

# Status overview of vocational rehabilitation services for Asian Americans and Pacific Islanders with disabilities

Weol Soon Kim-Rupnow<sup>a,\*</sup>, Hee Chan Park<sup>b</sup> and David E. Starbuck<sup>a</sup>

<sup>a</sup>University of Hawaii at Manoa, Honolulu, HI, USA

<sup>b</sup>Catholic University of Korea, Seoul, Korea

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**Abstract.** Asian Americans and Pacific Islanders (AAPI) with disabilities have been under-served in the Rehabilitation Services System for decades and little research has been published with specific data depicting their overall status. The purpose of this study is to investigate the status of rehabilitation services provided to this target population. Utilizing the 1999–2000 RSA-911 database, the percentages of AAPI with disabilities served by vocational rehabilitation system are compared with the percentages of AAPI in the general population of each state in the US. Then, three elements of rehabilitation services (sources of referral, type of closures, and work status at rehabilitated closure) are used to describe the delivery of rehabilitation services in the top five states ranked by total AAPI population. Study results are discussed and recommendations presented.

## 1. Introduction

Vocational Rehabilitation (VR) services administrators and counselors are likely to see a substantial increase of racial minority applicants in the new millennium [34]. The state-federal vocational rehabilitation system provides a major service delivery program for people with disabilities to assist them in attaining employment and independent living. It has been noted, however, that participation by racial minorities within vocational rehabilitation has not been at the levels warranted by their need, taking into consideration their proportion of the population [1,7,12,28]. This raises the question, “To what extent are these minorities underrepresented?”

Numerous studies over the past decade have investigated the provision of VR services to Americans with disabilities in conjunction with their racial minority

background [1,2,6,7,17,27,28,30,31,33]. A majority of these studies found some disparity based on the racial status of VR service applicants. For example, Atkins and Wright [1] found that African Americans were proportionately less often accepted for VR services than White Americans (according to RSA-911-data manual [1995], White is defined as “a person having origins in any of the original peoples of Europe, North Africa, or the Middle East” [p. 5]). Herbert and Martinez [12] investigated whether ethnicity was correlated with types of closure. They determined that minority individuals were less likely to be accepted for VR services. Dziekan and Okocha [6] presented the differences in the accessibility of rehabilitation services between minorities with disabilities and White Americans with disabilities for the years 1985 through 1989. They found that White Americans were accepted for VR services at a higher rate than were minorities.

More recently, Wilson [31] investigated the disparity of VR acceptance based on race, education, work status, and source of support at application. The study revealed that White Americans were more likely to be accepted for VR services than were African Ameri-

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\*Address for correspondence: Weol Soon Kim-Rupnow, Ph.D., Center on Disability Studies, University of Hawaii at Manoa, 1776 University Avenue, UA4-6 Honolulu, HI 96822, USA. Tel.: +1 808 956 5712; Fax: +1 808 956 5713; E-mail: kimrupno@hawaii.edu.

cans, which was consistent with the studies of Atkins and Wright [1], and Herbert and Martinez [12], and Dziekan and Okocha [6]. Wilson [35] further sought to determine if minorities (African Americans, Indians or Alaskan Natives, and Asian Americans or Pacific Islanders [AAPI] with disabilities) were different from White Americans with disabilities in regards to acceptance for VR services. The study indicated that White Americans were more likely to be accepted for VR services than were African Americans. There were no statistical differences between American Indians, Alaskan Natives, and AAPI.

However, Wheaton [29] found no differences between White Americans and African Americans in terms of acceptance rate. Wilson [30] also presented that there were no statistically significant differences in acceptance rates for White Americans and African Americans in one state. Although these studies investigated disparity in acceptance rate based on the category of race in VR services data, their answers were divided. In addition, their diverse sampling and methodologies made it even more difficult to provide a conclusive answer to the question of whether VR services disparity exists based on racial status. When examining these studies regarding issues specific to AAPI, a majority of them completely exclude AAPI from their investigation with the exception of a few [2,6,27,33].

The limited amount of information available on AAPI has been a major obstacle to developing appropriate policies and practices that address the needs of this minority group [19]. The Rehabilitation Services Administration (RSA), under the US Department of Education, recognized these needs and funded the National Technical Assistance Center (NTAC) for AAPI with disabilities in 2001 in addition to two other technical assistance centers for minority groups, American Indians and Latino Americans with disabilities respectively. The purpose for developing the centers was to increase employment opportunities and culturally relevant vocational rehabilitation services for these minority groups nationwide. The authors of this article, staff members of NTAC-AAPI, initiated literature reviews as part of their efforts to assess the needs of various stakeholders including AAPI with disabilities and their families as well as VR service providers. As they reviewed the studies published, it became increasingly apparent that very little empirical data existed on the various factors related to AAPI receiving state-federal vocational rehabilitation services.

