

Vocational rehabilitation acceptance in the USA: Controlling for education, type of major disability, severity of disability and socioeconomic status

KEITH B. WILSON*

Department of Counselor Education, Counseling Psychology, and Rehabilitation Services, The Pennsylvania State University, USA

Accepted for publication: October 2003

Abstract

Purpose: The aim of the study was to investigate whether there were differences in acceptance rates for VR services among African Americans, White Americans, Native American or Alaskan Natives, and Asian or Pacific Islanders with disabilities in the USA?

Method: The study was based on a population 599 444 customers who sought VR or Bureau of Visual Service Agency services in the USA from 1 October, 1997, through 30 September, 1998. The subsample of customers with no missing values on the variables under investigation included African Americans ($n = 13\,287$), White Americans ($n = 38\,048$), Native American or Alaskan Natives ($n = 599$), and Asian or Pacific Islanders ($n = 596$). The chi-square test of homogeneity of proportions was the test statistic. The final random subsample included African Americans ($n = 300$), White Americans ($n = 300$), Native American or Alaskan Natives ($n = 300$), and Asian or Pacific Islanders ($n = 300$) was drawn from the population of VR customers in the USA.

Results: The study supports the hypothesis that African Americans were more likely to be found ineligible for VR services, while Asian or Pacific Islanders were more likely to be accepted for VR services.

Conclusion: While discovering that African Americans are more likely to be rejected for VR services was not surprising, discovering that Asians or Pacific Islanders are more likely to be accepted for VR services than African Americans was unexpected, given that past VR acceptance research adduced that White Americans, not Asian or Pacific Islanders, are more likely to be accepted for VR services when compared to

African Americans with disabilities. While a preponderance of VR research indicates that White Americans are more likely to be accepted for VR services than African Americans, it was also unexpected that White Americans were not statistically significant when education, type of major disability, disability severity, and SES were controlled.

Introduction

Access to vocational rehabilitation services appears more complex for minorities than for White Americans in the USA.^{1–2} The difficulties in access to the vocational rehabilitation (VR) system are underscored by the changing demographics of the USA. For example, between 1980 and 1990 the White American population increased by only 7.7%, while the African–American population increased by 15.8%.³ Recent estimates by demographers project that by the year 2009; White Americans will become a minority population.⁴ Logically, these demographic changes will be reflected in the ethnicity and numbers of individuals who will seek VR services. More recently, Baruth and Manning⁵ reported that ‘the extent of the US multicultural society and the role it plays in shaping people’s lives will continue to become apparent to counseling professionals as increasing numbers of clients from diverse cultures seek mental health services’ (p. 4). A larger number of customers seeking VR services is particularly imminent because therapists tend to have a different worldview than their service population, even if therapists and customers are the same ethnicity.⁶

The implications for VR are magnified when one considers that racial minorities tend to have higher rates of disability than individuals from the majority group.^{7–11} Smart and Smart¹¹ identified five reasons

* Author for correspondence; Department of Counselor Education, Counseling Psychology, and Rehabilitation Services, 308 CEDAR Building, The Pennsylvania State University, University Park, PA 16802-3110, USA.
e-mail: KBW4@PSU.edu

for increased rates of disabilities among minority populations: (a) low income and poverty; (b) employment in physically dangerous jobs; (c) lack of health insurance coverage; (d) low educational attainment; and (e) faulty and inaccurate testing and assessment. Similar conclusions were drawn by others.^{12–16} Lastly, when looking at possible influences within the VR system, Herbert and Cheatham¹⁷ suggested that minority persons with disabilities are subjected to more bias when they seek rehabilitation services—an assertion later supported by Wilson.^{18–20} Two research teams^{21, 22} reported that vocational counselors may construct impressions in the beginning of the clinical process and that these initial observations may be difficult to alter, even when evidence emerges to the contrary. Supporting what Butcher and Scofield and Elstein *et al.*^{21, 22} adduced earlier, Rosenthal and Berven²³ recently reported similar findings. Not only do racial minority groups experience disability at higher rates, but they are also subjected to counsellors who are resistant to changing previously held stereotypes of racial minorities.

VR ACCEPTANCE LITERATURE REVIEW

According to Wilson¹⁹ Atkins and Wright²⁴ were the pioneers in the examination of VR outcomes by race/ethnicity (African Americans *vis-à-vis* White Americans). Their research found that African Americans were accepted less often for VR services than were White Americans. Furthermore, of the 10 Rehabilitation Services Administration (RSA) regions examined in the Atkins and Wright investigation, African Americans with disabilities were less likely to be accepted for VR services in eight regions. Although White Americans tended to be accepted slightly more than African Americans, it is important to note that Atkins and Wright did not apply a statistical test to determine whether acceptance experiences for both African Americans and White Americans were statistically different.^{2, 25} The first study to examine VR acceptance rates by ethnicity reported a discrepancy in acceptance rates among African Americans and White Americans in the USA.

