

**Vocational Rehabilitation of Transition-Age Youth with Disabilities: A Propensity-Score
Matched Study**

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Abstract

Objective: To investigate the employment outcomes of vocational rehabilitation (VR) services for youth with disabilities in a targeted, enhanced, and contract-based secondary transition program as compared to the traditional VR transition services. **Methods:** A population-based study was conducted on 4,422 youth with physical, intellectual, learning, mental and hearing disabilities aged 14 to 21 at application and whose case was closed after receiving VR transition services in a Midwestern state. Selected youth were classified into either targeted secondary transition program (START) or non-START treatment group. The employment outcomes of the groups were compared using propensity-score matching procedures. **Results:** 2,211 youth with disabilities in each treatment group were successfully matched based on demographic characteristics, types of disabilities, existence of severe functional limitations, and year of referral. The overall rehabilitation rate was 57% (95% confidence interval [CI] 56% to 59%), where the START group rate was 61% (95% CI 59% to 63%) and the non-START group 53% (95% CI 51% to 55%). The propensity-score matched odds ratio (OR) was 1.40 (95% CI 1.24 to 1.58; $p < 0.001$). Subgroup analyses showed that the odds of rehabilitation in youth with disabilities were consistently higher when they were in START as compared to non-START (OR ranged from 1.27 to 1.92 with $p < 0.05$ except for the Hispanic subgroup). **Conclusion:** The results suggest that VR services in a targeted, enhanced, and contract-based secondary transition program are more effective in transitioning youth with disabilities to employment than the regular VR transition services.

Keywords: youth with disabilities; vocational rehabilitation; transition services; propensity score analysis

Introduction

Occupational rehabilitation and health practitioners have long recognized the adverse effects of unemployment on health, such as depression and anxiety, alcohol abuse, and poor physical well-being [1–6]. The effects seem to vary by subgroups of individuals [7–9], where youth are particularly vulnerable [10–12]. Among youth, those with disabilities deserve attention because they are prone to decreased chances of employment. Data from the National Longitudinal Transition Survey-2 in 2005 indicated that the proportion of employed individuals age 17 to 21 with disabilities who were out of high school was 9% less (57% versus 66%) than their peers without disabilities [13]. The difference is even more pronounced in the general population. Fairly recently in August 2014, the monthly rate of youth employment in the United States (U.S.) based on the Current Population Survey was 17% and 30% for individuals age 16 to 19 with and without disabilities, respectively, and 32% and 65% for those age 20 to 24 [14,15].

Transition in vocational rehabilitation (VR) refers to the process of preparing secondary education students with disabilities for adult living and employment [16]. It originated in special education settings in the early 1980s, when there was a growing concern about employment prospects for youth with disabilities. The Rehabilitation Act of 1973 [17] and the Education for All Handicapped Children Act of 1975 [18] were in place, but did not provide enough stimulus for schools and VR agencies to adequately prepare youth to transition from school to work. A combination of unique physical and emotional changes during youth, the reality of zero-to-minimal work experience, and the level of education rendered transition-age youth with disabilities in crucial need of individualized plans for moving from school to work. Advocacy efforts for including transition planning in the educational plan for all secondary education students eventually led to the establishment of mandated transition services in the Individual

with Disabilities Education Act of 1990 (IDEA) [19]. IDEA further required that transition planning begin at age 14. The rationale was that the student should articulate a plan at the earliest appropriate age and refine it during high school to reflect updated knowledge of the labor market as well as changes in personal interests. Youth with disabilities who completed work preparation programs have been shown to be more likely to secure employment, and when they do so, tend to earn higher salaries than those who do not finish such programs [13,20].

Traditionally, VR transition services are provided by the state-federal VR agencies through collaboration with local educational entities [20]. Eligible youth with disabilities receive the services after they develop an individualized plan for employment (IPE) [21]. Several VR agencies also offer “special” transition programs to improve outreach to resources beyond the traditional service delivery [20,22]. These programs often contain best-practice VR transition services targeted at a particular group of youth, and in principle, are different from traditional VR transition services in terms of the design of service delivery. In many cases cooperative arrangements exist with third-party providers. Examples of such programs include the VR Transition Curriculum, the Supported Education Program, the Shared Youth Vision Federal Collaborative Partnership, and the Secondary Transitional Experience Program. Detailed descriptions of these programs are available at the U.S. Department of Education Rehabilitation Services Administration (RSA) [22]. Empirical evaluation of the effectiveness of specially delivered transition programs is sparse. Without adequate scientific evidence, the programs are susceptible to policy changes and/or discontinuation.

