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## Developing a Measure of Blind Patients' Interactions with their Healthcare Providers

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### Abstract

**Background**—People who are blind (PWB) are often perceived as being incompetent with common tasks and functions. When patients detect that their healthcare providers (HCPs) have negative perceptions of them, they often report less satisfaction with their healthcare and disengage in their own healthcare.

**Objective**—A scale assessing the experiences of PWB interacting with HCPs was developed and validated across two studies.

**Methods**—In Study 1, 144 participants completed the scale and provided feedback. In Study 2, 214 participants completed the scale and 4 additional scales to assess construct validity.

**Results**—An exploratory factor analysis in Study 1 revealed a two-factor model consisting of General Quality of Health Care (30.5% variance explained) and Stereotype Content-related items (9.4% variance explained). Study 2 confirmed and validated this two-factor structure (RMSEA (90% CI) = 0.068 (0.057, 0.079), CFI = .898, SRMR = 0.066, AIC = 14568.902).

**Conclusions**—This scale is one of the first tools developed from the perspectives of PWB. Results from these studies highlight and elaborate on how PWB perceive that they are viewed by their HCPs in terms of competence and how they perceive to be treated by these HCPs. This scale can be used in training HCPs to better serve their patients with disabilities.

### Keywords

Disabilities; Blindness; Healthcare Providers; Stereotype Content; Scale Development

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## Introduction

Stereotypic assumptions about people with disabilities (PWD) affect their healthcare treatment and exacerbate health disparities they face (1). There is a need to examine these stereotypes from the perspectives of PWD to determine the nature and impact these stereotypes and resulting behaviors have on the quality of healthcare received by PWD. This research is also needed to characterize how stereotypes lead to health disparities faced by PWD.

Among disabilities, blindness is particularly stigmatized (2). Over 7.35 million people are blind in the U.S. A classification of blindness is defined as a visual acuity corrected to 20/200 or less, or a visual field of or less than 20 degrees (3). Due to the limited literature on perceptions of people who are blind (PWB) in the healthcare setting, this introduction draws from the literature about the experiences of PWD (including those other than blindness) regarding their experiences of stereotypes in the healthcare setting.

### The Stereotype Content Model

In light of the call for HCPs to evaluate their stereotypic beliefs about PWD, it is necessary to understand the content of stereotypic perceptions (4). The Stereotype Content Model states that the content of stereotypic perceptions consist of two dimensions: Warmth and competence (5). Evaluations of a target's warmth are characterized by perceptions of the target's concern for the wellbeing of others. Evaluations of a target's competence are characterized by perceptions of the target to have the capacity to achieve goals related to attaining influential status (5).

Generally, PWD are perceived as high in warmth and low in competence, and are pitied (5). Health concerns of pitied targets may be treated more intensively (e.g., by institutionalization, overmedication) than non-PWD (4; 6). Additionally, due to assumptions of low competence, physicians may require "qualified" others (e.g., non-disabled friends or family members) to facilitate doctor visits (6).

Based on their interaction with the PWD, perceivers may change their perceptions of PWD as high in warmth and deserving of pity to low in warmth and undeserving of pity. This shift in emotional response may lead to the perceiver considering the target's rejection or otherwise failure to fit a stereotypically prescribed role as a failure to consider the comfort or safety of others. At times, perceivers view PWD as low in warmth, are unmoved by pity to support what they perceive to be the target's goals (12), and, consequently, may actively or explicitly oppose those goals (13; 11).

As an effort to restrain agentic expressions (considered as deviant) of pitied targets, HCPs may provide unsolicited and inappropriate intervention to PWB (11). Blind, first-time mothers described their experiences with postnatal care after the birth of their first child and revealed that, despite their preparedness for motherhood, HCPs often interacted with them in intrusive and inappropriate ways. One mother recounts waking up after giving birth, surrounded by the medical team who immediately began asking her about how she was

going to take care of her child. In a more severe case, the newborn baby was put into foster care and the parents had to use legal and advocacy means to regain custody (11).

### **Satisfaction with Healthcare**

Patients' perceptions of their HCPs viewing them as incompetent erodes trust and satisfaction in healthcare that is fundamental to promoting healthy behaviors (4). A quarter of PWD younger than 65 report difficulty in finding a HCP they are satisfied with (1). Among Medicare beneficiaries, PWB are less satisfied with availability of services, ease of access, and costs than non-PWD (14).

### **Developing a Scale to Assess PWB's Perceptions about their Healthcare**

Patient perspectives (e.g., patient satisfaction with healthcare) is becoming increasingly used and valued by institutions such as hospitals when evaluating HCP performance (15). Existing scales measure patients' trust in physicians and their satisfaction with care. Such scales are either written using the perspectives of minority patients and physicians (e.g., The Wake Forest Trust in Physician Scale; 16) or the Stereotype Content Model (e.g., Scale of Anti-Asian Americans Stereotypes; 17), but not both.

A scale designed to measure PWB's perceptions of stereotypes held by HCPs could clarify and extend the Stereotype Content Model with previously unexamined perspectives of PWB. Items generated based on the affected minorities' perspectives of the stereotypes directed at them are likely to validly represent issues related to healthcare satisfaction. The scale that is the subject of this report was developed from research of the minority group of PWB, as perceivers of others' perceptions about them. In the first study, items were written based on preliminary qualitative analyses (see Table 1) and an exploratory factor analysis was conducted. For the second study, it was hypothesized that the factor structure from Study 1 would be confirmed and that discriminant and convergent validity of the measure would be established.