More than a decade after the Atkins and Wright²⁴ investigation, Herbert and Martinez²⁶ investigated whether ethnicity (e.g., Native American, Alaskan Native, Asian/Pacific Islander, African American, or White) was correlated with case service statuses 08 (closed not accepted for VR services), 26 (rehabilitated), 28 (closed other reason after the Individual Plan for Employment [IPE]), and 30 (closed other reasons before the IPE). A consensus began to emerge when Herbert and Martinez provided findings similar to those of

Atkins and Wright, indicating a higher VR acceptance rate among White Americans than among African Americans and other racial minorities in their study.

As research teams began to focus on VR acceptance, growing evidence indicated that racial and ethnic minorities with disabilities tended to have different VR experiences than White Americans with disabilities. For example, Dziekan and Okocha²⁷ investigated the accessibility of rehabilitation services between minorities (African Americans, Hispanics, Native Americans, and Asian Americans) and the majority (White Americans) with disabilities for the years 1985 through 1989. Dziekan and Okocha's findings were consistent with those reported earlier by Atkins and Wright²⁴ and Herbert and Martinez.²⁶ Particularly, Dziekan and Okocha found that White Americans (60%) were accepted for vocational services at a higher rate than were minorities (50%), both individually and collectively, in each of the 5 years of their study. Among the minority groups represented in the Dziekan and Okocha study, Native Americans had the highest rate of acceptance, accounting for over one half of the total number of minorities accepted for VR services. Although the reasons for the acceptance discrepancy were uncertain, Dziekan and Okocha reported that 'the data for fiscal years 1985 through 1989 clearly show an association between membership in a racial-ethnic minority group and acceptance for services by the vocational rehabilitation agency' (p. 187).

Several years following the Dziekan and Okocha²⁷ study, Feist-Price²⁸ reported that 'European Americans [White Americans] are accepted for rehabilitation services more often than are African Americans' (p. 126). Conversely, Wheaton²⁹ concluded that 'the proportions of European Americans [White Americans] and African Americans found eligible for VR services are not significantly different statistically' (p. 228). Divergent from previous investigations, Wheaton used a symmetrical hypothesis of homogeneity of proportions and sampling procedure in applying his methodology. Prior to Wheaton, other studies homogeneously reported African Americans' rate of acceptance to be less than that for White Americans with disabilities. Wheaton's investigation projected less assurance but confirmed a need to continue VR eligibility/acceptance research.

Similar to Wheaton,²⁹ Peterson³⁰ found no statistical differences between African American and White American customers in VR acceptance. Peterson's methodological approach was novel compared to that of prior investigators who generally compared group differences. Conversely, Peterson compared within-group differences based on observed and expected percentages. In a

related finding, Peterson found both African Americans and White Americans over-represented among applicants for VR services as compared to other minority groups in his study.

More recently, Wilson³¹ examined the relationship between ethnicity and VR acceptance and found congruence with the results reported by Wheaton²⁹ and Peterson.³⁰ Wilson³¹ found that African Americans (21.1%) and White Americans (20.1%) did not significantly differ on VR acceptance rates. The results by Wheaton and Wilson appeared to depart from earlier findings with respect to VR acceptance—namely, that minorities are less likely than non-minorities to be accepted for VR services. This recent divergence from previous assumptions reinforces the need to continue VR acceptance research in the USA. Because of the varied results in VR acceptance research, it remains unclear whether VR acceptance is influenced more by customers' racial membership *per se*, or by other concomitant demographic variables associated with socioeconomic status, geographic location, educational level, counselor's ethnicity, gender, or choice of vocation.

Attending to earlier restrictions presented in studies that utilized a univariate analysis (for example, the chi-square) to examine VR acceptance and ethnicity, Wilson¹⁹ investigated VR acceptance (dependent variable) based on ethnicity, education, work status, and source of support at application (independent variables) using binary logistic regression and the stepwise method of entry. Wilson added, 'undoubtedly, other variables could be identified that affect VR inclusion, but the variables identified above have the advantage of being measured by all state agencies and are consequently included in the RSA database, the RSA-911' (p. 98). In addition, Wilson reported that the variables included are generally identified as explaining variance in VR acceptance. Primary source of support (entered first) and ethnicity (entered second) were the only two variables that were statistically significant in the regression model. The earnings level of the primary source of support category was also significant. Wilson reported that White Americans are more likely than African Americans to be accepted to VR. While Wilson employed a different methodology (multivariate) than other researchers who investigated VR acceptance by ethnicity,^{24, 29, 32} the results were congruent with those reported by researchers concerning ethnicity and VR acceptance,^{24, 26, 28, 32} in that, African Americans (racial and ethnic minorities) are less likely to be accepted for VR services than White Americans.

