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Vocational rehabilitation services for individuals with Spinal Cord Injury

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Abstract. Employment brings many benefits but is often unavailable, inaccessible to or underutilized by individuals with Spinal Cord Injury and other significant physical disabilities. Vocational Rehabilitation Services can provide assistance in obtaining employment, however the extent that these services are accessed, desired or valued by individuals with SCI is unknown. To begin to address this issue, a survey was distributed to individuals with SCI in the Commonwealth of Virginia. Respondents were asked to describe the types of services that they had or were interested in receiving. Information is presented on individuals with SCI between the ages of 18 and 64 years old ($n = 445$), about 46% of whom were working for pay at the time of survey completion. Approximately 32% of respondents reported receiving at least one job-related service, the most frequent of which was vocational counseling (19.8%). No gender differences were found between individuals who did and those who did not receive services. Racial differences were found, with non-Whites more likely to have received services. The services that individuals most frequently reported an interest in receiving included assistance with developing a new job skill (24.2%), assistance with finding a job (21.3%) and retirement planning (19.3%). Once again, no gender differences were found, though significant differences did exist related to both race and employment status. The implications of these findings are discussed and recommendations are made.

Keywords: Vocational rehabilitation, spinal cord injury, employment

1. Introduction and background

For many people, employment brings significant benefits. Employment provides a means of financially supporting one's self and family, facilitates access to health care services, and serves as a basis for relationships and personal identity. Positive relationships have been found between employment status and quality of life after Spinal Cord Injury (SCI) [9,20,21,23–27]. Individuals with SCI who are employed have been found to be behaviorally more active, have fewer medical treatments, complete more years of education, perceive themselves to have fewer problems, are more satisfied with their lives, and rate their overall adjustment higher than those who were unemployed [20,21]. Employment has also been associated with the positive psychological characteristics of optimism, self-esteem, and achievement orientation [8]. However, it is not clear if those characteristics exist subsequent to employment, and serve as a support for searching for, finding, and accepting a job, or if they are developed after and fostered by employment.

The National Organization of Disability's Employability program reports that by year 2008, there will be 2–3 million more jobs than workers [41]. At the same time, it is projected that there will be nearly 4 mil-

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lion unemployed potential workers within the disability community. It is currently estimated that the employment rate of individuals with significant disabilities is 35% (thus, unemployment is approximately 65%); this serves as a sharp contrast to the approximately 81% of individuals without disability who are working [34]. While exact figures for individuals with SCI vary, in the United States employment rates range from approximately 16 to 69% [1,6,10–12,16,22,23,26,35]. Variability between studies exists but is, in part, attributable to differences in the definition of "employment" as well as the employment outcomes measured (full time/part time, permanent, temporary, benefits etc. [19,45] and populations examined in each of the studies. It has been suggested, though, that most individuals with SCI (approximately 75%) will work at some point after their injury [22].

Vocational services are available to assist individuals with SCI and other disabilities begin or return to work. The goal of vocational rehabilitation (VR) services is to assist people with disabilities to successfully obtain and maintain competitive employment in a field of interest, in order to support increased autonomy and full participation in society [3]. The VR system has prioritized services for individuals with significant disabilities in the majority of states [43]; this prioritization currently exists in the Commonwealth of Virginia. However, the perception, use and effectiveness of these services for individuals with SCI have not been determined.

The aims of this study are to describe the types of services that individuals with SCI both want and receive; to determine if differences exist between the services received by employed and unemployed individuals; and to determine if differences exist for either services received or perceptions of services based on either gender or race.

2. Methodology

Data from for this study was extracted from information collected as part of a larger project – the Needs Assessment of Virginians with SCI. The larger project used a mixed method design with both qualitative and quantitative components to collect information of individuals with SCI, particularly from the traditionally underserved populations of women and individuals from racial and ethnic minority groups. This study is based on the quantitative aspect of the project, which is described below.

