



## **A Selected Look at the Literature Base on Vocational Rehabilitation and Implications for Future Research**

*Executive Summary*

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The opinions contained in this report are those of the review team and do not necessarily reflect those of the Advisory Board members, NIDRR, and RSA.

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# 1. Executive Summary

The National Institute on Disability and Rehabilitation Research (NIDRR) and the Rehabilitation Services Administration (RSA) charged the Rehabilitation Research and Training Center on VR (VR-RRTC) to conduct a systematic review of existing empirical research on VR. The aim of the review was to characterize the public VR program in terms of its programmatic and systemic features, the types of customers served, and the kinds of outcomes achieved as reported in research studies. More broadly, the review aimed to describe the existing VR research base, including gaps in research, and to make recommendations for future research investment.

Researchers identified over 12,000 possibly relevant documents through an extensive search process, and then narrowed the review to 550 studies that best met the review criteria. To be included in the review, studies had to be empirically based (quantitative or qualitative) and produced (published or unpublished) between 1970 and 2008. Empirical research included secondary analysis of RSA databases and other relevant datasets. Excluded from the review were studies that were editorials, commentaries, book reviews, critiques, resource guides and manuals, as well as conceptual and theoretical studies. To be included in the review, studies had to relate to the public VR program in terms of the system, the services it provides, and/or the outcomes it achieves at the individual or agency/program level.

In this review “VR system” referred to the state VR agencies that implement the public VR program at the state level, and also to any agency (e.g., state mental health agencies, state intellectual and developmental disabilities agencies, workforce development agencies, community rehabilitation providers) that supports them in this effort. “VR services” referred to services provided under Title I and Title VI Part B (Supported Employment) of the Rehabilitation Act of 1973, as amended, although the review primarily focused on employment services. “Individual outcomes” included employment and related outcomes, as well as outcomes related to VR service delivery (such as customer satisfaction). “Agency or program outcomes” included effectiveness, efficiency, cooperation between agencies or programs, and outcomes related to staffing.

Furthermore, to be included in the review studies had to focus on working-age adults with disabilities (aged 22 and older). Studies that focused on transition-age youth (aged 21 and younger) were excluded from this review (unless they also looked at working-age adults and met all the other criteria). Given these selection criteria, the study reviewed a subset of the VR literature base. Therefore, the findings of this review are limited to the 550 studies included in this review and cannot be generalized to the broader literature base on VR. (A detailed description of the study methods used in this review is included in Appendix A, starting on page 61.)

## Main Study Findings

Of the 550 studies included in the review, slightly more than two-thirds had been produced in the last two decades, and most studies had been published in the form of peer-reviewed journal articles. More than half of the studies did not report financial support. Of those studies that provided this information, most had been funded by the federal government, including 101 studies funded by NIDRR and 15 studies funded by the National Institute of Handicapped Research (NIHR, which became NIDRR). More studies reported the federal government as a funder between 2001 and 2008 than in previous decades. The studies also differed with respect to their geographic scope. The largest number of studies had been conducted at the state level, followed by the national, local, and regional levels.

As expected in a sample of studies related to VR, the largest number pertained to the VR service delivery process, closely followed by studies on VR performance, and studies on VR structure. Similarly, most studies examined

programs or services funded by VR, although some (less than ten percent) focused on programs or services that VR funded in partnership with other entities and sources, such as the Social Security Administration, mental health agencies, and programs and services supported with Workforce Investment Act funds.

Reviewers examined the target populations of the programs and services that were the focus of the studies included in this review. The majority of the studies examined programs or services targeted at the VR population in general; however, forty percent focused on programs or services targeted at sub-populations, such as people with particular types of disabilities, other special populations, and individuals who receive disability benefits or specialized services. The top three disability groups included people with mental illness/emotional problems, people with visual impairments, and people with mental retardation/developmental disabilities. The top three special populations were ethnic and racial minorities, persons with low income, and older people. With respect to service users/benefit recipients, the three main groups included people receiving supported employment services, people receiving public benefits (such as Social Security or welfare), and people receiving services under the Workforce Investment Act.

Within the sample of VR-related studies, almost seventy percent examined VR services in general, followed by studies focusing on “other” types of programs and services, and studies examining employment and job-related services. Researchers used a pre-defined list of programs and services to review the sample of studies with respect to the types of programs and services examined. This list was based on Title I and Title VI Part B (Supported Employment) of the Rehabilitation Act, as amended. Due to the large number of programs and services and the significant overlap of those within the sample, reviewers created four general categories to describe the studies. These categories were *Employment*, *Health*, *Independent Living*, and *Policy and Administrative Action*. In addition to the expected focus on employment (513 studies), 18 studies focused on health, 37 on independent living, and 55 on policy and administrative action. (Note that a study could belong to more than one category.)

