

Predictors of employer attitudes toward people who are blind or visually impaired as employees

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Abstract.

BACKGROUND: Negative employer attitudes are often identified as the biggest challenge to employment faced by people who are blind or visually impaired, yet limited research has been conducted in this area. Little is known about the factors that predict employer attitudes toward this population.

OBJECTIVE: The primary purpose of this study was to evaluate the relationship between employer attitudes toward blind and visually impaired people as employees and knowledge about how they can perform specific job tasks (i.e., utilizing job accommodations/assistive technology) in a multivariate model.

METHODS: Employers in four states completed a telephone survey that included instruments to measure attitudes and knowledge. The sample came from two sources: a randomly identified list of employers in the four states and employer contacts of vocational rehabilitation (VR) agencies in two of the states. Data for the multiple regression analyses was available from 181 employers.

RESULTS: Three variables significantly predicted employer attitudes: having hired someone who was blind or visually impaired, having communicated with the state VR agency, and knowledge.

CONCLUSIONS: These findings support the importance of VR agency personnel having meaningful interactions with employers. Two potential focus areas of these interactions are increasing knowledge about job accommodations that can enable blind or visually impaired people to perform necessary job tasks and on-the-job training experiences.

Keywords: Employer attitudes, blindness, visual impairment, job accommodations

1. Introduction

Negative employer attitudes have long been considered a major barrier to employment for people who are blind or visually impaired (e.g., Crudden & McBroom, 1999; Crudden, Williams, McBroom, & Moore, 2002; Kirchner, Johnson, & Harkins, 1997). This is often cited as the biggest challenge to employment

for this population by both rehabilitation professionals and individuals who are blind or visually impaired. Yet little research regarding employer attitudes towards this specific population has been conducted. Although a significant amount of research has explored employer attitudes towards people with disabilities in general, less attention has been given to the correlates, or predictors, of those attitudes. Investigating the correlates of employer attitudes towards blind or visually impaired people is important to help us better understand employer attitudes, and identify potential methods to improve these attitudes.

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1.1. The importance of investigating employer attitudes

Employer attitudes are important because of their assumed association with hiring behavior. Attitudes are positive or negative evaluations that represent a predisposition to behave in a predictable way (McCaughney & Strohmer, 2005). Attitudes are most likely to predict behavior when they are specific (rather than global), strong, accessible, and consistent over time (Ajzen & Fishbein, 1977). For example, assessing employer attitudes on the ability of an employee with a visual impairment to work in the employers' company is preferable to assessing employers' general attitudes towards blind or visually impaired individuals. Negative attitudes towards employees with disabilities have been linked to discrimination in hiring, promotion, placement, training, salary, harassment, and relationships with coworkers (Braddock & Bachelder, 1994; Hernandez, Keys, & Balcazar, 2000; Holzbauer, 2004; Jones, 1997; Jones & Stone, 1995). In light of previous research that demonstrates the link between attitudes and behavior, it is critical to explore attitudes of employers towards potential employees with blindness or visual impairments.

1.2. Research on employer attitudes towards blind or visually impaired people

Surprisingly little research has been conducted on employer attitudes towards people who are blind or visually impaired. A few early studies that measured employer attitudes included people who are blind as a sub-group of people with disabilities investigated (Fuqua, Rathburn, & Gade, 1984; Williams, 1972). Both studies documented that employers had greater concerns about hiring people who are blind than people with other disabilities. Two other studies found that hiring personnel believed it would be difficult to hire someone who is blind for their positions (Gilbride, Stensrud, Ehlers, Evans, & Peterson, 2000; Inglis, 2006). A recent article documented that a large majority of vocational rehabilitation (VR) personnel still perceive employers as having negative attitudes toward employing persons who are blind or visually impaired (McDonnall, Zhou, & Crudden, 2013). These studies provide support for the idea that blind and visually impaired people experience attitudinal barriers from employers, but an actual measure of their attitudes towards this population as employees was not reported.

