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# Predicting Barriers to Primary Care for Patients with Disabilities: A Mixed Methods Study of Practice Administrators

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## **Predicting Barriers to Primary Care for Patients with Disabilities: A Mixed Methods Study of Practice Administrators**

### **Abstract**

**Background.** People with disabilities continue to be identified as a group who experience disparate health/health care. They are less likely to engage in some health care services. Structural barriers are often identified as one of the reasons for the underutilization of some health care services by people with disabilities. However, to date no study has been conducted to understand why structural barriers persist twenty years after the Americans with Disabilities Act (ADA) became law.

**Objectives.** We examined the relationship between primary care practice administrators' knowledge of the ADA and the number of accessibility barriers that patients with mobility disabilities might encounter.

**Methods.** Primary care practice administrators who were members of a medical management organization were surveyed between December 20, 2011, and January 17, 2012. A mixed methods research design was employed. Data were analyzed using a Guttman scale, linear and multiple linear regression.

**Results.** ADA knowledge questions conformed to a valid Guttman Scale. There was a significant inverse relationship between practice administrators' knowledge of the ADA and the number of barriers reported in their clinics. Age of the administrators and buildings built before 1993 were also significant predictors of the number of barriers.

**Conclusion.** This study helps to identify medical practices that are more likely to have access barriers and have the greatest need for ADA compliance interventions. Results from this study

highlight practice administrators' need for specific knowledge of the ADA as it applies to their medical practice. Efforts are needed to improve disability training for health professionals.

## Introduction

The Americans with Disabilities Act (ADA) became a Federal Civil Rights law in 1990 and prohibits discrimination against people with disabilities. Title II and Title III of the ADA require that health care providers grant: full and equal access to their health care services and facilities to their patients with disabilities or that they make reasonable modifications to policies, practices and procedures so that their health care services are fully available to individuals with disabilities <sup>1</sup>.

Ultimately, the responsibility of ADA compliance within a medical practice rests on ‘the practice’. Whether the practice operates in a building owned by the practice or in leased space, ADA compliance within the practice is the legal obligation of ‘the practice’ <sup>1</sup>. Practice/healthcare administrators typically have oversight of the budget, equipment purchasing, facility operations and patient flow within their medical practices. Additionally, practice administrators have the responsibility of planning, directing, coordinating and supervising their medical practices. Based on the job description of a practice/healthcare administrator provided by the US Department of Labor, practice administrators manage personnel, finances (including equipment purchase) and facility operations <sup>2</sup>. Because of this, the practice administrators should be knowledgeable about the ADA to ensure ADA compliance as well as full and equal access to their practices for patients with disabilities.

Although the ADA has been in place for over two decades, people with disabilities continue to be identified as a group who experience disparate health/health care. They are more likely to report barriers to accessing health care, a lower quality of care and are less likely to engage in certain preventative services when compared to people without disabilities <sup>3-7</sup>. For example, women with disabilities are less likely to have received a Pap test, breast exam or

mammogram than women without disabilities<sup>3-15</sup>. People with disabilities are less likely to have had their teeth cleaned or height checked<sup>5,6</sup>. People with disabilities were significantly more likely to rate their health as poor and to report dissatisfaction with their health care provided<sup>16</sup>.

Several qualitative research studies have been conducted with people with disabilities to identify the causes of health disparities among this vulnerable group<sup>17-23</sup>. Three main categories of barriers (factors) impacting access to health care for people with disabilities emerged through these studies and included structural, financial and personal/cultural barriers (factors). Structural factors that affected patient access were the physical environment including the structural accessibility of the medical office building and the medical practice, accessibility of medical equipment and transportation to medical appointments. Financial factors that impacted patient access included the cost associated with specific providers or services; the cost of prescription, over-the counter medication, supplies, equipment and equipment repairs. Personal-cultural factors that affected patient access to care included the providers' disability specific knowledge, providers' perceptions (or misconceptions) about people with disabilities, respect and sensitivity of providers and staff, providers taking the patient or their caregiver seriously and the willingness of the provider to provide care<sup>19</sup>.

