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Article

Misconceptions Regarding Blindness are Prevalent: Possible Implications for Best-practices and Policy Making

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ABSTRACT

The intention of this study was to investigate the perceptions that sighted people have about blindness and what the visually impaired perceive as the most challenging aspects of being blind. Sighted subjects were given surveys regarding general facts about blindness as well as questions about what they consider to be the most pressing difficulties faced by the blind. Blind subjects were also given surveys that asked them about what they perceive to be the greatest difficulties that they face, conditions that have improved for them, and what changes should be made to improve their lives. We hypothesized that sighted participants would be at least 50% accurate on routine questions about blindness, that blind participants would more often report difficulties in accomplishing daily tasks such as driving and reading as their greatest challenges, and that adults would be more knowledgeable about blindness than minors because of their increased level of education and age. The results from this study suggest that the sighted have significant factual misunderstandings about blindness as well as what should be done to help the blind. The results also demonstrate that blind subjects surveyed for this study find the most challenging adversity to be the lack of awareness and understanding about their circumstances. Additionally, sighted minors and sighted adults did not have a significant difference in their general knowledge about blindness.

INTRODUCTION

According to the International Classification of Diseases - 10 (Update and Revision 2016), vision function is classified into 4 broad categories: normal vision, moderate vision impairment, severe vision impairment, and blindness (1). Moderate and severe vision impairment are grouped under the term low vision, while blindness can be further divided into legal blindness and total blindness. Legal blindness is a level of vision loss that has been legally defined to determine eligibility for benefits. In the United States, this refers to a medically diagnosed central visual acuity of 20/200 or less in the better eye with the best possible correction, and/or a visual field of 20 degrees or less (6). Total blindness refers to an inability to see anything with either eye (6). Together, low vision and blindness groups represent all vision impairment (5).

According to the World Health Organization, an estimated 253 million people around the world live with visual impairment, and about 36 million of these people are legally blind (2). 10-15% of these legally blind people are totally blind (7). It is estimated that the number of people with vision impairment could triple due to population growth and aging (2). The global leading cause of blindness is cataracts (2). Other major causes of visual impairment are glaucoma, age-related macular degeneration, corneal opacities, diabetic retinopathy, childhood blindness, trachoma, and onchocerciasis (3). Excluding age-related macular degeneration, it is estimated that about 80% of all visual impairment is avoidable (4).

While medical and social care programs have been available to assist the blind, public policy relating to blindness has lagged behind. Studies have shown consistently high unemployment rate (9), depression rate (12), rates of bullying and other harassment (10) experienced by the blind.

This study was designed to assess perceptions about blindness by subjects with vision and blindness. A survey was given to subjects with vision to assess their general understanding of blindness. A second survey was given to blind subjects inquiring about their causes of blindness, what they find most challenging, and what they consider to be the most meaningful changes that would improve their lives.

Before conducting the surveys, we hypothesized that sighted participants would be at least 50% accurate on routine questions about blindness because previous studies have shown the accuracy of public perceptions about the understanding of blindness to range from 50-75% (8). We also hypothesized that blind participants would more often report difficulties in accomplishing daily tasks, including driving and reading, as their greatest challenges. Our final hypothesis was that adults, because of their increased level of education and age, would be more accurate than minors in their understanding about blindness.

RESULTS

The authors wanted to assess (1) perceptions about blindness by subjects with vision and blindness, (2) determine what blind participants consider most challenging tasks, and (3) if a higher level of education and age translates to a more accurate understanding about blindness. To assess this we designed a survey for subjects with vision to assess their general understanding of blindness. A second survey was also given to blind subjects inquiring about their causes of

blindness, what they find most challenging, and what they consider to be the most meaningful changes that would improve their lives. The data was then analyzed to determine if a statistically significant difference in an understanding about blindness between adults and minors could be demonstrated.

Blind subjects consider poor acceptance or lack of understanding as greater challenges than an inability to perform any individual task **(Table 1)**.

What is the most difficult part of being blind?	Percentage of blind respondents answering
Unfair Treatment	66%
Not being able to read	22%
Not being able to drive	18%
Lack of independence	14%
Not knowing where things are	10%
Not being able to recognize people	8%
Other	8%

Table 1. Blind individuals' perceptions about their greatest struggles.

Sighted individuals have very little knowledge about blindness and the difficulties that the blind face. 66% of blind individuals felt that unfair treatment was the most difficult part of being blind. Inability to do specific tasks such as reading (22%), driving (18%), being independent (14%), locating things (10%), recognizing people (8%), not being able to go shopping independently, color-coordinate their outfits, or enjoy artwork (8%) were not reported as major difficulties. Most blind respondents reported that technology (28%) and transportation (16%) have become much more accessible to the blind, but that increased awareness about blindness (8%), employment (4%), finding friends (4%), and having other resources (4%) have remained difficult issues **(Table 2)**.