1.3. Factors associated with employer attitudes towards people with disabilities

One of the most consistent findings among employer attitudes studies has been an association between exposure to persons with disabilities and more positive employer attitudes (e.g., Hernandez et al., 2000; Ju, Roberts, & Zhang, 2013; Unger, 2002). This has been found both for employers' personal experiences with persons with disabilities and with having employed persons with disabilities. Several studies have documented that previous experience with a specific disability results in a more positive attitude towards others with the same disability (Unger, 2002). Type of disability has been associated with employer attitudes in many studies; the most consistent finding has been that employers have more favorable attitudes towards persons with physical disabilities over persons with other types of disabilities, particularly psychiatric and intellectual disabilities (Hernandez et al., 2000; Ju et al., 2013; Unger, 2002). Business size was associated with some earlier employer attitude studies, with larger businesses having more positive attitudes, but more recent research has generally not supported this finding (Hernandez, 2000; Unger; 2002).

There is some limited support for the idea that employers' attitudes may be associated with contact with VR and other disability employment support programs (Hernandez et al., 2000; Ju et al., 2013). In these reviews of the literature concerning employer attitudes, 11 studies were identified which documented that employers had positive attitudes towards workers with disabilities who had been placed through a vocational, employer, or a supported employment program. However, these studies did not compare employers who had used VR services versus those who had not, they only evaluated attitudes towards or satisfaction with employees with disabilities for employers who had hired people through these programs.

1.4. Employer and human resources personnel knowledge about job accommodations

Knowledge of job accommodations and the ADA was one of the most significant factors in predicting commitment to hiring persons with disabilities among human resources and front line managers (Chan et al., 2010), but many employers do not have adequate information about accommodations. Over 30% of members of the Society for Human Resource Management (SHRM) participating in a telephone survey

identified “lack of supervisor knowledge of which accommodation to make” as a barrier to employment and advancement of persons with disabilities, and adapting information for persons with visual or learning disabilities was considered to be the most difficult accommodation (Bruyere, Erickson, & VanLooy, 2006). A national study (Dixon, Kruse, & Van Horn, 2003) found 40% of employers were concerned about providing job accommodations, with concerns more common among employers who had not hired someone with a disability. Human resources (HR) personnel are frequently coordinators and/or decision makers in workplace accommodation planning and implementation, yet knowledge of workplace accommodations for persons with disabilities is not specifically identified as a responsibility or knowledge area by the HR Certification Institute. Although HR staff make final decisions about the accommodation process in approximately 25% of small firms and approximately 33% of larger firms (Bruyere et al., 2006), their knowledge and experience in providing these supports is limited (Chan et al., 2010; Unger & Kregel, 2003).

1.5. Attitudes and knowledge

Various theories on attitude formation contend that knowledge and attitudes are linked. One widely accepted theory, the ABC Model of Attitudes (Hilgard, 1980), proposes that attitudes are based on affect, behavior, and cognition (i.e., knowledge). These three components are believed to be the roots of attitude formation. According to this model, attitudes are formed by a combination of thoughts and emotion, overt actions, and knowledge and beliefs. Multiple disability research studies have demonstrated an association between knowledge and attitudes in research that indicates improved attitudes as a result of increased knowledge (e.g. Campbell, Gilmore & Cuskelly, 2003; Hunt & Hunt, 2004; Lee & Rodda, 1994).

1.6. Negative attitudes and lack of knowledge

Because blindness and visual impairment are low incidence conditions, particularly among working age adults, it is presumed that most people have not encountered a blind or significantly visually impaired person in the workplace. Without exposure to the population, it is unlikely that one would be aware of the assistive technology and other accommodations available to help them function on the job. We believe that the negative attitudes employers’ exhibit toward blind or visually

impaired people may primarily be a result of this lack of knowledge. The idea that employers’ concerns towards people with disabilities as employees were derived from myths and misconceptions was suggested by Unger (2002) in a review of employer attitudes studies. A clear relationship was documented between employer attitudes toward people who are blind or visually impaired and level of knowledge in an earlier study which utilized the data in this report (McDonnell, O’Mally, & Crudden, 2014).