During this process, four primary research questions emerged to form the foundation for this study: (1) To

what degree were AAPI underrepresented and underserved in the VR system? In general, minority individuals with disabilities were found to be proportionately underrepresented in vocational rehabilitation services compared with the overall disability community [15]. Although AAPI has been one of the fastest growing minorities in the US over the past decade [18], little is known about the overall status of AAPI in vocational rehabilitation programs. (2) What sources of referral helped AAPI apply for VR services? A primary reason for AAPI under-representation in the VR system appears to be cultural, hiding family members with disabilities from the public due to shame or overprotection and consequently not seeking employment opportunities [9]. The information on referral sources may help develop effective AAPI outreach strategies. (3) What types of closure were most prevalent with AAPI who entered the VR system? (4) What types of jobs did AAPI receive at closure? The ultimate goal of the services provided by the state/federal VR system is a successful employment outcome for the consumer served. Therefore, questions 3 and 4 may help expand the VR knowledge base in terms of research and practice for AAPI. This study was undertaken to investigate these questions. The results can assist in developing research-based strategies for increasing employment opportunities and culturally relevant VR services for this target group nationwide.

Reasons for addressing the concerns of AAPI with disabilities, and minorities with disabilities in general, arise from several perspectives. The number of minority persons with disabilities is increasing and will continue to increase, and the future workforce needs of America will be met not only by its diverse racial and ethnic populations, but also by persons within those populations who have disabilities [15,16].

## 2. Method

### 2.1. Data sources

There were two types of data sources: (a) General population data that came from US Census Bureau, Census 2000 Summary File 1 [25] and (b) vocational rehabilitation services data from the Rehabilitation Services Administration's RSA-911 data reporting system. The RSA-911 data system is one of the largest national data collection efforts addressing employment of all consumers who applied for vocational rehabilitation services from state or federal agencies. It is updated

annually and serves as the basis for examining the effectiveness of the agencies in assisting persons with disabilities in obtaining employment. The most current data available at the time of this study, RSA-911 data collected between October 1, 1999 and September 30, 2000, was used in comparison with general population data and to investigate three VR service variables of research interest. Coding procedures for the data conformed to federal guidelines established by RSA in 1995 [20].

The total population consisted of 624,250 cases who closed for services to VR agencies or to the Bureau of Visual Services Agency in the US. From this total population, 617,102 cases were identified as having no missing values in the category of race and, from these, 8,519 cases were identified as AAPI.

Since each state has its own policies and procedures in the provision of VR services, it is important to determine how each state differs in terms of various elements of VR services. Because of the huge amount of national data, investigation for this study focused on the top five states with the largest AAPI populations. These top five states included California, New York, Hawaii, Texas, and New Jersey and, collectively, comprised 61% of the total number of AAPI residing in the United States and 58% of the total number of AAPI consumers applying for VR services throughout the country.

## 2.2. Variables

To be able to answer the four questions posed, the study focuses on: (a) Overall overview of representation of AAPI with disabilities in the VR service system nationwide; and (b) three major elements of VR service provision – sources of referral, acceptance of services, and work status at rehabilitated closure including type of closure in the top five states with the largest AAPI populations. A brief overview of the research framework is shown in Fig. 1.

*Representation* of AAPI in the VR service system is measured by comparing the ratios of general population and AAPI population in each state, as used in Dziekan and Okocha [6].

*Source of referral* refers to the agency, organization, institution, or person initially bringing the applicant to the attention of the state rehabilitation agency. Source of referral in the RSA-911 system was coded under seven categories: Public and private educational institute; public and private hospitals and sanatoriums; health organizations and agencies; welfare agencies;

public organizations and agencies; private organizations and agencies; and individuals [20].

*Type of closure* is derived from the point in the vocational rehabilitation process at which the applicant's case was closed out [20]: Closed, not accepted for VR services, from the applicant status (status 08 from status 02); closed, not accepted for VR services, from extended evaluation (status 08 from status 06); closed rehabilitated (status 26); closed, not rehabilitated, after individualized written rehabilitation program initiated (status 28); closed, not rehabilitated, before individualized written rehabilitation program initiated (status 30); closed from the pre-service listing (status 38 from status 04). Among all six exit points, statuses 26, 28, and 30 were regarded as accepted for VR services while three other exit points, status 08 from 02, status 08 from 06, and status 38 from 04, were regarded as not accepted for VR services.

*Work status at rehabilitated closure* defines the work activity performed in the week prior to rehabilitation closure. The six work status codes that apply are as follows: Competitive employment; extended employment (workshops); self-employment; state-agency-managed business enterprises; homemaker; unpaid family worker [20]. Both competitive and extended employment are wage or salaried workers, whereas the other four work status are neither waged nor salaried.