2.1. Survey development

The *Virginia Spinal Cord Injury* (*SCI*) *Needs Assessment Survey* was created by the research team in 2004. During the survey development period, decisions about survey content were informed by prior research and personal and professional experiences related to living with SCI. Prior research refers to both published and unpublished studies, including a qualitative study of Virginians with SCI from underserved populations that was conducted by the researchers. Personal and professional experiences refer to the experience of the researchers in working with individuals and families living with SCI as well as the experiences of members of the project's advisory board as either individuals living with SCI and/or professionals working with individuals and families living with SCI. The process of survey development was iterative, with repeated review and comment by the research team, the advisory board, and content experts working in the field of SCI. After a period of review and revisions, the *Virginia SCI Needs Assessment* was piloted with a group of purposively selected individuals living with SCI and their caregivers. Instructions were provided to complete the survey and then to answer the 'Survey Feedback Worksheet', enclosed with the survey. The worksheet contained questions about the clarity of survey content, the ease of completion, the sensitivity of questions, and perceptions of survey length. Additional space was provided for comments by the respondent. Although these data were not used in the analysis, this pilot effort provided valuable feedback to the research team and the result was further refinement of the survey instruments. For the purpose of this study, the questions of importance are those related to employment (which can be seen in Fig. 1).

2.2. Sample

The sample for the *Virginia SCI Needs Assessment Survey* was created from a number of sources. The primary source was the Virginia SCI Registry, maintained by Virginia's Department of Rehabilitative Services (DRS).[1] The sample also included individuals

[1] We attempted to verify the contact information for individuals in the registry ($n = 3,265$) during the period in which the surveys were being developed. The result of this effort was verifying 662 records with good addresses, identifying 299 records in which the individual was deceased, identifying 532 records with bad addresses, and 107 records in which the individual either refused or was not injured. There were 1,665 records in which the individual could not be contacted.

who heard about our study through advertising efforts and volunteered to participate. In addition, participants in the qualitative phase of the study also were included in the sample.

2.3. Survey distribution

The survey was fielded using a modified Dillman approach. Each person in the registry was sent a pre-notification postcard that informed him or her about the survey effort. Approximately seven days thereafter, each member of the sample was mailed a survey packet containing the following items: a cover letter, a consumer survey with a postage paid return envelope, a family/caregiver survey with a postage paid return envelope, and $3 as a thank-you for participating in the study. Then, approximately ten days thereafter, a reminder postcard was mailed to the entire sample. Seven days thereafter, a second survey packet (devoid of the $3) was mailed to those not responding to the initial mailing. Once the mail survey phase was completed, phone calls were placed to non-responders in order to generate more completions. The survey was also made available via the Internet and a toll-free number was made available so that respondents could call in and complete the survey. The survey was also available in Spanish.

2.4. Response rate

As mentioned previously, the survey was sent to 2,508 individuals. A total of 908 of these individuals were ineligible.[2] This reduced the valid sample to 1,600. A total of 539 surveys were received[3] from consumers yielding a response rate of 34%. For this study, participants were selected based on age (18 to 64 years old) and completeness of responses, resulting in 445 eligible respondents. It is these individuals on whom the following results are based. Eligible respondents were primarily male (74%), White (70.6%), and likely to have either attended or completed college (50.5%). Their mean age 43.85 (sd = 12.1) and most had been injured at least ten years (42.9%; mean = 10.69, sd = 7.9), though time since injury ranged from 0 to 46. 55.4% of eligible participants had tetraplegia and 44.6% had paraplegia; most participants (78.3%) reported incomplete injuries (e.g., reported having sensation or movement below the level of injury.

[2]Bad Address = 594, Deceased = 262, No Injury = 47, Duplicates = 5, Respondent <18 years of age = 14.

[3]Breakdown by completion method: 529 mail survey, 5 Internet survey, 5 phone survey.

2.5. Statistical analyses

Descriptive statistics, including means and standard deviations, were used to describe the respondents' characteristics. Chi-squared analyses were conducted to determine the extent of association between demographic and health-related variables and employment. All analyses were conducted using SPSS 13.0.

