

Contextual Effects of Race or Ethnicity on Acceptance for Vocational Rehabilitation of Consumers Who Are Legally Blind

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Abstract: Race or ethnicity, demographic, and disability factors were investigated as predictors of vocational rehabilitation acceptance. Severity of disability was the strongest predictor, followed by education, a secondary disability, race or ethnicity, and age at the time of application; gender was not significant. Acceptance rates differed with specific race or ethnicity and influence of control variables. Implications for policy and research are discussed.

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Concerns about inequitable treatment of minorities in the vocational rehabilitation process have resulted in numerous studies investigating differences in acceptance rates of racial or ethnic minorities for such rehabilitation. Under Section 21 of the 1992 amendments to the Rehabilitation Act of 1973, funding was made available to increase participation of minorities in activities provided for under the Act, with the ultimate goal of improving services to individuals from minority backgrounds. In response, new rehabilitation training programs at minority institutions of higher education (colleges and universities with minorities exceeding 50% of total enrollment) have been established, while outreach, capacity building, and technical assistance have been provided to minorities under the "Capacity Building for Traditionally Underserved Populations" (U.S. Department of Education, 2005). Over the last decade, state vocational rehabilitation agencies have also responded by implementing numerous strategies that have enhanced services to minorities (Steinman et al., 2003).

Investigations of acceptance of individuals who are racial or ethnic

minorities for vocational rehabilitation have used diverse methods. Some research has focused on differences between White and specific minority groups, whereas other research has investigated differences across multiple racial or ethnic groups. Studies have used state, regional, or national case service data (Rehabilitation Services Administration [RSA], 1995; RSA-911) on vocational rehabilitation consumers during different federal fiscal years. Generally, investigations have been cross-disability rather than disability-specific, and it appears that no studies have investigated vocational rehabilitation acceptance of blind or visually impaired consumers from minority backgrounds. Not surprisingly, findings on the importance of race as a predictor of acceptance for vocational rehabilitation have differed.

General disabilities

NATIONAL DATA

In the first national study of vocational rehabilitation acceptance of racial or ethnic minorities, Atkins and Wright (1980) found that African-American consumers were 5.5 percent less likely than White consumers to be accepted for services. Using data obtained from RSA for fiscal year (FY) 1976, Atkins and Wright reported percentages that indicated practical rather than statistical differences in acceptance rates. It was more than two decades before further national studies of vocational rehabilitation acceptance were conducted.

Wilson (2002) investigated differences in acceptance rates of African Americans, Whites, Native Americans or Alaskan Natives, and Asian Americans or Pacific Islanders, using FY 1998 RSA-911 national data. Results from chi-square analysis showed that only African Americans were accepted significantly less often than Whites, with race accounting for only 0.1% of the variance in acceptance. Wilson's findings should be interpreted with caution, given that Status 26 closures (accepted cases that had been rehabilitated) were not included in the analysis.

Capella (2002), noting that previous studies had not controlled for other variables known to be related to acceptance, employed logistic regression to investigate differences in acceptance rates for racial and ethnic groups. Using FY 1997 RSA-911 data, Capella found a significant interaction between race and severe disability. When comparing White and African-American consumers who were all severely disabled and of the same gender, age, and education level, White consumers were 1.5 times more likely to be accepted into vocational rehabilitation services than African Americans.

Also using logistic regression to analyze FY 1998 RSA-911 data, Wilson, Alston, Harley, and Mitchell (2002) found that African Americans were 2.12

times more likely than Whites to be accepted for vocational rehabilitation services when controlling for, or simultaneously considering the effect of, gender, education, work status at the time of application, and primary source of support at the time of application. These findings contradicted previous research and may be problematic because the study excluded rehabilitated cases and substantial data were missing on control variables. Continuing to use FY 1998 data, Wilson (2004) reported that African Americans were less likely than Asian Americans or Pacific Islanders to be accepted for vocational rehabilitation. Analysis was restricted to consumers who had high school educations, severe disabilities, no earnings at the time of application, and disabilities of unknown etiologies. This restriction excluded consumers with visual, hearing, or orthopedic impairments; deaf-blindness; and traumatic brain injuries--cumulatively about 40 percent of FY 1998 cases. Subsequently, Wilson and Senices (2005), also using FY 1998 RSA-911, found that Hispanic consumers were more likely than non-Hispanics to be accepted.

