder et al. (2009) reviewed 47 of 51 state medical licensing applications to examine medical licensure questions and the adherence these questions have with the ADA. The researchers concluded there were five types of questions that were not or likely not consistent with the ADA, but still appeared on some medical state licensure applications. These questions included the following: 1) asking for information regarding past diagnoses or functioning that occurred too long ago to truly assist in identifying an individual's current abilities, 2) inquiring about past treatments or illnesses with so broad of scope that an individual may disclose something that does not portray their abilities to complete their job tasks, 3) inquiring about mental or physical illnesses and treatments but offering no time frame in which a diagnosis was made or treatment occurred, 4) inquiring about an individual's disability with no regard to abilities in completion of job tasks, or 5) requiring an individual with a disability to complete further interviews or submit further paperwork that an individual without a diagnosis would not have to complete. Of the 47 states reviewed, only 18 were compliant with not asking any of these types of questions (Schroeder et. al, 2009). Additionally, Jones et al. (2018), found that there were distinct types of questions found to be asked in regard to illness: current fitness for completion of the profession, hypothetical questions asking about the future performance of an applicant living with a disability, and hospitalization or determination of incompetence; all of which are not compliant with the ADA.

Employment and the ADA

Ameri et al. (2018) conducted a field study examining employer responses to applications of individuals who revealed a disability in job applications. In 2015, 76% of individuals in America who did not have a documented disability were employed, compared to only 36% who did have a disability. Employment rates appear to be low for

individuals with disabilities. Results from this study show that this disparity seems more pronounced with companies that are smaller and not federally contracted. Companies that have fewer than 15 employees are not bound by the requirements of ADA. This may indicate that larger companies may be more aware of ADA requirements and state laws along with possessing the resources to accommodate those disabilities (Ameri et al., 2018).

Other factors that affect employer response include attitudes and perceptions, levels of experience for the applicants, and influence of the ADA vs state laws regarding discrimination (Ameri et al., 2018). It is possible that employers consider the factors of possible employees with disabilities as having a greater number of absences, negative reactions of customers, and lower levels of productivity. Applicants with more experience may find less interest from potential employers due to the doubts that the contributions of the applicant will outweigh the cost. Additionally, small private companies with fewer than 15 employees are not bound by the regulations of ADA, and they have less knowledge of state laws, making them less comfortable hiring employees who disclose a disability (Ameri et al., 2018).

Occupational Therapy and Discrimination

Little information is available to describe the experiences of occupational therapists with a disability in the workplace. Velde (2000) reported that roughly 16.6% of individuals who work in the health professions, such as occupational therapists (OTs), have a disability. Velde (2000) interviewed ten occupational therapists who were working with a disability at the time of this study and found that the OTs did not see that disability was a barrier to success in this profession or when working with clients. Rather, they found an advantage with better ability to empathize with the client. This, however, was

not the thought of many supervisors or managers. These supervisors often had the preconceived notion that the OT with a disability would not be able to perform his job duties and therefore imposed limitations on the OT (Velde, 2000). Despite the limitations, these therapists had completed schooling as well as fieldwork placements prior to obtaining these jobs, which indicates that there was some level of competency prior to entering the workforce. The employers, however, did not appear to have a desire to talk with, or observe, the therapist after hearing of his disability (Velde, 2000).

Ameri et al. (2018) and Kornblau (1995) found similar information. In her research of students with disabilities in the fieldwork setting, two students were introduced in different case studies by Kornblau (1995). Neither of the students disclosed his disability to the fieldwork supervisor, and the fieldwork educator was not allowed to disclose such information due to the Americans with Disabilities Act regulations. The student and fieldwork supervisor in both cases were presented as having difficulties in the midst of the fieldwork placement due to the lack of disclosure about the disability. It was suggested that OT students entering the fieldwork setting disclose information about having a disability with the fieldwork site so as to put accommodations in place prior to entrance into the fieldwork (Kornblau, 1995). However, it is important to note that Velde's research (2000) indicates supervisors often create a false sense of the capabilities of the individual with a disability prior to meeting the individual in a case such as this.

Occupational therapy as a profession has worked to promote the inclusion of individuals in the workforce. In 1993, after the implementation of the ADA, the American Occupational Therapy Association published a position statement on the role of occupational therapists in relation to ADA (American Occupational Therapy Association, 1993). AOTA expounded on this position statement in 2000 to further

explain the role of occupational therapy in relation to ADA (AOTA, 2000). Occupational therapists, through their education, are given the skills to assess an area and to collaborate with individuals who have a disability and are seeking accommodations. Given valuable skills in work and task analysis, occupational therapists may suggest accommodations that could extend from modifications of the task or environment to policy changes so that the job descriptions are compatible with ADA policies (AOTA, 1993). They can make recommendations for what is reasonable and achievable for an individual, and they may help to assess and make recommendations for what an individual is able to do in entering the workforce (AOTA, 2000). Additionally, they may advocate for both the employer and the employee for equitable exchange, and they can educate both the employer and the individual with disability about the rights and responsibilities delineated by ADA (AOTA, 1993). Finally, occupational therapists play a vital role in educating and raising awareness of stigmas, misconceptions, and discrimination in the workplace (AOTA, 2000).

Cyberworld and the ADA

Another area relevant to the licensing application process is website accessibility. With the growth of online technology and accessibility, the majority of licensing applications are online through the state occupational therapy regulatory boards. However, some of these applications may not be accessible to all individuals seeking licensure for occupational therapy practice. The ADA was passed in 1990 before the growth in utilization of websites and online services, but questions exist as to whether website accessibility falls under this act (Bradbard & Peters, 2010). Government entities are required, in Section 508 of the Rehabilitation Act Amendments of 1998, to make their electronic and information technology available to all individuals with disabilities

(Bradbard & Peters, 2010). Four types of disability relevant to this area of accessing technology and websites include visual, auditory, cognitive, and motor. An individual with a visual disability may have color blindness or low vision, while an auditory disability could relate to a hearing impairment or deafness. Cognitive disabilities could include autism or dyslexia; a person with a motor impairment could be diagnosed with cerebral palsy, multiple sclerosis, rheumatoid arthritis, or broken bones (Bradbard & Peters, 2010). Resulting barriers to website accessibility include no alternate tags for images, lack of ensuring that the functionality of the page can be accessed on different input devices, or failing to use relative size and positioning.

Research over the course of eight years, between 1999 and 2007, shows fewer than 50% of websites evaluated to be free of accessibility errors (Bradbard & Peters, 2010). More than 1500 hundred websites were assessed in 10 different studies, and less than 30% of those sites were accessible to individuals with varying abilities. Section 508 of the Rehabilitation Act Amendments came out in 1998 to mandate that all electronic information technology purchased by federal government be equally accessible. These situations and legislative acts led to the creation and implementation of website accessibility standards through the World Wide Web Consortium (W3C) (Bradbard & Peters, 2010). W3C created a subgroup initiative that then created the first version of the Web Content Accessibility Guidelines, or WCAG 1.0.

The second version, or WCAG 2.0, was published in 2008 (Bradbard & Peters, 2010). This checklist is used today and provides current standards for website accessibility, utilizing manual inspection and automated evaluation tools. Compared to the first version, WCAG 2.0 tests for specific functions with four principles and twelve corresponding guidelines within the principles. First, the web content must be available

and perceivable through at least one sense, whether it is visual, auditory or otherwise. Secondly, the content must be available through a variety of devices both standard and adaptive. Third, the content must be understandable and presented in a way that the user can operate it. Finally, the technologies and interfaces must be robust so that it allows for disability access. Additionally, the language of the content is reviewed for understandability and access (Bradbard & Peters, 2010). Most recently, WCAG 2.1 was published in 2018. While WCAG 2.0 remains the current standard, this newest version gives options to more greatly provide accessibility, and it will eventually become the expected standard for website design (W3C, 2018).

Addressing the theory of website accessibility fits into the current question of whether websites can be utilized by individuals with varying levels of disability. Individuals may struggle accessing a website if they have visual, auditory, cognitive, or motor disabilities (Bradbard & Peters, 2010). Examining a website for usability and accessibility using standards such as the WCAG 2.0 can identify or highlight barriers to licensure application.

The ADA defines a reasonable accommodation in three categories. These categories for reasonable accommodations include modification of the application process for obtaining a job, modifications to the work environment or completion of job responsibilities, and modifications to ensure individuals with disabilities are receiving the same benefits as those working without disabilities (EEOC, 2012). These accommodations include, but are not limited to, website accessibility.

It is important to also view the Cyberworld and adherence to the ADA in relation to licensure applications. All 50 United States and Washington D.C. occupational therapy licensure applications can be found online. Multiple areas should be considered when

addressing the accessibility of the licensure applications on each respective state website. A universal design can benefit all users, not just individuals with a disability, to make the application process easy and accessible. It is expected under the ADA that an individual with a disability be able to access the information available on the website at all times that an individual without a disability would be able to access that information (Blanck, 2008).

When considering the Cyberworld, it is important to understand the different aspects of a website that could make it inaccessible. Some of those aspects include, the compatibility of a website to screen reader software and accuracy of closed captioning on videos (Blanck, 2014). Another aspect that impedes accessibility is the ease of access and utility of the website or ability to download, edit, or print information. While 100% of the licensing applications can be accessed online, other means of access (such as PDF format) are not readily accessible to applicants; the individuals must reach out to the board, whether via email or phone, to obtain necessary information.

What This Means

Considering the barriers and benefits of ADA compliance as well as the role of occupational therapy in addressing those factors, it is necessary to also consider that the profession of occupational therapy itself may need to address those factors. Occupational therapy may have a strong foothold in advocating for others in the workplace, but the discrimination against individuals seeking licensure in occupational therapy has until this point remained unaddressed. As awareness of this potential discrimination increases, efforts can be made by each state regulatory board to decrease discrimination and promote active participation in qualified individuals to practice occupational therapy.