Assessment of delivery designs for VR secondary transition services is important. In a comprehensive investigation on how youth with disabilities transition to work, researchers concluded that existing studies failed to supply appropriate evidence regarding the effectiveness

of the secondary transition services [20]. The authors emphasized the lack of design rigor, selection bias, and mishandling of the data as the primary factors for failure. Other investigators dealt with the effectiveness issue by identifying the components of secondary transition services that fit into evidence-based practices (EBP) [23–28]. In their search for effective components of secondary transition services, however, researchers may overlook the possibility that the whole program works as a result of delivering the components in a correct combination and within an appropriate design. Perhaps a more holistic approach to address the question of effectiveness may be to investigate the secondary transition services at the program level.

One highly regarded source of EBP is the randomized controlled trial (RCT). Unfortunately, it is not always feasible or ethical to implement RCTs in the areas of health and social care such as VR services [29]. Several investigators managed to perform RCTs for specific types of disabilities or services [30–32]. The trials were conducted primarily on participants of adult VR programs. Thus, the results may not translate completely to youth receiving VR transition services. Apart from differences in participant characteristics, development of VR services for transition-age youth is highly habituated to secondary education settings due to the legal and policy requirements [16,20].

Several baseline characteristics have been suggested as potential confounders for the effect of secondary transition services on employment outcomes. These include age, gender, race, place of residence, and time period [20,28,33–36]. The employment outcomes were also demonstrated to be affected by type of disability and functional limitations [37–41]. In addition, youth with disabilities receiving public support such as Supplemental Security Income (SSI) and/or Social Security Disability Income (SSDI), or those with Medicaid or Medicare have been reported to benefit differentially from VR transition services [20,42–45].

We conducted the present study to address the gap in the literature with respect to effectiveness of VR secondary transition services in promoting employment outcomes among youth with disabilities. The objective was to establish whether there is benefit in a specially delivered secondary transition program over traditional VR transition services. There were two research questions for the study:

1. How effective are VR services in a targeted, enhanced, and contract-based secondary transition program as compared to conventional VR transition services for promoting youth with disabilities to employment?
2. Does the effect of VR secondary transition services at the subgroup level conform to that of all youth with disabilities?

To facilitate our study, we took advantage of the availability of a large, population-based dataset in a state VR system. The nature of the data presented a unique opportunity for implementing the propensity-score method, which has become increasingly popular in numerous scientific endeavors for its ability to mimic a randomized experimental design in situations where the available data are observational [46,47]. The propensity-score method allows the balancing of covariates, which minimizes selection bias.

Methods

Study Participants, Treatment, and Outcome Measures

Participants in the present study were youth with disabilities aged 14 to 21 who were accepted for transition services and whose records had been closed after they received services from a VR agency in a Midwestern state. We divided the selected youth into two treatment groups based on the classification of their VR secondary transition services: the targeted secondary transition program (START) youth and the non-START youth.

Accepted participants of START received enhanced transition services in integrated school and community-based training/work sites during and after high school. The components of the program are best practices in VR transition services, including classroom instruction that facilitates career exploration and job-readiness development, job shadowing (learning about a job by spending time with a competent worker), training in independent living skills, on-the-job evaluation and training, fully employer-funded work experience, and job coaching. These services were provided by school personnel on a contractual basis with the state VR agency.

The contract regulated the provision of incentives for performance outcome, which refers to the achievement of competitive (the work has at least minimum wage and possibly certain benefits), integrated (the person with disabilities works in the same environment as coworkers without disabilities), and unsubsidized (the employer fully pays the wages) employment in the community for 240 hours and a minimum of 60 working days while in high school. To be approved for participation in START, youth with disabilities must have been referred to the VR agency through its START counselor or transition specialist, who would then determine the eligibility based on the individualized education plan (IEP) and the existing medical and psychological record reviews and social history. The START contract required school personnel and counselor/transition specialists to work closely in the development of IEP and IPE.