Using data from the RSA Longitudinal Study of Vocational Rehabilitation Services, Hayward and Schmidt-Davis (2002) employed logistic regression to determine which variables most strongly predicted eligibility. They reported that White consumers had a higher rate of acceptance for services than did minority consumers (84 percent and 78 percent, respectively), but the difference was not statistically significant. Disability characteristics (for example, type, onset, and significance or severity of disability), self-esteem, and work history were significant predictors of acceptance.

REGIONAL AND STATE DATA

The majority of regional and state studies investigating differential acceptance rates have employed univariate analysis. Several studies based on chi-square analyses have reported higher acceptance rates for White than for African-American or other racial or ethnic groups (Dziekan & Okocha, 1993; Feist-Price, 1995; Herbert & Martinez, 1992).

More recent studies have reported no significantly different (Wheaton, 1995; Wilson, 1999) or slightly lower rates of acceptance for African-American consumers (Wilson, Harley, & Alston, 2001), even when controlling for socioeconomic variables related to acceptance (Wilson, 2000). All these studies indicated very small effects, with little variance in acceptance (0.2 percent to 0.3 percent) explained by race or ethnicity.

Summary of review and research questions

Research on acceptance rates for different ethnic or racial populations has

shown inconsistent results. Because the question of equitable acceptance is dynamic, the results described in any study may generalize only the geographical region, time, and disability groups from which samples were drawn. Lack of specificity regarding type of disability and race or ethnicity raises particular concerns about generalizability: results from studies combining disability types may not apply to any specific disability group; results from studies that do not distinguish between specific minority groups may not apply to any specific minority race or ethnicity group. Several researchers have noted the importance of disability-specific research for progress in understanding rehabilitation outcomes (Bolton, 1979; Giesen & D'Amato, 1992). The call for specificity has also been extended to race or ethnicity (Giesen, Cavenaugh, & Sansing, 2004; Moore, Giesen, & Cavenaugh, 2005) and gender (Giesen & Cavenaugh, 2003).

In addition to the need for specificity, previous findings that demographic and disability characteristics (for example, age, education, gender, and severity of disability) are predictors of vocational rehabilitation acceptance support the need to examine acceptance rates for specific minority groups while controlling for other factors. Thus, using recent national RSA-911 data, the present study employed multivariate analysis to explore the relationship of race or ethnicity and acceptance rates among a specific disability group, that of vocational rehabilitation consumers who are legally blind. The research questions explored whether: (1) the likelihood that vocational rehabilitation acceptance for legally blind consumers who were African American, Native American, Asian American or Pacific Islander, and Hispanic Americans of any race was lower than that for White consumers; (2) differences in the likelihood of acceptance were apparent when controlling for education, presence of secondary disability, age, gender, and severity of disability.

Method

DATA SOURCE

Data from the annual RSA Case Service Report (RSA-911) for FY 2001 were used for analysis. Each consumer record included demographic, socioeconomic, and disability information at referral, together with service information for all cases that were closed during the fiscal year. Case records for 19,054 consumers with a major disabling condition of legal blindness (RSA codes 100-119) were initially available for analysis. These data, subject to the restrictions specified, constituted the study population for this fiscal year.

Analysis variables

Acceptance criterion variable.

Cases accepted for services (coded "1," the reference category) included Status 26 closures (Individualized Plan for Employment [IPE] initiated, consumer rehabilitated), Status 28 closures (IPE initiated, consumer not rehabilitated), and Status 30 closures (not IPE initiated, consumer not rehabilitated). Cases not accepted for services (coded "0") included Status 08 closures (consumers closed from application or from extended evaluation) and Status 38 closures (consumers closed from preservice listings).

Predictors of acceptance.

Race or ethnicity categories were White, African American, Native American, Asian American or Pacific Islander, and Hispanic Americans of any race. Four indicator variables were created, using the SPSS logistic regression procedure with White designated as the reference category. Secondary disability was dichotomous (1 = presence of a secondary disability, 0 = otherwise). Gender was also dichotomous (1 = female). Age at the time of application was in years. Education was in number of years of formal education completed. Severity of disability was dichotomous (1 = presence of a significant disability). Significant disability was defined as one or more impairments resulting in substantial functional limitations and requiring multiple services over an extended period of time (RSA, 1995, p. 48).