As healthcare professionals, it is important to have a greater understanding of the implications of the ADA and the workplace. Velde (2000) indicated that occupational therapists with a documented disability struggle to obtain even entry-level jobs. Some choose not to disclose their disability before hire. Even during school, students face difficulties in fieldwork and obtaining accommodations. Some of this may be due to the lack of resources or support available in the smaller practice settings, lack of understanding, and negative attitudes (Chacala et al., 2014).

Knowing that disparities and discrimination exist for individuals seeking both licensure to practice occupational therapy as well as employment, care must be taken to address these issues. The purpose of this current project was to review OT licensure websites, determining if they are accessible and also to ensure the appropriateness of questions asked to licensure applicants. This project will address the difficulties that potential OT practitioners with disabilities have in accessing licensing applications on state websites and the discrimination they face in obtaining first their licenses and then employment. By addressing the discrimination that exists, the profession of occupational therapy will show itself to reflect fair, equitable, and accommodating practice for its own practitioners. The following chapter describes the methodology used to address this issue.

CHAPTER 3: METHODOLOGY

Occupational therapy is a profession that seeks to enable individuals in achieving their goals and participating in daily life activities. These daily activities include the basic activities of daily living (BADL), independent activities of daily living (IADL), or other areas of occupation (American Occupational Therapy Association, 2014). Included in these areas of occupation is that of work exploration, pursuit and engagement (AOTA, 2014). Throughout the last thirty years, significant attention has been given to individuals seeking assistance with employment. When the Americans with Disability Act (ADA) was passed in 1990, it sought to eliminate some of the barriers that were making it difficult for individuals with disabilities to obtain and maintain employment (ADA.gov, 2008). Attention has been given to the application of the ADA within the workplace, but minimal emphasis has been placed on the profession of occupational therapy (OT) and access for practitioners with disabilities to seek licensure and gain employment. The purpose of this project was to investigate the accessibility of applying for occupational therapy licensure by individuals with disabilities.

Theoretical Framework

To lay the groundwork for accomplishing the purposes of this project, two theoretical models were used. First, the social model of disability guided the process in order to determine if there was a need to advocate for the rights of occupational therapy practitioners who have disabilities themselves and are encountering barriers in seeking licensure. The social model of disability is a progressive perspective advocating for individuals with disabilities compared to the reactive perspective of a medical model of

disability (Shakespeare, 2016). The medical model seeks to remove disability and accept impairment. The social model, however, takes this a step further and advocates to remove barriers and discrimination while facilitating participation and independent living. When people living with a disability are distinguished from those living without a disability, this model proposes that a civil rights movement is the solution. It advocates for “barrier removal, anti-discrimination legislation, independent living, and other responses to social oppression” (Shakespeare, 2016). It also applies to the second part of this project when looking at the application questions and the licensing practices in order to safeguard against possible discrimination.

Secondly, the website accessibility theory was applied to this study as a framework to look at ease of access in obtaining the licensing applications. This process addresses universal design of websites, then it looks at factors that may serve as barriers to accessing information online (Bradbard & Peters, 2010). Some of those barriers that individuals could experience in accessing online information include inability to access the site on a variety of devices such as computer, iPad, or phone. Other barriers might be lack of relative sizing and font, and individuals might experience barriers to accessing websites if they have a disability ranging from visual, auditory, or cognitive to sensorimotor. To address these barriers, standards based on this theory were developed and implemented with the goal of increasing accessibility and universality of websites. The most common standard comes from the World Wide Web Consortium, or W3C. Web Content Accessibility Guidelines (WCAG) is the resulting product delineating specific criteria for website accessibility (Bradbard & Peters, 2010).

The current version, WCAG 2.1, was published in 2018 and is the current standard for assessing accessibility of websites (W3C, 2018). These guidelines focus on

allowing greater accessibility to individuals with disabilities, including individuals with hearing loss, photosensitivity, low vision, speech difficulties, limited mobility, and learning or cognitive disabilities. Within WCAG 2.1, there are four principles: Perceivable, Operable, Understandable, and Robust. Each principle contains different guidelines that are placed into one of three levels of success criterion that can be tested: *A* (the lowest level), *AA*, or *AAA* (the highest level). Advisory and sufficient techniques are available to assist in meeting the qualifications set by the guidelines. It should be noted, however, that a website that meets all *AAA* guidelines does not necessarily make it fully accessible to all disabilities and individual needs but does increase accessibility to a greater population (W3C, 2018).

Methods

Accessibility

This project had two primary goals: web accessibility and review of licensure applications for potential discrimination. Regarding the first focus of this project, the websites for each regulatory board were reviewed utilizing the WCAG 2.1 as the method for measuring accessibility. This included the home page websites for the state occupational therapy regulatory boards for all fifty states and Washington D.C. The researchers created a checklist from WCAG 2.1 to assess compliance with Level *AAA*, items with the highest rigor. This included eleven items on the checklist from the first three principles: Perceivable, Operable, and Understandable (W3C, 2018). Because the fourth principle looking at robustness did not contain any items at Level *AAA*, the researchers did not utilize any items from this principle in the checklist. The researchers used these tools from the WCAG 2.1 because they are commonly used and come from Website Accessibility Initiative (WAI), which sets the current standard for website

accessibility (W3C, 2018). WCAG 2.1 also provides concrete methods and strategies that were usable and understandable to the students, with suggestions for increasing their ability to judge whether a website met the accessibility standard. This checklist is included in Appendix A.

As a means of fact checking and triangulating the data to increase reliability, each link was then put into the WAVE© accessibility tool from www.webaim.org. This website is a free checker that compares each website to WCAG checkpoints and provides a list of errors and alerts, with descriptions of how the elements do not meet certain criteria of WCAG 2.1. A red “error” icon indicates a problem related to WCAG 2.0 that needs to be fixed, while yellow “alert” icons indicate items of concern that need to be examined (WebAIM, 2018). Other categories that were noted include Accessible Rich Internet Applications Suite (ARIA) content, elements designed to increase accessibility, and contrast errors. ARIA content is a recommendation from W3C to improve accessibility of dynamic content and advanced interface that is commonly used with JavaScript and other technological sources. For the purpose of this project, only errors and alerts were noted and included in the results.

Discrimination

Regarding the topic of discrimination, the researchers compiled a list of licensing applications from the 50 states within the United States as well as Washington D.C. Of the 51 United States/territories, 10 states had the application process entirely online. The states that required registration to access the website were eliminated from review as the researchers determined that falsely registering for accounts could be an ethical violation. These states are noted in the results. Additionally, all states that did not have their application online for download were emailed to inquire about accessible applications;

four states were able to send a downloadable version by email or a paper copy via mail. The remaining state occupational therapy licensure applications were analyzed through use of Schroeder et al. (2009) medical board stipulations of permissible, likely permissible, likely impermissible, and impermissible ADA compliant questions and Jones et al. (2018) guidelines for application questions regarding mental health.

In this study, permissible questions are found to be compliant with the ADA and contain an element of questioning in regard to completion of essential job functions, recent or current substance use, and questions that are excluded from the protection of the ADA (Jones et al., 2018; Schroeder et al., 2009). Likely permissible questions have been sustained by one jurisdiction. These questions are asked to the applicant's reference instead of applicant directly, therefore not creating additional work to the applicant with a disability (Schroeder et al., 2009).

The likely impermissible questions are those that are found to be overruled by one jurisdiction (Schroeder et al., 2009). These questions involved questions regarding diagnosis or treatment with no timeline or are too broad in scope; therefore, obtaining information about a disability that does not have a current relevance to the applicant's ability to perform job functions (Jones et al., 2018; Schroeder et al., 2009).

The impermissible questions are ones that are clearly not ADA compliant (Jones et al., 2018; Schroeder et al., 2009). These questions included asking about treatment or diagnosis with no specific time frame, eliciting information about the diagnosis itself versus the applicant's ability to complete relevant job functions, information about past diagnoses that elicit an additional burden on the applicant that are not requirements for those who do not have a disability, and hypothetical questions in regard to having a

physical or mental illness and the potential for inability to practice in the future (Jones et al., 2018; Schroeder et al., 2009).

Results

Once data was collected for these two areas, the information was summarized and organized into table format to analyze the results. Similarities and differences in both of the areas of accessibility and discrimination were noted. Regarding web accessibility, summative data was collected from each of the websites and compared to each other. The researchers then identified themes and categories that appeared throughout the licensing applications, with similar questions falling into the areas of permissible, likely permissible, impermissible, or likely impermissible. Themes appear within the similarities and differences, and a discussion follows the gathered results of this project. Chapter 4 provides a detailed summary of the results for both research goals.

CHAPTER 4: RESULTS

States Reviewed According to WCAG 2.1, Level AAA

The purpose of this project was to investigate the accessibility of applying for occupational therapy licensure by individuals with disabilities. First, the homepages of websites were reviewed for accessibility and ease of access. A discussion of the results followed the review of both the licensing applications and the websites. Secondly, a review of the licensing applications was completed to assess them for barriers or discriminatory language that would unduly bar them from receiving an application. Results of this study were organized according to each focus, first looking at website accessibility and then compliance with ADA requirements. With website accessibility, results were further delineated by the use of a researcher-created checklist with items from WCAG 2.1 and then according the WAVE© accessibility checker from WebAIM (2018). Discussion and presentation of the results is as follows.

Total Accessibility Score

In the first focus of this project, looking at website accessibility, the researchers selected eleven items at Level *AAA* priority in WCAG 2.1 to create a checklist, examining the principles of perceivable, operable, and understandable. While WCAG 2.0 is the standard for meeting accessibility needs, WCAG 2.1 provides more ways in which to maximize accessibility and look at future performance and efforts to meet the needs of users with varying abilities (W3C, 2018). Following these guidelines will generalize usability for website users with a wide range of ability and methods of accessing web content, including mobile devices and laptops. However, it is important to note that even

meeting all items in WCAG 2.1 will not automatically make websites accessible for all users; however, it will increase the availability of access for a greater number of individuals (W3C, 2018).