Structural accessibility of medical office buildings, the medical practices and medical equipment were selected from the above factors to be the focus of this study because they are subject to the requirements of the ADA<sup>1</sup>. Structural barriers that limit or impede access to health care practices or health care services include: inadequate disability parking (number of spaces or size of spaces), lack of ramps or ramps with too steep of a grade, narrow doorways, doors that swing inward, heavy doors without automatic opening capabilities, lack of elevators, cramped waiting rooms, exam rooms that are too small to maneuver a wheelchair, scales that

cannot accommodate a wheelchair, examination tables that are not height adjustable, inaccessible diagnostic equipment and inaccessible restrooms<sup>18,21-24</sup>. Structural barriers compromise patient safety, health care worker safety and the quality of care that is delivered<sup>25</sup>. They have been identified as a major reason that people with disabilities do not engage in some preventative services<sup>17-19,21-23,26</sup>.

One of the new objectives added to Healthy People 2020 is to reduce the number of people with disabilities who report a delay in receiving preventative care or primary care due to specific barriers<sup>27,28</sup>. An understanding of why structural barriers exist is fundamental to developing strategies to eliminate barriers and improve access to health care for people with disabilities. However, to date, no study has examined why barriers to healthcare exist, especially structural barriers. The purpose of this study was to determine if primary care practice administrators' knowledge of the ADA was associated with the number of barriers reported in their clinic. We hypothesized that there would be an inverse relationship between ADA knowledge and the number of barriers. In addition to ADA knowledge, we sought to determine if the number of barriers reported in the clinics could be predicted by characteristics of the administrators (age, educational attainment, number of years as a practice administrator, gender, or number of years in their current practice) or characteristics of the practice (number of years the practice had been in operation, if the building was built before 1993, number of providers, number of patients and percent of patients with a disability).

## Methods

### *Participants and Data Collection*

This study employed a convergent, mixed methods research design to collect qualitative and quantitative data from primary care practice administrators who were members of a medical management organization<sup>29</sup>. Primary care clinics were chosen for this study because they are typically the point of entry into the health care system for patients and because health maintenance and preventative care traditionally has been within the scope of care of primary care physicians<sup>30</sup>. Primary care clinics included general practice, family practice, internal medicine and obstetrics/gynecology. Practice administrators/healthcare administrators were selected for this study because their position usually has oversight of the budget, equipment purchasing, facility operations and patient flow as mentioned previously<sup>2</sup>.

IRB approval was obtained prior to data collection. Primary care practice administrators from a medical management organization were identified through the organization's website. Practice administrators who self-identified as primary care administrators were contacted through the website e-group communication portal. The e-group communication portal allowed for an invitation to participate in an on-line survey to be sent to each administrator's communication portal. In total, 1,637 practice administrators were sent a message through the e-group communication system on three separate dates between December 20, 2011, and January 17, 2012. Eighty-six administrators initiated the survey with sixty-three completions (73.3%). The number of administrators who viewed the message and refused to participate or the number of administrators who did not view the message (non-contact) could not be determined because the e-group communication portal system could not track this information. Because of this, it

was not possible to calculate an accurate contact, cooperation or response rate; however, it is acknowledged that the response rate was low.

### ***Instrument***

The survey used for this study was developed using ADA construction guidelines, the ADA's *Access to Medical Care for Individuals with Mobility Disabilities*, the Adaptive Environment Center's *Checklist for Existing Facilities*, and published literature<sup>1,30,33-35</sup>. The survey included demographic questions and questions that 1) assessed accessibility of the structure and equipment in each clinic, and 2) measured the administrator's knowledge of the ADA. Structural accessibility questions were taken from the Adaptive Environment Center's *Checklist for Existing Facilities* and included questions regarding door and hall widths, ramps and elevators, unobstructed paths of travel and accessible restroom components<sup>31</sup>. Equipment accessibility questions were based on the recommended equipment listed in the ADA's *Access to Medical Care for Individuals with Mobility Disabilities*<sup>1</sup>. ADA knowledge questions were developed using the ADA's *Access to Medical Care for Individuals with Mobility Disabilities* and previously published literature<sup>1,30,33-35</sup>.

The seven ADA knowledge questions were designed to be hierarchical in nature and to be analyzed using a Guttman scalogram analysis. A Guttman scalogram analysis is a method used to organize responses by order of degree in which a single, hierarchical pattern is achieved<sup>36</sup>. The Guttman scale is useful when the researcher has two questions regarding the pattern of responses: (1) if a subject (primary care practice administrator) exhibits some trait, then does that subject have certain other traits as well? and (2) is there a particular *order* in which these traits accumulate?<sup>37</sup>. Guttman scale's hierarchical ranking can be validated through the coefficient of



reproducibility (CR) and coefficient of scalability (CS). This is important because use of summed Guttman scores is legitimized when the rank ordering of the scale items has been validated<sup>38</sup>. A Guttman scale is valid when  $CR \geq 0.90$  and  $CS \geq 0.60$ .