DATA ANALYSIS

Acceptance status, the control variables, and reasons for nonacceptance were analyzed by race or ethnicity to provide descriptive profiles. The exclusive role of race or ethnicity on acceptance for vocational rehabilitation was examined in Model 1, the race-or-ethnicity-only model. Subsequently, the remaining predictor variables were added sequentially, in a block, to the set of predictors so as to provide statistical control of other factors that might be related to race or ethnicity and consequently might mediate the effects of race or ethnicity. Thus, Model 2, the race-or-ethnicity-controlled model, examined the role of race or ethnicity on acceptance status while controlling for age, education, secondary disability, severity of disability, and gender. Logistic regression using SPSS Version 12.0 was employed to analyze both models as the assumptions of logistic regression were met. This method of analysis was selected because the criterion variable (acceptance) was dichotomous, and logistic regression is preferred in this context. Also, logistic regression allows for inclusion of control variables and provides odds ratios for group comparisons.

Results

Acceptance rates and descriptive statistics for the control variables by race or ethnicity are shown in <u>Table 1</u>. Acceptance was high overall (92%), and was at or in excess of approximately 90% for all groups except Native Americans.

RACE-OR-ETHNICITY-ONLY MODEL

The first research question compared differences in likelihood of acceptance for consumers who were legally blind and of a minority race or ethnicity, and those for White consumers who were legally blind. The likelihood ratio test for race or ethnicity on vocational rehabilitation acceptance (Model 1) was statistically significant, χ^2 (4, N = 18,553) = 48.64, p < .001, indicating that race or ethnicity categories were statistical predictors of acceptance.

It should be noted that this and subsequent tests of significance were hypersensitive because of the extremely large number of cases available for analysis. Consequently, statistical significance was not very useful in identifying important or meaningful effects. Therefore, the study emphasized indices related to effect size in evaluating and interpreting overall models. In Model 1, an index of effect size, the increment in percentage of correct classification did not increase from the base rate of 92.1% when race or ethnicity entered the model, and the Nagelkerke pseudo- R^2 was .006, indicating an extremely small effect.

Race or ethnicity, when considered alone (as shown in <u>Table 2</u>), was found to be a significant but weak predictor of vocational rehabilitation acceptance, with a lower likelihood of acceptance for Native Americans, African Americans, and Hispanic Americans.

RACE-OR-ETHNICITY-CONTROLLED MODEL

In Model 2, the control variables were entered as a block, subsequent to race or ethnicity. The likelihood ratio test for Model 2 was significant, χ^2 (9, N = 18,553) = 2,039, p < .001, indicating that the set of predictors in the model contributed to prediction of acceptance. The Nagelkerke pseudo- R^2 was .245, indicating a large effect size for the overall model. The Hosmer and Lemeshow test (also hypersensitive due to the very large N) was marginal, χ^2 (8, N = 18,553) = 15.43, p = .051, indicating an acceptable fit between model and data. Overall percentage of correct classification increased from 92.1% to 93.0%. Sensitivity decreased slightly from 100% to 98.3%, and specificity increased from 0% to 32.0%.

Based on the Wald chi square as a relative index of strength of effect (as

shown in <u>Table 3</u>), severity was by far the strongest effect. While not nearly as strong, other effects in order of importance were education, secondary disability, race or ethnicity, and age at the time of application. Gender was not significant.

With the control variables included in the model, race or ethnicity continued overall to be a weak predictor of vocational rehabilitation acceptance. However, different patterns emerged in different race or ethnicity comparisons.

Changes in specific race or ethnicity effects

Comparisons between Model 1 (race only) and Model 2 (race plus control variables) showed different patterns with respect to the Wald value, the significance level, and the odds ratio for specific race or ethnicity group comparisons, thus indicating moderation. These differences can be seen by comparing specific race or ethnicity effects in Table 2 with those in Table 3. In comparing African Americans with the White reference group, the effect was still significant in Model 2; the odds ratio changed from .66 to .75, indicating essentially no effect by the control variables on the relative lower odds of acceptance of African American consumers.