## **Study 1 Methods**

The aim of the present research was to develop and validate a scale to assess how PWB perceive that they are viewed by HCPs. This project followed a standard process for mixed-methods scale development (18). In Study 1, a set of items was presented to participants to complete according to their own experiences with HCPs. Additional qualitative and quantitative questions accompanied the scale to prompt participants' feedback regarding the clarity, tone, relevance, cultural competence, and other feedback regarding the items and scale. An exploratory factor analysis was conducted on scale responses and participant feedback was analyzed. The scale was revised according to participants' responses to items and feedback. In Study 2, the revised scale underwent confirmatory factor analysis and was examined for construct validity.

The Institutional Review Board of a university in the Southwest United States approved this study. A pool of 37 items was developed based on themes from the preliminary study (See Table 1; 19) and administered to participants in this study. The purpose of this study was to use participant feedback, item frequencies, and exploratory factor analysis to evaluate the list

of items and to determine the factor structure of the resulting scale. The Qualtrics survey was formatted to accessibility compliance standards (20).

### Recruitment and Study Procedures

Direct recruitment, word-of-mouth, and social media strategies were used to recruit a nationwide sample of PWB (20; see Table 2 for sample demographics).

According to their preferences, participants received an email or a phone call with information about the purpose of the study and the survey. Participants read an informed consent document or had it read to them by a research assistant. Participants electronically signed the consent document or provided verbal consent, and provided demographic information. Items were presented in randomized order.

### Measure

A pool of 37 items was written based on predominate themes that emerged from focus groups in the preliminary study (see Table 1). Items were rated on a seven-point Likert-type scale, ranging from “1 - strongly disagree” to “7 - strongly agree.”

**Participant feedback**—After completing the scale, participants completed six quantitative items assessing the “clarity, aesthetics, relevancy, tone,” time taken to answer the scale items, and “cultural competence” (18) of the scale being developed. Participants were also asked to respond to eight qualitative prompts guiding their feedback about the scale. These prompts also addressed “clarity, aesthetics, relevancy, tone,” time taken to answer the scale items, and “cultural competence” (18) as well as two additional prompts for other further commenting. After completing the study, participants were thanked for their participation entered into a drawing for a \$100 gift card. Quantitative data were analyzed using exploratory factor analysis and descriptive statistics, and qualitative data were analyzed using thematic analysis with two independent coders.

### Data analysis

All items were initially examined for floor and ceiling effects. For example, if the proportion of participants who selected “somewhat agree,” “agree,” and “strongly agree” added up to 10%, the item was deleted because most participants expressed disagreement with its content which limited the items’ variability. This process led to the deletion of 13 items (see Table 3). An examination of the remaining 24 items revealed no evidence of non-normality.

A power analysis for a test of close fit (21) for the remaining 24 items estimated a minimum sample size of  $N = 134$  (22), therefore the current study was adequately powered ( $N = 144$ ). Using *Mplus* (23), an exploratory factor analysis using the oblique Geomin factor rotation method was conducted with the remaining 24 items to identify latent factors (24). A parallel analysis (25) showed two factors should be retained.

## Study 1 Results

### Exploratory Factor Analysis Results

The two extracted factors were not significantly correlated;  $r = .154$ ,  $p > .05$ . The items associated with Factor 1 measured General Quality of Healthcare (Eigenvalue = 7.327) and items associated with Factor 2 measured Stereotype Content Model-related Concepts (Eigenvalue = 2.257). After factor rotation, Factor 1 accounted for 30.5% of the variance and Factor 2 accounted for an additional 9.4% of the variance.

Items with factor loadings  $< .32$  were suppressed (26 as cited by 27). This process also eliminated two items (see Table 3). Furthermore, there were five items that loaded onto both factors with loadings close to or greater than  $.32$  (see Table 3). Of the five cross loading items, three conceptually fit with Factor 2 and two fit with Factor 1. These five items were retained and tested in Study 2. See Table 3 for factor loadings of items that were retained in Study 1.

### Participant Ratings of Measure

Participants rated the scale on language clarity, how natural the measure sounded, and the relevance of the issues addressed in the survey. They made responses on a continuous six-point, forced choice scale ranging from 1 – very unclear/unnatural/irrelevant to 6 – very clear/natural/relevant. On average, participants rated the items high in clarity ( $M = 5.39$ ,  $SD = .71$ ), natural tone ( $M = 5.10$ ,  $SD = .78$ ), and relevance ( $M = 5.13$ ,  $SD = .96$ ).

Two independent raters conducted the inductive thematic coding of participants' responses to open-ended questions.<sup>1</sup> Three items were identified through qualitative analysis as having irrelevant content and, thus, were excluded. The item "My limited/lack of eye contact makes some healthcare providers uncomfortable" was eliminated because nine participants reported being able to establish eye contact despite blindness. Some participants reported having enough usable vision to establish eye contact within a certain amount of distance. Other participants reported that they were able to go through the motions of establishing eye contact even if they did not have enough usable vision to see the other person's eyes. The item "Healthcare providers are accepting of my guide dog" was deleted because 64.1% indicated this as not applicable to them. The item "I have friends/family who assist with healthcare visits" was deleted due to lack of relevance to the patient-HCP interaction.

## Study 1 Discussion

In this study, a pool of items was reduced and a factor structure was extracted. In order to clarify the placement of the five cross loading items in one of the two factors, these cross loading items were included in Study 2 for further examination. Qualitative data allowed participants to provide further depth and validation for the items.

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<sup>1</sup>The raters were the first author and a highly experienced research assistant. Overall, their average agreement was 77.35%. During consensus of those responses that were disagreed upon, 184 responses were changed to the first author's independent coding decision and 161 were changed to the research assistant's independent coding.