Accepting the challenge for study replication suggested by past researchers looking at VR accep-

tance and ethnicity,^{29, 32, 33} Wilson *et al.*³⁴ replicated the Wilson³¹ study using the chi-square test statistic. Wilson *et al.*'s results were similar to those found by Atkins and Wright,²⁴ Bowe,³² Feist-Price,²⁸ and Herbert and Martinez,²⁶ namely, that White Americans are more likely to be accepted for VR services than are African Americans. The results reported by Wilson *et al.* challenged earlier findings reported by Wilson,³¹ Wheaton,²⁹ and Peterson,³⁰ in that ethnicity and VR acceptance were independent. Emerging evidence suggests that African Americans with disabilities are less likely to be accepted for VR services than their White American counterparts in numerous studies that examined VR acceptance and racial and ethnic status.

Because most of the earlier VR eligibility/acceptance research drew upon state RSA-911 data when investigating ethnicity and VR acceptance [the exception being Atkins and Wright²⁴], Wilson²⁰ sought to determine whether African Americans, White Americans, Native Americans (Native Americans) or Alaskan Natives, and Asians or Pacific Islanders with disabilities would differ in VR acceptance in the USA. Wilson found a statistically significant difference between ethnicity and VR acceptance. More specifically, White Americans were more likely to be accepted for VR services than African Americans with disabilities in the USA. Because Hispanic/Latino is not a racial group,^{35, 36} there was no racial designation for Hispanic/Latino under the ethnicity category in the national RSA-911 database. Although several studies examined VR acceptance and ethnicity, Wilson was the first national study since Atkins and Wright to have findings that could be generalized throughout the USA. Evidence suggests that African Americans are less likely to be accepted for VR services than are White Americans in the USA.

There are numerous distinctions between the current study and most of the earlier studies that investigated VR acceptance and ethnicity. First, the author was unable to locate any VR acceptance study that controlled for (a) major disability and (b) disability severity. Second, most studies overwhelmingly used state rather than national data. Third, the vast majority of VR acceptance studies did not include Native Americans or Alaskan Natives and Asian or Pacific Islanders in their samples. Lastly, because education, type of major disability, severity of disability, and SES by ethnicity are reported as possible influences on VR acceptance,^{11, 18, 19, 29, 36} it is apparent that VR acceptance and race/ethnicity are still areas requiring further investigation in the USA.

RESEARCH QUESTION

Is there a difference in acceptance rates for VR services among African Americans, White Americans, Native American or Alaskan Natives, and Asian or Pacific Islanders with disabilities in the USA?

H⁰: In the population from which the study sample was randomly selected, percentages are equal.

H¹: In the population from which the study sample was randomly selected, percentages are unequal.

Method

DATA COLLECTION

The data for this *ex post facto* study came from the national RSA-911 database in Washington, DC. The coding procedures for the RSA-911 data conformed to federal guidelines established by RSA in 1995. The author assigned coding errors to be random and unbiased. To decrease further the possibility of coding error, the personal computer version of the Statistical Package for the Social Sciences (SPSS) was used to calculate all descriptive and inferential statistics. Finally, SPSS was used to examine the data for outliers and suspicious patterns; however, no outliers were observed.

An unknown number of errors may exist in the data due to inaccurate data entry or coding errors. To overcome possible errors in the RSA-911 database, RSA has developed 18 crosschecks.³⁵ Notwithstanding these crosschecks, an unknown number of errors may still exist in the database, although these errors are assumed to be random and therefore are presumed to result in no systematic bias in the data.

VARIABLES IN THE STUDY

In conducting this study, the author concurs with Wilson¹⁹ that there is a multitude of plausible variables that may influence VR acceptance. However, most of the variables controlled for in this study have been cited as variables not controlled in VR acceptance research by other investigators, and are factors that may contribute to VR acceptance in the USA.^{18-20, 34}

VARIABLES CONTROLLED FOR IN THE STUDY

According to Rosenthal:³⁷

Although survey and other designs without random assignment present many obstacles to

researchers who seek to identify causal relationships, several strategies are available to deal with these obstacles. The most common is controlling for a variable (*controlling for a confounding variable*). A synonymous term is holding a variable constant. (p. 194)

To rule out the influence of variables that may affect VR acceptance, including those variables used in this study, the author controlled for their influence on the dependent variable (VR acceptance). Several research teams have identified, suggested, and/or inferred *education*,^{19, 24, 31, 38} *type of disability*,^{11, 20, 31}, *disability severity*,^{11, 19, 31, 34}, and *SES*,^{11, 18, 19} as possible variables to affect VR acceptance. Because external validity was a primary focus in the study at hand, the author only selected customers (subcategories) who had completed high school (education), had etiology unknown as a disability (type of disability), had a severe disability (disability severity), and reported no earnings the week before completing an application for VR services (SES).

Education at application (variable held constant)

The education variable was originally a continuous variable. For ease in interpretation and inclusion of as many VR customers as possible, the education variable was collapsed to form three levels: (a) less than a high school degree; (b) high school graduate; and (c) more than a high school degree. In addition, education was held constant because the majority (48%) of VR customers completed the 12th grade (high school) in the USA. Thus, only customers who completed the 12th grade were used under the variable of education. RSA³⁵ defines education as the highest level of education completed prior to application for VR services.