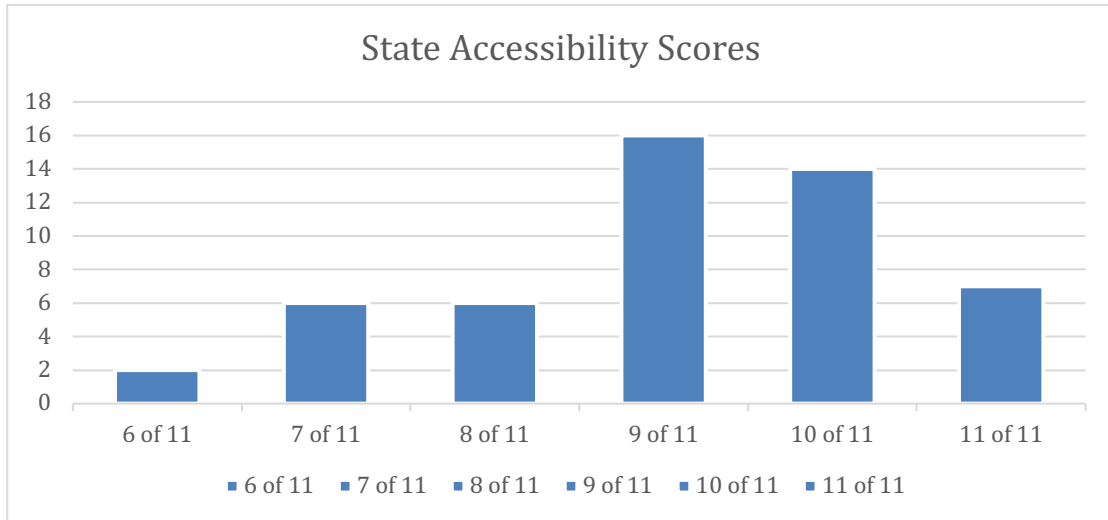
WCAG 2.1 is organized into principles, guidelines, levels of conformance, and techniques provided to meet the success criteria and levels of conformance (W3C, 2018). With Perceivable, the first principle of WCAG 2.1, the information and components of the website must be presented in a way that they can perceive through one of the senses. This means that they must be able to see, hear, or touch the content in some way, and 29 criterion items for success are associated with this principle. In terms of Operable, the second principle, the interface must be usable, whether this be through a keyboard, mouse, touchscreen, or adaptive device. Again, 29 criterion items further delineate this principle. A criterion item for success that reflects this principle is Level *A* 2.3.1; this item clarifies that web content not emit flashes above a certain threshold so as to prevent the possibility of seizures (W3C, 2018). Understandability is the third principle of WCAG 2.1, which looks at the information and the operation of the content being presented in a way that the user can understand what is happening. Seventeen success criteria are listed underneath this principle. Robustness, the ability to access the content with a wide variety of technologies and user agents, is the fourth principle of WCAG 2.1; the researchers did not choose any of these three success criteria listed under this principle due to the technology available for use in this study.

Success criteria are organized into three levels of conformance, which are evaluated with a combination of computer and researcher judgment. For this project, the researchers utilized WebAIM's free WAVE© accessibility checker and created a checklist to access conformance to these success criterion (WebAIM, 2018). Level *A* is

the minimum level of conformance for meeting the items listed in WCAG 2.1, while Level *AA* conformance means that all items on the webpage meet both Level A and Level AA success criteria (W3C, 2018). Level *AAA* is the highest level of conformance to WCAG 2.1; while these are the highest standards, none of the webpages that were examined in this study required this level of criterion satisfaction as part of the accessibility policy. This reflects the baseline standard for meeting website accessibility. W3C (2018) indicates that Level *AAA* items hold the most rigor and must be met in order to fill basic requirements that allow all groups to access the website. The researchers selected a total of eleven Level *AAA* items from the first three principles to gain a basic understanding of accessibility for each website.

All 50 United States as well as Washington D.C. occupational therapy licensure websites were reviewed. Results of the 11-point checklist used by the researchers showed that the majority of the states met these accessibility guidelines for the licensure websites. 37 of 51 states presented at 9 or 10 out of these 11 checkpoints. Two states displayed the lowest scores of 6 out of 11 points on the checklist of chosen items to evaluate, while 16 and 14 states respectively scored 9 out of 11 and 10 out of 11 on the checklist. Only 7 states out of the 51 licensing boards were compliant with all of the 11 selected criteria: Alaska, Delaware, Missouri, New Hampshire, New Jersey, Tennessee, and Texas.

Figure A. State Accessibility Scores



Accessibility Scores (WCAG Checklist)

Breaking down the accessibility scores in this 11-point checklist, many states met the 3 items selected under Principle 1: Perceivable. One state did not meet the criteria for time-based media, six states did not meet the criterion 1.3.6 to identify the purpose of the interface component. Finally, 45 of the 51 states met the criterion 1.4.9, where images of text are used only for decoration or when the content is essential.

Fewer states met 5 criteria under Principle 2: Operable. Most notable in this category would be criterion 2.1.3, which looks at keyboard accessibility. As part of this principle, a website must be utilized through different formats such as keyboards, a mouse, and touchscreens, include mobile devices and tablets (R. Rausch, personal communication, November 14, 2018). In order to meet this criterion for keyboard accessibility, a user should be able to tab through the webpage with the keyboard, independent of timing for specific keystrokes. 40 of the 51 states met this. This was also noted in criterion 2.5.6, looking at concurrent input mechanisms; only 33 states met this criterion. For some states, difficulties occurred when a mobile version of the website was

not available. With others, the use of direct links to PDF files or Word documents created barriers for some users. Because the use of these items typically requires a separate application or mechanism, this decreases the accessibility of the content. All 51 states met criterion 2.2.5: Re-authenticating. Because only the main page of each website was examined and no accounts were created, no log-ins were used to assess this component of website accessibility.

Finally, Principle 3: Understandable was assessed using three Level *AAA* checkpoints. 43 states met criterion 3.1.4 for identifying and explaining abbreviations, and 42 states met criterion 3.2.5, where change must be initiated by request or activated by the user. This may occur when the user clicks on a link and follows it to the selected webpage. Most notable in this principle, though, is criterion 3.3.5, in which context-sensitive help is available. Only 18 states met this, as contact information, accessibility content, or accessibility disclaimers were not included in the main webpage for each state regulatory board. States that did meet this success criterion typically had a link to the state's accessibility disclaimer, in which was stated their standard of meeting WCAG 2.0 Level *AA* guidelines. Additionally, contact information was given if any issues were noted in accessibility. For example, California emphasized how they followed regulations for increasing accessibility, particularly for individuals using screen readers. One state in particular, Delaware, included an in-page mechanism for accessibility called Web Reader by Web Speaker. This mechanism provided options to hover over content for audio, change the text size, use the simple version of the website, look up words, or translate the content (ReadSpeaker, 2018).

Table 1. Total State Accessibility Scores

AAA Accessibility Score	6/11	7/11	8/11	9/11	10/11	11/11
State	North Carolina New Mexico	Florida Kentucky Maryland Montana Nevada South Carolina	Georgia Maine Utah Virginia West Virginia Arkansas	Hawaii Idaho Illinois Kansas Massachusetts Michigan Nebraska New York Oregon Pennsylvania Rhode Island South Dakota Vermont Wisconsin Alabama Mississippi	Arizona California Colorado Connecticut Indiana Iowa Louisiana Minnesota North Dakota Ohio Oklahoma Wyoming Washington D.C. Washington	Alaska Delaware Missouri New Hampshire New Jersey Tennessee Texas
Total States with this score:	2	6	6	16	14	7

WAVE Accessibility Score

As a means of fact checking and triangulating the data, each link was put into the WAVE© accessibility tool from www.webaim.org. This website is a free checker that compares each website to WCAG checkpoints and provides a list of errors and alerts, with descriptions of how the elements do not meet certain criteria of WCAG 2.1. A red “error” icon indicates a problem related to WCAG 2.1 that needs to be fixed, while yellow “alert” icons indicate items of concern that need to be looked at (WebAIM, 2018). Other categories that were noted include ARIA content, elements designed to increase accessibility, and contrast errors. For the purpose of this project, only errors and alerts are noted in the results.

Five state websites produced an error in this checker: Washington D.C., Nevada, Iowa, Florida, and Alaska. This error meant that the tool was not able to be utilized as a

result of the scripting of that website. For these states, only the WCAG 2.1 Level *AAA* checklist was used in manually examining the elements of the website.

Two common errors that often appeared lead to the possibility of not meeting the standard for concurrent mechanisms. Links to PDF or Word doc typically require other mechanisms or applications, thereby creating issues related to accessibility for users with assistive devices (WebAIM, 2018). Additionally, an error reflecting a problem with a device dependent event handler limited accessibility for users with alternate user mechanisms (WebAIM, 2018).

ADA Compliance: Permissible and Impermissible Questions

A review was also completed of the occupational therapy (OT) licensure applications available in all of the 50 United States as well as Washington D.C. Of the 51 applications, 10 were unavailable via paper copy, as listed in Figure 3.4, and, therefore, were not reviewed. The remaining 41 applications were reviewed using the criteria established by Schroeder et al. (2009) and Jones et al. (2018). Schroeder et al. (2009) created four categories of questions based on state jurisdictions to describe compliance with the ADA. These categories included questions regarded as permissible, likely permissible, likely impermissible, and impermissible with the ADA. This was the guide, along with information gathered from Jones et al. (2018), that was used to categorize the questions analyzed on the occupational therapy licensing applications within the 41 United State territories.