In contrast to those in the START program, the non-START youth received transition services through the regular curriculum in their respective schools, or via a series of trainings or educational programs provided or coordinated by the VR agency. Provision of VR services took place either through a partnership with the local educational agencies, via the residential schools for youth with disabilities (there was one residential school for youth who were blind/visually impaired and one for youth who were deaf or hard of hearing in this study), or by collaboration

with parents and caregivers. There was no official agreement or contract between the VR agency and the school or the community rehabilitation program in the VR non-START treatment group. Accordingly, performance outcome was not enforced. The VR agency provided transition services directly through its own VR counselors, who were assigned to high schools throughout the state. The non-START youth received general VR services that were endorsed in the RSA case service report (commonly known as RSA 911) [21], such as counseling and guidance, occupational training, and job placement, but not in an enhanced way nor in integrated training/working sites as was the case for the START youth.

Transition services were closed and considered as successful rehabilitation when the individual had a developed IPE, had exited high school, and had stable employment for at least 90 days. Note that the performance outcome in START was only contractual, meaning it was not a closure criterion unless the employment was maintained for at least 90 days post-high school. If for certain reasons the services had to be closed after an IPE had been developed and the individual did not meet the employment stability requirement, the case was regarded as unsuccessfully rehabilitated. In the present study, there were 14,165 youth with disabilities receiving transition services that were closed after an IPE was developed. Among them, only 3 individuals had missing data on at least one of the variables used for propensity-score matching, such that the study had 14,162 (numerically, 100%) completed cases for the analyses. All procedures were reviewed and approved by the Institutional Review Board of the University of Illinois at Chicago.

Data and Matching Variables

Data consisted of the information originally collected by the VR agency during the staff's contact with youth with disabilities who received transition services, either in appointed

meetings, work site visits, or classroom visits. Documentation was standardized throughout the agency offices, and all records were maintained in an integrated database by a state-level data management office. We were granted access to retrieve the de-identified records from 2004 through 2013. Rigorous algorithms for data extraction in addition to close communication with personnel from the data management office and the VR agency were implemented during the present analyses to ensure the accuracy of each variable.

Demographic background information used for propensity-score matching included age, gender, race, and residential information. Age at referral was the recorded age on the admission interview. Gender was a dichotomous (male and female) variable. White, African American and Hispanic indicators (yes or no) were used to inform the individual's race. These variables were not mutually exclusive as our data source allowed a person to report multiple races. County population size of the individual's residence was based on the estimate from the 2013 census and was classified into four major categories: 100,000 or less; 100,001-500,000; 500,001-1,000,000; and more than 1,000,000.

Five types of primary impairment in the matching scenarios were employed. All were 'have' vs. 'not have' variables. Similar to race, individuals may have reported multiple disabilities. Classification followed that of the VR agency in the study, since our intention was to also provide the authorities practical and operational recommendations to deal with transitional cases. Deaf/hearing disability encompassed any condition where deafness or hearing loss was predominant, deaf blindness, and other hearing impairments. Intellectual disability referred to either a cognitive impairment related to mental retardation, or a psychosocial impairment such as autism. Learning disability was the term used for cognitive impairment that stemmed from specific learning disabilities or attention-deficit hyperactivity disorder. Mental illness covered a

variety of psychosocial and other mental impairments due to any of the following: depressive and mood disorders, neurotic anxiety, personality disorders, schizophrenia and other psychotic conditions, or other unclassified mental illness. Finally, physical/orthopedic disability represented as mobility orthopedic/neurological impairments, manipulation/dexterity orthopedic/neurological disorders, both mobility and manipulation/dexterity impairments, and other orthopedic conditions.

The variables indicating any serious limitation to functional capacities in the form of communication, interpersonal skills, mobility, self-care, self-direction, and work tolerance, were based on the VR counselors' notes during their contact with the participants. Determination of the form and degree of functional limitation followed the RSA guidelines. For instance, limitation in mobility was assessed through the observation of an individual's physical ability to move from place to place (walking, climbing, and similar activities) and to adjust the body into certain positions (such as kneeling, stooping, sitting, or standing). We also included the quantity of the forms of limitation an individual possessed to reflect the severity of disability condition.

Finally, the cases were also matched based on referral year. For this purpose, the variable year was dichotomized into 2004-2008 and 2009-2013.