Of note are trends in those items eliminated due to floor and ceiling effects, suggesting common prevalent or absent experiences among PWB. The vast majority of participants agreed with items pertaining to the theme Demonstrating Competence (see Table 1). Many PWB consider it primarily their responsibility to approach the healthcare visit with a positive attitude, demonstrate their competence, and correct misconceptions about blindness. This may be a needless stressor for a patient who is seeking healthcare. Time that the patient spends managing the HCP's impression of them and educating the HCP about their disability reduces access to healthcare by using time otherwise dedicated for healthcare appointment activities (28).

## Study 2 Methods

The goal of Study 2 was to confirm the factor structure of the measure revised in Study 1. In addition, we assessed the convergent and discriminant validity of the measure. The measure was administered to a new sample, and the resulting data were quantitatively analyzed.

### Recruitment

Participants were recruited from organizations of the blind listserves, social media pages, and word-of-mouth (see 20 for detailed recruitment strategies). Only those who did not participate in the preliminary focus group study and Study 1 were eligible to participate in Study 2 (see Table 2 for sample demographics).

### Measures

The following measures were used to determine construct validity. These measures were identified in a literature search and selected for testing construct validity because they measured either conceptually similar or opposed constructs when compared to the scale developed in this manuscript.

**Patient Satisfaction Questionnaire**—The 18-item Patient Satisfaction Questionnaire (PSQ-18) measures overall patient satisfaction with healthcare (29). The PSQ-18 examines the following seven subscales, each consisting of two-to-four items: General satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with doctor, and accessibility and convenience. This scale was used to assess convergent validity with the scale developed in this project

**Wake Forest Trust in Physician Scale**—The 26-item Wake Forest Trust in Physician Scale was used to measure trust in physicians (16). Disagreement was coded on the lower end of a continuous five-point scale and agreement was coded on the higher end. Thus the higher the score, the more trust participants reported in their HCPs. This scale was used to assess convergent validity with the scale that was developed in this project.

**Discrimination in Medical Settings Scale**—This is a 7-item scale that measures participants' feelings of being treated disadvantageously in the healthcare setting. Higher scores indicate more perceived discrimination (30). This scale was used to assess convergent validity with the scale that was developed in this project.

**Marlowe-Crowne Social Desirability Scale**—The 13-item short form of the Marlowe-Crowne Social Desirability Scale (31) was used to determine discriminant validity. Social desirability is the extent to which participants respond in a way that gains the approval of others within a given culture (30; 31).

### Procedure

Participants followed the same procedure as in Study 1 with the exception of responding to qualitative prompts. The order of measures and items within each measure were randomized so that any order effects were random error in the models. Upon completion of this study, participants were given the option to enter into a raffle for a \$100 gift card.

### Data Analysis

A test of close fit (21) determined a minimum sample size of 163 participants, therefore the current study was adequately powered ( $N = 214$ ). Although the power analysis was conducted for 21 items, there was a data recording error for one item in Study 2 so the resulting number of items in the scale tested and validated in Study 2 was 20 (see Table 4).

Confirmatory factor analyses using maximum likelihood with robust standard errors were conducted in *Mplus* (23) to confirm the two-factor structure of the model identified in Study 1 and compare that model with two competing models: A single-factor model and a bi-factor model.

Local fit information including modification indices and standardized residuals were examined to determine how well the models explained the covariances between items. The wording of items was also examined along with this local fit information to determine whether items' residuals should be correlated in the model. See note in Table 4 for information on which residual variances of respective items were highly correlated. For the two-factor model, the cross loading items were assigned to one of the factors based on a-priori theorized factor. Thus, item *Healthcare providers support me in pursuing activities I enjoy* was assigned to Factor 1 while items *Healthcare providers are often uncomfortable when I am around*, *I often think that healthcare providers feel sorry for me*, and *I often need to demonstrate my intelligence for healthcare providers* were assigned to Factor 2. The fifth cross loading item was left out of Study 2 due to a data recording error. The two factors were allowed to correlate.

## Study 2 Results

### Confirmatory Factor analysis Results

According to model fit criteria (32), the two-factor model demonstrated fair fit: RMSEA (90% CI) = 0.068 (0.057, 0.079), CFI = .898, SRMR = 0.066, AIC = 14568.902. The single-factor model had poorer fit compared to the two-factor model (RMSEA (90% CI) = 0.072 (0.061, 0.083), CFI = 0.885, SRMR = 0.069, AIC = 14592.100). Finally, a bi-factor model was tested, where all items loaded on a general factor, but the items involving General Healthcare Experience (Factor 1 of the two-factor model) loaded onto an independent grouping factor and the items that measured dimensions of the Stereotype Content Model



(Factor 2 of the two-factor model) loaded on a second independent grouping factor. This model did not converge. As a result, the two-factor model was the model used to compute scale scores and correlate with other measures to determine construct validity, as its AIC index was smaller to the AIC index from the single-factor model and it was the best theoretically appropriate model. The two factors were very strongly correlated ( $r = .869$ ,  $p < .001$ ). See Table 4 for item descriptive statistics.

Next, the reliability coefficients were computed and examined for the full scale and each factor (full scale:  $\alpha = .922$ ; General Satisfaction:  $\alpha = .912$ ; and Stereotype Content:  $\alpha = .776$ ). Estimates of test score reliability were also calculated for the PSQ-18, the Discrimination in Medical Settings Scale, and the Wake Forest Trust Scale. The PSQ-18 consisted of seven subscales that were each comprised of two or four items. Although the original publication reported coefficient  $\alpha$  for subscales of the PSQ-18 (29), Spearman-Brown coefficients are reported for this study because they are a more appropriate estimate of reliability for scales consisting of two items (33). The following reliability estimates were observed for the subscales: General Satisfaction  $r_s = .796$ , Technical Quality  $r_s = .760$ , Interpersonal Manner  $r_s = .674$ , Financial Aspects  $r_s = .827$ , Accessibility and Convenience  $r_s = .725$ , and Communication  $r_s = .384$ , Time Spent with Doctor  $r_s = .776$ . These reliability coefficients were similar to those reported by Marshall and Hays (29). The Discrimination in Medical Settings Scale ( $\alpha = .901$ ) and the Wake Forest Trust Scale ( $\alpha = .963$ ) both demonstrated good reliability in this sample, equivalent to previously published reliability coefficients (30; and 16 respectively).