72 questions were reviewed within the 41 applications and placed in one of four categories. It was found that 19 states, (46%), 29 questions, were impermissible in regard to compliance with the ADA. While there were only three states that asked the applicant whether they have a mental or physical disability without regard to function, an

additional nine states inquired about the potential risk of practicing within the profession while living with a diagnosis. Six additional states asked questions regarding past treatment, incompetence, and use of chemical substances with no relation to time. Furthermore, two states had questions within their licensure applications that aligned with the likely impermissible category as they focused on substance-related treatment with a broad timeline.

No questions aligned with the likely permissible category. Of the 41 applications, 17 applications (41%), containing 43 questions, asked permissible questions with the ADA; these questions inquire about the applicant's current fitness to complete the profession with skill and safety, current or very recent substance use, as well as questions about diagnoses that are not covered under the ADA, such as questions about sexual behavior disorders (Jones et al., 2018; Schroeder et al., 2009). Of the applications presenting with permissible questions 20 applications (49%) asked questions regarding current fitness to perform essential job functions of an occupational therapist. Additionally, sixteen applications (39%), containing 26 questions, asked about current use of substance use. However, it should be noted that very few state applications defined the term "current" or "recent" when inquiring about substance use, leaving the term up for interpretation by the applicant. Lastly, four applications (10%) asked questions in regard to diagnoses that are excluded from ADA protection. Of the 17 applications, 10 (24%) had no impermissible, likely impermissible, or likely permissible questions within their application.

In addition to the 10 applications that only asked permissible questions, 12 of the applications (29%) that had no questions that aligned with these categories, indicating that these states are also compliant with the ADA in the licensing application

questionnaire. Therefore, 22 of the 41 state applications reviewed (54%) complied with the ADA.

Table 2. ADA Compliance: Permissible and Impermissible Questions

State	Permissible Questions	Likely Permissible Questions	Likely Impermissible Questions	Impermissible Questions	Application not Available via paper copy
Alabama	1	0	0	1	
Alaska	1	0	0	2	
Arizona	0	0	0	0	
Arkansas	0	0	0	2	
California	0	0	0	1	
Colorado					X
Connecticut					X
Delaware	0	0	0	1	
Georgia	1	0	0	0	
Florida	0	0	2	3	
Hawaii	0	0	0	0	
Idaho	0	0	0	0	
Illinois	1	0	0	0	
Indiana	0	0	0	1	
Iowa	0	0	0	1	
Kansas	4	0	0	1	
Kentucky	0	0	0	1	
Louisiana	0	0	1	1	
Maine	0	0	0	0	
Maryland	0	0	0	2	
Massachusetts	0	0	0	0	
Michigan	0	0	0	0	
Minnesota					X
Mississippi	0	0	0	0	
Missouri	1	0	0	1	
Montana	0	0	1	1	
Nebraska	0	0	0	0	
Nevada	0	0	0	0	
New Hampshire	1	0	0	1	
New Jersey	6	0	0	0	
New Mexico	2	0	0	0	
New York					X
North Carolina					X
North Dakota	0	0	0	0	

Ohio					X
Oklahoma					X
Oregon	0	0	0	1	
Pennsylvania					X
Rhode Island	0	0	0	0	
South Carolina	0	0	0	1	
South Dakota					X
Tennessee	5	0	0	0	
Texas	1	0	0	1	
Utah	1	0	0	2	
Vermont					X
Virginia	2	0	0	0	
Washington	4	0	0	0	
West Virginia	0	0	0	0	
Wisconsin	7	0	0	0	
Wyoming	2	0	0	0	
Washington D.C.	2	0	0	0	

Discussion

Website compliance by states to the criteria set by the researchers is limited. With website accessibility, care is taken to meet the national standards of WCAG 2.0 Level *AA*, keeping in mind the basic principles that the content is perceivable, operable, and understandable. However, while the national standard for website accessibility remains Level *AA* of WCAG 2.0, many states do not communicate these standards or offer assistance for increasing accessibility. Only 18 of the 51 states offered context sensitive help on the websites, and many variations existed in the level of accessibility offered among the websites.

Recommendations to the profession of occupational therapy include both decreasing issues associated with accessibility in the design of the regulatory board websites throughout the United States and Washington D.C. While WCAG 2.0 Level *AA* is the national standard, Level *AAA* success criteria and the newest WCAG 2.1 version provide opportunities for increasing the accessibility of websites. By ensuring equal access and eliminating barriers, the profession of occupational therapy can advocate for and reflect their profession by eliminating these environmental barriers. Additionally, increasing continuity among the design of occupational therapy regulatory board websites is recommended to contribute toward the flow and accessibility of occupational therapy practitioners to seek for and obtain information regarding licensure.

It should also be noted that in regard to OT state licensure compliance with the ADA, that 19 of the 41 states reviewed had questions that were impermissible or likely impermissible with the ADA. In order to maintain cohesion with the profession, questions on all the state licensure applications should be permissible in nature with the

ADA to ensure that no discrimination is occurring within the licensure process. 10 of the 51 states/territories used in this study did not offer alternative formats for the application, which could potentially cause greater discrimination for individuals in the application process.

The profession of occupational therapy should advocate that all licensure regulation boards and practitioners review and revise the application for licensure as well as the process for accessing the associated websites. By doing so, discrimination against OTs attempting to gain licensure while living with a disability will be avoided. It is also recommended that the 10 states with no current access to a paper application provide that as an option.

Chapter V summarizes the findings with strengths and limitations of this project described with suggestions to improve the product and expand its usefulness. The role of occupational therapy in access and nondiscrimination along with recommendations for the profession in reflecting occupational therapy standards within its own profession.

CHAPTER 5: SUMMARY

The purpose of this study was to review the websites and the procedures involved in procuring occupational therapy licensure. Compliance with the ADA provides a level playing field and ensures that individuals with disabilities are able to access and use the websites and forms necessary to obtain a license. Websites for occupational therapy state licensure boards were reviewed using WCAG 2.1 to determine accessibility of the websites. In addition, the applications that were available through download or by an alternate form obtained by emailing the state regulatory board were reviewed for ADA compliance.

An 11-point checklist was created from WCAG 2.1, the most current version of website standards that are universally acknowledged in the United States (W3C, 2018). Each website was then entered into a free website accessibility checker, the WAVE© tool from WebAim, to increase the reliability of the results (WebAIM, 2018). Secondly, the questions on the licensure applications were categorized into “permissible,” “likely permissible,” “likely impermissible,” and “impermissible.” These categories were developed based on the work done by Schroeder et al. (2009) and adapted for use using Jones et al. (2018), who examined the applications by medical licensing boards for compliance with the ADA. Finally, the results were analyzed and reviewed. Two articles were written based on the results of this study and submitted to OT practice for review. These articles can be found in Appendices B and C.

The core values within the profession of occupational therapy emphasize that all individuals can engage in meaningful occupations. Occupational therapy aligns closely

with the ADA by seeking to remove barriers that can inhibit an individual from engaging in meaningful occupations. This study provides a broad overview for all 50 states and Washington D.C. to paint a picture at the national level. This provides guidance for state licensure boards to increase uniformity, accessibility, and ADA compliance. State regulatory boards can review the licensure of other states that are addressing the issues of accessibility and compliance with the ADA. Little attention has been given to how occupational therapy, as a profession, addresses accessibility and compliance with ADA. It is critical that as a healthcare profession that advocates for inclusion, occupational therapy itself be an active example of adhering to compliance with the ADA and not create additional barriers for access.

Limitations of the project

The authors completed this study in part to fulfill requirements for graduate studies. The authors were interested in exploring the impact of the ADA and compliance with website accessibility but are not ADA experts. Screen readers, alternative devices, and alternate input mechanisms were unavailable. Access and review of the licensure websites were limited to laptops, tablets, and mobile devices. Eleven applications were not available via download or alternative format; thus, the information obtained is incomplete.

Implementation

The researchers are submitting to *OT Practice* two articles for publication. The first article addresses the results of reviewing the home pages for compliance with WCAG 2.1 guidelines, while the second article reviews the applications to determine if the questions asked are compliant with the ADA. The results are provided with specific suggestions for how licensure boards can make to increase the accessibility of the

websites and ensure the application process and questions asked are in compliance with the ADA. Individuals with disabilities who are seeking licensure to practice occupational therapy will then face fewer barriers. Occupational therapy as a profession advocates for the removal of barriers for individuals seeking to engage in daily life activities, so promoting the removal of these barriers within the profession itself is a true reflection of its core values (AOTA, 1993).

Compliance with the ADA and providing access for individuals seeking employment in the health care is not a one step process; it requires attention to all aspects of the process from program application, academics, fieldwork placements, and ultimately licensure and employment issues. By critically reviewing existing information, we can advocate as a profession in order to provide better accessibility for individuals with disabilities and decrease the level of discrimination within the OT licensure application process. There is a need to continue this study to gain greater insight into the licensure processes of other health care professions to ensure discrimination is not present.

Conclusions

OT as a profession advocates for removal of barriers and for engagement in meaningful occupations. It is important that all state licensure websites and applications comply with ADA guidelines. It is apparent that there is discrimination present in the OT licensure application process in accessing the application as well as within the application itself. Changes need to be made in this process to ensure the greatest accessibility to individuals living with disabilities and also desiring to work as an occupational therapy practitioners.