3. Results

3.1. Overall employment results

Approximately 80% of respondents were employed prior to their SCI ($n = 350$). At the time they completed and returned the survey, 43.2% reported working at a job for which they received pay ($n = 189$). Employed respondents worked between 2 and 70 hours a week, with a majority working 40 hours per week (45.9%, $n = 85$) with a mean of 37.37 (sd = 12.1) hours per week. Whites were more likely than non-Whites to be employed (49% vs. 28.9%; $\mathrm{X}^2 = 14.96$, $p \leqslant 0.001$). Education was significantly related to employment ($X^2 = 39.54$, $p \leqslant 0.001$), with 13.3% of non-high school graduates working as compared to 41% of those with a high school education or GED and 54.8% of those with at least some college. Neither gender ($\mathrm{X}^2 = 0.478$, $p = 0.508$) nor marital status ($X^2 = 8.07$, $p = 0.09$) were found to be related to employment status.

3.2. Receipt of employment-related services

Approximately 32% of respondents ($n = 140$) reported receiving at least one type of job-related service, and 15.9% receiving two to five ($n = 71$). Additional results are provided in Table 1.

Demographic characteristics were examined with regard to service provision. Females and males appear equally likely to have received at least one employment-related service ($X^2 = 0.192$, $p = 0.724$). In addition, no significant differences were noted with regard to employment status ($X^2 = 2.57$, $p = 0.12$). However there was a significant difference between services received by Whites and non-Whites, with non-Whites

Section II: Employment

1. Prior to your SCI, were you working at a job for which you received pay?
2. Are you currently working for a job for which you receive pay?

If yes,

a. On average, how many *hours per week* do you work? _____ (# of hours per week)

b. How much do you earn per year?

Less than $20,000 $20,000 to $29,999
$30,000 to $39,999 $40,000 to $59,999
$60,000 or more

c. How far do you have to travel to get to work? (check only one)

I work at home Less than 1 mile
1 to 10 miles 11 to 20 miles
more than 20 miles

d. Do you receive any of the following? (check all that apply)

Health Benefits Paid vacation
Sick leave

If no,

a. What is the *main reason* that you are not currently working*?* (*check only one)*

Lack of transportation Lack of job opportunities / can't find a job
Health-related issues Retired
In school Unable to meet personal care needs at work
Not interested in working at this time Fear of losing benefits
Unable to return to pre-SCI job Other: (specify): _____

3. Do you currently do any volunteer work?
If yes, how many hours per month?_____

4. Since your injury, have you received any of the following services focused on helping you get employed? *Check all that apply*

Counseling about job opportunities / counseling in how to get a job
Assessment of your ability to work in different types of jobs
Training to perform a particular job
Support at work for a short period of time to help you learn how to do your job well.
Ongoing support at work to help you do your job well
Modifications to equipment

If yes to any services,

a. In general, to what extent did these services help you transition into work? *Check one only:*

Didn't help at all Helped a little bit Helped a significant amount

b. Who provided these services (Check all that apply)

Department of Rehabilitative Services Department of Medical Assistance Services
Department of Social Services Other: _____

V. Current Needs

For each of the following, please indicate if you would like to receive, have received (indicating whether or not you were satisfied), or are not interested in the service or activity.

a. GED program
b. English as a second language program
c. Enrollment in a two or four year college
d. Assistance with developing a new job skill
e. Assistance with finding a job
f. Assistance with workplace modifications / making the workplace more accessible
g. Assistance with keeping a job
h. Budgeting and money management
i. Retirement planning

If you checked that you would like to receive one or more of these services, what is the primary reason that you do not currently receive the service(s)? Check only one:

Can not afford the service / insurance will not cover service Not available in my area
Not comfortable seeking the service Other:_____

Fig. 1.

more likely than whites to have received service (42% vs. 27.1%; $X^2 = 9.54$, $p = 0.002$).