What has become easier for blind people?	Percentage of blind respondents answering
Technology	28%
Transportation	16%
More education about blindness	8%
More braille	4%
Employment	4%
Finding friends	4%
Other	4%

Table 2. Blind individuals' perceptions about what has become easier for them.

Most of the blind individuals (24%) surveyed in this study reported that an increase in awareness and education about blindness would most greatly benefit them. Others reported that better transportation (12%), medical advancements (8%), increased accessibility (4%), more money for research on blindness (4%), blind people's awareness of the resources available to them (4%), or other improvements (8%) would most greatly improve their lives **(Table 3).**

What change should be made to improve the lives of the blind?	Percentage of blind respondents answering
More education about blindness	24%
Better transportation	12%
Medical advancements	8%
Other	8%
Increased accessibility	4%
More money for research on blindness	4%
The blind should be more aware of the resources available to them	4%

Table 3. Blind individuals' perceptions on what can be done to improve their lives.

Minors had the most success answering "What is the most difficult part of being blind?" (58% correct) and had the most difficulties answering "How many people around the world suffer from blindness?" (21% correct) **(Table 4).** Adults had the most success answering "What is the global leading cause of blindness?" (53% correct) and had equal difficulties with "How many people around the world suffer from blindness?" and "What percentage of global visual impairment is avoidable?" (26% correct) **(Table 4)**.

Question	Answer	% of correct answers overall by sighted participants	% of sighted minors who answered correctly	% of sighted adults who answered correctly
How many people around the world suffer from blindness?	30-40 million	23.3%	20.8%	26.3%
What is the global leading cause of blindness?	Cataracts	44.2%	37.5%	52.6%
What percentage of global visual impairment is avoidable?	80%	30.2%	33.3%	26.3%
What percentage of legally blind people can not see anything?	10%-20%	41.9%	41.7%	42.1%
According to the U.S. Equal Employment Opportunity Commission, what percentage of blind people are unemployed?	63.2%	39.5%	41.7%	36.8%
What is the most difficult part of being blind?	Not being accepted/ understood	48.8%	58.3%	36.8%
Which of the following positive changes has had the greatest impact on the blind?	Better transportation and technology options	32.6%	25%	42.1%

Table 4. Sighted individuals' responses to the survey questions.

Overall, minors answered an average of 36.3% of the questions correctly while adults answered an average of 39.1% of the questions correctly **(Table 5)**. The median correct score was 42.9% for the minors and adults **(Table 5)**.There was no significant difference between the performance of sighted minors and sighted adults on this survey (p-value 0.94) **(Figure 1)**.

	Minors	Adults	Total
Sighted participants in study	24	19	43
Mean score	36.3%	39.1%	36.9%
Range of scores	6	5	6
Median score	42.9%	42.9%	42.9%
Sample standard deviation	1.59	1.57	1.56
Sample Variance	2.52	2.47	2.44
Standard Error	0.324	0.360	0.238

Table 5. Comparison of sighted minors and adults' performance on the survey.

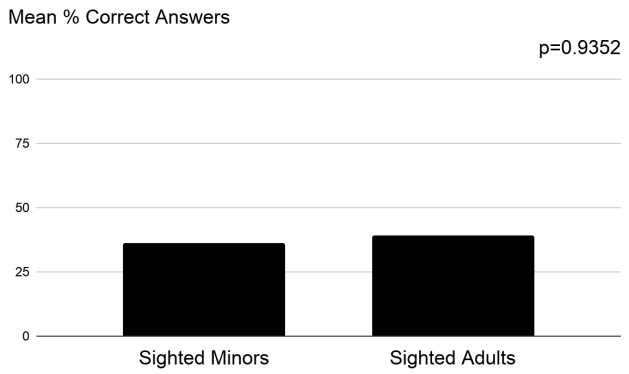

Figure 1. Mean scores for sighted adults and minors.

DISCUSSION

This study demonstrates that sighted participants do not have a reasonably accurate understanding about blindness. Evidence was not found to support the 3 hypotheses of this study – that sighted participants would have a reasonably accurate (50%) understanding about blindness, that blind subjects would consider difficulties in accomplishing daily tasks as their greatest challenges, and that sighted adults would score higher on the survey than sighted minors. Evidence from our study shows that sighted individuals have limited knowledge about blindness (about 35% - 40% accuracy). Additionally, we found that social circumstances such as poor acceptance and lack of understanding have greater negative effects on the blind than the inability to do daily tasks that require vision. Lastly, there was no statistically significant difference in the performance accuracy between sighted minors and sighted adults on a questionnaire about blindness (p-value 0.94).

These results have implications for best-practices and public policy making decisions. Public policy relating to blindness remains inadequate as demonstrated by the high unemployment rate (9), depression rate (12), and rates of bullying and other harassment experienced by the blind (10). The causes are likely multifactorial, but could reflect the fact that very few blind people are involved in policy making and significant misperceptions about blindness are prevalent among the sighted who make these policies.