After reliability coefficients were calculated, scale scores were computed for all scales and subscales including for both factors of the scale developed in this study. The scale scores of the scale being developed in this study were correlated with the test scores of the PSQ-18, the Discrimination in the Medical Setting Scale, the Wake Forest Trust in Physicians Scale, and the Marlowe-Crowne Social Desirability Scale to assess construct validity.

Correlations were calculated between the scales selected for construct validity and the two factors of the scale developed in this study. Hypotheses for the direction of these correlations were mostly supported. As hypothesized, scores representing General Healthcare correlated strongly and positively with all PSQ-18 subscales (General Satisfaction  $r = .681$ ,  $p < .001$ ; Technical Quality  $r = .590$ ,  $p < .001$ ; Interpersonal Manner  $r = .595$ ,  $p < .001$ ; Communication  $r = .669$ ,  $p < .001$ ; Financial Aspects  $r = .372$ ,  $p < .001$ ; Accessibility and Convenience  $r = .538$ ,  $p < .001$ ), positively and strongly with the Wake Forest Trust Scale ( $r = .650$ ,  $p < .001$ ), and negatively and strongly with Discrimination in the Medical Setting ( $r = -.747$ ,  $p < .001$ ). Contrary to hypotheses however, scores representing General Satisfaction weakly but significantly correlated with the Social Desirability Scale ( $r = .150$ ,  $p < .05$ ).

The scores representing the Stereotype Content factor correlated in the hypothesized positive direction and moderate magnitude with four of the six PSQ-18 factors (General Satisfaction  $r = .397$ ,  $p < .001$ ; Technical Quality  $r = .333$ ,  $p < .001$ ; Interpersonal Manner  $r = .378$ ,  $p < .001$ ; Communication  $r = .412$ ,  $p < .001$ ) and with the Wake Forest Trust Scale ( $r = .382$ ,  $p < .001$ ). As hypothesized, scores on this factor correlated strongly and negatively with Discrimination in the Medical Setting such that the higher participants scored on the

Stereotype Content factor (Factor 2), the less discrimination in the medical setting they reported ( $r = -.605, p < .001$ ). Unexpectedly, this subscale also moderately and significantly correlated with the Social Desirability Scale ( $r = .289, p < .001$ ; we expected this relation to be non-significant).

## Study 2 Discussion

This study confirmed the two-factor structure of the measure. The General Satisfaction factor (Factor 1) included items measuring characteristics of accommodating HCPs, things that HCPs did that made participants uncomfortable, and perceived discrimination. The Stereotype Content factor (Factor 2) included items about giving the impression of social coldness to the HCP, making the HCP uncomfortable, HCP's perceptions of the patient's warmth and competence—items that related to the Stereotype Content Model. The measure developed in this study showed good reliability. Reliability coefficients for the other measures were equivalent to previously published results.

Correlations among scale scores to assess construct validity mostly supported hypotheses. Both General Experience and Stereotype Content aligned with hypotheses. Scale scores were positively correlated with patient satisfaction in general, satisfaction with the technical quality of the service provided by HCPs, satisfaction with the interpersonal manner of HCPs, satisfaction in communication with HCPs, and satisfaction with the convenience of getting medical care, and trust in physicians. Furthermore, scale scores were negatively correlated with perceived discrimination in the medical setting.

However, contrary to hypotheses, the scale scores were correlated with the Social Desirability Scale although the magnitude of the correlation was small. At first glance, this seemed to suggest that participants were reporting their encounters with stereotypes and discrimination in their interactions with their HCPs more positively because of social desirability. This finding was inconsistent with tests of discriminant validity of the Discrimination in Medical Settings scale (30). Upon further examination of the literature, a clarification on the definition of social desirability was adopted: One that considers social desirability as both an item characteristic and an individual trait (3). When considering social desirability as a potential item characteristic, items can be written in a way that lead participants to respond in a manner that presents them in a positive light. Accordingly, social desirability embedded in items would affect participants' scores across the sample. However, following McDonald's (35) guidelines for writing concise items in neutral language may reduce the possibility of participants responding in a more positive manner as a result of how items are worded. Additionally, reading participants' qualitative feedback to gain insight on how they interpreted and reacted to items from the scale can help in identifying items that lead participants to respond in a socially desirable manner. Thus, social desirability as a result of item characteristics was not a concern in this project.

## General Discussion

Our results support and extend the Stereotype Content Model as experienced by people with disabilities who are the target of perception. This set of studies examined some passive and

active harming and helping behaviors demonstrated by HCPs towards PWB (36; 13; 6). Some participants endorsed items suggesting that passive and active support behaviors could be shortsighted and unhelpful. For example, when an HCP addressed a sighted person instead of the participant about the participant's health information, they may believe that they are helping the participant to better understand them when in reality they are being perceived as condescending. The scale is one of the first quantitative efforts to assess stereotypic perceptions about PWD with samples of PWD, thus filling a critical knowledge gap of the perspectives of PWD regarding perceptions about them.

In the present studies, many participants reported feeling viewed as incompetent. This finding replicates previous results with the broader population of PWD (37). This replication may mean that the measure produced in this project assesses constructs that generalize to the experiences of those with other disabilities. Future research can further examine this generalizability.