Type of major disability at application (variable held constant)

Type of major disability was a categorical variable with six levels. The specific variable held constant under major disability was 'etiology is unknown'. Etiology unknown was selected because a majority (64%) of all VR customers in the USA reported a disability under this category. In addition, another rationale for selecting major disability as opposed to a secondary disability is because 62% of VR customers in the national database listed no secondary disability. Thus, using 'etiology unknown' under the major type of disability increases the external validity of the study. Disabilities under etiology unknown include psychotic disorders, neurotic

disorders, alcohol abuse or dependence other than drug dependence, mental and emotional disorders not elsewhere classified, autism, and mild, moderate, and severe and profound mental retardation.

Severe disability (variable held constant)

Disability severity was a categorical variable with two levels: severe disability (coded 1) and not having a severe disability (coded 0). Because 70% of VR customers had a severe disability in the USA, severe disability was held constant, increasing the external validity of the study. RSA³⁵ defines a person with a severe disability as one:

- (i) who has a severe physical or mental impairment which seriously limits one or more functional capacities (such as mobility, communication, self-care, self-direction, interpersonal skills, work tolerance, or work skills) in terms of an employment outcome;
- (ii) whose vocational rehabilitation can be expected to require multiple vocational rehabilitation services over an extended period of time; and
- (iii) who has one or more physical or mental disabilities or combination of disabilities determined on the basis of an assessment for determining eligibility and vocational rehabilitation needs to cause comparable substantial functional limitation. (p. 48)

Socioeconomic status/earnings at application (variable held constant)

Earnings at application was a continuous variable. Because 87% of all VR customers in the USA VR system reported earning no money a week prior to applying for VR services, the author held constant all customers who reported no earnings a week before application. RSA³⁵ reported that earnings 'provide data on the cash earning of the individual in the week before application regardless of the earnings record at any earlier time' (p. 25). RSA also reported that earnings could include wages, salaries, tips, commissions received as regular income before tax deductions, union dues, and profits from self-employment, for example.

Racial/ethnic membership (the independent variable)

The categorical variable of racial/ethnic membership has four levels (African American, White American, Native American or Alaskan Native and Asian or Pacific Islander). Race/ethnicity is defined as the race/ethnic

group reported by customers on their applications for VR services.³⁵ Because Hispanic is an ethnic group and not a race,^{36, 39} RSA did not list a racial category for the Hispanic population because Hispanics may classify themselves as White American, African American, or any other racial group.⁴⁰

Acceptance for VR services (the dependent variable)

Because all closure statuses from the national RSA-911 data were in categories labelled 1–6, it became necessary to group the categories by the 1995 RSA definitions of acceptance and non-acceptance for VR services. Thus, the criterion variable of VR acceptance included two levels: Status 08 from 02 and 08 from 06 were coded as 0, not accepted for VR services. Statuses 38 from 04, 28, and 30 were coded as 1, accepted for VR services.

PARTICIPANTS

The population included 599 444 customers who sought VR or Bureau of Visual Service Agency services in the USA from October 1, 1997–September 30, 1998. In the first step of the sampling process, participants were identified who had no missing values on the variables held constant (education, type of major disability, disability severity, and SES), and as well as the independent and dependent variables of ethnicity and VR eligibility/acceptance. The subsample of customers with no missing values on the variables under investigation included African Americans ($n = 13\,287$), White Americans ($n = 38\,048$), Native American or Alaskan Natives ($n = 599$), and Asian or Pacific Islanders ($n = 596$).

Because the author wanted to include ethnicities typically excluded in VR acceptance research (e.g., Native Americans or Alaskan Natives or Asians or Pacific Islanders), and to maximize the ability to detect a statistical difference if differences existed in the population, a proportional (equal number of each group) random sample of each ethnic group was employed as the sampling methodology.^{41–43} Thus, a random sample of African Americans ($n = 300$), White Americans ($n = 300$) Native American or Alaskan Natives ($n = 300$), and Asian or Pacific Islanders ($n = 300$) was drawn from the population of VR customers in the USA.

Sample test statistic. The chi-square test of homogeneity of proportions was used as the statistic to analyse the dichotomous data. As Fraenkel and Wallen⁴⁴ reported, 'the chi-square test is based on a comparison between expected frequencies and actual, obtained frequencies.

If the obtained frequencies are similar to the expected frequencies, then researchers conclude that the groups do not differ' (p. 201). Because the data analysed was dichotomous (dependent variable of VR acceptance) and multinomial (ethnic status), SPSS⁴⁵ recommended Cramer's V to measure the association between the independent and dependent variables.

RESULTS

Results of the chi-square test. Race/ethnicity and VR acceptance emerged as statistically significant: χ^2 ((3, $n = 1200$) = 12.612; $p < 0.006$). In particular, African Americans are less likely to be accepted for VR services than Asian or Pacific Islanders in the USA. White American and Native American or Alaskan Native groups were not statistically significant (see table 1).