REFERENCES

- Abou-Zahra, S., Ed. (2019). Accessibility principles. *Web Accessibility Initiative*.
Retrieved from <https://www.w3.org/WAI/fundamentals/accessibility-principles/>.
- ADA.gov. (2008). *Employment (title I)*. Retrieved from
https://www.ada.gov/ada_title_I.htm
- Ameri, M., Schur, L, Adya, M., Bentley, F. S., Mckay, P., & Kruse, D. (2018). The disability employment puzzle: a field experiment on employer hiring behavior. *ILR Review*, 71(2), 329-364. Doi: 10.1177/0019793917717474
- Americans with Disabilities Act of 1990, As Amended*. 42 U.S. Code § 12113(b) (1995).
Retrieved from <https://www.ada.gov/pubs/adastatute08.htm#12113b>
- Americans with Disabilities Act of 1990, As Amended*. 42 Code § 12114(a) [Section 104].
Retrieved from <https://www.ada.gov/pubs/adastatute08.htm>
- Americans with Disabilities Act Title II Regulations, 42 § 35.131 (2016).
- American Occupational Therapy Association (1993). Core values and attitudes of occupational therapy practice. *American Journal of Occupational Therapy*, 47, 1085-1086. doi: 10.5014/ajot.47.12.1085
- American Occupational Therapy Association (2014). Hawaii enacts occupational therapy licensure law 50th state to license occupational therapists. Retrieved from <https://www.aota.org/Advocacy-Policy/State-Policy/StateNews/2014/Hawaii-Enacts-Occupational-Therapy-Licensure-Law-50th-State-to-License-Occupational-Therapists.aspx>

American Occupational Therapy Association (2019). Issues in licensure. Retrieved from <https://www.aota.org/Advocacy-Policy/State-Policy/Licensure.aspx>

American Occupational Therapy Association (2007). Model Occupational Therapy Practice Act. Retrieved from [https://www.aota.org/~media/Corporate/Files/Advocacy/State/Resources/Practice Act/MODEL%20PRACTICE%20ACT%20FINAL%202007.pdf](https://www.aota.org/~media/Corporate/Files/Advocacy/State/Resources/PracticeAct/MODEL%20PRACTICE%20ACT%20FINAL%202007.pdf)

American Occupational Therapy Association (2017). Occupational Therapists—licensure requirements. Retrieved from <https://www.aota.org/~media/Corporate/Files/Secure/Advocacy/Licensure/StateRegs/Qualifications/OT-qualifications-licensure-requirements-by-state.pdf>

American Occupational Therapy Association. (2000). Occupational therapy and the Americans with Disabilities Act (ADA). *American Journal of Occupational Therapy*, 54, 622-625.

American Occupational Therapy Association (2014). Occupational therapy practice framework: Domain and process (3rd ed.) *American Journal of Occupational Therapy*, 68(Suppl. 1), S1-S48. doi: 10.5014/ajot.2014.682006

American Occupational Therapy Association (2019). Overview (ACOTE history, meetings, members). Retrieved from <https://www.aota.org/Education-Careers/Accreditation/Overview.aspx>

American Occupational Therapy Association. (1993). Position Paper: Occupational Therapy and the Americans With Disabilities Act (ADA). *Am Journal of Occupational Therapy*, 47(12):1083-1084. doi: 10.5014/ajot.47.12.1083.

Blanck, P. (2008). Flattening the (inaccessible) cyberworld for people with disabilities. *Assistive Technology*, 20(3), 175-180.

- Blanck, P. (2014). The struggle for web equality by persons with cognitive disabilities. *Behavioral Sciences and the Law*, 32, 4-32.
- Bradbard, D. & Peters, C. (2010). Web accessibility theory and practice: An introduction for university faculty. *The Journal of Educators Online*, 7(1), 1-46.
- Chacala, A., McCormack, C., Collins, B., & Beagan, B. (2014). "My view that disability is okay sometimes clashes": experiences of two disabled occupational therapists. *Scandinavian Journal of Occupational therapy*, 21, 107-115. Doi: 10.3109/11038128.2013.861016
- Chanatry, L. & Cronin, J. (2017). Professional licensing issues: Title II of the ADA applied to state and local professional licensing. Retrieved from http://adasoutheast.org/ada/publications/legal/professional_licensing_disability_A DA_TitleII.php
- Chang, F. H. (2015). What are individuals with serious mental illness (SMI) dealing with in a competitive labor market? Two case studies. *Work*, 51, 301-305.
- Crist, P. & Stoffel, V. (1992). The Americans with disabilities act of 1990 and employees with mental impairments: Personal efficacy and the environment. *The American Journal of Occupational Therapy*, 46(5), 434-442.
- Coles, J. (2001). The Social Model of Disability: What does it mean for practice in services for people with learning disabilities? *Disability and Society*, 16(4), 501-510.
- Cole, M. & Tufano, R. (2008). *Applied theories in occupational therapy: A practical approach*. Thorofare, NJ: Slack
- Draper, W., Hawley, C., McMahon, B., & Reid, C. (2012). Workplace discrimination and the record of disability. *The Journal of Vocational Rehabilitation*, 36, 199-206.

- Federation of State Medical Boards (1996). *Report of the ad hoc committee on physician impairment: Federation of state medical boards of the United States, inc.*
Retrieved from <http://www.fsmb.org/globalassets/advocacy/policies/hoc-committee-physician-impairment.pdf>
- Fraser, R., Ajzen, I., Johnson, K., Hebert, J., Chan, F. (2011). Understanding employers' hiring intention in relation to qualified workers with disabilities. *The Journal of Vocational Rehabilitation, 35*, 1-11. doi: 10.3233/JVR-2011-0548
- Hall, S., Crifasi, K., Marinelli, C., and Huen, H. (2016). Continuing education requirements among State Occupational Therapy Regulatory Boards in the United States of America. *Journal of Educational Evaluation for Health Professions, 13*(37). doi: 10.3352/jeehp.2016.13.37.
- Hansen, T., Goetz, R., Bloom, J., & Fenn, D. (1998). Changes in questions about psychiatric illness asked on medical licensure applications between 1993 and 1996. *Psychiatric Services, 49*(2), 202-206.
- Jones, J., North, C., Vogel-Scibilia, S., Myers, M., and Owen, R. (2018). Medical licensure questions about mental illness and compliance with the Americans with Disabilities Act.
- Kensbock, J. M., Boehm, S. A., & Bourovoi, K. (2017). Is there a downside of job accommodations? An employee perspective on individual change processes. *Frontiers in Psychology, 8*, 1536. doi: 10.3389/fpsyg.2017.01536
- Kornblau, B. (1995). Fieldwork education and the students with disabilities: Enter the Americans with disabilities act. *The American Journal of Occupational Therapy, 49*(2), 139-145.

- Massengill, D. (2005). Walking a straight (and fine) line: Alcoholism and the Americans with disabilities act. *Public Personnel Management*, 34(3), 283-297.
- Oliver, M. (2013). Social Model of Disability: Thirty year on. *Disability & Society*, 28(7), 1024-1026. doi: 10.1080/09687599.2013.818773
- Polfiet, S. (2008). A national analysis of medical licensure applications. *The Journal of the American Academy of Psychiatry and the Law*, 36(3), 369-374.
- ReadSpeaker (2018). ReadSpeaker webReader. Retrieved from <https://www.readspeaker.com/webreader/>
- Schroeder, R., Brazeau, C., Zackin, F., Rovi, S., Dickey, J., Johnson, M., & Keller, S. (2009). Do state medical board applications violate the Americans with disabilities act? *Academic Medicine*, 84(6), 776-781.
- Shakespeare, T. (2016). The Social Model of Disability. In Davis, L. J. (Ed.). *The Disability Studies Reader (5th ed.)*. Taylor & Francis.
- Testimony by Ray Q. Bumgarner, JD, on behalf of the Federation of State Medical Boards of the United States, before the Committee on the Judiciary, Subcommittee on the Constitution, United States House of Representatives, May 22, 1997
- U.S. Department of Justice (2009). *Americans with Disabilities Act of 1990, As Amended*. Retrieved from <https://www.ada.gov/pubs/adastatute08.htm#12102>
- U.S. Department of Justice (2016). *Part 35 nondiscrimination on the basis of disability in state and local government services*. Retrieved from https://www.ada.gov/regs2010/titleII_2010/titleII_2010_regulations.htm#a35132
- U.S. Department of Labor (n.d.). *Final rule implementing the ADA amendments act of 2008*. Retrieved from <https://www.ada.gov/regs2016/adaaa.html>

- United States Department of Labor. (2019). *January 2019 disability employment statistics ages 16 years and over*. Retrieved from <https://www.dol.gov/odep/>
- U.S. Equal Employment Opportunity Commission. (2012). *Enforcement guidance: Reasonable accommodation and undue hardship under the Americans with Disabilities Act*. Retrieved from <https://www.eeoc.gov/policy/docs/accommodation.html>
- U.S. Equal Employment Opportunity Commission. (2017). *Disability discrimination*. Retrieved from <https://www.eeoc.gov/laws/types/disability.cfm>
- U.S. Equal Employment Opportunity Commission. (2011). *Questions and answers about health care workers and the Americans with Disabilities Act*. Retrieved from https://www.eeoc.gov/facts/health_care_workers.html
- U.S. Equal Employment Opportunity Commission. (1997). *Questions and answers: The Americans with Disabilities Act and hiring police officers*. Retrieved from <https://www.ada.gov/copsq7a.htm>
- U.S. Equal Employment Opportunity Commission. (1990). *Titles I and V of the Americans with Disabilities Act of 1990 (ADA)*. Retrieved from <https://www.eeoc.gov/laws/statutes/ada.cfm>
- Velde, B. P. (2000). The experience of being an occupational therapist with a disability. *American Journal of Occupational Therapy, 54*, 183–188.
- Walker, Y. N. (2004). Protecting the public: The impact of the Americans with Disabilities Act on licensure considerations involving mentally impaired medical and legal professionals. *The Journal of Legal Medicine, (25)*, 441-468. doi: 10.1080/01947640490887562
- WebAIM (2018). WAVE: Web accessibility evaluation tool. Retrieved from

<http://wave.webaim.org/>

Willmarth, C. (2011). State regulation of Occupational Therapists and Occupational Therapy Assistants. In McCormack, G. & Jacobs, K. (2011). *The Occupational Therapy Manager, 5th ed.* Bethesda, MD: American Occupational Therapy Association.