Statistical Analysis

Baseline characteristics that served as the matching factors for START and non-START groups were compared using chi-squared tests for categorical variables and *t*-tests for numerical variables. The confidence interval of the proportion of individuals with successful rehabilitation, referred to as the 'rehabilitation rate,' was constructed based on the *z*-statistics. To obtain the propensity scores, a binomial logistic regression model was fit on the data using the type of transition services (START vs. non-START) as the outcome and the baseline characteristics as

the covariates. Then, START individuals were matched without replacement to those of non-START in a 1:1 ratio with a caliper size of 0.2 of the standard deviation of the logit of the estimated propensity scores. Potential matching individuals were matched with the best accordance regarding the matching variable. Note that the direction of matching was from treated-to-untreated individuals since the latter group had fewer people. Covariate balance was assessed by comparing the two groups with respect to the distribution and standardized difference of the variables. The procedures used to examine the pre-matched characteristics (chi-squared and t-tests) were re-applied for testing the post-matching distributions. The standardized differences were computed using Cohen's *d* statistic, with mean and variance for numerical variables, and proportion for categorical variables; the results were plotted as absolute percentages. We opted for the conventional 20% or less of absolute standardized difference to suggest appropriate covariate balance. The relationship between the rehabilitation outcome and the type of transition services was evaluated using a generalized linear mixed model with binomial logit link, and the result was obtained as an odds ratio and the 95% confidence interval.

Separate propensity-score model, matching, balance confirmation, and outcome regression was conducted for each subgroup analysis. However, due to the anticipated small number of individuals on this level of analysis, covariate balance was evaluated using only the standardized difference scores that are independent of sample size. Except for the subgroups of transition youth with disabilities receiving SSI or SSDI and who had Medicare/Medicaid, the algorithm of the subgroup analyses required the removal of one of the matching variables when predicting the propensity-scores. For instance, we needed to exclude gender in the analysis of female and male transition youth. A similar situation happened when the matching was

undertaken for a restricted class of race (only White, African American or Hispanic youth), and type of disability (in particular, intellectual and learning disabilities).

Data management and statistical analysis were performed using R statistical software version 3.2.0. In particular, the package `nonrandom` [48] was used in the most part of the propensity-score matching procedures.

Result

A disproportionately large proportion of START youth was found among the study cases. Of 14,162 individuals, 11,951 (84.4%) were in START and only 2,211 (15.6%) were in non-START (Table 1). START individuals were significantly a year younger (17 vs. 18) and more likely to be White than their counterparts in non-START. They appeared to come from two distinct residences, that is, either a county with a population of 500,000 or less, or the county with more than 1 million inhabitants, while more than a third non-START youth resided in small counties (100,000 or less). In terms of impairment, the START group had more individuals with intellectual and learning disabilities, but fewer with deaf/hearing disabilities, mental disabilities, and physical/orthopedic disabilities, than non-START group. The two groups also differed significantly in severe functional limitations: START youth were more likely to have communication and self-direction limitations, and yet less chance of limitations in work tolerance, as compared to youth in non-START.

It appears that the propensity-score model and the matching procedure were effective to eliminate the baseline differences between START and non-START individuals. Table 1 shows the characteristics after matching, which indicated that the matched youth with START did not differ significantly on any of the covariates from those with non-START. Moreover, Figure 1 confirmed the balance of the groups after matching. The absolute standardized difference

between matched START and non-START individuals was no larger than ten percent in each of the 18 covariates. Similar situations were noted for all subgroup analyses; no adjustment was needed for the propensity-score based treatment effects, as the absolute standardized differences for the entire matching factors (varied between 17 and 18 variables) were less than 20% in every subgroup studied.

Of all matched individuals ($n = 4,422$), the overall rehabilitation rate was 57% (95% CI 56% to 59%). Within the two secondary transition groups (each $n = 2,211$), 1,348 youth (61%; 95% CI 59% to 63%) in the START group and 1,173 youth (53%; 95% CI 51% to 55%) in the non-START group were rehabilitated. The propensity-score matched odds ratio (OR) was 1.40 (95% CI 1.24 to 1.58; $p < 0.001$). Figure 2 shows the OR for successful rehabilitation of the propensity-score matched START group to the non-START group. At the subgroup level, the estimated ORs were in similar direction with those for all individuals irrespective of gender, race, disability type, SSI/SSDI status, or Medicare/Medicaid support. With the exception of the subgroups of African Americans, Hispanics, and Medicare/Medicaid recipients, the ORs ranged from 1.27 to 1.62 with a p -value of 0.001 or less (0.003 for the intellectual disability group). The odds of rehabilitation among African Americans was 1.86 (95% CI 1.45 to 2.40; $p < 0.001$), and in individuals receiving Medicare/Medicaid was 1.92 (95% CI 1.37 to 2.68; $p < 0.001$), when they were in START. The OR for Hispanics was not statistically significant at the 0.05 level.