## 2.3. Data analysis

Descriptive statistics were used to analyze the status of rehabilitation services for AAPI. The personal computer version of Statistical Package for the Social Sciences [22] was used to calculate percentages of sources of referral, VR service acceptance, and work status at rehabilitated closure for AAPI with disabilities in five states containing the largest populations of AAPI with disabilities. Also, this study analyzed the average percentages of sources of referral, VR service acceptance, and work status at rehabilitated closure of these top five states, AAPI total, and all races of population.

## 3. Results

### 3.1. Representation of AAPI in VR service system

Table 1 depicts total overall population by state throughout the country, total AAPI population, total overall population closed for VR services and total AAPI population closed for VR services in all 50 states

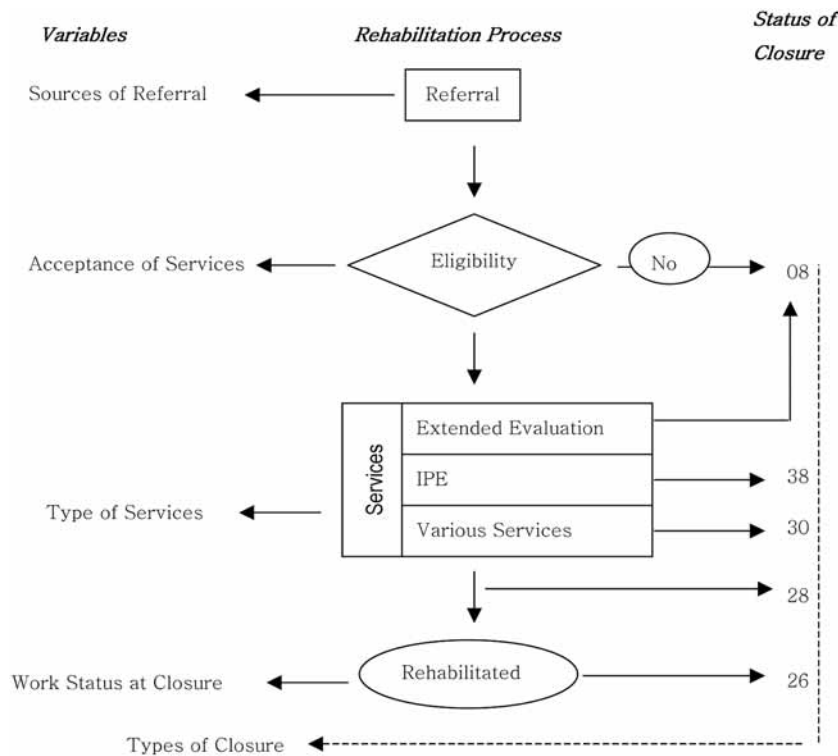


Fig. 1. Research Framework.

and the District of Columbia. Ratios comparing the percentages of total AAPI population to the percentages of total AAPI applicants for VR services in each state show that this group is underrepresented in 48 out of 50 states and the District of Columbia. The total population in this table contains 4.54% AAPI yet only 1.31% of total VR applicants are AAPI. The percentage of AAPI applicants for VR services is more than three times smaller than the percentage of AAPI in the total population of the entire US.

The total population of the top five states, California, New York, Hawaii, Texas, and New Jersey, contains 9.34% AAPI yet only 2.80% of total VR applicants in these five states are represented by this minority group. The percentage of AAPI VR applicants is approximately three times smaller than the percentage of AAPI in the total population of these states. This pattern of under-representation of AAPI in these states is similar to the national pattern.

### 3.2. Three elements of VR services

#### 3.2.1. Sources of referrals

Table 2 includes seven sources of referrals: Educational institutions, hospitals and sanitariums, health

organizations and agencies, welfare agencies, public organizations and agencies, private organizations and agencies, and individuals. Overall, when comparing all races in Table 2, two distinct patterns emerge: (a) a relatively high percentage of AAPI referrals from educational institutes; and (b) a noticeably low percentage of referrals from welfare agencies and public organizations.

Each state tends to have a different pattern in using source of referrals. Referrals from “educational institutes” are higher, especially in California and New Jersey, than the average of the top five states, while referrals from “individuals” are noticeably higher in Hawaii and Texas than in California, New York or New Jersey. Referrals from “health organizations and agencies” are clearly higher in California and New York. California referrals in this category are nearly 10% higher than the average of the top five states. New York and New Jersey referrals from “hospitals and sanitariums” are also high, while referrals from “welfare agencies” in the top five states are lower than the national averages of both total AAPI and total of all races. New Jersey and New York referred more AAPI from “public organizations and agencies.” In the category of “private

organizations and agencies,” New Jersey, Texas and Hawaii have higher rates of referral.