W3C (2018). *Web content accessibility guidelines (WCAG) 2.1*. Retrieved from W3C website: <https://www.w3.org/TR/WCAG21/>

Appendices

Appendix A

WCAG 2.0 Guidelines

Item	Yes (Accessible)	No (Inaccessible)	Total
<i>Priority 1: Perceivable</i>			
1.2.8 Media Alternative (Prerecorded) Level AAA An alternative for time-based media is provided for all prerecorded synchronized media and for all prerecorded video-only media.	50	1	51
1.3.6 Identify Purpose Level AAA(Added in 2.1) In content implemented using markup languages, the purpose of User Interface Components, icons, and regions can be programmatically determined.	45	6	51
1.4.9 Images of Text (No Exception) Level AAA Images of text are only used for pure decoration or where a particular presentation of text is essential to the information being conveyed. <i>Note 1:</i> Logotypes (text that is part of a logo or brand name) are considered essential.	45	6	51
<i>Principle 2: Operable</i>			
2.1.3 Keyboard (No Exception) Level AAA All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes.	40	11	51

2.2.5 Re-authenticating Level AAA When an authenticated session expires, the user can continue the activity without loss of data after re-authenticating.	51	0	51
2.3.3 Animation from Interactions Level AAA(Added in 2.1) Motion animation triggered by interaction can be disabled, unless the animation is essential to the functionality or the information being conveyed.	47	4	51
2.4.10 Section Headings Level AAA Section headings are used to organize the content. <i>Note 1:</i> "Heading" is used in its general sense and includes titles and other ways to add a heading to different types of content. <i>Note 2:</i> This success criterion covers sections within writing, not user interface components. User Interface components are covered under Success Criterion 4.1.2.	50	1	51
2.5.6 Concurrent Input Mechanisms Level AAA(Added in 2.1) Web content does not restrict use of input modalities available on a platform except where the restriction is essential, required to ensure the security of the content, or required to respect user settings.	33	18	51
Priority 3: Understandable			
3.1.4 Abbreviations Level AAA A mechanism for identifying the expanded form or meaning of abbreviations is available.	43	8	51
3.2.5 Change on Request Level AAA Changes of context are initiated only by user request or a mechanism is available to turn off such changes.	42	9	51

3.3.5 Help Level AAA Context-sensitive help is available.	18	33	51
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Appendix B

Accessibility for Occupational Therapy Practice Licensure

Martha Scoby, MOTS, Melissa Groth, MOTS, and Janet Jedlicka, PhD, OTR/L, FAOTA

University of North Dakota

The unemployment rate for individuals with a diagnosed disability seeking work is 9% percent; a rate more than double the 4.1% unemployment rate for individuals without a disability seeking work (U.S. Department of Labor, 2019). According to the Americans with Disabilities Act (ADA), a disability is defined as “(A) a physical disability or mental impairment that substantially limits one or more of the major life activities of such individual; (B) a record of such an impairment; or, (C) being regarded as having such an impairment” (Americans with Disabilities Act of 1990, 2008). Velde (2000) found there was a negative perception and attitude from employers toward healthcare professionals with a disability despite their qualifications. While the ADA was created to protect individuals with disabilities from discrimination within the workplace and community, it is the job of the occupational therapy (OT) state licensing boards to ensure licensed healthcare providers can complete essential job functions skillfully and safely and are not a threat to the public (Chanatry & Cronin, 2017). It should be noted that Title II of the ADA specifies a state cannot discriminate against a qualified individual based on their disability; the state is also tasked with protecting the public by ensuring the licensed healthcare professionals are qualified (Walker, 2004; Chanatry & Cronin, 2017).

In order to practice occupational therapy in the United States, practitioners must be licensed in accordance with the individual state licensing laws for occupational therapy. Each licensing board has regulations that may vary from other states, but all states require the individual passes the National Board for Certification in Occupational Therapy (NBCOT) exam (American Occupational Therapy Association [AOTA], 2019). In order to sit for this exam, the individual must graduate from a program accredited by the Accreditation Council for Occupational Therapy Education (ACOTE; AOTA, 2019;

National Board for Certification in Occupational Therapy, 2019). The Model Occupational Therapy Practice Act requires an individual to be in good standing with current registration, licensure, and certification to practice occupational therapy (AOTA, 2007). The occupational therapy state licensing boards are tasked with protecting consumers from “unqualified or unscrupulous practitioners” (AOTA, 2019). In order to successfully obtain a state occupational therapy license, the individual must complete a largely online application.

The effect of technology has changed the way OTs do business and has created additional ways to facilitate or create barriers for individuals with disabilities. There is currently little information available on the accessibility of the state licensure websites and the ability of the user to complete the application in alternate formats if needed. The purpose of this study was to review the websites for compliance with the ADA and ensure that individuals with disabilities are able to access and effectively navigate the requirements for licensure.

The website accessibility theory was used to address barriers individuals may face when accessing web content. This theory came from the movement of universities in response to the ADA and Section 508 of the Rehabilitation Act Amendments, which promoted the accessibility of materials for individuals with disabilities (Bradbard & Peters, 2010). Universities throughout the country adopted the responsibility, as delineated in Title II from the U.S. Equal Employment Opportunity Commission (EEOC), to ensure accessibility for online content (Bradbard & Peters, 2010). This then evolved into the creation of the Website Accessibility Initiative (WAI), an organization responsible for creating the current standards for website accessibility: the Website Content Accessibility Guidelines (WCAG). These guidelines delineate specific criteria

for website accessibility and work to achieve a universal design for all users when accessing web content (Bradbard & Peters, 2010). The current version for these standards is WCAG, 2.1 and was published in early 2018. However, a previous version, WCAG 2.0, is still currently used as the standard level of accessibility for online content (WebAIM, 2018).

We examined the main webpage of each state occupational therapy board or licensing regulatory boards for accessibility. We developed an 11-point checklist using WCAG 2.1 as a guideline as seen in Table 1. WCAG 2.1 is divided into three levels of criteria that establish accessibility: *A* through *AAA*. These criteria focus on allowing greater accessibility to individuals with disabilities, including individuals with hearing loss, photosensitivity, low vision, speech difficulties, limited mobility, and learning or cognitive disabilities (W3C, 2018).

Although Level *AA* success criteria from WCAG 2.0 remain the current standard for website accessibility, Level *AAA* items were chosen to assess for best practice and exceptional, quality accessibility (W3C, 2018). These items were chosen from three of the four principles in WCAG 2.1: Perceivable, Understandable, Operable. The fourth principle, Robust, did not include any Level *AAA* criteria, so it was not included in the review.

WAVE©, a tool of Web Accessibility in Mind (WebAIM), was used to measure accessibility by determining alerts and errors on each state's webpage (WebAIM, 2018). For each state, the number of alerts and errors were recorded. Results were analyzed, noting major themes and commonalities that affected accessibility of each state regulatory board website.

Results

Commonalities appeared throughout the first three principles of WCAG 2.1 regarding website accessibility (See Table 1). Many states were compliant with Principle 1: Perceivable, which evaluates if the information is presented in a way that the user can perceive it. Within Principle 2: Operable, many websites encountered difficulties in meeting the criteria, often the website was inaccessible for use with a variety of devices such as a mouse and keyboard, touchscreen, desktop, mobile device, or tablet. Forty states met criterion 2.1.3, keyboard accessibility, but only thirty-three states met criterion 2.5.6. This criterion considers concurrent input mechanisms: the user can use multiple devices such as a mouse, keyboard, and touchscreen together in order to interact with the content (W3C, 2018). All 51 websites that were reviewed met criterion 2.2.5, reauthenticating. By meeting this criterion, the website will not time out in the middle of a transaction or cause the user to lose information when inactivity causes the user to be logged out of the site (W3C, 2018). It is important to note that only the main page of each website was examined and no accounts or log-ins were created to assess this component of website accessibility.

Under the third principle: Understandable, the websites generally met these checkpoints—specifically identifying and explaining abbreviations and requiring user activation to follow a link. However, many states failed to provide context-sensitive help, or technological assistance within the webpage, which is specified in criterion 3.3.5. Only 18 states were compliant with this; often the contact information, accessibility content, or accessibility disclaimers were not included on the main page of each website. This could be attributed, in some cases, to the fact that some OT regulatory boards were under larger

regulatory entities and did not host their own site, but by and large, accessibility assistance was not readily available.

Table 1

Principle Name	Description	Noted Findings
Principle 1: Perceivable	The information and components of the website must be presented in a way that they can perceive through one of the senses.	45/51 for proper use of textual images 45/51 for identifying purpose of interface components 50/51 for alternatives to time-based video media
Principle 2: Operable	The interface must be usable, whether this is through a keyboard, mouse, touchscreen, or adaptive device.	33/51 for concurrent mechanisms 40/51 for keyboard accessibility 51/51 for reauthenticating
Principle 3: Understandable	The information and the operation of the content must be presented in a way that the user can understand what is happening.	43/51 for identifying and explaining abbreviations 42/51 requiring user activation to follow links 18/51 for context-sensitive help
Principle 4: Robust	The content must be accessible with a wide variety of technologies and user agents.	N/A; components not used in this study.

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Results from the WAVE© tool found five states produced an error when the link was entered, meaning that the tool was unable to be utilized. For these states, only the WCAG 2.1 checklist produced by the researchers was used to manually examine the accessibility of the websites. All errors and alerts noted were of Level *A* or *AA*, meaning that the minimum standard of accessibility was met for this review. However, some alerts appeared to be in violation of Section 508 (WebAIM, 2018). Section 508 of the Rehabilitation Act Amendments came out in 1998 mandating that all electronic information technology purchased by the federal government be equally accessible (Bradbard & Peters, 2010). Although not a reflection of the current standard for website accessibility, these noted errors and alerts can affect accessibility and may have led to other issues in meeting WCAG 2.1 checkpoints (WebAIM, 2018).