The majority of VR-related studies reported on at least one agency- or program-level outcome, and almost sixty percent reported on at least one individual-level outcome. Effectiveness (examining how well a particular program or service worked in terms of the desired outcome) was the most commonly reported agency or program outcome. This was followed by efficiency (examining the outcomes of a particular program or service in relation to cost, speed, resources invested, etc.) and staff capacity (examining staff knowledge; improving staff attitudes). Studies reporting on outcomes related to agency/program cooperation (examining agencies and programs jointly working towards a common goal) accounted for slightly more than thirteen percent of all studies reporting on agency or program outcomes. In terms of individual outcomes, type of employment (such as integrated and non-integrated employment, self-employment and business ownership) was the most commonly reported outcome, followed by wages and “other” individual employment and related outcomes (such as service access and use, quality of life, social participation, and peer assistance).

The most common type of research design was secondary data analysis, relying mostly on RSA data, followed by cross-sectional study and case study designs. (Cross-sectional studies referred to studies that collected and analyzed data over a whole population.) Less than five percent of the studies included in this review used experimental or quasi-experimental designs. Slightly more than fifteen percent of the studies were classified as using more than one study design. When examining study design choices over time, reviewers found that more studies reported using a secondary data analysis design between 2001 and 2008 than in previous decades. With respect to data sources, studies that employed a secondary data analysis most commonly relied on RSA data, followed by studies using case data from state VR agencies.

A small number of studies (24) used some type of experimental design, indicating a limited evidence base. This included 11 randomized control trial (RCT) studies and 13 quasi-experimental studies. In the hierarchy of research

designs, RCTs are thought of as the “gold standard” in terms of producing high-quality evidence of the effectiveness of a particular intervention. Following RCT designs are quasi-experimental designs and other types of group comparison designs. The RCT and quasi-experimental studies included in this review provided some indication of the potential effectiveness of the interventions they studied. However, given the methodological limitations found across these studies (small sample, sampling issues, attrition, lack of treatment fidelity), more replication and expansion is needed to solidify and build on these findings.

The most common method of data collection was quantitative survey, followed by secondary data analysis and qualitative interviews. (Note that secondary data analysis was used in this review both as a type of research design and as a type of data collection method.) Slightly more than twenty percent of studies were classified as using more than one data collection method, with quantitative survey/secondary data analysis being the most common combination. Moreover, most studies employed a large number of participants (1,001+), which is not surprising given the type of data collection methods used (mostly quantitative survey and secondary data analysis). Reviewers also examined the use of data collection methods over time and found that more studies reported using secondary data analysis between 2001 and 2008 than in previous decades, which is consistent with the findings on choice of research design.

Reviewers scored almost half of the studies in this review as “high” with respect to the overall quality of the study methods. The sample of studies in this review was also examined to determine the overall weight of the evidence. The quality score was calculated by aggregating several components as reported in the study. These included: appropriate choice of research design, attempts to establish the reliability and validity of data collection tools and data analysis, ability to rule out sources of error or bias that might lead to alternative explanations for the findings, generalizability of the findings, and trustworthiness of the conclusions. The weight of evidence determination does not represent a judgment of the rigor or quality of the research itself. It is only an indicator of the degree to which the research was reported in the study.

## **Discussion, Implications, and Conclusions**

Findings indicate that the subset of VR literature reviewed in this study focused on multiple topics, populations, and outcomes. The study selection criteria and the approach used for reviewing studies did not allow researchers to identify linearity or progression of research on a particular topic, and this was not the goal of the review. The finding that the VR literature base is varied may be related to the nature of the field itself, and is consistent with conclusions of previous studies that have stressed the need for more replication and expansion as a way to build a knowledge base in rehabilitation research that can better inform policy and practice (Saunders, Leahy, McGlynn, & Estrada-Hernandez, 2006).

Findings show that the studies included in this review were of high quality (overall weight of evidence) but very reliant on administrative data, particularly RSA 911 data, as well as surveys. (Note that the use of RSA 911 data was a study inclusion criterion in this review.) Compared to other employment programs (e.g., Workforce Investment Act Adult and Dislocated Worker Programs, Wagner-Peyser/Labor Exchange Programs), VR collects the most detailed information about individuals with disabilities served. VR agency data are combined into a national dataset that provides a unique opportunity or “window” to examine the program nationally. Despite these advantages, there are several limitations of using RSA data for research purposes. For example, RSA data provide information about the services a person received from VR but not about the intensity of, quality of, or the person’s satisfaction with the services.

There are also issues related to race and disability classification that are difficult to compare to other sources of information. This is due to discrepancies in definitions and to the limited information available about the

reliability, accuracy, and validity of some variables employed by researchers. Administrative data are not collected specifically for the purpose of research, but the VR research community is heavily utilizing the RSA 911 data without much knowledge of these critical concerns. There is considerable discussion underway about the use of RSA 911 data for purposes other than administrative ones. Additionally, it is difficult to use the RSA 911 data to investigate the effects of policy change (such as Order of Selection policy) because the dataset contains an exit cohort. Therefore, in a given year, the RSA 911 data will include individuals who entered in different years, and will have been impacted differently by any policy changes.