Discussion

This investigation sought to control variables believed to be associated with VR acceptance (e.g., education, type of disability, disability severity, and socioeconomic status) and ethnicity in the USA. While controlling for education, type of disability, disability severity, and socioeconomic status, Asians or Pacific Islanders are more likely to be accepted for VR services at a higher rate than African Americans in the USA. White American and Native American or Alaskan Native ethnic groups were not found to be statistically significant. In part, the results of the investigation at hand are surprising given that past VR acceptance research indicated that White Americans are more likely to be accepted for VR services when compared to their African American counterparts.^{17, 19, 20, 34, 37} Likewise, of all VR studies that have examined VR acceptance,^{20, 37} none have reported that Asian or Pacific Islanders are more

likely to be accepted for VR services than are African Americans. Controlling for education, type of disability, disability severity, and socioeconomic status, African Americans with disabilities tended to be accepted less for VR services in the USA, substantiating the results adduced by earlier research teams.^{19, 20, 24, 26}

Of course, there are numerous possible explanations for the rejection of African Americans from VR services when compared to other racial and ethnic groups in the USA. For this reason, it is imperative to note that the reasons African Americans are rejected for VR services presented in this paper are not meant to be exhaustive. Based on the variance accounted for in VR acceptance (see table 1), the author adduce that VR acceptance is not solely being determined by ones ethnicity. The small association also indicates that one must interpret the results of this study with caution. Nevertheless, the reasons highlighted in the study at hand are most often referenced to in VR and other outcome studies that have examined ethnicity and outcomes regarding racial and ethnic minorities in the USA.

Unfortunately, when discrepancies in outcomes occurs between racial and ethnic groups in the USA, and specially VR, discrimination is one possible explanation that is consistent in the literature.^{19, 20, 34} Because the author and other research teams believes that the VR system is generally viewed as a microcosm of society,^{18, 20, 31, 44, 46} it is tenable that the VR system will reinforce many of the ills (e.g., racism and sexism etc.) of the society at large. While adducing that the VR system is a microcosm of the larger society is not a novel concept, the repercussions of such an impression by the larger society on African Americans and people of colour is many times unproductive to the mission of rehabilitation agencies in the USA, which is to assist people with disabilities to get or maintain jobs. As Wilson *et al.*² recently reported, because the VR system is viewed as a microcosm of society, 'it is not surprising that stereotypes play a role in determining outcomes of certain racial and ethnic groups' (p. 22) in the USA. To add support to the Wilson *et al.*² assertion back in 1999, Smith⁴⁷ recently reported from a national survey that of all racial groups in his investigation that experienced some degree of discrimination in the past 30 days (for example, Asian Americans, White Americans, Hispanics), African Americans tend to experience the most—with White Americans experiencing the least. Although many of the prejudice behaviours of White American VR counsellors may be inadvertent, it is imperative to note that behaviours that unjustly deny African Americans and others with disabilities access to the VR system are not acceptable and definitely

Table 1 Acceptance decision by race/ethnicity in the USA

Ethnic Group	Acceptance Status					
	Not Accepted		Accepted		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
African Americans	53	18	247	82	300	100
European Americans	33	11	267	89	300	100
Native Americans or Alaskan Natives	51	17	249	83	300	100
Asians or Pacific Islanders	29	10	271	90	300	100
Total	166	14	1,034	86	1,200	100

χ^2 (3, $n = 1200$) = 12.612; $p < 0.006$; Cramer's V coefficient = 0.103. Cramer's V squared = 0.010.

unproductive to the many legislative mandates projected in the 1990s to increase access to under-represented and underserved groups in the USA. Though many reasons exist to explain VR discrepancies among racial and ethnic minorities in the USA, the author believes that discrimination is likely to be a primary reason for VR acceptance/eligibility decisions. Based on the empirical research by Rosenbaum⁴⁸ comparing Black and White Hispanics, the author also adduce that the hue of one's skin is more salient over one's ethnicity. To further support this hue assertion, Dana⁴⁹ asserted that '[i]n a society increasingly aware of conflict, dissension, and acrimony between and among all cultural groups, ethnicity has greater importance than other provider or service variables' (p. 91).

Because many VR agencies in the US are selecting to serve people with *severe* disabilities over people with *non-severe* disabilities (order of selection), one would expect that the *order of selection* procedure would increase the chances of African Americans with disabilities being accepted for VR services, given that racial and ethnic minorities tend to present with proportionally more disabilities and severe disabilities in the USA. The over-representation of severe disabilities among racial and ethnic minorities is supported when one compares the data from the US Bureau of the Census 2001 and RSA-911. In particular, African Americans represent only 12.3% of the total US population, but reported 22% of severe disabilities in the VR system in 1998. Although African Americans are over represented in the VR system with disabilities; they are still less likely to be accepted for VR services. Although not significant but in comparison to African Americans in the USA, White Americans represent 75% of the total US population, but reported 76% of severe disabilities in the VR system in 1998. Since American Indians or Alaskan Natives and Asian or Pacific Islanders racial groups were combined in the RSA database, severe disability comparisons could not be made to US Census 2000 data.