Common errors and alerts noted in the WAVE© tool included: (1) links to PDF or Word documents and (2) problems with a device-dependent event handler. A device-dependent event handler involves features such as hovering over an item with the cursor or clicking on a link to activate it (WebAIM, 2019). Both of these errors, as noted by WAVE©, may cause problems in identifying interface components or in using other or alternate devices (WebAIM, 2018).

Discussion

By and large, limitations exist in accessibility for the reviewed websites, and the findings of this study suggest a need for better accessibility. Regulatory boards can employ the following strategies to improve website accessibility:

1. Ensure websites have a mobile version and can be accessed through a variety of interfaces. Individuals with a disability may use alternate input devices or screen readers; it is important that they still be able to perceive and interact with the

content on the website. Touch screen devices such as tablets or smartphones are often used instead of laptops or desktop computers, and the lack of mobile versions could create difficulty in understanding the content and navigating the webpage.

2. Be cautious when including links to PDF and Word files. Because this content typically requires other devices or applications to open, website users who have alternative devices such as screen readers may have difficulty opening the content (WebAIM, 2018).
3. Take care when creating mandatory account registration for licensure application. If a log-in expires after a period of non-use, the user's information should automatically save. It is important that the user be able to access the licensure application without losing inputted information.
4. Provide contact information for assistance and context-sensitive help. Few states provided in-context assistance or built in accessibility features. One state, for example, included an in-page mechanism for accessibility called Web Reader for Web Speaker (ReadSpeaker, 2018). This mechanism provided options to hover over content for audio, change the text size, use the simple version of the website, look up words, or translate the content. Other websites, while not necessarily providing in-context assistance, provided information on increasing accessibility or contact information for assistance. The majority of states (33), however, did not provide any of the above, thereby limiting accessibility of their websites by users.

One of the most prominent barriers may be the online accessibility of the application itself. This needs to be considered along with the ability to use an electronic

or alternative device to apply. The profession of occupational therapy seeks to promote engagement by everyone and therefore, this is an area suggesting careful attention. By doing so, website accessibility and ease of use can be improved for all licensure applicants, so our own professionals can participate to the best of their abilities. Additionally, the profession of occupational therapy serves consumers with disabilities. Both need better access to (1) ensure protection of practitioners regarding the ADA and (2) allow consumers to access information that helps them make informed decisions and report unethical or unsafe professionals. With the rapid advance of technology, it is imperative we as a profession advocate for access and inclusive practices for our colleagues and the clients they serve. Accessibility of state licensure websites is required by the ADA, and it is something we can mandate as healthcare professionals.

References

- Abou-Zahra, S., Ed. (2019). Accessibility principles. *Web Accessibility Initiative*.
Retrieved from <https://www.w3.org/WAI/fundamentals/accessibility-principles/>
- American Occupational Therapy Association (2007, September). Model Occupational Therapy Practice Act. Retrieved from
<https://www.aota.org/~media/Corporate/Files/Advocacy/State/Resources/PracticeAct/MODEL%20PRACTICE%20ACT%20FINAL%202007.pdf>
- American Occupational Therapy Association (2019). Issues in licensure. Retrieved from
<https://www.aota.org/Advocacy-Policy/State-Policy/Licensure.aspx>
- American Occupational Therapy Association (2019). Overview (ACOTE history, meetings, members). Retrieved from <https://www.aota.org/Education-Careers/Accreditation/Overview.aspx>
- Americans with Disabilities Act of 1990, 42 U.S.C § 12102 (2008).
- Bradbard, D. & Peters, C. (2010). Web accessibility theory and practice: An introduction for university faculty. *Journal of Educators Online*, 7(1), 1–46
- Chanatry, L. & Cronin, J. (2017). Professional licensing issues: Title II of the ADA applied to state and local professional licensing. Retrieved from
http://adasoutheast.org/ada/publications/legal/professional_licensing_disability_ADA_TitleII.php
- National Board for Certification in Occupational Therapy (2019). *Certification exam handbook*. Retrieved from https://www.nbcot.org/~media/NBCOT/PDFs/Cert_Exam_Handbook.ashx?la=en

- Fraser, R., Ajzen, I., Johnson, K., Hebert, J., & Chan, F. (2011). Understanding employers' hiring intention in relation to qualified workers with disabilities. *Journal of Vocational Rehabilitation, 35*, 1–11. doi: 10.3233/JVR-2011-054
- ReadSpeaker (2018). ReadSpeaker webReader. Retrieved from <https://www.readspeaker.com/webreader/>
- Shakespeare, T. (2016). The Social Model of Disability. In L. J. Davis (Ed.). *The Disability Studies Reader* (5th ed.), 195-203. Taylor & Francis
- United States Department of Labor. (2019). *January 2019 disability employment statistics ages 16 years and over*. Retrieved from <https://www.dol.gov/odep/>
- U.S. Equal Employment Opportunity Commission. (1990). *Titles I and V of the Americans with Disabilities Act of 1990 (ADA)*. Retrieved from <https://www.eeoc.gov/laws/statutes/ada.cfm>
- Velde, B. P. (2000). The experience of being an occupational therapist with a disability. *American Journal of Occupational Therapy, 54*, 183–188.
- Walker, Y. N. (2004, December). Protecting the public: The impact of the Americans with disabilities act on licensure considerations involving mentally impaired medical and legal professionals. *Journal of Legal Medicine, 25*(4), 441–468. doi: 10.1080/01947640490887562
- WebAIM (2018). WAVE: Web accessibility evaluation tool. Retrieved from <http://wave.webaim.org/>
- WebAIM (2019). Accessible JavaScript: JavaScript event handlers. Retrieved from <https://webaim.org/techniques/javascript/eventhandlers>
- W3C (2018). *Web content accessibility guidelines (WCAG) 2.1*. Retrieved from W3C website: <https://www.w3.org/TR/WCAG21>

Appendix C

Americans with Disability Act and Compliance with Occupational Therapy Licensure
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According to the U.S. Department of Labor (2019), the current unemployment rate within the labor force for individuals with a disability is 9%, while the unemployment rate for those without a disability is 4.2%. This is a rate more than double of those without a disability. Only 20.5% of those living with a disability are participating within the labor force compared to a 68.3% participation rate of those without a disability (U.S. Department of Labor, 2019).

According to the Americans with Disabilities Act (ADA), a disability is defined as “(A) a physical disability or mental impairment that substantially limits one or more of the major life activities of such individual; (B) a record of such an impairment; or, (C) being regarded as having such an impairment.” (Americans with Disabilities Act, 1990). Additionally, individuals with a diagnosis of a substance use disorder, who are not currently engaging in illegal substance use, and who have successfully completed a drug rehabilitation program or are currently being supervised in a drug rehabilitation program are also covered under the ADA (Americans with Disabilities Act Title II Regulations, 2016; U.S. Equal Employment Opportunity Commission [EEOC], 2011). Furthermore, alcoholism is also covered under the ADA if it substantially limits one or more major life roles or has limited a major life role in the past (EEOC, 2011).

While the ADA was created to protect individuals with disabilities from discrimination within the workplace and community, it is the job of occupational therapy (OT) state licensing boards to ensure individuals can complete essential functions of an occupational therapist with reasonable skill and safety (American Occupational Therapy Association, 2019). The American Occupational Therapy Association (AOTA) Model Practice Act was created to ensure the safety of the public by requiring licensure for legal practice of occupational therapy within the United States (AOTA, 2007). This act states

that one must be in good standing with the individual's license, certification, or registration and not be suspended by any state regulatory agency (AOTA, 2007).

Title II of the ADA specifies that state and local governments cannot discriminate against a qualified individual based on their disability (Walker, 2004; Chanatry & Cronin, 2017). Under this statute, a "qualified individual with a disability" is defined as an individual who can perform the essential job functions with or without reasonable accommodation (Walker, 2004; Chanatry & Cronin, 2017). Each state government gives control to licensing boards to regulate who may practice within a particular profession to ensure safety for the public; state licensing boards are Title II entities and subjected to compliance with the ADA (Chanatry & Cronin, 2017). Courts have upheld that state licensing boards are subject to Title II of the ADA because benefits, services, and programs must be provided by the licensing boards themselves, such as testing accommodations (Chanatry & Cronin, 2017).

In order to legally and ethically practice occupational therapy as a profession, a practitioner must follow the qualifications set by the American Occupational Therapy Association at the national and state levels (AOTA, 2007). The occupational therapy state licensing boards are tasked with ensuring that occupational therapists can safely complete essential job functions, whether living with a disability or not. This is done by eliciting information about the applicant through questions included within the application itself. Discrimination may exist within the licensure applications based on the nature of the questions asked. We wanted to determine if the questions asked on occupational therapy state licensing applications are compliant with the ADA.

A guide developed by Schroeder et al. (2009) was used along with a guide developed by Jones, North, Vogel-Scibilia, Myers, and Owen (2018) to categorize the

questions in the applications as compliant or noncompliant with the ADA. Schroeder et al. (2009) studied medical board applications within the United States to determine question compliance with the ADA. The authors reviewed applications from all 50 states as well as the District of Columbia using the ADA and case law to determine whether the questions were compliant with the ADA. Based on the information obtained, four categories were created: Permissible, Likely Permissible, Likely Impermissible, and Impermissible with the ADA (see Table 1). Schroeder et al. (2009) found that 69% of the medical board applications asked at least one impermissible or likely impermissible question.

Jones et al. (2018) completed a study to classify all mental health questions located on all 50 states and the District of Columbia physician licensure applications as compliant or noncompliant with the ADA. The authors found that only 18 applications complied with the ADA, while the remaining applications did not comply with the ADA. Furthermore, the authors found that distinct types of questions were found to be asked in regard to illness: current fitness, having a hypothetical impairment, and hospitalization or determination of incompetence (Jones et al., 2018). Table 1 contains the definitions of “permissible”, “likely permissible”, likely impermissible”, and “impermissible” that were used to guide this research based off the information gained from Jones et al. (2018), and Schroeder et al. (2009).