## Future Directions

Future research may replicate the validity of this scale and test its external validity with different groups of PWD (e.g., deaf adults, people who use wheelchairs) and consider the degree of the "visibility" of the disability—how apparent the disability is to a casual observer. The scale may then be used as an outcome variable when examining the effectiveness of interventions to enhance clinical interactions between PWD and HCPs.

In this project, model fit indices, reliability for each factor, correlations between factors, and correlations of factors with other scales to assess convergent and discriminant validity were conducted. Future research may further assess discriminant validity using scales measuring constructs such as the Big Five personality dimensions (e.g., 38). Personality is widely studied and can affect how a person perceives or engages in interactions with others (38). Thus, it could be informative to test to what extent the scale developed in this manuscript is opposed to personality factors.

Human characteristics such as agency and warmth are ascribed to those perceived as complex, agentic individuals (13). When perceivers view a target as agentic, they recognize that the target has individual agency, thoughts, and motivations. The interpersonal Orientation Scale measures how people are inclined to perceive others—as agentic individuals or as simplistic stereotypical members of an outgroup. Future research may examine the interpersonal orientation of HCPs with PWD and examine how HCPs' patients perceive interactions with these HCPs. Thus, future studies may further examine under which circumstances PWD may be perceived as complex, agentic, warm individuals. This may be examined from the HCP's perspective evaluating the PWD, but it may also be examined from the PWD's perspective regarding how they perceive the HCP to perceive them. In this case, such a future study may use the scale developed in this project.

## Implications for interventions

The present set of studies begins to substantiate the need for interventions to support HCPs in managing prejudice about disability. One promising avenue for such intervention is

adapted mindfulness training. Mindfulness helps to manage cognitive load which leads to decreased biased treatment of minority patients (4). Furthermore, people tend to make more stereotypic judgments when they are under time pressure (conditions under which HCPs often operate). Mindfulness training can prepare HCPs to challenge their biases against patients of minority ethnicities (39). Future studies may design mindfulness-based interventions for HCPs and evaluate these interventions with the scale developed in this project to determine the effectiveness of the interventions in improving HCPs' interactions with PWD.

Additionally, HCPs may benefit from learning to conduct task analyses: Deconstructing tasks into specific steps, and using more detailed descriptions and accessible techniques to convey health information, treatment steps, or treatment options to PWB. After learning to describe tasks in greater detail, parents' ability to teach their blind children basic physical activity tasks (e.g., running, throwing) improved (40). Although the dynamic of an adult-with-adult relationship such as the HCP-patient relationship differs from that of a parent interacting with their child, training HCPs to identify modifications and to engage in detailed task analysis may increase their confidence and creativity to best serve their patients with disabilities when communicating health information and courses of treatment.

## Conclusion

We met the objective of this project by developing a standardized and validated scale that assesses PWB's perspectives about how they are viewed and treated by their HCPs, and their satisfaction with their healthcare. Future research may further demonstrate the validity of this scale by demonstrating how it relates with other scales measuring conceptually similar and opposite constructs. Future research can use this scale to examine the quality of PWB's interactions with HCPs, leading to the improvement of the quality and effectiveness of these interactions.

This examination of the perspectives of PWB highlighted which stereotypes affect them most and characterized how they were affected, elaborating on how PWB fit within the Stereotype Content Model as perceptive targets. This research also illuminated parts of the Stereotype Content Model that can benefit from further clarification. Specifically, previous literature studied support and opposition behaviors that result from evaluation of a target's warmth and competence from the perspective of the perceiver. This perspective is limited because the perceiver observes from their own point of view and the degree of their understanding of the target's actual intentions is unaccounted for. As a result of the limitations of the perceiver's own point of view, perceivers may not know which behaviors would be truly supportive or oppositional of targets' actual intentions. Thus, future research on the Stereotype Content Model may include variables assessing the accuracy of the perceiver's perception of the target's intentions and how supportive or oppositional the perceiver's behaviors actually are. Findings from this project and future research using this scale will shape the development of materials to help HCPs more effectively interact with PWB.

The scale created in this project is the only scale rigorously developed from the perspectives of PWB (and PWD) to assess their experiences interacting with HCPs. This project provides future researchers with a tool to develop an in-depth understanding of PWB's and PWD's perspectives of the healthcare they receive, and improve the quality of healthcare delivered to members of these populations. This research may contribute to increasing the capacity of HCPs to suppress stereotypes about PWB and PWD as incompetent, and work with these patients as individuals with unique strengths and challenges.