### 3.2.2. Type of closure

Types of closure, as indicated in Table 3, are classified as “not accepted for VR services” or “accepted for VR services.” Under these two classifications, the percentages in six specific types of closures are similar between AAPI total and all races, although the percentages vary broadly among the top five states. For example, closures at applicant status are much higher in Hawaii and New Jersey than California and New York. Total AAPI “not accepted for VR services” is higher in Hawaii and New Jersey than the average of the top five states. The average total “not accepted” closures in the top five states is lower than the national averages of both total AAPI and total all races. The average total “accepted for VR services” in the top five states is slightly higher than the national averages of both total AAPI and total all races. The acceptance rate for both total AAPI and total all races is approximately 80%, and it appears to be that there is no racial discrepancy without further statistical analysis of the difference.

“Rehabilitated closures” in Texas exceed the average of the top five states by nearly 10%. New York and New Jersey also experience higher rates of closures in this category. The average percentage of “rehabilitated closures” in the top five states is similar to the national average for total AAPI, but lower than the total of all races. In the category of “not rehabilitated after IPE,” California, Texas, and Hawaii all had higher rates of closure than the average of the top five states, while total AAPI and total of all races averaged lower closure rates.

### 3.2.3. Work status at rehabilitated closure

Work status at rehabilitation closure data from Table 4 shows little difference between “all races” and “total AAPI,” but there are distinct differences among the top five states. “Competitive employment” at rehabilitated closure is higher in Texas and California, and it is much lower in New York, Hawaii, and New Jersey in comparison with the average of the top five states. The average of the top five states in this category is lower than the national averages of both total AAPI and total of all races. “Extended employment” for AAPI at rehabilitated closure in New York and New Jersey, for example, was three times higher than the average of the top five states while California and Texas registered very few in this category. The average of the top five

states was similar to total AAPI but higher than total of all races.

In other categories of Table 4, Hawaii is the only state of the top five with an AAPI “self employment” rate at rehabilitated closure more than three times higher than the average of the top five states, while California registered zero in this category. In addition, New Jersey and Hawaii have higher rates at rehabilitated closure of “state managed business” than the average of the top five states, while Texas and Hawaii counted any “unpaid family work” as a rehabilitated closure. Extended employment for AAPI at rehabilitated closure in New York and New Jersey was three times higher than the average of the top five states, while California and Texas were very low. California is the only state of the top five with a higher than average percentage of “homemakers” at rehabilitated closure.

## 4. Discussion

### 4.1. Limitations of the study

This study used an ex post facto research method that evaluated the database from RSA’s reporting system. Consequently, a causal relationship between elements could not be established. The RSA-911 is a useful data set for investigating employment outcomes from the VR system, but it does not describe all unique aspects of consumers served, the nature of services provided, and the outcomes realized in details. Because of its quantitative nature of the data reporting system, it revealed certain discrepancies that could not be explained clearly. In addition, the RSA-911 is a compilation of the reports provided by each state and it is possible to include some inaccurate interpretation or variation of data entry depending on the personnel who reported and entered.

In addition, there are multiple elements relevant to the effective delivery of VR services to AAPI with disabilities. These elements include gender, education at application, work status at application, primary source of support at application, severity of disability, use of assistive technology, reasons of closure, and time in rehabilitation [33]. Other outside uncontrolled elements could also influence the results of the study, including household numbers, poverty level, gender, and public attitudes on disability [8]. These factors are not taken into consideration in this study.

Finally, in attempting to assess the current AAPI status of VR services nationwide, the study used a popula-

tion database. Disability ratios vary depending on ethnic groups because of many factors affecting disability. These ratios are not available based on ethnic groups or states. A more accurate ratio of under-representation for AAPI by each state may be obtained when all these factors are accounted for proportionately.

#### 4.2. Under-representation of AAPI

This study was undertaken to investigate how the VR system currently services AAPI with disabilities, a minority group that could easily remain underserved and difficult to reach. It compared AAPI ratios in the general population with AAPI ratios in the VR service system in each state. In addressing the first question, “Are AAPI with disabilities under-represented in the VR system?” statistics from Table 1 depict AAPI as under-represented in 48 states, with an exception of two, Alaska and Indiana. Ratios in Table 1 comparing the percentages of total AAPI population to the percentages of total VR services closed for by AAPI, show that AAPI are approximately three times less likely to be closed for VR services than all races combined. It is, however, interesting to note a possible trend indicating that AAPI closure ratios for VR services have been increased when comparing 0.3–0.4% of AAPI in a similar comparison study conducted by Dziekan and Okocha [6] based on RSA-911 data during fiscal years 1985–1989 in a Midwestern state. Unfortunately, the authors did not specify the name of the state and it is difficult to compare with the results of the current study.