### *Statistical Analysis*

Proportions of accessibility and total number of barriers were calculated. Qualitative data from ADA knowledge questions were analyzed for major themes. Themes were categorized. Categories and answers to closed-ended question were merged for further analyses and to produce a more complete understanding of the phenomenon. Variables were placed in a rank order (hierarchical scale) based on positive responses and this information was entered into AnthroPac software. The AnthroPac software was used to produce a Guttman Scale, a coefficient of reproducibility (CR) and a coefficient of scalability (CS). The Guttman Scales provided a summed knowledge score for each respondent with a higher score equaling greater ADA knowledge compared with a lower score.

Summed ADA knowledge scores were used for further analyses. Linear regression was used to determine the relationship between practice administrators' ADA knowledge and the number of barriers in their clinics. Multiple linear regression was utilized to determine if characteristics of the administrator or characteristics of the practice predict the number of barriers in the practice. Data analyses were conducted with the use of SPSS 18 and AnthroPac version 4.98.

## Results

Due to the small sample size of this study, it is acknowledged that the results can only *suggest* a relationship between structural barriers and ADA knowledge of practice administrators, characteristics of practice administrators and characteristics of the practices. Descriptive data for the practice administrator and practices are provided in Table 1. The mean age of the administrators surveyed was 49.6 and the average number of years as an administrator was 14.9. The majority of the administrators were female (69.8%). Most administrators had either a Bachelor's or a Master's degree (34.9% and 47.6%, respectively). Practices had been in operation an average of 27 years. A majority of the practices were OB/GYN (47.6%). Slightly more practices operated in a building built before 1993 compared to after 1993 (32 and 30, respectively).

### *Accessibility and Total Number of Barriers*

Frequency counts and proportions of accessibility were calculated. If a practice did not meet an accessibility requirement, then that item was considered to be a barrier to accessing health care. The total number of barriers were calculated with a mean of 4.32 (SD = 2.19) and a range of one to ten.

### *ADA Knowledge*

Seven questions were used to ascertain the practice administrators' knowledge of the ADA. All practice administrators had heard of the ADA and the majority (93.8%) knew that the ADA applied to medical offices. When asked to describe the ADA in general, 92.1% provided an appropriate description. Eighty-four percent of the administrators could describe the ADA as it applies to a medical practice. Forty-one percent of the administrators knew the consequences

for a practice being out of compliance with the ADA while 24% knew that there is a federal tax credit to help defer the cost of bringing a medical practice into compliance with the ADA. When asked which title of the ADA applied to his/her practice, 22.2% of the administrators correctly answered the question (Table 2).

A valid Guttman scale (Table 3) was constructed using the seven knowledge variables with a coefficient of reproducibility (CR) of 0.94 and coefficient of scalability (CS) of 0.64. The mean knowledge score for the administrators was 4.59 (Table 2). Because a valid Guttman scale was produced, the ADA knowledge score was utilized for further analyses

### ***Linear Regression***

The linear regression model was significant ( $F = 7.14$ ,  $P = 0.01$ ) and explained 11% ( $R^2 = .11$ ) of the variance in the number of barriers. ADA knowledge was significant in the model ( $P = 0.01$ ) and the regression equation generated by the linear regression was:

$$\text{Total \# barriers} = 6.84 - 0.55 (\text{total ADA knowledge score})$$

The regression model indicated that there was a significant, inverse relationship between the knowledge that an administrator has of the ADA and the number of barriers found in his/her clinics (i.e. administrators with higher knowledge scores tended to have fewer barriers in their clinic). This finding supports the hypothesis that there is an inverse relationship between administrators' knowledge about the ADA and barriers that patients with disabilities experience.

### ***Multiple Linear Regression***

Multiple linear regression was utilized to determine which characteristics of the administrator or characteristics of the practice were significantly related to the total number of barriers. Characteristics of the administrator were age, gender, education, number of years as an administrator, number of years as an administrator in their current practice and ADA knowledge

score. Characteristics of the practice included the number of years the practice had been in operation, if the building was built before 1993, the number of providers and the number of patients.

**Characteristics of the Administrator.** Prior to initiating the MLR for the characteristics of the administrator, independent variables were checked for correlation. The number of years that administrators had been in administration and their age was highly correlated ( $R = 0.58$ ) so the number of years in administration was eliminated as an independent variable. The purpose of this step was to prevent multicollinearity which violates an assumption of MLR.