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## References

1. US Department of Health and Human Services. Surgeon General's call to action to improve the health and wellness of persons with disabilities. Washington (DC): US Department of Health and Human Services, Office of the Surgeon General; 2005.
2. Zhang X, Bullard KM, Cotch MF, Wilson MR, Rovner BW, McGwin G, ... & Saaddine JB (2013). Association between depression and functional vision loss in persons 20 years of age or older in the United States, NHANES 2005–2008. *Journal of the American Medical Association: Ophthalmology*, 131(5), 573–581. 10.1001/jamaophthalmol.2013.2597 [PubMed: 23471505]
3. Vashist P, Senjam SS, Gupta V, Gupta N, & Kumar A (2017). Definition of blindness under National Programme for Control of Blindness: Do we need to revise it? *Indian Journal of Ophthalmology*, 65(2), 92–96. 10.1001/jamaophthalmol.2013.2597 [PubMed: 28345562]
4. Dovidio JF & Fiske ST (2012). Under the radar: how unexamined biases in decision-making processes in clinical interactions can contribute to health care disparities. *American Journal of Public Health*, 102(5), 945–952. 10.2105/AJPH.2011.300601 [PubMed: 22420809]
5. Fiske ST, Cuddy AJ, Glick P, & Xu J (2002). A model of (often mixed) stereotype content: competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, 82(6), 878–902. 10.1037/0022-3514.82.6.878 [PubMed: 12051578]
6. McColl MA, Forster D, Shortt SE, Hunter D, Dorland J, Godwin M, & Rosser W (2008). Physician experiences providing primary care to people with disabilities. *Healthcare Policy*, 4(1), 129–147. 10.12927/hcpol.2008.19989
7. Bean MG, Stone J, Badger TA, Focella ES, & Moskowitz GB (2013). Evidence of nonconscious stereotyping of Hispanic patients by nursing and medical students. *Nursing Research*, 62(5), 362. 10.1097/NNR.0b013e31829e02ec [PubMed: 23995470]
8. Lepièce B, Reynaert C, Van Meerbeeck P, & Lorant V (2014). General practice and ethnicity: an experimental study of doctoring. *BioMed Central Family Practice*, 15(1), 1–8. 10.1186/1471-2296-15-89 [PubMed: 24387712]
9. Puumala SE, Burgess KM, Kharbanda AB, Zook HG, Castille DM, Pickner WJ, & Payne NR (2016). The role of bias by emergency department providers in care for American Indian children. *Medical Care*, 54(6), 562–569. 10.1097/MLR.0000000000000533 [PubMed: 26974675]
10. Amosun S, Kambalmetore S, Maart S, & Ferguson G (2013). Undergraduate physiotherapy education in Malawi-The views of students on disability. *Malawi Medical Journal*, 25(2), 40–44. [PubMed: 24098829]
11. Frederick A (2015). Between stigma and mother-blame: blind mothers' experiences in USA hospital postnatal care. *Sociology of Health and Illness*, 37(8), 1127–1141. 10.1111/1467-9566.12286 [PubMed: 25929453]

12. Rohmer O & Louvet E (2016). Implicit stereotyping against people with disability. *Group Processes & Intergroup Relations*, 20(1), 127–140. 10.1177/1368430216638536
13. Fiske ST (2013). Varieties of (de) humanization: Divided by competition and status In *Objectification and (de) humanization* (pp. 53–71). Springer, New York, NY Chicago 10.1007/978-1-4614-6959-9\_3
14. Iezzoni LI, Davis RB, Soukup J, & O'Day B (2002). Satisfaction with quality and access to health care among people with disabling conditions. *International Journal for Quality in Health Care*, 14(5), 369–381. 10.1093/intqhc/14.5.369 [PubMed: 12389803]
15. Xesfingi S & Vozikis A (2016). Patient satisfaction with the healthcare system: Assessing the impact of socio-economic and healthcare provision factors. *BioMed Central Health Services Research*, 16(1), 94 10.1186/s12913-016-1327-4 [PubMed: 26979458]
16. Hall MA, Zheng B, Dugan E, Camacho F, Kidd KE, Mishra A, & Balkrishnan R (2002). Measuring patients' trust in their primary care providers. *Medical Care Research and Review*, 59(3), 293–318. 10.1177/1077558702059003004 [PubMed: 12205830]
17. Lin MH, Kwan VS, Cheung A, & Fiske ST (2005). Stereotype content model explains prejudice for an envied outgroup: Scale of anti-Asian American stereotypes. *Personality and Social Psychology Bulletin*, 31(1), 34–47. 10.1177/0146167204271320 [PubMed: 15574660]
18. Onwuegbuzie AJ, Bustamante RM, & Nelson JA (2010). Mixed research as a tool for developing quantitative instruments. *Journal of Mixed Methods Research*, 4(1), 56–78. 10.1177/1558689809355805
19. Author (2018).
20. Author (in review).
21. MacCallum RC, Browne MW, & Sugawara H.M., (1996) Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1(2), 130–149. 10.1037/1082-989X.1.2.130
22. Preacher KJ & Coffman DL (2006, 5). Computing power and minimum sample size for RMSEA [Computer software]. Available from <http://quantpsy.org/>.
23. Muthén LK & Muthén BO (1998–2018). *Mplus User's Guide: Statistical Analysis with Latent Variables* (7th ed.). Los Angeles, CA: Muthén & Muthén.
24. Fabrigar LR, Wegener DT, MacCallum RC, & Strahan EJ (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3), 272–299. 10.1037/1082-989X.4.3.272
25. Hayton JC, Allen DG, & Scarpello V (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods*, 7(2), 191–205. 10.1177/1094428104263675
26. Tabachnick BG & Fidell LS (2001). *Using Multivariate Statistics*. Boston: Allyn and Bacon.
27. Costello AB & Osborne JW (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation*, 10(7), 1–9. <http://pareonline.net/getvn.asp?v=10&n=7>
28. Jones KE & Tamari IE (1997). Making our offices universally accessible: guidelines for physicians. *Canadian Medical Association Journal*, 156(5), 647–656. [PubMed: 9068570]
29. Marshall GN & Hays RD (1994). The patient satisfaction questionnaire short-form (PSQ-18). RAND Publication, Retrieved from [http://www.rand.org/health/surveys\\_tools/psq.html](http://www.rand.org/health/surveys_tools/psq.html)
30. Peek ME, Nunez-Smith M, Drum M, & Lewis TT (2011). Adapting the everyday discrimination scale to medical settings: reliability and validity testing in a sample of African American patients. *Ethnicity & Disease*, 21(4), 502–509. [PubMed: 22428358]
31. Reynolds WM (1982). Development of reliable and valid short forms of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology*, 38(1), 119–125. 10.1002/1097-4679(198201)38:1<119::AID-JCLP2270380118>3.0.CO;2-I
32. Hu LT & Bentler PM (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. 10.1080/10705519909540118