However, caution is needed in reviewing the results. First, the under-representation ratios are based on the number of people who closed for VR services, not on the services actually provided. In fact, the descriptive statistics from Tables 2–4 provide no evidence of AAPI discrepancy in comparison with total races in terms of VR service provision. As discussed in the limitation of this study, it is also difficult to determine accurate ratios of under-representation considering there is little information available on the percentage of persons with disabilities in total AAPI and total population. Some minority groups may have a higher prevalence of disability and may have affected the ratios of applications and acceptance for VR services. Studies reported that certain minority groups were over-represented while AAPI was under-represented in special education and disability counts [4,5,13,24,34]. For example, the Survey of Income and Program Participation (SIPP) estimates of prevalence of disabilities among the US population indicate that 13% of the AAPI population has

some type of disability [24]. The prevalence rate of AAPI with disabilities was lower than that of White Americans, which was reported as 20.4%.

These lower percentages of AAPI closures in the VR service system may indicate that (1) AAPI individuals are less likely to seek VR services because they are often inclusive, interdependent within family members, and distrusting of authorities [9,19]; and (2) the vocational rehabilitation system needs to be more responsive to the unique needs of minority populations, such as developing and implementing outreach strategies by VR agencies that effectively target AAPI communities [34]. However, should VR case workers and administrators be expected to initiate such programs without policy makers creating specific incentives to do so? Indeed, have enough studies been conducted to produce the empirical data needed to effectively assist policy makers in this process?

#### 4.3. Differences in three elements of VR services

This study also investigated three elements of VR services in the top five states with the largest AAPI populations. Because of the proportionately low number of AAPI with disabilities applying for state-federal VR services as shown in Table 1, determining the source of referral is important in developing effective outreach strategies and tailoring services accordingly. No previous VR studies published focused on source of referral. Given the findings of this study, as depicted in Table 2, increased efforts to locate AAPI who may qualify for services should be provided by various public and private organizations including educational institutes, welfare agencies, and health care providers. In addition, interagency cooperation should also be increased to identify AAPI with disabilities and to provide additional services.

Further observations of Table 2 reveal that the percentage of “Individuals,” consisting of self-referrals, physicians and other individuals, as a source of referral is much higher in Hawaii and Texas than in than in California, New York or New Jersey. However, “health organizations and agencies,” comprised of community rehabilitation programs, mental health centers and other public and private health organizations, is more than three times higher in California as a source of referral than in Hawaii, and more than 14 times higher in California than Texas. These observations spark curiosity about how current practices, policies and resources differ among VR agencies in various states. Could greater collaboration among service providers produce field-

Table 1  
Comparison of AAPI Population and VR Services by State

State	AAPI Population (a)	Total Population (b)	AAPI VR Case Closures (c)	Total VR Case Closures (d)	AAPI Population Ratio (a/b*100)	AAPI VR Service Ratio (c/d*100)
California	4,377,143	33,871,648	1,969	41,003	12.9	4.8
New York	1,197,812	18,976,457	482	44,080	6.3	1.1
Hawaii	985,899	1,211,537	1,448	1,975	81.4	73.3
Texas	673,287	20,851,820	652	66,856	3.2	1.0
New Jersey	534,421	8,414,350	135	13,293	6.4	1.0
Illinois	485,497	12,419,293	145	17,816	3.9	0.8
Washington	438,502	5,894,121	346	11,434	7.4	3.0
Florida	357,011	15,982,378	170	31,747	2.2	0.5
Virginia	314,543	7,078,515	161	10,672	4.4	1.5
Massachusetts	273,518	6,349,097	184	11,698	4.3	1.6
Pennsylvania	257,391	12,281,054	109	24,205	2.1	0.5
Maryland	244,587	5,296,486	110	9,220	4.6	1.2
Michigan	215,605	9,938,444	120	17,992	2.2	0.7
Georgia	209,501	8,186,453	47	9,861	2.6	0.5
Minnesota	168,281	4,919,479	184	10,709	3.4	1.7
Ohio	166,760	11,353,140	86	21,053	1.5	0.4
North Carolina	144,786	8,049,313	165	29,115	1.8	0.6
Oregon	143,358	3,421,399	208	10,091	4.2	2.1
Arizona	132,087	5,130,632	72	7,828	2.6	0.9
Colorado	130,932	4,301,261	80	7,618	3.0	1.1
Nevada	128,690	1,998,257	48	3,314	6.4	1.4
Wisconsin	107,078	5,363,675	111	15,255	2.0	0.7
Connecticut	99,444	3,405,565	46	4,543	2.9	1.1
Missouri	82,845	5,595,211	94	18,171	1.5	0.5
Indiana	77,206	6,080,485	179	12,282	1.3	1.5
Tennessee	73,496	5,689,283	56	17,466	1.3	0.3
Utah	70,059	2,233,169	91	7,040	3.1	1.3
Louisiana	67,587	4,468,976	45	8,235	1.5	0.5
Oklahoma	63,846	3,450,654	44	9,673	1.9	0.5
Kansas	59,166	2,688,418	30	4,384	2.2	0.7
South Carolina	48,709	4,012,012	65	20,568	1.2	0.3
Iowa	45,315	2,926,324	46	7,358	1.5	0.6
Alabama	42,627	4,447,100	35	13,761	1.0	0.3
Kentucky	40,224	4,041,769	46	14,476	1.0	0.3
Alaska	38,201	626,932	42	1,552	0.6	2.7
Rhode Island	30,073	1,048,319	18	1,616	2.9	1.1
New Mexico	29,688	1,819,046	26	5,609	1.6	0.5
Nebraska	28,542	1,711,263	23	3,237	1.7	0.7
Arkansas	28,530	2,673,400	27	7,838	1.1	0.3
Mississippi	25,182	2,844,658	23	9,427	0.9	0.2
Idaho	20,237	1,293,953	18	4,353	1.7	0.4
New Hampshire	19,996	1,235,786	14	2,940	1.6	0.5
Delaware	19,615	783,600	12	2,044	2.5	0.6
District of Columbia	18,741	572,059	15	1,224	3.3	1.2
West Virginia	12,760	1,808,344	13	6,326	0.7	0.2
Maine	12,619	1,274,923	9	3,707	1.0	0.2
Montana	8,178	902,195	15	3,439	0.9	0.4
Vermont	6,930	608,827	7	2,577	1.1	0.3
South Dakota	6,565	754,844	13	2,327	0.9	0.6
North Dakota	5,442	642,200	6	2,424	0.8	0.2
Wyoming	4,721	493,782	5	1,670	1.0	0.3
TOTALS	12,773,233	281,421,906	8,095	617,102	4.54	1.31