Those who reported receiving any of these services were then asked to what extent the services helped them to transition into work and who provided them. Approximately 40% of respondents ($n = 51$) reported

Table 1

Service	Received/Checked	Not Checked
Counseling about job opportunities or counseling in how to get a job	19.8% $n = 88$	80.2% $n = 357$
Assessment of your ability to work in different types of jobs	15.5% $n = 69$	84.5% $n = 376$
Training to perform a particular job	8.1% $n = 36$	91.9% $n = 409$
Support at work for a short period of time to help you learn how to do your job well	2.9% $n = 13$	97.1% $n = 433$
Modifications to equipment	9% $n = 40$	91% $n = 405$

that they did not help at all; 26% reported that they helped a little bit ($n = 46$), and 24% reported that they helped a significant amount ($n = 31$). Neither race ($X^2 = 1.38$, $p = 0.50$) nor gender ($X^2 = 1.80$, $p = 0.41$) appeared to be related to perception of services. However, individuals who reported working for pay endorsed more favorable evaluations than those who were not currently employed ($X^2 = 7.18$, $p = 0.03$).

The majority of respondents (78%) who received services reported obtaining them from the Department of Rehabilitative Services ($n = 109$). Other providers included the Department of Social Services (8.6%; $n = 12$) and the Department of Medical Assistance Services (1.4% $n = 2$). 17.1% of individuals who received vocational assistance reported receiving it from other sources, including insurance, family members and friends, employers, and Woodrow Wilson Rehabilitation Center.

3.3. Interest in employment-related services

Participants were also asked about other education and employment related services that they would like to or had received. Results are reported in Table 2.

Reasons for not receiving the service included not being able to afford the service or insurance not covering it (36%; $n = 59$); not comfortable seeking service (9.8%, $n = 16$); not available in my area (12.8%, $n = 21$); or other (12.8%, $n = 45$). Responses written in under "other" included "don't know who to ask", "don't know where to look", "transportation", "need help", "lack of time", "no one to ask", little or no money, health/pain, or unaware of help.

These additional programs and services were then examined to determine if interest, receipt or disinterest was associated with gender, racial or employment status. Of these, no differences were found with regard to gender. Significant difference (described below) were related to both race and employment status.

Differences were found related to interest in services by Whites and non-Whites. Non-Whites were significantly more likely to express interest in receiving the following programs and services: English as a second language ($X^2 = 12.30$, $p = 0.002$), GED programs ($X^2 = 24.03$, $p \leqslant 0.001$), assistance with developing a new job skill ($X^2 = 18.51$, $p < 0.001$), assistance with finding a job ($X^2 = 16.60$, $p = 0.001$), assistance with workplace modifications or making the workplace more accessible ($X^2 = 15.30$, $p = 0.002$), assistance with keeping a job ($X^2 = 10.96$, $p = 0.012$), assistance with budgeting and money management ($X^2 = 14.73$, $p = 0.002$), and retirement planning ($X^2 = 17.04$, $p = 0.002$).

Individuals who were not employed were significantly more likely to report interest in GED programs ($X^2 = 12.98$, $p = 0.002$), assistance with developing a new job skill ($X^2 = 11.36$, $p = 0.010$), assistance with finding a job ($X^2 = 15.59$, $p = 0.001$), assistance with workplace modifications ($X^2 = 16.74$, $p = 0.001$), and assistance with keeping a job ($X^2 = 10.33$, $p = 0.016$). No association was noted between employment status and English as a second language ($X^2 = 3.95$, $p = 0.14$), budgeting and money management ($X^2 = 1.42$. $p = 0.70$), or retirement planning ($X^2 = 6.86$, $p = 0.143$).

4. Discussion

Employment for individuals with SCI represents a complex outcome that is dependent upon psychosocial characteristics as well as the social, physical and economic environment of any given place and time [30, 39]. Because of this, vocational rehabilitation and vocational services are extremely important in assisting people in performing the behaviors necessary to move from undesirable states to more satisfactory ones [50]. The results of this study provide insight into the extent that individuals with SCI either have received or are interested in receiving vocational services. The study also determined if differences existed with regard to either receipt of or interest in vocational services based on gender, race or employment status.