1.7. Purpose of the study

It is important to determine the significance of knowledge in predicting attitudes, when other variables are considered. The purpose of this study was to evaluate the relationship between employer attitudes toward blind and visually impaired people as employees and knowledge about how blind or visually impaired people can perform specific job tasks (i.e., utilizing assistive technology or other accommodations) in a multivariate model that includes other variables thought to be associated with employer attitudes. A secondary purpose was to identify the variables most closely associated with employer attitudes toward blind and visually impaired people as employees. Hypotheses were used when previous research indicated an association, and research questions were used when little evidence existed for a relationship. The following hypotheses and research questions were investigated:

1. Knowledge about how blind or visually impaired people can perform specific job tasks will be the most important predictor of employer attitudes in a multivariate model.
2. Exposure to blind or visually impaired people is associated with more positive employer attitudes.
3. Is communication with VR agencies/personnel associated with more positive employer attitudes?
4. Is being in a human resources position associated with more positive employer attitudes?

2. Method

2.1. Participants

Participants ($N = 197$) were recruited from four states (Alabama, Montana, New Jersey, and Texas), which were selected for a larger study investigating VR agencies’ practices in interacting with businesses. All

participants were in hiring positions with a business. VR agencies in the four states were asked to provide employer contacts to participate in this study, and agencies from two of these states provided the names of 46 individuals in hiring positions. Thirty-seven of these individuals completed interviews, for a response rate of 80.4%. The remaining 160 participants were contacted by phone from a pool of 1,953 randomly selected businesses: 757 did not answer the phone, 165 numbers were disconnected, 286 refused due to company policy or personal reasons, 42 indicated their hiring was done through temporary agencies or online, 123 agreed to call back but did not, and 416 requested a call back but were not called because the target number of responses was reached. Of the businesses reached by phone, the response rate was 18.5%.

Of the 197 employers who participated, 181 had complete data available for this study (144 randomly selected businesses and 37 VR contacts). On average, respondents were employed in their positions for 10 years ($M = 120.85$ months, $SD = 129.26$), with a range of 1 month to 50 years. Respondent positions included manager ($n = 104, 57.5%$), HR personnel ($n = 33, 18.2%$), owner ($n = 17, 9.4%$), supervisor ($n = 14, 7.7%$), and other role ($n = 13, 7.2%$).

Participants were asked to identify the positions for which they made hiring decisions. The largest percentage of respondents ($n = 78, 43.1%$) indicated that they made hiring decisions for customer service positions. Others hired for positions in office work ($n = 60, 33.1%$), sales/marketing ($n = 45, 24.9%$), management/supervision ($n = 34, 18.8%$), and other services ($n = 35, 19.3%$). Less than 20% of respondents made hiring decisions for the following positions: physical labor ($n = 20, 11%$), care of others ($n = 20, 11%$), training/teaching ($n = 19, 10.5%$), manufacturing ($n = 18, 9.9%$), technology/computers ($n = 16, 8.8%$), and janitorial/housekeeping positions ($n = 15, 8.3%$). In addition, some employers ($n = 11, 6%$) indicated that they made hiring decisions for all positions at their company. Note the sum of the percentages for which respondents make hiring decisions is greater than 100 because many respondents indicated that they hired for multiple positions.

Business size (i.e., number of employees at the work site) was available for the 144 randomly selected businesses. The majority of respondents ($n = 126, 87.5%$) represented small businesses of less than 50 employees. Almost one-third ($n = 47, 32.6%$) came from employers of the smallest businesses with 5–9 employees. Businesses with 10–19 employees were represented by

25% of respondents ($n = 36$), and businesses with 20–49 employees were represented by 29.9% of respondents ($n = 43$). The largest businesses were represented by the fewest respondents with 7.6% ($n = 11$) from businesses with 50–99 employees, 4.2% ($n = 6$) from businesses with 100–249 employees, and one respondent from a business with greater than 500 employees.