Source: (a) & (b) – US Census Bureau, Census 2000 Summary File 1. (c) & (d) – Rehabilitation Administration Services. RSA-911 Data of 1999–2000.

tested techniques that effectively increase outreach and delivery of services to AAPI with disabilities nationwide?

“Type of closure” has been a key sub data set in-

vestigated by many studies in the VR field [2,7,17,27, 28,35,36]. Two levels of research variables that can be derived from Table 3 are (a) acceptance rates for VR services and (b) rehabilitated rates. Acceptance

Table 2  
Sources of Referral (%)

	Educational institute	Hospital & sanatoriums	Health organizations & agencies	Welfare agencies	Public organizations & agencies	Private organizations & agencies	Individuals
California ( <i>n</i> = 1,969)	22.8	3.2	25.5	1.4	9.9	2.6	34.6
New York ( <i>n</i> = 482)	19.5	8.1	17.2	1.0	14.3	3.7	36.1
Hawaii ( <i>n</i> = 1,448)	17.5	2.3	7.7	1.6	9.0	6.9	54.9
Texas ( <i>n</i> = 652)	19.9	4.8	1.8	2.1	11.7	9.2	50.5
New Jersey ( <i>n</i> = 135)	23.0	7.4	11.9	1.5	16.3	9.6	30.4
Top Five States ( <i>n</i> = 4,686)	20.4	3.8	15.5	1.5	10.5	5.2	43.1
AAPI Total ( <i>n</i> = 8,514)	19.7	4.1	14.7	2.4	10.8	4.9	43.4
All Races ( <i>n</i> = 622,815)	17.1	4.1	13.2	3.8	13.2	4.8	43.7

Table 3  
Type of Closure (%)

	Not accepted for VR services				Accepted for VR services			
	Applicant status	Extended evaluation status	Pre-service listing	Total	Rehabilitated	Not rehabilitated after IPE	Not rehabilitated Before IPE	Total
California ( <i>n</i> = 1,969)	10.2	0.5	3.8	14.4	33.5	30.9	21.2	85.6
New York ( <i>n</i> = 482)	11.6	1.2	0	12.9	39.4	17.6	30.1	87.1
Hawaii ( <i>n</i> = 1,448)	20.4	0.1	0	20.5	31.6	28.9	19.0	79.5
Texas ( <i>n</i> = 652)	15.5	0.2	0	15.6	45.1	29.0	10.3	84.4
New Jersey ( <i>n</i> = 135)	17.0	0	0	17.0	37.0	18.5	27.4	83.0
Top Five States ( <i>n</i> = 4,686)	14.4	0.4	1.6	16.4	35.2	28.3	20.1	83.6
AAPI Total ( <i>n</i> = 8,519)	18.7	0.9	1.0	20.6	35.1	24.5	19.8	79.4
All Races Population ( <i>n</i> = 623,981)	17.9	1.2	0.8	19.8	37.9	22.7	19.6	80.2

Table 4  
Work Status at Rehabilitated Closure (%)