Variables were entered into SPSS in the order: ADA knowledge, gender, age, years at current practice, high school diploma, Associate's degree, Master's degree, Doctoral degree and other professional (Bachelor's degree was the reference). Results from the MLR were significant ( $F = 2.65$ ,  $P = .02$ ,  $R^2 = .26$ ). ADA knowledge ( $P = 0.02$ ) and age of the administrator ( $P = 0.03$ ) were significant independent variables.

**Characteristics of the Practice.** Prior to initiating the MLR for the characteristics of the practice, independent variables were checked for correlation. The number of patients and the number of providers were highly correlated ( $R = 0.67$ ) so the number of providers was eliminated as an independent variable.

Variables were entered into SPSS in the order: years in operation, built before or after 1993, number of patients, family medicine, internal medicine, general medicine, other (OB/GYN was the reference). Results from the MLR were significant ( $F = 1.9$ ,  $P = 0.09$ ,  $R^2 = .22$ ). Buildings built before 1993 ( $P < 0.01$ ) was the only significant independent variable.

**Final Multiple Linear Regression Model.** Significant independent variables from the characteristics of the administrator and the practice were entered into a final MLR model. The results were significant (model  $F = 8.67$ ,  $P < 0.01$ ,  $R^2 = .31$ ). Variables that were significant in previous models remained significant: ADA knowledge ( $P = 0.01$ ), building built before 1993 ( $P < 0.01$ ) and age of administrator ( $P = 0.01$ ). The MLR met the assumptions of linear regression including normality, no multicollinearity and homoscedasticity. The final regression equations was:

$$\text{Total \# barriers} = 9.48 + 1.47 (\text{building}^*) - .48(\text{ADA knowledge}) - .08(\text{age})$$

(\*building built before 1993 = 1, building built after 1993 = 0)

## Discussion

To our knowledge, this is the first study to examine the relationship between practice administrators' knowledge of the ADA and the number of access barriers in their clinics. Although it is intuitive that there would be an inverse relationship between ADA knowledge and the number of barriers, the most important finding of this study was that there is a significant, inverse relationship between these variables.

Multiple linear regression analyses from this study demonstrated that in addition to practice administrator's ADA knowledge score, the age of the administrator and buildings built before 1993 were significant predictors of the number of barriers reported in the practice. The greater the administrators' knowledge of the ADA, the lower the number of barriers reported in their clinics. This finding is supportive of behavior theories which posit that a person must have knowledge before they take action<sup>39-41</sup>. The greater a person's knowledge, the more likely they are to adopt a behavior. In this case, the greater the administrators' knowledge of the ADA, the more likely they were to be in compliance with the requirements of the ADA.

As the age of the administrators increased, fewer barriers were reported in their clinics. The age of the administrators and their number of years as an administrator were highly correlated. Administrators who have been in charge of a practice longer are more likely to have had experience with patients with disabilities or to have had educational opportunities to learn about the ADA as it applies to medical practices. A study by Paris found: 1) fourth year medical students had a significantly more positive attitude towards patients with disabilities than first year medical students and 2) having contact with people with disabilities had a positive impact on attitudes towards people with disabilities<sup>42</sup>. Redick, McClain and Brown found a significant correlation between positive attitudes towards people with disabilities and occupational

therapists' implementation of ADA provisions<sup>43</sup>. Based on previous studies, more years as a practice administrator may have led to more contact with patients with disabilities, a more positive attitude towards patients with disabilities and a greater willingness to implement provisions of the ADA. When provisions of the ADA are implemented, structural barriers are reduced.

Year of construction (before or after 1993) was a significant predictor for an increased number of barriers. Buildings built after 1993 are required to be in compliance with ADA construction guidelines. Buildings built prior to 1993 must be modified to meet ADA guidelines when modifications are readily achievable<sup>1</sup>. Modifications are readily achievable when they can be easily accomplished without much difficulty or expense<sup>1</sup>. Based on the building architecture, modifications to meet ADA guidelines may not be readily achievable (i.e. a weight bearing wall cannot be removed) or may be cost-prohibitive, resulting in lower rates of compliance with the ADA in older buildings.

The multiple linear regression analyses helped to identify medical practices that are more likely to have access barriers and are in the greatest need for interventions. To increase accessibility to health care, interventions should focus on practices located in buildings built before 1993, practices with administrators who are younger and have limited experience as administrators and administrators with low levels of ADA knowledge. By focusing intervention efforts on practices with the greatest risk for compliance issues, the result may be a dramatic decrease in the number of access barriers for patients with disabilities.