33. Eisinga R, Grotenhuis MT, & Pelzer B (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International Journal of Public Health*, 58, 637–642. 10.1007/s00038-012-0416-3 [PubMed: 23089674]
34. McCrae RR & Costa PT (1983). Social desirability scales: More substance than style. *Journal of Consulting and Clinical Psychology*, 51(6), 882–888. 10.1037/0022-006X.51.6.882
35. McDonald RP (1999). *Test theory: a unified treatment*. Lawrence Erlbaum Associates.
36. Fiske ST, Cuddy AJ, & Glick P (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences*, 11(2), 77–83. 10.1016/j.tics.2006.11.005 [PubMed: 17188552]
37. de Vries McClintock HF, Barg FK, Katz SP, Stineman MG, Krueger A, Colletti PM, ... & Bogner HR (2016). Health care experiences and perceptions among people with and without disabilities. *Disability and Health Journal*, 9(1), 74–82. 10.1016/j.dhjo.2015.08.007 [PubMed: 26482010]
38. John OP & Srivastava S (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives In Pervin LA & John OP (Eds.), *Handbook of personality: Theory and research* (Vol. 2, pp. 102–138). New York: Guilford Press.
39. Burgess DJ, Beach MC, & Saha S (2017). Mindfulness practice: A promising approach to reducing the effects of clinician implicit bias on patients. *Patient Education and Counseling*, 100(2), 372–376. 10.1016/j.pec.2016.09.005 [PubMed: 27665499]
40. Columna L, Haibach P, Lieberman L, Fernández-Vivó M, & Cordero-Morales I (2016). Motor Development and Physical Activities for Families of Children with Visual Impairments and Blindness. *Journal of Blindness Innovation and Research*, 6(1), <https://nfb.org/images/nfb/publications/jbir/jbir16/jbir060102.html>

**Table 1.**

Items developed from corresponding focus group themes and tested in Study 1

<b>Accommodating</b>
Healthcare providers are accepting of my guide dog <sup>3,4</sup> (35.9% at least Half of the Time, 64.1% Not Applicable)
Healthcare providers write my prescriptions in a format that is accessible to me <sup>1</sup>
Healthcare providers ask how I prefer to be accommodated
Healthcare providers explain what they will do before they do it <sup>3</sup> (92.3% at least Half of the Time)
Healthcare providers provide reasonable accommodations
RC Healthcare providers are usually unaware of accommodations for blind people <sup>3</sup> (89.7% at least Somewhat Disagree)
RC I feel healthcare providers are often in a rush to finish with my appointment
<b>Accommodating RC/respect</b>
RC Healthcare providers touch me without a warning
<b>Respect</b>
RC Healthcare providers often ask me irrelevant questions about my blindness
RC My privacy is not respected when I get help with filling out forms
RC Healthcare providers are often uncomfortable when I am around
<b>Preparation</b>
I have friends/family who assist with healthcare visits <sup>4</sup>
<b>Attributions</b>
Compared to other patients, I am more likely to be treated unfairly in the healthcare setting Healthcare providers treat me the way that they do because of my gender/sex more than based on my blindness/visual impairment <sup>1</sup>
My personality influences how healthcare providers treat me more than my blindness does
RC Healthcare providers treat me the same as other patients
<b>Warmth</b>
RC Sometimes, I may come off as cold to the healthcare provider <sup>2</sup>
RC At times, I may come off as aggressive to the healthcare provider
RC At times, healthcare providers may think that I am intimidating
<b>Competence</b>
Healthcare providers recognize that I can take care of myself
Healthcare providers treat me like a whole person
Healthcare providers listen to what I say about my health <sup>3</sup> (94.8% at least Almost Half the Time)
RC When I come to an appointment with a sighted person, healthcare providers address them instead of me
<b>Demonstrating competence</b>



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**Accommodating**

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I think the key to a positive experience with a healthcare provider is clearly stating my needs<sup>3</sup> (94.8% at least Somewhat Agree)

I consider it my responsibility to educate healthcare providers about blindness<sup>3</sup> (88.9% at least Somewhat Agree)

I must appear confident in front of healthcare providers<sup>3</sup> (95.6% at least Neither Agree Nor Disagree)

I often need to demonstrate my intelligence for healthcare providers

Sometimes, I need to prove to healthcare providers that I am capable<sup>3</sup> (87.1% at least Neither Agree Nor Disagree)

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**HCP Warmth**

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I usually enjoy when healthcare providers use humor<sup>3</sup> (91.5% at least Neither Agree Nor Disagree)

Most healthcare providers treat me with kindness<sup>3</sup> (96.5% at least Almost Half the Time)

My healthcare provider listens carefully to my concerns<sup>3</sup> (94.8% at least Almost Half the Time)

Healthcare providers take time to know me

RC My limited/lack of eye contact makes some healthcare providers uncomfortable<sup>4</sup>

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**HCP competence/accommodating**

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With proper training, healthcare providers can learn how to better interact with blind patients<sup>3</sup> (97.4% at least Somewhat Agree)

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**Pity**

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I often think that healthcare providers feel sorry for me

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**Support**

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Healthcare providers support me in pursuing activities I enjoy

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**Positive/Negative**

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Overall, my interactions with healthcare providers have been positive

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Note. Numbers in superscript indicate items that were eliminated between Studies 1 and 2, and detail the rationale for elimination.