	Competitive employment	Extended employment	Self employment	State agency managed business	Home maker	Unpaid family work
California ( <i>n</i> = 659)	90.3	0.6	0	0.2	9.0	0
New York ( <i>n</i> = 190)	81.6	12.6	0.5	0.5	4.7	0
Hawaii ( <i>n</i> = 458)	83.0	7.2	6.6	1.1	1.7	0.4
Texas ( <i>n</i> = 294)	94.6	0	1.0	0	3.7	0.7
New Jersey ( <i>n</i> = 50)	80.0	12.0	2.0	2.0	4.0	0
Top Five States ( <i>n</i> = 1,651)	87.7	4.1	2.1	0.5	5.4	0.2
AAPI Total ( <i>n</i> = 2,994)	90.1	4.1	1.6	0.3	3.7	0.2
All Races Population ( <i>n</i> = 236,212)	89.8	3.0	2.3	0.1	4.6	0.3

rates by race were studied by Dziekan and Okocha [6], Feist-Price [7], Wheaton and Hertzfeld [27], Wheaton et al. [28], Wilson [33], Wilson et al. [35,36]. Among these, two studies investigated the AAPI race and found that AAPI applicants were less likely to be accepted for VR services in comparison with White Americans [6, 36]. In the current study, there appears to be no significant differences between total AAPI and total of all races, while the acceptance percentage of the total top five states is higher than the other two totals. Does this higher acceptance rate in the total top five states imply that VR service providers in these states are more aware of AAPI cultures or that VR policies and practices are favorable to AAPI consumers?

Rehabilitated closure is a strong indicator of successful VR service outcomes. Successful closure may be one of the most important variables studied over the past two decades [2,7,11,17,27,28,35,36]. Although several studies included AAPI as a racial category [2,7, 27,36], there was no clear evidence that AAPI were less likely to be rehabilitated. Only one study indicated that White Americans were most likely to have successful closures compared to other minority groups between those with similar forms of disability [27]. The results on "type of closure," shown in Table 3, raises additional questions on how to better provide services to qualified AAPI individuals on a more consistent basis. What, for example, has Texas done differently to exceed the average of the top five states by nearly 10% in the "re-

habilitated” closure category? Were AAPI consumers who applied for VR services in Texas more employable than those in other states? Were service providers better prepared to help AAPI with disabilities? Was the job market in Texas more robust than in other states during 1999–2000, or were its policies simply more favorable to assisting AAPI consumers in securing jobs? These types of questions can only be answered with a thorough, in-depth investigation of both quantitative and qualitative data from Texas and other states.

Although the results in Table 3 delineate acceptance rates for AAPI as virtually identical to acceptance rates for the total population who apply for services, ratios in six specific categories of closure vary widely among the top five states. For example, the percentage of AAPI referrals who are “not accepted for VR services” from “applicant status” in Hawaii is twice as high as California. Is this a cultural phenomenon attributable to Hawaii having the highest percentage of AAPI residents of all 50 states at 81.4%, while California is a distant second at 12.9%? In addition, the percentages of AAPI referrals who are “accepted for VR services” and “rehabilitated” at closure in Hawaii, depicted in Table 3, are lower than all of the other top five states ranked by total AAPI population, as well as the total AAPI population nationwide. Could this reflect a multiplicity of cultural perspectives not found in other states do to Hawaii’s large AAPI population and ethnic diversity? Indeed, do cultural perspectives and ethnic diversity in different geographical areas throughout the country effect VR application and closure processes?

Work status at rehabilitation closure data from Table 4 does not show a disparity between “all races” and “total AAPI.” In fact, “competitive employment” at rehabilitation closure, a category which refers to working for wages, salaries, commissions, tips or piece-rates, is slightly higher for total AAPI than all races. However, the differences might have occurred by chance and further statistical analyses are needed to determine if the differences are statistically significant. In the category of “extended employment,” referring to working for wages or salary in a setting conducted by a non-profit organization for those not yet ready for competitive employment, there is wide disparity between the top five states. For example, California with the largest number of AAPI residents, placed only 0.6% of AAPI closures in this category and Texas none at all, while Hawaii, with the largest percentage of AAPI population of all 50 states, placed 7.2%, New Jersey 12% and New York 12.6%. Do California and Texas have little or no extended employment programs? If they do, would inter-

agency collaboration increase closures in this category to the benefit of their AAPI clients?

Reflecting further on the results shown in Table 4, another question surfaces – “Could such ethnic and cultural variables influence the types of jobs AAPI receive at closure?” Research indicated that people with disabilities from racial or ethnic minority groups may face “dual disadvantage” within the disability services system as well as in the labor market [10,26].

Another category in Table 4 that bears closer scrutiny regarding its implications for AAPI with disabilities is “self employment.” Although California lists zero self employment closures, Hawaii’s closure rate is 6.6%. Why do VR agencies in Hawaii utilize this option so much more than they do in California? The Research and Training Center on Rural Rehabilitation Services undertook a series of studies on how the Vocational Rehabilitation system uses self-employment as an outcome [23]. The Institute analyzed 34 state VR self-employment policies and procedures that showed almost one-third of the policies contained statements that discouraged the use of self-employment as an employment outcome. In addition, 11 states had no written guidelines or procedures for self-employment and 10 states required that a counselor eliminate all other viable rehabilitation options or salaried employment before considering self-employment. The studies also concluded that office atmosphere towards self-employment influenced a counselor’s use of self-employment as a viable client option and that VR agency’s self-employment policy and procedures influenced the atmosphere in individual offices. However, a report indicates that since the mid-90’s VR agencies have become more open to self-employment as a viable outcome for their clients which emphasized consumer choice in the rehabilitation process [3].