While few studies have been conducted to assess the ADA knowledge of health care professionals or administrators in general, findings from this study are consistent with findings of previous studies<sup>43-46</sup>. Hernandez, Keys and Balcazar conducted an ADA knowledge survey with

managers, business owners and social services providers. The mean survey score was 8.2 on a scale of zero to twenty<sup>44</sup>. Participants had a higher success rate when answering general questions about the ADA and a lower success rate when answering specific questions about the ADA, which is similar to our findings<sup>44</sup>. Studies have also found that occupational therapists had a low level of knowledge regarding the ADA and that mental health professionals were least competent in their knowledge of disabilities<sup>43,46</sup>.

Findings from this study and previous studies regarding health care professionals' knowledge of the ADA as it applied to their business environment are concerning but not surprising. Few educational programs exist that provide ADA or disability training for health professionals<sup>24,45,47-50</sup>. This leaves practice administrators and other health professionals with little to no knowledge about how to best care for or accommodate their patients with disabilities<sup>45,51,52</sup>. The void in disability education also results in a lack of awareness regarding the issues that patients with disabilities experience when trying to access health care<sup>53</sup>. As patients with disabilities have stated, health professionals do not understand the consequences of inaccessibility for their patients with disabilities<sup>19,23</sup>.

Results from this study highlight practice administrators' need for specific knowledge of the ADA as it applies to their medical practice as well as information about their practices' accessibility. A study by Hernandez et al. found that private business owners were willing to make significant improvements in accessibility of their establishments once they were presented with information regarding the barriers identified<sup>54</sup>. However, knowledge about deficiencies may not be the only information that administrators need to take action to improve compliance with the ADA. Graham and Mann found that when managers of physician clinics were provided with feedback regarding barriers found in their clinics, some made the recommended changes



while others did not<sup>34</sup>. In addition to knowledge of the ADA and knowledge of deficiencies in their clinics, practice administrators must understand that ADA compliance is not a choice; it is a legal obligation<sup>34</sup>. These issues could be addressed through more comprehensive disabilities education for practice administrators.

Comprehensive disability education may be more readily achievable as a result of the Patient Protection and Affordable Care Act (PPACA). On March 23, 2010, the PPACA became law. Title V, Section 5307, *Cultural Competency, Prevention, and Public Health and Individuals with Disabilities Training* amends Title VII Section 741 and Title VIII Section 807 of the Public Health Services Act to include grant funding for development and dissemination of curricula for reducing health disparities, increasing cultural competency and improving the aptitude of health professionals working with people with disabilities<sup>53</sup>. The curricula will be used in schools that offer health professional degrees (i.e. universities and colleges that offer M.D., R.N., D.O, P.T. and/or health care administration degrees) or as continuing education. These curricula could greatly reduce the number of barriers that people with disabilities experience when accessing health care by increasing practice administrators' knowledge of the ADA and of their legal obligation to ensure that their clinic is compliant with the ADA.

This study is not without limitations. Studies with low response rates are susceptible to self-selection bias<sup>55</sup>. Previous studies concerning office accessibility have encountered low response rates and the researchers have posited that administrators of practices not in compliance with the ADA refuse to participate due to concerns of repercussions for being non-compliant<sup>33-</sup><sup>35</sup>. Although an exact response rate could not be calculated due to the nature of this study, it is possible that administrators who knew that their practice was non-compliant self-selected out of

participation. This could have biased the results by underestimating the number of barriers found in primary care clinics.

There was also a possibility of bias resulting from self reported information. The participants may have under or over reported information if they perceived the response to be socially desirable <sup>56</sup>.

The current study focused only on primary care. Thus, results cannot be generalized to specialty practices. The survey included a modified version of the ADA Checklist for office compliance which focused on structural and equipment barriers most often encountered by patients with mobility disabilities. Barriers that are encountered by patients with other disabilities (sensory and mental) were not included in this survey. This decision was made based on the research questions and to reduce the length of the survey.

Despite potential limitations, this study adds to our understanding of why health care access barriers persist. The unmet health care needs and resulting health disparities that people with disabilities experience is a public health concern. Through disability education, administrators' knowledge of the ADA as well as their understanding of the unique needs of patients with disabilities can be increased. This would result in a reduction in the number of barriers to health care. When access barriers are removed, patients with disabilities will be able to more fully participate in all preventative health services offered, thus improving their overall health status.

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