Comparing Native Americans with the White reference group, the effect was also still significant in Model 2. The odds ratio showed almost no change, 0.43 to 0.39, indicating no effect on the lower odds of acceptance for Native-American consumers.

For the comparison of Asian Americans, the odds ratio showed a substantial change, from 1.08 to 1.87, indicating a dramatic increase in odds of acceptance associated with the control variables.

In comparing Hispanic Americans, the effect was significant in Model 1 but not in Model 2. The odds ratio showed a relative lower acceptance rate for Hispanic Americans in Model 1 (0.784). With the introduction of the control variables, however, the odds ratio increased (0.958) and showed no significant difference from the reference group, indicating that Hispanic Americans were not different from Whites in their chances of acceptance. Thus, there was an interaction between one or more of the control variables and race or ethnicity such that the odds of acceptance were different from those obtained in Model 1 for different race or ethnicity groups.

Influence of control variables

The odds ratios for the control variables indicated that a person designated as

having a severe disability, more education, a secondary disability, or greater age was more likely to be accepted for vocational rehabilitation. Gender was not significant. Thus, acceptance was influenced by the significant control variables. Considering consumers identical on all other factors (that is, of the same race, education level, age at the time of application, secondary disability status, and gender), a consumer with a severe disability had 28 times greater odds of being accepted than did a consumer without one. Because education and age at the time of application were continuous variables, their coefficients may be more meaningfully interpreted in predictor increments that are of a "clinically significant" size (Menard, 2002). For example, for a two-year increment in education, the consumer would have odds of acceptance of 2.16 (2×1.08), approximately 16 percent greater.

Further analysis sought to identify which specific control variables were associated with changes in odds ratios. Additional models were evaluated systematically, each with only one of the control variables included with the race or ethnicity variable. When the severity variable was included in the model, odds increased only for Asian Americans, from 1.08 in Model 1 to 1.72, indicating a role for severity in acceptance relative to White consumers for this group. A similar comparison that included secondary disability in the model resulted in an increase from 1.08 to 1.23 only for Asian American consumers, indicating some role in acceptance. Individual inclusion of the other control variables had no appreciable effect on the odds for Asian American consumers. Examination of the rates of severity of disability and of presence of a secondary disability (as shown in Table 1) revealed that Asian Americans had the lowest rates on both measures. Thus, the increase in odds of acceptance was associated with controlling for the lower rates on both severity and secondary disability for Asian-American compared to White consumers.

For Hispanic Americans, inclusion of the education variable resulted in an increase in odds ratio from 0.78 to 0.89 in Model 1, indicating a differential primary role for level of education, depending on race or ethnicity. Individual inclusion of the other control variables had no appreciable effect on the odds ratios for Hispanic Americans. Examination of the mean education levels (as shown in Table 1) indicates that the increased acceptance for Hispanic Americans compared to White consumers was associated with controlling for the lower education level.

Discussion

In response to the first research question, differences were apparent in the likelihood, depending only on race or ethnicity, of vocational rehabilitation

acceptance for consumers who were legally blind, but the effect was quite small. Compared to White consumers, chances of acceptance were lower for African Americans and Native Americans, and slightly lower for Hispanic Americans. The slightly higher rate for Asian Americans was not significant. Race or ethnicity classification alone accounted for about 0.6% of the variance in acceptance.

For the second research question, acceptance into vocational rehabilitation for consumers who were legally blind was strongly associated with having a severe disability and, to a lesser extent, with a higher level of education, having a secondary disability, race or ethnicity, and greater age, but not with gender. About 24.5 percent of the variance in acceptance can be explained by race or ethnicity in combination with the control variables. Race or ethnicity effects on acceptance were small, and differed depending on the racial or ethnic group and which control variables were considered.

The strong impact of having a severe disability on acceptance bolsters the appropriateness of legislative mandates in the Rehabilitation Act of 1973 that require vocational rehabilitation agencies to target services to individuals with significant disabilities. In addition, as noted in the previous paragraph, no overall gender difference was detected. Previous research supports these conclusions (Capella, 2002; Harrison & Wayne, 1986).