<sup>1</sup> Loadings < .32

<sup>2</sup> Left out of Study 2

<sup>3</sup> Floor/ceiling

<sup>4</sup> Irrelevant content

**Table 2.**

## Sample Demographics

	<b>Study 1</b>	<b>Study 2</b>
<b>Sample N</b>	144	214
<b>% Female</b>	68.10	65.89
<b>% non-Hispanic White</b>	71.50	67.29
<b>Age Mean (SD)</b>	53.52 (15.93)	48.63 (15.79)
<b>Education Mode</b>	Bachelor's Degree	Bachelor's Degree
<b>Top Blindness Causes (N)</b>	Glaucoma (21)	Retinopathy or Prematurity (46)
	Retinopathy of Prematurity (20)	Multiple Causes (26)
	Retinitis Pigmentosa (15)	Retinitis Pigmentosa (16)

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**Table 3.**

Factor loadings of items that remained after floor and ceiling effect checks and exploratory factor analysis

Item	Factor 1	Factor 2
Healthcare providers ask how I prefer to be accommodated	0.53	
Healthcare providers provide reasonable accommodations	0.63	
<i>RC</i> I feel healthcare providers are often in a rush to finish with my appointment	0.36	
<i>RC</i> Healthcare providers touch me without a warning	0.41	
<i>RC</i> Compared to other patients, I am more likely to be treated unfairly in the healthcare setting	0.61	
My personality influences how healthcare providers treat me more than my blindness does	0.54	
Healthcare providers treat me the same as other patients	0.70	
<i>RC</i> At times, I may come off as aggressive to the healthcare provider		0.65
<i>RC</i> At times, healthcare providers may think that I am intimidating		0.53
Healthcare providers treat me like a whole person	0.73	
<i>RC</i> When I come to an appointment with a sighted person, healthcare providers address them instead of me	0.57	
<i>RC</i> Healthcare providers often ask me irrelevant questions about my blindness	0.53	
<i>RC</i> My privacy is not respected when I get help with filling out forms	0.44 *	0.30
<i>RC</i> Healthcare providers are often uncomfortable when I am around	0.51	0.32 *
<i>RC</i> I often think that healthcare providers feel sorry for me	0.43	0.32 *
Healthcare providers support me in pursuing activities I enjoy	0.50 *	-0.36
Healthcare providers take time to know me	0.66	
<i>RC</i> I often need to demonstrate my intelligence for healthcare providers	0.42	0.30 *
Overall, my interactions with healthcare providers have been positive	0.74	
Healthcare providers recognize that I can take care of myself	0.80	

Note. *RC* indicates the items that were reverse coded for analysis and scoring purposes. Factor 1 – General Healthcare Experience, Factor 2 – Stereotype Content Model-related Items.

\* indicates the factor that crossloading items align with this factor conceptually. The residual variances of the following items were highly correlated: *Healthcare providers ask how I prefer to be accommodated* with *Healthcare providers provide reasonable accommodations*, *Healthcare providers take time to know me* with *Overall, my interactions with healthcare providers have been positive*, *Healthcare providers treat me like a whole person* with *RC I often think that healthcare providers feel sorry for me*, and *RC At times, I may come off as aggressive to the healthcare provider* with *RC At times, healthcare providers may think that I am intimidating*. The exploratory factor analysis used the maximum likelihood with robust standard errors estimator and oblique geomin rotation to rotate factor loadings (i.e., pattern coefficients).

Table 4.

## Final item descriptive statistics and loadings

Item	Mean	SD	Factor 1	Factor 2
Healthcare providers ask how I prefer to be accommodated.	4.26	1.88	0.49	
Healthcare providers provide reasonable accommodations.	3.59	1.80	0.63	
RC I feel healthcare providers are often in a rush to finish with my appointment.	4.16	1.86	0.56	
RC Healthcare providers touch me without a warning.	3.58	1.89	0.51	
RC Compared to other patients, I am more likely to be treated unfairly in the healthcare setting.	3.68	1.86	0.79	
My personality influences how healthcare providers treat me more than my blindness does.	2.79	1.69	0.47	
Healthcare providers treat me the same as other patients.	3.34	1.68	0.72	
Healthcare providers treat me like a whole person.	2.90	1.59	0.82	
RC When I come to an appointment with a sighted person, healthcare providers address them instead of me.	4.86	1.91	0.68	
RC Healthcare providers often ask me irrelevant questions about my blindness.	3.92	1.95	0.57	
RC My privacy is not respected when I get help with filling out forms.	4.34	2.03	0.62	
Healthcare providers support me in pursuing activities I enjoy.	3.06	1.60	0.59	
Healthcare providers take time to know me.	3.06	1.53	0.62	
Overall, my interactions with healthcare providers have been positive.	2.42	1.38	0.66	
Healthcare providers recognize that I can take care of myself.	2.83	1.50	0.69	
RC At times, I may come off as aggressive to the healthcare provider.	3.33	1.89		0.29
RC At times, healthcare providers may think that I am intimidating.	3.34	1.84		0.48
RC Healthcare providers are often uncomfortable when I am around.	3.59	1.80		0.76
RC I often think that healthcare providers feel sorry for me.	3.85	1.90		0.72
RC I often need to demonstrate my intelligence for healthcare providers.	4.44	2.00		0.75

Note. *RC* indicates the items that were reverse coded for analysis and scoring purposes. Factor 1 – General Healthcare Experience, Factor 2 – Stereotype Content Model-related Items. The residual variances of the following items were highly correlated: *Healthcare providers ask how I prefer to be accommodated* with *Healthcare providers provide reasonable accommodations*, *Healthcare providers take time to know me* with *Overall, my interactions with healthcare providers have been positive*, *Healthcare providers treat me like a whole person* with *RC I often think that healthcare providers feel sorry for me*, and *RC At times, I may come off as aggressive to the healthcare provider* with *RC At times, healthcare providers may think that I am intimidating*.