In terms of the larger research agenda, it is useful to begin to answer some questions about the use of variables from RSA 911 data. This should be in concert with costs of collecting data incurred by the VR agencies. However, at some point other sources of information also should be explored. Bruyere and Houtenville (2006) reviewed several data sources, including RSA. They identified datasets other than RSA that have great potential but are underused, such as Social Security data, Census data, and SSA–RSA DataLink. Some studies included in this review combined RSA data with other sources of information, such as qualitative interviews, focus groups, or participant observation. Future research could continue this trend and meld qualitative approaches with quantitative analysis. Additionally, researchers could place more emphasis on participatory action research and similar approaches as is consistent with the rehabilitation philosophy (Balcazar, Keys, Kaplan, & Suarez-Balcazar, 1998).

Furthermore, the review found that only a small number of studies employed some type of experimental design, suggesting a limited evidence base. This may, in part, be related to the difficulty of implementing such rigorous designs in social programs (cf. General Accountability Office [GAO], 2009), such as the VR program that provides highly individualized service delivery to individuals with multiple support needs, and where randomization creates practical and ethical dilemmas. This situation is compounded by state differences in VR program implementation and the local labor market and economy. Johnston et al. (2009) also discussed the challenges of melding the evidence-based practice movement with the realities of rehabilitation and disability research. Some of the issues identified by the authors include the “great breadth and complexity” of disability and rehabilitation research, the ethical challenges inherent in using a control group, the emphasis placed on empowerment of persons with disabilities in research, small sample sizes, and other issues that made designing a strictly controlled study in some cases not feasible. Even in cases where it is possible to implement such designs, they may not yield the most useful information. As stated by the GAO,

*...the evaluation literature cautions that as social interventions become more complex, representing a diverse set of local applications of a broad policy rather than a common set of activities, randomized experiments may become less informative. ... aggregating results over substantial variability in what the intervention entails may end up providing little guidance of what, exactly, works. (Ibid., pp. 25–26)*

The GAO (2009) discusses other limitations of RCTs: (a) whether interventions studied under highly controlled conditions will have the same level of effectiveness when utilized in real-life settings, especially given the homogeneity and variation of both customers and environments found within the VR population (p. 30); (b) risk of overlooking practices with great potential by solely relying on evidence from randomized experiments (p. 31); (c) time, resources, and funding needed to establish an evidence base. The issue of portability and practical application is especially pertinent for the VR system.

Findings also raise questions about what level of uncertainty the VR field can tolerate in terms of its knowledge base, considering that the urgency and necessity of developing evidence-based practices has not been as intense as in the medical field, for example. The GAO report (2009) suggests alternatives to RCTs that might be equally rigorous, including: quasi-experimental comparison group designs, statistical analyses of observational data, and

in-depth case studies. Additionally, the GAO report (2009) identifies features to strengthen effectiveness evaluations, such as collecting additional data, targeting comparisons, and using blended designs.

Put in a VR context, it is easier to understand the limited number of studies utilizing strict RCT practices, in contrast to the medical field, where these kinds of studies are much more common. However, this does not mean that rehabilitation and disability researchers should not continue to focus on producing quality research that demonstrates effectiveness of practices to better serve persons with disabilities. Johnston et al. (2009) suggest that rehabilitation researchers find guidance on these challenges by looking to similar fields that have utilized RCT more commonly. They also suggest using the most rigorous research methods available (i.e., quasi-experimental studies, RCT when appropriate) to answer questions that are relevant to persons with disabilities and rehabilitation practitioners both now and in the coming years.

The following report is an effort at systematically reviewing empirical research on VR with implications for future research. Reviewers identified relevant studies and screened according to the stated selection criteria. Apart from the selection criteria, a few limitations should be kept in mind when reading what follows. Studies were reviewed using a specific coding tool. This was the primary method of information gathering from the studies, and the reviewers mostly used this information for synthesizing the findings. In addition, research staff reviewing the studies trained together, and work was monitored for quality. However, each reviewer had a different level of research experience, and some individual differences may impact the way studies were screened for inclusion in the review and coded.

Overall, it appears that the VR research base is highly varied and spans across research designs and data collection methods, sample sizes, and participant characteristics. It also varies in terms of the research focus with respect to programs, services, and the agency itself. The evidence-based practice movement in the social sciences is increasingly requiring a certain level of evidence using methodology that has not been widely utilized in VR (or rehabilitation and disability) research up to this point. After taking a selected look at the VR literature base developed over the past four decades, we observed that most research was of merit in quality and had significant breadth, at least touching on the full range of VR populations, issues, and services. Yet this breadth is also a weakness, as there is limited depth of knowledge to support a “what works” analysis of any given practice, process, or strategy. There is a very limited knowledge base to draw upon. We echo the conclusion of others that replication is needed, and add that NIDRR should work with its VR partners to determine what questions are important to ask and to build a knowledge base with more depth.

Given this conclusion, this report describes the nature of the research literature base rather than listing processes, practices, and strategies that can be termed effective. We think that an effort to list effective practices could mislead practitioners into adopting what they might interpret as best practices, even if evidence is lacking or inconclusive. Prior to translating research into practice, the VR community of researchers and practitioners must identify critical areas of need, invest in those areas, and seek to create knowledge that results in adopted best practices.