Approximately one-third of respondents between the ages of 18 and 64 received at least one vocational service. The most available or utilized service appeared to have been vocational counseling about job opportunities or how to get a job (19.8%). This was closely

Table 2

Service	Would like to receive	Received and satisfied	Received and not satisfied	Not interested in this
GED program	7.4%	6.4%		86.2%
English as a second language	3.1%	1.5%		95.4%
Enrollment in a 2 or 4 year college	14.3%	8.9%	0.5%	76.3%
Assistance with developing a new job skill	24.2%	2.5%	0.3%	73.0%
Assistance with finding a job	21.3%	2.1%	2.1%	74.6%
Assistance with workplace modifications / accessibility	13.9%	2.1%	0.8%	83.2%
Assistance with keeping a job	12.7%	1.3%	0.3%	85.8%
Budgeting and money management	16.6%	1.8%	0.3%	81.3%
Retirement planning	19.3%	4.3%	0.2%	62.2%

followed by vocational assessment services (15.5%). These types of services appear most applicable to those who are dissatisfied with their current situation, whether it they are employed, under-employed or unemployed [50]. Individuals who are satisfied with their current situation may be more appropriately served by the provision of additional resources (such as assistive technology, education, etc).

In contrast, few respondents (2.9%) indicated that they had received support on the job, suggesting that supportive employment services are either not available to or are underutilized by this sample of persons with SCI. Supported employment (SE) is an approach that offers individualized assistance in both locating competitive employment and optimizing the physical and social integration of the employee in the workplace. This type of approach contrasts with the more traditional model of pre-vocational training services and focus [15]. Supported Employment addresses retention issues as reflected by the follow along services that are provided to customers. SE has been effective in increasing competitive employment, particularly for individuals with significant disabilities [13,44,47]. The lack of on-the-job support received by participants suggests a prime area for intervention and a potential avenue for improving employment rates.

This study did reveal differences between those who received services and those who did not. Primarily, differences were found between Whites and non-Whites. However, unlike many past studies related to rehabilitative services [32], non-Whites were more likely to receive services. However, there were no racial differences in the perceptions of service usefulness, once again contrasting previous studies which have reported inequality issues with regard to access and quality of services to people with disabilities of minority racial and ethnic origin experience compared to their white counterparts [36,37,42,46,48,49]. It is hoped that these results reflect the acquisition of culturally sensitive interventions and providers, as mandated in the Rehabilitation Act Amendments [17,31,33,38].

Not all individuals with SCI felt that the vocational services that they received were helpful. Approximately 40% of participants in this study felt that the services they received were not helpful in transitioning to work. However, 24% of respondents reported that the services did help them a significant amount, while 26% reported that they helped a little bit. As might be expected, individuals who were currently employed rated vocational services significantly more helpful than those who were not. It should be noted, though, that no information was collected about the timing and intensity of services received. This is an area requiring further exploration in order to assess the consumer involvement, service outcomes and ultimate satisfaction with the vocational rehabilitation program.

Finally, survey respondents were asked to report on the extent that they had wanted and received additional services, including GED programs, English as a second language classes, enrollment in 2 or 4 year college, assistance with developing a new job skill, assistance with finding a job, assistance with workplace modifications/accessibility, assistance with keeping a job, budgeting and money management, and retirement planning. Of these, assistance with developing a new job skill was the most frequently endorsed service that respondents reported wanting while enrollment in a 2 or 4 year college was the service that was most frequently endorsed as having been received. For most, if not all of these services, non-Whites and unemployed individuals were significantly more likely to report that they would like to receive the service. It may be that non-Whites have less access to these services within their existing social and community support networks.

Assistance with finding a job was also a service that a significant number of individuals with SCI (21.3%) reported interest in receiving. Job placement has found to be critical in employment success for individuals with disabilities. One study of over 4600 public rehabilitation consumers found that provision of job placement services was the greatest contributor to successful out-

come, explaining more variance than consumer demographic or historical factors, consumer functional limitations, and other rehabilitation services [3]. Other researchers have also corroborated the importance of job placement in employment success [29,40]. Yet, 74.6% of the respondents in this study indicated that they were not interested in receiving assistance with finding a job. The rationale behind such a lack of interest in placement services is uncertain and may be multi-faceted in its complexity including whether or not an individual is currently employed (i.e. Respondents who were unemployed were more likely to express an interest in receiving assistance in finding a job).