If AAPI communities, though culturally and ethnically diverse, often have strong ties to family, and value education, hard work, self-sufficiency and ambition to excel [14], would self-employment for family members with disabilities be readily accepted as viable for AAPI with disabilities? In addition, would the very process of offering self-employment as a plausible option for AAPI with disabilities help service providers to focus on their clients’ abilities and strengths rather than on their disabilities or perceived weaknesses? Such questions emphasize the need for further studies generating additional data to stimulate development of policies supportive of AAPI with disabilities throughout the country. As the number of minority persons with disabilities steadily increases nationwide, expansion of

employment opportunities and culturally relevant VR services is essential to effectively promote the economic self-sufficiency of AAPI and all minorities with disabilities.

#### 4.4. Implications for further research

This study is significant from the perspective of presenting national data on the status of VR service delivery to one of the fastest growing and most underserved minority groups in the country. It contributes to a knowledge base about AAPI with disabilities in the VR service process. It also prompts more in-depth questions to be answered by future research. Many research questions generated from this study included in the discussion section can be answered by utilizing qualitative methods in addition to the RSA-911 quantitative data.

Descriptive statistics were employed to overview the status of all AAPI applying for services nationwide as well as specific views of VR service elements within the parameters of the top five states. However, more advanced statistical analyses, such as multiple regression, should be implemented in the future to investigate the association of elements using systematic sampling of the RSA-911 data. The use of inferential statistics is also recommended to determine any significant differences among the top five states or between AAPI and all races total data presented in Tables 2–4. No VR studies to date have compared the RSA-911 data between states. Comparison studies would help to improve future VR policies and practices for successful employment outcomes of minority consumers within the states.

Despite acceleration in population growth, very little research has been conducted to determine accurate percentages of AAPI with disabilities throughout the United States or their rehabilitation needs. In fact, this minority group was not even included in 1994–1995 US Bureau of the Census population reports on Americans with Disabilities. Researchers in the rehabilitation field should be encouraged to include minority groups like AAPI that will reflect future diverse demographics and workforce needs in the United States.

#### 4.5. Implications for practice

AAPI under-representation in the VR system needs to be addressed by involving all stakeholders. First, consumers and their family members need to be educated to understand American culture and the value

of independence regardless of disability. They also need to be informed of their rights and responsibilities. VR agencies should empower AAPI with disabilities by providing training regarding their rights established by the Americans with Disabilities Act (ADA) and the availability of rehabilitation services. Furthermore, continued support for AAPI consumers and their families should be provided by these agencies to maintain gains made during rehabilitation.

Second, service providers from VR agencies and other related organizations should develop collaborative relationships and a seamless process of making referrals and educating consumers to take advantage of VR services. Increased efforts to locate AAPI eligible for services, should be provided by welfare agencies, public organizations and agencies utilizing various strategies, including the provision of service-related information written in the consumer's primary language and other consumer-familiar methods. In addition, VR rehabilitation counselors should be encouraged to reach out to AAPI business communities as well as religious and community organizations to provide ADA training, increase delivery of services and make the workplace more inviting and accessible.

Third, administrators and policy makers should develop and implement policies and procedures that will allow VR service providers to access multicultural competency training and provide multicultural and linguistic materials to AAPI with disabilities. Culturally and linguistically appropriate service models and programs, such as self employment as a viable employment option for AAPI, should also be developed to increase successful rehabilitation outcomes. Rehabilitation service providers should also seek to increase employment outcomes for AAPI with disabilities by focusing on businesses operated by AAPI in their respective communities and other community-based channels.

## 5. Conclusion

This study reveals the underserved nature of AAPI with disabilities in 48 out of 50 states and the District of Columbia. It also reveals there is no one source of referral significantly more effective than another in assisting AAPI with disabilities apply for VR services. Also, types of closure percentages vary widely among AAPI in the top five states as do the types of jobs they receive at closure. In addition, improved interagency cooperation may increase both outreach and delivery of services to this target group. Because new policies de-

signed to assist AAPI with disabilities are often based on research findings, it is our hope that this study encourages researchers in the VR field to focus on minority groups, including AAPI, in their future studies. It is also our hope that this study assists vocational rehabilitation administrators and service providers to offer culturally appropriate services to AAPI with disabilities, as they are likely to see a substantial increase of this minority group in the new millennium.

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