As the results of this investigation reveal, even when education, type of disability, disability severity, and socioeconomic status are controlled, African Americans are still more likely to be rejected for VR services. It is also important to convey that discrimination can take place in an overt or covert manner. As Wilson *et al.*² recently reported, VR counsellors' closing/terminating African American customers before they can successfully complete the rehabilitation process continues to be problematic. Terminating African Americans as 'failure to cooperate' is only one possible example of an overt discrimination in the VR system suggested by

Wilson *et al.* Clearly, failure-to-cooperate is a common theme when one looks at past VR outcome studies examining reasons why African Americans are closed unsuccessfully.^{2, 24, 50, 51} RSA³⁵ defines failure to cooperate as 'an individual's actions (or non-actions) convince the counsellor that it is not possible to begin or continue appropriate rehabilitation services. Non-cooperation would include repeated failures to keep appointments for assessment, counseling, or other services' (p. 44). Because counsellors and clients, regardless of ethnicity, tend to have different world views,⁶ contrasting values may result in White VR counsellors closing African Americans customers as non-cooperative. It is likely that cultural mistrust on the part of African American customers and negative stereotyping on the part of European American counsellors, may contribute to the high rate of unsuccessful closes for racial and ethnic minorities in the VR system. Because the training that VR counsellors receive in university and college programs is *Euro-focused*, counsellors may not be adequately equipped with the skills and knowledge to serve some of the racial and ethnic populations they encounter. Results of the national study by Smith⁴⁷ clearly communicate this lack of exposure and the consequences thereof. It is also tenable that African Americans are also rejecting the treatment options conveyed by White American VR counsellors. Given that most counselling theories and psychological approaches to interpersonal relationships are *Euro-focused* in delivery and content, African Americans' rejection of treatment options projected by White American VR counsellors is a reality, but a daunting commentary on our society. Indeed, several possible justifications for VR acceptance discrepancies in the USA exist. Wilson²⁰ recently adduced that possible discrimination, albeit conscious or unconscious, still may have an unconstructive impact on outcomes for African Americans, specifically, and people of colour, generally, who seek VR services within the USA.

Because race is a salient feature in the USA,^{17, 19, 20, 52} it is possible that customers who classify themselves as Asian or Pacific Islanders may be benefiting (*assimilation*) from some of the same privileges that White Americans benefit from by classifying themselves as White Americans. A primary benefit for Asian or Pacific Islanders claiming to be White American is somewhat obvious (e.g., no pervasive negative stereotypes that would impede interpersonal communication and relationship building and assimilation). In fact, Yagi and Oh⁵³ reported that Asians are stereotyped as the 'model minority'. There is a possibility that health care professionals may attribute fewer health care concerns to

consumers with a lighter hue, like Asian American than other darker hue racial and ethnic minority groups. Because one's hue determines many benefits in our society,⁵⁴ it is speculated that the model minority stereotype combined with the positive benefits of a lighter hue facilitates the acceptance process for Asian or Pacific Islanders, when compared to other groups in the study at hand. Five years earlier, Rosenbaum⁴⁸ also confirmed the hue assertion recently adduced by Wilson and Senices.⁵⁴ Further empirical support is inferred by Herbert and Martinez.²⁶ Although Herbert and Martinez did not indicate whether the Hispanics used in their study were primarily Black or White, people of colour (African Americans and Hispanics) were more likely to be found ineligible for VR services than White Americans in their study. To further support the concept of assimilation, the US Bureau of the Census⁴⁰ reported that the greatest combination of races under the Asian racial category were Asian and White American (52% of the Asian population reported only Asian and one or more other races). The trend to assimilate for other racial and ethnic groups is also found among Hispanics and the Native Hawaiian and Pacific Islander populations in the USA. As reported by the US Bureau of the Census,⁴⁰ a significant number of Native Hawaiian and Pacific Islanders report being White American. To further lend credence to the assimilation contention that Asian or Pacific Islanders may be passing and assimilating as White American, of all racial and ethnic minority groups in the national RSA database (African Americans, Native Americans or Alaskan Natives or Asians or Pacific Islanders), the only group to increase substantially when the Hispanic ethnicity (mostly White American in the database) is held constant was Asians or Pacific Islanders. Moreover, when the author examined the 1998 RSA national 911 database, the results revealed that 91% of Hispanics classify themselves as White American. Historically, it must be noted that similar assimilation patterns could also be found in other ethnic groups who may have a similar phenotype to White Americans in the USA.^{54, 55} Notwithstanding certain physical traits that may or may not describe certain races (e.g., height and shape of eyes), the author adduce that race is salient because the hue of one's skin is the first characteristic one observes before SES or many of the other demographics that have been associated with VR acceptance and eligibility. To reinforce the saliency of race/ethnicity, Dana⁴⁹ asserted that '[i]n a society increasingly aware of conflict, dissension, and acrimony between and among all cultural groups, ethnicity [race] has greater importance than other provider or service variables' (p. 91).