Table 1

	Definition
Permissible	<ul style="list-style-type: none"> • Questions that are found to be compliant with the ADA • Questions that pertain to function in regard to current completion of essential job functions • Questions regarding recent or current substance use • Questions that are excluded from the protection of the ADA (such as sexual behavior disorders) <ul style="list-style-type: none"> ▪ (Schroeder et al., 2009; Jones et al. 2018)
Likely Permissible	<ul style="list-style-type: none"> • Questions that have been sustained by one jurisdiction • Questions that are asked to the applicant’s reference instead of applicant directly <ul style="list-style-type: none"> ▪ (Schroeder et al., 2009; Jones et al. 2018)
Likely Impermissible	<ul style="list-style-type: none"> • Questions that are found to be overruled by one jurisdiction • Questions regarding diagnosis or treatment with no timeline or are too broad in scope; therefore, obtaining information about a disability that does not have a current relevance to the applicant’s ability to perform job functions <ul style="list-style-type: none"> ▪ (Schroeder et al., 2009; Jones et al., 2018)
Impermissible	<ul style="list-style-type: none"> • Questions that are clearly not ADA compliant • Questions about treatment or diagnosis with no specific time frame • Questions eliciting information about the diagnosis itself versus the applicant’s ability to complete relevant job functions • Questions that elicit information about hypotheticals in regard to fitness to practice occupational therapy in the future when presenting with a current mental or physical illness • Questions gaining information about past diagnoses that elicit an additional burden on the applicant that are not requirements for those who do not have a disability <ul style="list-style-type: none"> ▪ (Schroeder et al., 2009; Jones et al. 2018)

In the United States are state OT licensure applications compliant with the ADA?

All 50 states and the District of Columbia occupational therapy state licensure applications were initially included to be reviewed for compliance with the ADA.

However, of the 51 applications, 10 were not directly available via download on the state website and the state regulatory board either did not respond to our request for the application in an alternative format or the application was not available in an alternative format.

Using the four categories created by Schroder et al. (2009), as well as the guidelines set by Jones et al. (2018) for noncompliant questions, the remaining 41 state applications were reviewed. Within the 41 available applications, there were 72 questions that fit into a prospective category. Of the 41 applications, 17 applications (41%; 43 questions) contained questions that were permissible, 10 of those applications (24%) asked solely permissible questions in regard to the ADA. An additional 12 applications (29%) were unable to be placed into the categories created by the two guides used in this study, indicating that roughly 54% of the applications are compliant with the ADA. Nineteen states (29 questions), approximately 46% of the applications reviewed, asked questions that are impermissible or likely impermissible, indicating noncompliance or potential noncompliance with the ADA.

Three main areas were noted in the applications that included impermissible or likely impermissible questions. These areas include physical and mental illness, chemical dependency, and treatment. Further information is located in the Table 2 with examples of questions asked in at least one article and preferred wording.

Table 2

Area	Sample question from Application Reviewed	Potential Issues	Rationale and preferred wording
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<p>Physical and mental disability</p>	<p>1. “Have you ever been declared mentally incompetent by a court of competent jurisdiction and not thereafter been declared lawfully sane?”</p> <p>2. “Do you presently have any physical or mental problems or disabilities that could affect your ability to competently practice your profession?”</p>	<p>1. The focus of this question is on the record of disability of the applicant, not the current abilities of the applicant, therefore, not compliant with the protection given from the ADA.</p> <p>2. While this question asks about competency in practicing occupational therapy, the focus of this question is on the hypothetical potential concerns about a disability,</p>	<p>Licensure board applications may contain questions about having a disability; however, they must be in regard to the function of the individual to complete a specific job or task essential for the profession (Chanatry & Cronin, 2017). Additionally, hypothetical questions about disabilities have been found to be unethical in regard to the ADA as they task the applicant to predict the future (Jones et al., 2018). Questions compliant with the ADA should focus on the ability to safely complete current specific job functions rather than the disability. These questions still allow the</p>
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		<p>not current fitness to practice.</p>	<p>state licensure boards to ensure that public safety is addressed, but in a way that is compliant with the ADA.</p> <p>A sample permissible question is “Do you have a medical condition that in any way impairs or limits your ability to practice your profession with reasonable skill and safety? If yes, please attach explanation.” This is a question that has been widely accepted as compliant with the ADA as it asks about a medical condition in regard to current function and in terms of practicing OT. Additionally, further questioning on ADA</p>
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			compliant questions is permissible as it is not inquiring about diagnosis, but rather ability to practice within the profession with reasonable skill and safety.
Chemical Dependency	“Have you ever“ (yes or no) been engaged in illegal or improper use of drugs or other chemical mood-altering substances?	This example has no timeline specified; therefore, it inquires about the broad status of the applicant, which is noncompliant with the ADA. This question does not provide the licensing board with any information about current fitness to practice the profession	Under the ADA, an applicant is covered if she or he has a diagnosis of a chemical dependency and is not currently engaging in illegal substance use (Massengill, 2005); however, in application questions, these diagnoses may only be asked about in terms of current or very recent use (Schroeder et al., 2009). It should be noted that few applications define the term “recent,” which can be subjective in

		<p>because the applicant may have engaged in substance use in the past but is not currently engaging in substance use.</p>	<p>nature and, therefore, require interpretation.</p> <p>An example of a compliant question is the following:</p> <p>“Are you currently engaged in the illegal use of controlled dangerous substances? (Recall that “currently” is defined as “within the last two years”).”</p> <p>This example defines “current” at the end of the question, so there is no confusion about interpretation of that term.</p>
Treatment	<p>“In the last five years, have you been admitted or referred to a hospital, facility, or impaired practitioner program for treatment of a diagnosed mental</p>	<p>This question elicits information about an applicant’s prior treatment or diagnoses that do not indicate the applicant’s</p>	<p>These types of questions do not indicate the applicant’s current capabilities. Past treatment does not indicate how well a person is able to currently function and complete essential job</p>

	disorder or impairment?"	current ability to be a proficient occupational therapist.	functions with skillfully and safely (Schroeder et al., 2009). Specific questions about treatment should not be included in licensure applications.
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Conclusion

In order to legally practice occupational therapy within the United States, all prospective applicants must first complete an application to obtain licensure. While it is the job of the state licensing and regulatory boards to ensure the safety of the general public, it is also important to ensure compliance with the ADA. Approximately 46% of the 41 applications reviewed were either noncompliant or potentially noncompliant with the ADA. These questions elicited information about the applicant’s record of disability, substance use, or past treatment. Because of the nature of those questions, no information is being obtained in terms of current ability to perform essential job functions, and therefore, are not relevant. Based on the OT code of ethics and the importance of complying with federal law, all licensure boards should review their application to ensure compliance with the ADA, and in turn, this will decrease discrimination.

Owing to the nature of the current application questions that are noncompliant with the ADA, additional discrimination may occur for applicants in seeking treatment while licensed. This fear arises from the record of treatment and potential for that record to interfere with maintaining a license to practice (Jones et al., 2018). Additionally,

students are at risk for leaving a mental illness untreated due to fear of this record interfering with future ability to practice (Jones et al., 2018).

Performance of this study indicated a rate of noncompliance with the ADA that is vast, and currently, there is little to no information on the topic of discrimination in occupational therapy licensure applications. Therefore, great benefit would derive from state licensure boards explicit review and revision of the current questions within the applications to better provide equal opportunity to all applicants and ensure compliance with the ADA.

References

- American Occupational Therapy Association (2007, September). Model Occupational Therapy Practice Act. Retrieved from <https://www.aota.org/~/media/Corporate/Files/Advocacy/State/Resources/PracticeAct/MODEL%20PRACTICE%20ACT%20FINAL%202007.pdf>
- American Occupational Therapy Association. (2019). Issues in licensure. Retrieved from <https://www.aota.org/Advocacy-Policy/State-Policy/Licensure.aspx>
- Americans with Disabilities Act 1990, As Amended, 42 U.S.C. § 12102 (2009).
- Americans with Disabilities Act Title II Regulations, 42 § 35.131 (2016).
- Chanatry, L., & Cronin, J. (2017). Professional licensing issues: Title II of the ADA applied to state and local professional licensing. Retrieved from http://adasoutheast.org/ada/publications/legal/professional_licensing_disability_ADA_TitleII.ph
- Jones, J., North, C., Vogel-Scibilia, S., Myers, M., and Owen, R. (2018). Medical licensure questions about mental illness and compliance with the Americans with Disabilities Act. *The Journal of the American Academy of Psychiatry and the Law*, 46(4), 458–71. doi: 10.29158/JAAPL.003789-18
- Massengill, D. (2005). Walking a straight (and fine) line: Alcoholism and the Americans with disabilities act. *Public Personnel Management*, 34(3), 283–297.
- Schroeder, R., Brazeau, C., Zackin, F., Rovi, S., Dickey, J., Johnson, M., & Keller, S. (2009). Do state medical board applications violate the Americans with Disabilities Act? *Academic Medicine*, 84(6), 776–781.

United States Department of Labor. (2019). January 2019 disability employment statistics ages 16 years and over. Retrieved from <https://www.dol.gov/odep/>

U.S. Equal Employment Opportunity Commission. (2011). Questions and answers about health care workers and the Americans with Disabilities Act. Retrieved from https://www.eeoc.gov/facts/health_care_workers.html

Walker, Y. N. (2004). Protecting the public: The impact of the Americans with Disabilities Act on licensure considerations involving mentally impaired medical and legal professionals. *The Journal of Legal Medicine*, (25), 441–468. doi: 10.1080/01947640490887562