Discussion

Our study provides empirical evidence of the effectiveness of the VR secondary transition services that is delivered through a targeted, integrated, and contract-based program to the conventional VR transition services in promoting youth with disabilities to employment. After controlling for potential confounders through propensity-score matching in the analysis to

answer the first research question (RQ 1), the effect of START treatment on employment outcomes was significantly greater than that of non-START. This finding may indicate the importance of a particular design for delivering VR transition services.

The possible reasons for START superiority may be arguably obvious from the description of the program. START has an additional selection process, which means that only youth who are considered likely to benefit from the program become the target recipients. The implementation is secured with a binding agreement, and hence all parties are ensured to adequately assume their responsibilities. START includes a reward system through the performance-based incentives, and it is not difficult to think of its effect on the providers. Enhanced work experience in an integrated environment is another important factor that should have given this program an advantage over non-START. And the use of best-practice components in START also could be responsible for the higher odds of rehabilitation among youth in the program.

On the provider side, the application of measurable performances may have helped school personnel to determine the right direction for youth that eventually lead to successful rehabilitation. And, among the counselors or transition specialists, there should be an increased capability of developing appropriate IPEs for the START youth following a close working relationship with school personnel and the requirement that they remain involved in every decision regarding the youth.

All but one subgroup analysis for RQ 2 demonstrated a significantly higher likelihood of rehabilitation when youth with disabilities were participating in START instead of non-START. There were two youth subgroups that seemed to have a much higher odds ratio than all youth with disabilities: African Americans and Medicare/Medicaid recipients. In both cases, the odds

of successful rehabilitation when comparing the START youth to those in non-START were almost twice as likely (the all-group odds ratio was 1.40). It remains a subject for future research to determine why these subpopulations appeared to benefit more from START than the overall youth in the study. The demographic characteristics and the types of disability are very unlikely to be the related factors, because they had been balanced through the matching procedure. We can hypothesize that the variables which could not be adjusted for in the present study, such as the school were the youth attended, the counselor/transition specialist to whom they were assigned, or the variety of the service components that they received, might be associated with the anomaly. No gender difference appeared, while the discrepancy with respect to race/ethnicity was likely due to chance (the intervals of true odds ratio for African American and Hispanic groups were grossly overlapped, as was true also for Whites and Hispanics). Note that the Hispanic group was relatively small and thus the estimate was less precise. The analyses showed that youth with intellectual and learning disabilities were not quite different from each other in how they benefited from START. There was also no indication of improved or reduced benefit from START when youth with disabilities received SSI/SSDI, with the subgroup's odds ratio close to that for the overall youth.

There are a few limitations of the present study. The measure of successful outcomes was limited to the VR standard definition of a stable employment for at least ninety consecutive days. There was no assessment of the occurrence of non-qualified employment (not meeting the closure criteria) prior to the accepted outcome, the amount of time elapsed post-high school prior to employment, the total of working hours, the earnings from employment, the presence of any benefit, productivity in the workplace, or workplace activity limitations. The pursuit of these alternative outcomes was impractical because the details of the employment outcomes in our

data were insufficient. For the same reason, there was no analysis on the youth employment status after the closure; such as how long the job was held, or how satisfied the individual was with the work. In addition, the present study focused exclusively on the employment component of post-school outcomes of transition services. Other outcomes, such as post-secondary education and independent living, were not included since we considered them to require separate studies. Further information available for those outcomes was near non-existent in the data to which we were granted access.

Application of 1:1 ratio for matching individuals in START to non-START had artificially created a population where both groups were proportional. A downside of this approach was the removal of a large proportion of START youth in the original observations. Among 11,951 youths participating in START, only 2,211 (18.5%) were used for evaluation. Therefore, it would be difficult to avoid that the youth in the matched START group may be less representative of the entire population of youth in the original group (Table 1). However, the objective of matching in the propensity-score analysis is to obtain comparable groups in terms of the confounding variables. Table 1 indicates that the two treatment groups were not different in any of the confounding variables after the matching. On the other hand, a similar effect of treatment in a number of subgroups strengthens the prospect of generalizability.