2.2. *Data collection procedure*

Employers were contacted up to eight times by telephone to request their participation in a ten-minute phone survey conducted by a trained interviewer. Four participants requested to complete the survey online rather than by phone. Interviews were completed between August 2012 and January 2013.

2.3. *Variables and measures*

2.3.1. *Employer attitudes*

The dependent variable was employer attitudes towards people who are blind or visually impaired as employees. This was measured with an instrument created as a part of the overall research project. A detailed description of the procedure used to create the instrument is provided in McDonnall (2014). Briefly, a formal instrument development procedure was followed, with input from expert reviewers to provide content validity, a pilot test of the initial items, on which psychometric analyses were conducted to identify the best items to include on the revised version of the instrument. Psychometric analyses of the data collected with the revised version of the instrument included evaluation of item-total correlations, standard deviations, item range of responses, coefficient alpha, and exploratory factor analysis.

The final version of the instrument, revised based on the psychometric analyses, consisted of 11 items that loaded on two subscales: productivity and challenges. Items consisted of statements that respondents were asked to rate using a 7-point scale ranging from Strongly Disagree to Strongly Agree (e.g., “People who are legally blind would be able to perform work of the same quantity as sighted people at my company” and “Our customers might feel uncomfortable having a person who is legally blind help them”). The term “legally blind” was used for brevity in the instrument, and was defined as including “people with a range of vision, from a significant visual impairment to complete blindness.” Higher scores indicated more positive attitudes, with a potential range of 0 to 66.

2.3.2. *Employer knowledge*

The key independent variable investigated was employer knowledge about how blind or visually impaired people can perform specific job tasks. Pilot testing of the initial version of the instrument resulted in items measuring knowledge regarding five job tasks. Employers were asked if they were aware of ways in which someone who is blind or has low vision can (a) access pre-printed material (specifically a document already in regular print); (b) access a computer to use the internet, email, or utilize standard computer software; (c) use general office equipment, such as a copier or multi-line telephone system; (d) utilize standard industrial equipment or machinery; and (e) handle a cashier position. Interviewers marked participants' responses as "yes", "no," or "not sure how." When respondents indicated that a task could be performed, they were asked to describe how it could be done and these responses were scored for accuracy.

2.3.2.1. Scoring of knowledge items. Four researchers conducted extensive pilot coding to develop a coding scheme for determining accuracy of descriptions of how each job task could be performed by an employee who was blind or visually impaired. After agreement was reached in pilot coding, three researchers coded all responses independently and the fourth researcher compared the codes for discrepancies. Initially, there was a 63% consistency rate in coding items. Common discrepancies were discussed, resulting in a revision of the coding scheme. Items were then recoded, based on the revised coding scheme, resulting in a consistency rate of 90.1%. The researchers discussed all remaining inconsistencies, and reached a consensus for scoring discrepant items. One point was assigned for each correct response, for a possible range of scores between 0 and 5.

2.3.3. *Exposure to blind or visually impaired people*

Three measures were used to represent different levels or types of exposure to the population. These variables originated as items that were included in the introduction to the instrument, and each had a yes-no response format. General exposure was measured using the question: "Have you ever had a personal relationship with anyone who is blind or significantly visually impaired, such as a friend, family member, or neighbor?" Another measured exposure in a work setting: "Have you ever worked directly with someone who is blind or significantly visually impaired?" The third item determined whether the respondent had ever hired

someone: "Have you ever hired someone for your business who is blind or significantly visually impaired?"