In short, the hue of their skin keeps African Americans and people of colour from truly assimilating into the European American culture.⁵⁵ Furthermore, Bennett asserts that:

The second and third generation of White ethnic groups who did not appear racially different from the Caucasian core could, if they so chose, give up their language and traditions, change their names, and assimilate. However, this was not possible for African Americans . . . or darker-skinned Mexican Americans. (p. 87)

Evidence of the hue assertion is also found in several areas of professional inquiry. For example, in the area of sociology/demography, Smith⁴⁷ recently reported empirical findings from a national survey that showed discrimination is likely to be more prevalent for African American than for any other racial group in the USA. To add further support to the hue assertion in the medical field, Schulman *et al.*⁵⁶ reported that race/ethnicity determines the kind of health care received, even after controlling for a host of other variables in their study (e.g., age, gender, insurance coverage, SES, access to health care). On a related note, the Federal Bureau of Investigation (FBI)⁵⁷ reported that African Americans are more likely to have hate crimes committed against them than any other group in the USA (e.g., religious affiliation, sexual orientation, ethnic or national origin, disability, and multiple prejudices). Unfortunately, while other kinds of prejudices exist against people in the USA (e.g., sexism and homophobia), research suggests^{19, 20, 54, 55, 57} that the hue of one's skin seems to be a salient feature in identifying individuals for discrimination. Thus, VR acceptance may be influenced by race (skin hue) and how people perceive racial and ethnic minorities in the USA, as indicated by several research teams. Research also suggests that African Americans (people of colour) tend to have different experiences prior to entering the VR system, and these differences emerge in areas that influence the quality of education, health care, wages received, and possibly VR acceptance. Researchers^{2, 20, 55} also suggest that negative stereotypes about African Americans are possible reasons for discrepancies in many of our human service organizations. Although the author adduces that there is a certain amount of inter-correlation among the litany of variables that are likely to lead to discrimination (e.g., gender, age and sexual orientation), quantitative and qualitative evidence suggests that race (skin hue) supersedes most demographic variables (e.g., SES,

gender, and age) in bias saliency in the USA, as Smith⁴⁷ and others recently empirically reported.

Limitations of the study

While the author attempted to control for several confounding variables by employing a random sample and using a relatively large sample size, several limitations exist with the study at hand. First, the results can only be generalized (external validity) to the independent and dependent variables, and the variables controlled/ held constant in the investigation, which were: (1) customers who had completed a high school education; (2) had etiology unknown as a disability under the major disability category; (3) had a severe disability; and (4) reported no earnings the week before completing an application for VR services. Although African Americans were more likely to be found ineligible for VR services, while Asian or Pacific Islanders were more likely to be accepted for VR services, one should not contribute a cause and affect to VR acceptance in the USA based on one's race/ethnicity. For example, being Asian or Pacific Islander does not cause one to be accepted for VR services. Conversely, being African American does not necessarily cause one to be denied VR services. Because the study at hand is an *ex post facto* study that used archival data, the author can only say that there is a correlation/association between ethnicity and VR acceptance in the USA, and that other studies in the human services have found congruent evidence of discrepancies with African Americans and other racial and ethnic minority groups.

Ecological generalizability. 'Ecological generalizability refers to the degree to which results of a study can be extended to other settings' (p. 95).⁵⁸ Because the results of the study at hand are considered a microcosm of the general society in the USA,^{2, 20} and that several analogous discrepancies exist in different contexts in health care and the human service professions,^{48, 56, 59, 60} these results could be generalized to other counselling and human service settings in which the majority of the counsellors/therapists are White Americans serving populations other than White Americans, for example. Because of images projected in the print and television in the USA, it is somewhat normal for people of any particular race or ethnic group to structure stereotypes and prejudices of groups who may or may look, speak, or behave differently than they do. Unfortunately, we see similar patterns throughout the world when the dominant culture in a larger society (such as White Americans) perceives minority cultures in a less than favourable manner. In many respects,

the results of the investigation at hand are not surprising given the current state affairs of race relations in the USA and in North America. Although ecological generalizability seems appropriate for the study at hand, limitations must be considered for the population in which the sample was drawn.

Ways to decrease racial stereotypes and prejudices in VR

As there are many reasons to explain why African Americans are more likely to be found ineligible for VR services, so there are as many ways to decrease racial and ethnic stereotypes in VR in the USA. The national survey conducted by Smith⁴⁷ in 2000 reveals that increasing contact with groups different from oneself is at the top of the list. Another important aspect to decreasing racial stereotypes and prejudices in VR is being open to changing one's opinion and perceptions about groups who may speak and/or look differently than White Americans.