Race or ethnicity classification was fourth in size of effect. More importantly, the specific race or ethnicity groups showed some noteworthy variations from those in the first model. Even when controlling for the influences of education, secondary disability, age, gender, and severity of disability, African-American consumers were shown to have lower odds of acceptance than White consumers. Thus, the lower acceptance rate for African Americans is not explained by differences relative to White consumers on any of the control variables. This effect must be due to other factors. Possible explanatory domains include (a) factors related to the counselor and vocational rehabilitation system, (b) factors associated with the consumer, and (c) interactions of counselor and consumer factors. For example, neither consumer variables, such as work history and self-esteem, which have been found to be related to acceptance (Hayward & Schmidt-Davis, 2002), nor counselor variables are available in the RSA-911 database. Research has indicated that negative racial stereotypes, myths of racial superiority, and cultural insensitivity of counselors can result in a higher dropout rate among African Americans in the counseling process (Priest, 1991). Counselor use of rehabilitation evaluation information based on culturally biased instrumentation and interpretation when determining consumer eligibility for services could also have an impact on acceptance

(Rubin, Pusch, Fogarty, & McGinn, 1995). Alston and Bell (1996) have suggested that African-American consumers may reject services because their previous experiences with racism have resulted in cultural mistrust of the vocational rehabilitation system and its professionals.

Findings for Native Americans paralleled those for African Americans. Again, the lower odds of acceptance for Native Americans was not changed by inclusion of the control variables, and thus were not explained by differences in these factors. Possible reasons for this effect may include differences in belief systems (for example, lifestyles and spiritual beliefs) between Native-American consumers and rehabilitation service providers (Locust, 1995) and the consumer's perception of the counselor's trustworthiness (Thomason, 1991).

Asian-American consumers showed almost 60% higher odds of acceptance when the control variables were included with race or ethnicity in the model. Follow-up analyses indicated that the increase was primarily due to relative low severity of disability; when controlled by inclusion in the model, this factor resulted in higher odds of acceptance for Asian-American than for White consumers. No other control variables had an effect on the odds for Asian Americans. Thus, the increase in likelihood of acceptance for Asian Americans can be explained as a statistical correction when controlling for the low severity variable relative to White consumers. In a sense, the high rate of acceptance for Asian Americans was attenuated when race or ethnicity alone was considered. It is possible that rehabilitation professionals who make decisions that affect acceptance have a more positive stereotypical perception of Asian Americans. For example, Paek and Shah (2003) found that Asian Americans are generally portrayed as the "model minority" in U.S. magazine advertising. This stereotype suggests that Asian Americans are intelligent, technically skilled, and have a strong work ethic (Suzuki, 2002). Asian Americans may be concerned that having a disability will bring shame or be a burden on the family (Hampton, 2000); as a result, they may be more motivated to achieve successful rehabilitation.

Hispanic-American consumers showed an increase in odds of acceptance due to relative low education level. When controlled by inclusion in the model, this resulted in an increase in odds of acceptance for Hispanic Americans to essentially the same level as that for White consumers. Since this effect could be explained, it seems that Hispanic Americans who are legally blind did not experience negative bias factors as great as those for African Americans in domains that affected acceptance.

Conclusion

Race or ethnicity had definite effects on acceptance. Although effects were small--generally accounting for less than one percent of variance in acceptance--this does not mean they are unimportant (Prentice & Miller, 1992). Acceptance varied by race or ethnicity and with possible influences of control variables. This complexity emphasizes the need for specificity about race or ethnicity in examinations of process and outcomes in vocational rehabilitation. Also, given these patterns, it is important that system-level efforts, such as those implemented in response to Section 21 (see opening paragraph), be continued or expanded to ensure equitable treatment and cultural sensitivity for consumers of all racial or ethnic backgrounds.

The interrelations of type of disability, race or ethnicity, socioeconomic, demographic, and environmental factors are obviously complicated. Further research is needed to develop culturally specific rehabilitation models that can facilitate the development of effective evidence-based policy recommendations, applications, and interventions for vocational rehabilitation. More methodological approaches are needed. Single-factor designs can document differences in race or ethnicity, but only with the inclusion of control variables, as in the present study and a few others, can potential explanations of racial or ethnic differences be advanced. In addition, alternative models are needed that will examine the role of each control variable separately for each racial or ethnic group.

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