2.3.4. *Exposure to VR*

Two dichotomous measures were included to evaluate the importance of interactions with VR agencies. One represented whether the employer's name was obtained from a VR agency (labeled as a VR contact) and the other was the participants' response to an introductory item on the instrument: "Have you ever communicated with your state vocational rehabilitation (VR) agency, _____, about employment of people with disabilities?" (exact name of VR agency that serves blind and visually impaired people in that state inserted). Employers who were VR contacts were all known to have worked with the VR agency, however, some indicated that they have never communicated with their state VR agency. The level of involvement with employers who indicated they had communicated with their state VR agency was not evaluated, but was believed to be a meaningful contact given that the interaction was remembered.

2.3.5. *Human resources personnel*

Respondents were asked to identify the job title that most closely reflects their current position, with options of Manager, Supervisor, HR Personnel, Owner, and Other. This item was dichotomized to HR personnel versus all other positions, as HR personnel were believed to potentially have more positive attitudes towards the population as they typically handle job accommodation requests (Unger & Kregel, 2003; Bruyere, et al., 2006).

2.4. *Statistical analyses*

Dichotomous variables were coded 1 if the participant responded "yes" or if the condition applied to the person, and 0 if the person answered "no" to the item or if the condition did not apply. Descriptive statistics were obtained for each variable and correlations among all variables were calculated. Multiple regression was the statistical technique used to address the hypotheses and research questions. Because the knowledge variable was highly positively skewed, two transformations were attempted to create a more normally distributed variable: the square root and the logarithm plus one. The square root transformation resulted in a variable that was closest to a normal distribution and was used in the multiple regression model. The model was run both

with this variable and with the original variable, and the results were essentially the same. The transformed variable was retained for the multiple regression analyses. SAS Version 9.3 was used for all statistical analyses.

3. Results

3.1. Descriptive statistics

The average score for employer attitudes was 34.40 (SD = 14.17), with scores ranging from 6 to 65. On average employers exhibited a neutral attitude towards this population as employees (as the mean score is at the "neutral" response), with a wide range of both positive and negative attitudes reported. The average score on the knowledge scale was 0.51 (SD = 0.92), with scores ranging from 0 to 5. Most respondents (66.9%) did not know how blind or visually impaired people could perform any of the work tasks. The other variables were all dichotomous, with means in Table 1 representing the percentage of the sample that the factor applied to. For example, 30% of the sample had communicated with their state VR agency and 24% had hired someone who was blind or visually impaired.

A Pearson's r was computed to assess the relationships between the variables, presented in Table 1. Many of the variables of interest were associated with one another. Employer attitudes were positively correlated with the majority of the variables of interest, but was not correlated with having a personal relationship with someone with blindness or visual impairment. Employer knowledge was positively correlated with attitudes, communication with VR, whether the employer was a VR contact, whether they had hired someone with blindness or visual impairment, and whether they had worked with someone with blindness or visual impairment.

3.2. Multiple regression model

The seven independent variables were included in the initial multiple regression model to predict employer attitudes. The model was statistically significant, $F(7, 173) = 10.44$, $p < 0.0001$, $R^2 = 0.30$. Complete results for the model are provided in Table 2. Three variables were not associated with employer attitudes in the multivariate model: being a VR contact, having worked with someone who was blind or visually impaired, and having a personal relationship with someone who was blind or visually impaired. Being in an HR position was also not significantly associated with employer attitudes; however, because its associated p -value was 0.25 it was retained for the second model along with the three significant variables. Because being in an HR position was not significant in that model, a final model was run that only retained the three significant predictor variables. This model was also significant ($F(3, 177) = 24.19$, $p < 0.0001$) and explained a similar amount of variance in employer attitudes ($R^2 = 0.29$). See Table 2 for complete results. The three significant predictors were: having hired someone who was blind or visually impaired, having communicated with VR, and knowledge.