An important prerequisite to being flexible and open is one's willingness to change one's stereotypes of racial and ethnically diverse groups. Flexibility is the crux of change that must occur in order to influence change within any system or person. As Rosenthal and Berven²³ recently reported about VR counsellors in training, not only are VR counsellors likely to prejudge African Americans based on prior negative stereotypes, but when they receive information contradicting these stereotypes, VR counsellors tend to resist changing their preconceived stereotypes. Antidotal and prior research suggest that when African Americans present themselves in a manner consistent with negative stereotypes held by White Americans, they tend to trigger or exacerbate negative evaluations, thus calling into question whether racial and ethnic minorities are being served adequately in both the VR system and in human services areas as well. It is obvious that systems and persons must be willing to modify existing negative stereotypes to positively enhance VR experiences for African Americans and other racial and ethnic minorities. In brief, VR counsellors should be open to being more multiculturally competent. Sue *et al.*³⁹ reported the following conditions are inherent in multicultural competencies:

- (1) Multiculturalism accepts multiple world views;
- (2) Multiculturalism embraces social constructionism;
- (3) Multiculturalism is contextual in behaviour;
- (4) Multiculturalism offers choices in world view; and
- (5) Multiculturalism supports a relational view of language.

While the multicultural competencies mentioned by Sue *et al.* are a goal for all counsellors, applying these multicultural competencies may prove to be difficult. Research suggests that VR counsellors (in training) tend to be resistant to changing their initial perceptions about African Americans,²³ a common refrain. However, it is vital that all human services providers try and persist to assist individuals from all races and ethnicities to have access to services and goods.

In 2000, Smith⁴⁷ reported that group contact is associated with feelings of closeness and an increased understanding of discrimination regarding minority groups in the USA. Another finding in the Smith study indicated that as group contact increases, those individuals rating intergroup relations as a priority also increase. Meaning, the more contact White Americans have with African American customers, the more empathy White Americans will have towards racial and ethnic minorities, yielding a better understanding of racial and ethnic minorities. It is also adduced that this better appreciation will result in fewer stereotypes of African American customers in the VR system, as Smith suggested. While there are several potential barriers to gaining more contact with different groups, these suggestions should be viewed as a starting point, not only to enhance understanding and empathy of racial and ethnic groups in the USA, but to increase one's understanding of one another, regardless of race or ethnic group affiliation. In short, increased group contact is not a panacea for problems faced in the VR system and other human services organizations. Because the USA is still segregated in many parts of the country, contact with other groups can be achieved by having students in rehabilitation programs to do some of their:

- (1) Practicum experiences in racial and ethnically diverse milieus (e.g., mental health centers and VR agencies in larger cities);
- (2) Internship training in racial and ethnically diverse milieus; and
- (3) Mandatory classes in areas that will expose students to other groups they are likely to serve once their program of study is complete.

Future research

As recently observed in Marnetoft and Selander,⁶¹ there can be several discrepancies in VR outcomes when numerous research teams investigate the same research questions. As noted by the recent attention given to VR acceptance in rehabilitation professional journals,^{18–20, 25} gaining access to VR services for African

Americans and people of colour with disabilities is still a concern that researchers need to periodically revisit. Because the study at hand used a different approach than past researchers to rule out extraneous variance in the independent variables by controlling particular independent variables, other research teams may want to employ similar techniques to investigate access to VR services by ethnicity. Although less personal and disconnected than face-to-face interviews, examining the files of customers could also be used to investigate possible reasons for VR outcome discrepancies among White Americans and people of colour in the VR system. It would also be interesting to ascertain whether the findings from database VR acceptance research would be supported by the findings of qualitative investigations, such as interviews from customers and counsellors throughout the USA, or by a selected region. Because there is a consensus regarding VR acceptance studies, employing a qualitative approach will add additional information to consider when looking at VR acceptance and ethnicity in the USA. Investigating VR outcomes relative to groups meeting, Jakobsson *et al.*⁶² employed both a qualitative and quantitative approach in their study. Using such a triangulation method may prove useful for future researchers.

Conclusion

Taking up past researchers' challenge to control more variables when examining VR acceptance and race/ethnicity, the results of the present investigation revealed that African Americans are still likely to be rejected for VR services after controlling for education, type of major disability, disability severity, and SES in the USA. While discovering that African Americans are more likely to be rejected for VR services was not surprising, discovering that Asians or Pacific Islanders are more likely to be accepted for VR services than African Americans was unexpected, given that past VR acceptance research adduced that White Americans, not Asian or Pacific Islanders, are more likely to be accepted for VR services when compared to African Americans with disabilities. While a preponderance of VR research indicates that White Americans are more likely to be accepted for VR services than African Americans, it was also unexpected that White Americans were not statistically significant when education, type of major disability, disability severity, and SES were controlled. Comparatively, this departure from prior research may have occurred because of the variables controlled for in the investigation. Based on prior VR acceptance research^{20, 25, 30} and conjecture, it appears

that VR acceptance outcomes may depend on the variables investigated and/or controlled. While the results of this investigation challenged the results of past research team's examination of VR acceptance and ethnicity (for example, European Americans are likely to be accepted for VR services when compared to African Americans with disabilities), a common refrain consistent with the consensus was supported by the study at hand, in that African Americans with disabilities are more likely to be found ineligible for VR services than any other racial/ethnic group in the USA.

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