Individuals who were interested in receiving services but were not able to do so ($n = 164$) attributed this to a variety of reasons including not being able to afford service (36%), not comfortable in seeking the service (9.8%), not having the service available in the area (12.8%) and not being aware of where and/or how to get services. Responses such as this highlight the continuing importance for rehabilitation providers to focus on marketing and outreach to individuals with disabilities. The finding that individuals with disabilities may not be aware of the existence of providers and the services they offer is not new or specific to individuals with SCI. Bruyere [5] reports that only approximately 5% of individuals with disabilities utilized disability specific employment programs to locate employment. Marketing and outreach to individuals with disabilities, therefore, needs to continue to be a priority for rehabilitation providers.

The picture of employment of individuals with SCI in Virginia appears to reflect the national trends. We found that 43.2% of adults reported working at a job for which they receive pay at the time of completing the survey, though 80% of individuals with SCI were employed prior to their injury. However, the survey is limited in that we did not ask to what extent respondents were satisfied with their current occupational status nor what activities they engaged in to make changes which may limit any evaluation of the effectiveness of vocational rehabilitation interventions. As with all studies, the measures, sample and methodology impose limits on the conclusions that can be drawn from the analyses conducted for this study.

Additional concerns are those about the representativeness of the sample and the cross-sectional nature of design. Clearly, there is an issue who was likely to respond to a survey – in this case more-educated whites appeared over represented. Unfortunately, demographic characteristics were not included in the Virginia SCI Registry, so we are unable to determine how respondents differ from those who do not respond. This study is also limited by the information asked on the *Needs Assessment* Survey. Attempting to balance brevity and importance of questions may have led us to not include important questions. Finally, this survey was only sent to Virginians who were listed in a registry. The degree that the issues and results found reflect only regional concerns may certainly be applicable.

4.1. Suggestions for future research

The results of this study bring both additional questions about vocational services for individuals with SCI as well as directions for future research. Among the questions are: Why are services not considered helpful?; and What specific types of services are being provided by community employment agencies? An assessment of consumer involvement in vocational rehabilitation, the timing of when services were provided in consideration of the consumer's physical and psychosocial situation; and the intensity and individualization of services received might begin to address the question of perceived usefulness. Beneficial to this line of inquiry is the development of standardized measures of employment outcomes that include income and satisfaction with income, integration, benefits, job accommodations, and improvement in quality of life.

Assessment and mapping of vocational services available in the community would be most beneficial as applied rather than generalizable knowledge. However, the match between perceived availability and usefulness of services by consumers and actual availability could provide important information that could influence the marketing, timing and provision of services. Such assessment should consider specific types of services such as supported employment; placement; retention support; personal assistance services, accessibility and accommodations; and natural, community and workplace supports. Extended supports often are critical to the long-term employment success of individuals with severe disabilities, yet they remain among the least analyzed and researched components of employment services [4]. An investigation of the utilization of assistive technology in relation to successful placement, and its value for improving employment outcomes would also be useful, as this is not yet fully established in the research literature and it may remain underutilized in the community [2]. This may be especially important as many Americans with disabilities report relying on assistive technology and approximately one-third indicate that they would lose their independence without it [34].

5. Conclusion

In summary, the picture of vocational services for individuals with SCI appears to be mixed. Approximately one-third of eligible participants in the current study had received a vocational service. These individuals were more likely to be non-White. Perception of the usefulness of those services in transitioning to work appeared to be dependent upon whether or not the respondent was currently working for pay. Finally, a significant number of individuals with SCI were interested in receiving vocational services, especially assistance with developing a new job skill and assistance with finding a job, but were not able to do so for a variety of reasons including not being able to afford the service, not having access to the service, and not knowing how to obtain it. These results suggest specific areas for vocational rehabilitation programs to focus on in order to improve their effectiveness in assisting individuals with SCI in obtaining and maintaining employment.

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