4. Discussion

The primary hypothesis investigated in the study was not supported by the results: although knowledge about how blind or visually impaired people can perform specific job tasks was associated with employer attitudes, it was not the most important predictor in the model. In terms of amount of unique variance explained, it was tied for second as the most important predictor, after having hired someone who is blind or visually impaired. Having communicated with the state VR

Table 1
Descriptive statistics for all variables

Variables	Mean	SD	1	2	3	4	5	6	7
1. Employer attitude	34.40	14.17	–						
2. Communicated with VR	0.30	0.46	0.44**	–					
3. VR contact	0.20	0.40	0.37**	0.66**	–				
4. Hired someone B/VI	0.24	0.43	0.44**	0.52**	0.55**	–			
5. Worked with someone B/VI	0.33	0.47	0.23**	0.28**	0.25**	0.35**	–		
6. Personal relationship with someone B/VI	0.51	0.50	0.01	–0.01	–0.05	–0.10	0.15*	–	
7. HR personnel	0.18	0.39	0.16*	0.19**	0.26**	0.11	–0.09	–0.17*	–
8. Knowledge	0.51	0.92	0.38**	0.39**	0.49**	0.34**	0.26**	0.07	0.14

Note. B/VI = blind or visually impaired; $N = 181$. ** $p < 0.01$; * $p < 0.05$.

Table 2
Results of multiple regression analyses

Variables	Full Model ^a			Reduced Model ^b		
	β	<i>t</i> -value	Unique Contribution	β	<i>t</i> -value	Unique Contribution
Communication with VR	0.24	2.72**	0.030	0.24	3.11**	0.039
Hired someone B/VI	0.26	3.13**	0.040	0.25	3.30**	0.044
Knowledge	0.21	2.85**	0.033	0.21	3.10**	0.038
VR Contact	-0.05	-0.48	<0.001	-	-	-
Worked with someone B/VI	0.03	0.39	<0.001	-	-	-
Personal relationship with someone B/VI	0.03	0.38	<0.001	-	-	-
HR personnel	0.08	1.15	0.005	-	-	-

^a $R^2 = 0.30$. ^b $R^2 = 0.29$. ** $p < 0.01$.

agency explained approximately the same amount of unique variance as knowledge did. These three variables were significantly inter-related and had a large amount of shared variance in the multivariate model. As a group they explained a moderate amount of the variance in employer attitudes, and each variable contributed an additional, statistically significant amount of variance above and beyond their combined effect.

Although knowledge was not the most significant predictor as expected, it was an important predictor of employer attitudes, even when other variables were considered. Increasing employer knowledge about how blind or visually impaired people can perform work tasks – in other words, about job accommodations in the form of assistive technology and compensatory techniques – is one potential avenue to improve their attitudes towards this population as employees. Without the knowledge that an applicant can perform the essential job functions, an employer would be very unlikely to hire him or her. Blindness is a unique disability as it presents many significant challenges to performing typical work tasks, but a variety of assistive technology and compensatory skills are available that make performing most work tasks possible for this population. This research has demonstrated that a large majority of employers are not knowledgeable about how blind or visually impaired persons perform typical job tasks (also see McDonnall et al., 2014), and this lack of knowledge may negatively impact hiring decisions. Increasing knowledge about accommodations and assistive technology that enable this population to perform necessary work tasks is one focus VR personnel can use when interacting with employers.

A clear association was found between having communicated with the state VR agency serving blind or visually impaired people and more positive attitudes. Although this does not prove that interactions with VR agency personnel cause employers to have more

positive attitudes, as employers with more positive attitudes may be more willing to speak to VR personnel initially, it illustrates the importance of VR personnel having meaningful contact with employers. This is the first research to document an association between interactions with VR and more positive employer attitudes towards people with disabilities. Prior research documented that a majority of employers who hired consumers of a VR agency did not remember interacting with VR agency personnel (Gilbride et al., 2000), and a few of the VR contacts in this study did not acknowledge having communicated with the VR agency that provided their names.