The unemployment rate for the blind and visually impaired is 63% and remains the highest among any subgroup of population, even among those with disabilities (9). This is not because of a lack of skill or other inferiority when compared to other candidates. Multiple reasons have been cited, including lack of employer awareness of state and federal tax incentives, vocational rehabilitation services, and aides available to blind employees (9). Additionally, employers may falsely assume that accommodations would be too costly, that liability would increase, or that the blind are not dependable workers (9).

Despite laws to prevent employers from discriminating against the blind, many employers allow their misperceptions about the capabilities of the blind to override these laws. As a result of these concerns, unemployment rates for the blind and visually impaired have remained at least in the 60 - 65% range (9). Not only are many qualified blind people left unemployed, but they also often feel incapable or inferior, feelings which are linked to mental health disorders such as depression (10). According to the Anxiety and Depression Association of America, approximately 6.7% of American adults suffer from depression (11). By comparison, recent studies suggest that approximately one-third of visually impaired older adults experience mild but clinically significant symptoms of depression and anxiety (12). It can be reasonably assumed that poor employment and financial well-being, discriminatory attitudes towards the blind, and the physical limitations of blindness contribute significantly to the large number of people with blindness who suffer from depression.

Our study relied on surveys to collect data and the findings may be limited by sample size, self-selection of subjects, and missing data from some participants. Thus, external validity, or the extent to which the research findings can be generalized to other similar populations, may be a concern with this study. Therefore, a future study could use a larger sample size and analyze how factors such as geographical region, gender, socioeconomic status, or level of education affect knowledge and awareness about the blind.

This study highlights the lack of awareness about blindness. The findings also demonstrate that blind subjects perceive the lack of acceptance and understanding as their biggest challenge rather than difficulties in performing routine daily tasks. Previous studies have shown that after appropriate training sessions, sighted students' perceptions of blind students were more correct than those found in a pretest, suggesting that stereotypes and attitudes toward blindness can be changed with effective educational interventions (13). Misconceptions and poor understanding of blindness could be reduced with educational campaigns directed towards school-age children. Addressing these concerns and more research studies to determine the causes of these disparities are necessary.

METHODS

Permissions and Participants

Before this study was conducted, an SRC/IRB approval form was completed. Blind participants for this study were members from the Florida Outreach Center for the Blind in West Palm Beach, Florida. All blind participants gave verbal consent and were made aware of the intention and purpose of the survey. The 43 sighted participants were comprised of 24 minors and 19 adults. In this study, the mean age of the minors was 16 and adults was 54. The sample of sighted minors included high school students and other local community members. The sample of sighted adults included family members and friends. All sighted individuals that participated gave verbal consent and expressed their understanding of the intention and purpose of the study.

Survey Design and Testing

The blind participants were taken individually to a private room where they were verbally asked the questions in **Figure 2** and their responses were recorded verbatim.

Shivani Kumar 2018 Blindness Survey

Name:
Age:
Gender:
Race/Ethnicity:
Cause of Blindness:
How long have you been blind?

What do you feel are the most difficult parts of being blind?

What are some things that you feel have become easier for blind people?

What change(s) do you feel should be made to improve the lives of the blind?

How do you define blindness?

Figure 2. Survey given to blind individuals

The sighted students were given the survey in **Figure 3** on paper during class and were asked to write their responses. The students were asked not to reveal or discuss their answers with other students in the class until the entire survey process was over. All students from the school who participated in the study began the survey at the same time to reduce conversations about the survey before everyone was finished. Other minors in this study were surveyed over the phone and their responses were recorded verbatim. The sighted adults in this study were either given a hard copy of the survey to fill out or were surveyed over the phone to have their responses recorded verbatim. All blind participants in the study were residents of the state of Florida in the United States. Most of the sighted participants in the study claimed to be residents of the state of Florida in the United States, but some were residents of the states of Pennsylvania or New York. The data was analyzed with using an independent samples t-test.

Shivani Kumar 2018 Blindness Survey

Name:
Age:
Gender:
Race/Ethnicity:
Level of education:

How many people around the world suffer from blindness?
A. 10-20 million
B. 20-30 million
C. 30-40 million
D. More than 40 million

What is the global leading cause of blindness?
A. Trachoma
B. Retinitis Pigmentosa
C. Cataracts
D. Glaucoma

What percentage of global visual impairment is avoidable?
A. 15%
B. 35%
C. 60%
D. 80%

What percentage of legally blind people can not see anything?
A. 1%-10%
B. 10%-20%
C. 40%-50%
D. More than 50%

According to the U.S. Equal Employment Opportunity Commission, what percentage of blind people are unemployed?
A. 21.4%
B. 39.7%
C. 63.2%
D. 86.3%

What is the most difficult part of being blind?
A. Not being able to read
B. Not being accepted/understood
C. Not being able to drive
D. Not being able to see the people you love

Which of the following positive changes has had the greatest impact on the blind?
A. Greater awareness and acceptance
B. Better transportation and technology options
C. Medical advancements that reduce the chance of blindness
D. Laws that protect blind employment

How do you define blindness?

Figure 3. Survey given to sighted individuals.

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