The communication with VR variable was self-reported and it is possible that other employers in the study had previous contact with the state VR agency but did not remember it. Of note, the variable that identified employers whose names were obtained from VR agencies was not a significant predictor in the model. A few potential reasons for this are that the employers may have had experience only with persons with other disabilities (not blind or visually impaired individuals) and the amount of contact between the employer and the VR agency may not have been extensive. That this variable was not significant also indicates that the relationships identified did not differ based on where the samples originated (VR contact or random sample). The value of meaningful interactions by VR personnel, including the development of a relationship with employers, is emphasized based on these findings.

Having hired someone who was blind or visually impaired in the past was the only measure of exposure that significantly predicted employer attitudes. Having a personal relationship with someone who is blind or visually impaired was not associated with attitudes (even in a univariate model), and working directly with someone did not have a relationship in the multivariate model. This is *not* consistent with previous research that

indicates exposure to people with disabilities is associated with more positive attitudes (Hernandez et al., 2000; Ju et al., 2013; Unger, 2002). Although some of the previous studies focused on general attitudes towards people with disabilities, others focused on attitudes towards hiring people with disabilities. Our findings indicate that general exposure to someone who is blind or visually impaired does not improve employers' attitudes towards hiring them, which may be unique to this disability group, or may be associated with the fact that the instrument specifically measured attitudes towards them as employees. It is also possible many employers' personal relationships with people with blindness or visual impairments are with older individuals (as the prevalence of visual impairment increases with age) that may not have the blindness skills required for employment. Information was not collected about whether work experience with the blind or visually impaired co-worker was positive. Just as all sighted people are not good employees, neither are all blind or visually impaired people, and the type of experience with the co-worker may have influenced attitudes, in the positive or negative direction.

Having hired someone who was blind or visually impaired in the past was associated with more positive employer attitudes. Although the direction of the relationship cannot be determined by this study, based on attitude theory, one could assume that employers' positive attitudes influenced their past hiring of someone who was blind or visually impaired – in other words, the positive attitude preceded the hiring. This is an assumed relationship and the primary reason for studying employer attitudes. However, the possibility that their attitudes could also improve as a result of having hired and worked with someone who is blind or visually impaired should be considered, particularly in the context of on-the-job training, or trial work experiences (referred to as OJT). These OJT experiences are an ideal opportunity for employers to “see for themselves” that the blind or visually impaired person is capable of performing a job effectively. Hiring decisions always involve risk, and employers want to reduce risk as much as possible when making these decisions. Employers may not be willing to take the risk to hire a blind or visually impaired person, but may be willing to try an OJT as this significantly minimizes their risk. These OJT experiences provide an excellent opportunity to increase employers' knowledge and improve their attitudes towards blind or visually impaired people as employees, and potentially increase their likelihood of hiring them.

Another variable that was thought to potentially be associated with employer attitudes, but was not, was being in an HR position. In univariate analyses, being HR personnel was positively associated with employer attitudes, but the magnitude of the relationship was small ($r=0.16$). In the multivariate model, being HR personnel (as opposed to a manager, supervisor, or owner) did not predict employer attitudes beyond the information provided by the other three variables in the final model. HR personnel are typically key players in the employment and job accommodation process, yet they do not appear to have knowledge about job accommodations for persons who are blind or visually impaired. We echo recommendations from Bruyere et al. (2006) in advising VR personnel to target HR staff with information about job accommodations.

4.1. Implications for VR professionals

A primary implication of these findings for VR professionals is the importance of communicating with employers. Communication with employers provides an opportunity to increase their knowledge about blindness and about the accommodations and assistive technology available to allow this population to be productive employees. When interacting with employers, it is important for VR professionals to remember that exposure that involves demonstration of how a blind person could perform a task is more likely to be effective in improving attitudes than general exposure to people who are blind or visually impaired. When VR professionals were asked about their advice on techniques to encourage employers to consider blind or visually impaired people for employment, the most common response was to provide education about accommodations and assistive technology, and several people specifically mentioned using demonstration of technologies as an effective technique (McDonnall et al., 2013). Given that a major concern for employers is whether a person who is blind or visually impaired can do the job and contribute to the business (Luecking, 2008; Wolffe & Candela, 2002), it is important that VR professionals, employees or potential employees who are blind or visually impaired, and employers work together to have a clear understanding of how job tasks will be completed.

Having communicated with VR predicted employer attitudes beyond what having hired someone and level of knowledge could predict; therefore something else is obtained from VR communication that is associated with more positive attitudes of employers. Part

of this effect may be the support and assurance that VR provides to the employer, that they will be there if needed. Interviews with employers who have worked with VR agencies cite this as an essential part of their relationship (McDonnall & Crudden, unpublished data). Some VR personnel report that opportunities for employers to have frank discussions about their concerns in a safe environment is helpful in encouraging employers to consider an applicant who is blind or visually impaired (McDonnall et al., 2013). As mentioned previously, the importance of meaningful interactions should be emphasized. One-time communication, that involves providing information about the agency, for example, would likely not result in memorable interactions; rather, ongoing contact and the development of a trusting relationship are indicated. Finally, results show that being in a HR position is not associated with more positive employer attitudes as expected, which indicates that it is important for VR professionals to target HR personnel for education and outreach efforts.

4.2. *Limitations*

Limitations to acknowledge in this research include: the depth at which variables of interest were measured, absence of demographic information and other potential control variables, low response rate and self-selection bias of the randomly-selected sample, and the potential effect of social desirability on attitudes. The independent variables of interest in this study other than knowledge were measured dichotomously. In order to more thoroughly measure the association between employer attitudes and the variables in this study, the collection of more detailed information would be helpful. For example, it would be valuable to have a more detailed measure of the employer's relationship with VR to determine whether the extent of the relationship is related to attitudes. To ensure anonymity and provide a safe response environment, demographic and company-specific information was not collected from respondents, and therefore were not available for use as control variables in the analyses. Additionally, other variables that may be related to employer attitudes were not available. As participation in the study was voluntary and the response rate for the randomly selected sample was low, self-selection bias is a limitation. People who had some level of interest or experience with the population may have been more willing to participate, resulting in a biased sample. Given the sensitive nature of the topic, the potential for participants to respond in socially desirable ways should be acknowl-

edged. By focusing the questions on attitudes towards people as employees, rather than assessing general attitudes, it is believed that response tendencies toward social desirability were reduced, though this cannot be verified.

5. **Conclusions and future research directions**

Improving employer attitudes is one potential avenue to enhance employment outcomes for people who are blind or visually impaired. As an initial step to increase knowledge in this area, employer attitudes were measured and correlates, or predictors, of these attitudes were identified. Three significant predictors of employer attitudes were identified: having hired someone in the past, having communicated with the state VR agency, and knowledge about how blind or visually impaired people perform typical job tasks. These three variables are all related, or tend to occur together. In other words, employers who communicated with VR were more likely to have greater knowledge and were more likely to have hired a blind or visually impaired person.

Although the design of this study only allowed the determination of an association between variables, rather than the direction of relationships (i.e., causal relationships), the importance of VR agency personnel interacting with employers is evident. Even if employers who have more positive attitudes towards people with disabilities are more likely to be open to communication with VR agencies, meaningful interactions with VR personnel may further improve their attitudes, particularly towards this population. Providing information about how people who are blind or visually impaired perform typical job tasks, and job tasks specific to a particular employer, is one mechanism for initiating contact with an employer and establishing the foundation for a meaningful and long term relationship.

It is important for future research to document the best techniques to improve employer attitudes towards this population. A starting point for those interventions is increasing knowledge, offering assistance from a VR agency, and potentially offering OJT experiences, as indicated by this study. As the ultimate goal of evaluating and improving employer attitudes is to help blind or visually impaired people become employed, future research that demonstrates a causal relationship between these two variables, in the direction of more positive attitudes increasing hiring, is indicated.

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