The present study had a number of strengths. First, the study was population-based, and hence, the findings should be applicable to the youth with disabilities in the population. Some caution should be considered as our data included only those who sought VR services in a Midwestern area of the United States. Second, the present study included a fairly large sample size, which improved the power of the analysis and enabled the investigation of demographically and geographically diverse groups of youth with disabilities. Third, the researchers had exclusive

access to the parties that originally stored and managed the data, assuring that any questions or concerns regarding the variables could be clarified, and any conflicting entries could be reconciled for the majority of cases. Finally, the implementation of the propensity-score matching procedures to imitate the randomized experimental design should have improved the capacity of the present study to provide evidence for the effectiveness of VR transition services for youth with disabilities.

Developing suitable VR plans for youth with disabilities often presents a challenge for counselors because these youth differ in age, education level, and work experience from the typical, adult VR client. Without a clear idea of the path from school to work, determination of necessary services can be a daunting task. In START, there is an emphasis on providing youth with extensive work experience in an integrated environment, which may help to their IPEs which in turn may help to facilitate counselors in their search for more appropriate supports and services for the youth. A close collaboration between counselors and the third-party providers, perhaps through binding arrangements, may also help facilitate the development of VR plans and improve the employment prospects of youth with disabilities. VR professionals should, therefore, consider implementing and encouraging practices that are similar to START.

Future studies should include an in-depth investigation into the characteristics of employment outcomes following secondary transition services to provide more support towards the design of appropriate mechanisms of service delivery. It is also essential to develop effective combinations and/or structures for services offered and skills taught within the transition programs which will help to achieve optimal employment among youth with disabilities. Lastly, the superior rehabilitation outcome of the VR contract-based START group as compared to traditional VR transition services indicate that a cost-benefit analysis of delivery options for VR

transition services may be helpful to identify ways of making secondary transition services more beneficial in promoting the successful movement of youth with disabilities into employment.

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Table 1. Baseline Characteristics of Youth with Disabilities in the Study, By Type of Transitional Program, Before and After Propensity-score Matching.

Matching Characteristic	Before Matching (<i>n</i> = 14,162)			After Matching (<i>n</i> = 4,422)	
	Non-START, % (<i>n</i> = 2,211)	START, % (<i>n</i> = 11,951)	<i>p</i> -value	START, % (<i>n</i> = 2,211)	<i>p</i> -value
Age at Referral, <i>m</i> (<i>SD</i>)	17.7 (1.1)	17.0 (1.1)	< 0.001	17.8 (1.1)	0.565
Gender					
Female	35.7	36.2	0.613	37.0	0.381
Male	64.3	63.8		63.0	
White	76.5	79.1	0.006	76.8	0.887
African American	23.7	20.3	< 0.001	23.4	0.832
Hispanic	9.2	10.6	0.050	8.6	0.493
County of Residence Population Size					
100,000 or less	37.6	30.9	< 0.001	37.2	0.194
100,001 – 500,000	21.6	24.6		21.0	
500,001 – 1,000,000	20.4	18.1		22.9	
More than 1,000,000	20.4	26.3		18.9	
With Deaf/Hearing Disability	5.7	1.6	< 0.001	5.0	0.285
With Intellectual Disability	20.4	24.5	< 0.001	19.8	0.626
With Learning Disability	53.6	60.1	< 0.001	55.5	0.205
With Mental Illness	12.9	8.4	< 0.001	13.1	0.893
With Physical/Orthopedic Disability	3.0	1.4	< 0.001	2.8	0.789
Have Communication Limitation	65.0	69.4	< 0.001	64.5	0.706
Have Interpersonal Skills Limitation	42.0	39.8	0.052	40.6	0.344
Have Mobility Limitation	9.7	9.6	0.954	8.7	0.298
Have Self Care Limitation	27.4	29.1	0.091	26.1	0.359
Have Self Direction Limitation	60.5	66.2	< 0.001	60.6	1.000
Have Work Tolerance Limitation	22.4	14.7	< 0.001	20.5	0.133
Functional Limitations, <i>m</i> (<i>SD</i>)	3.2 (1.2)	3.2 (1.2)	0.333	3.1 (1.2)	0.173
Referral Year					
2004-2008	64.4	64.5	0.916	63.0	0.348
2009-2013	35.6	35.5		37.0	

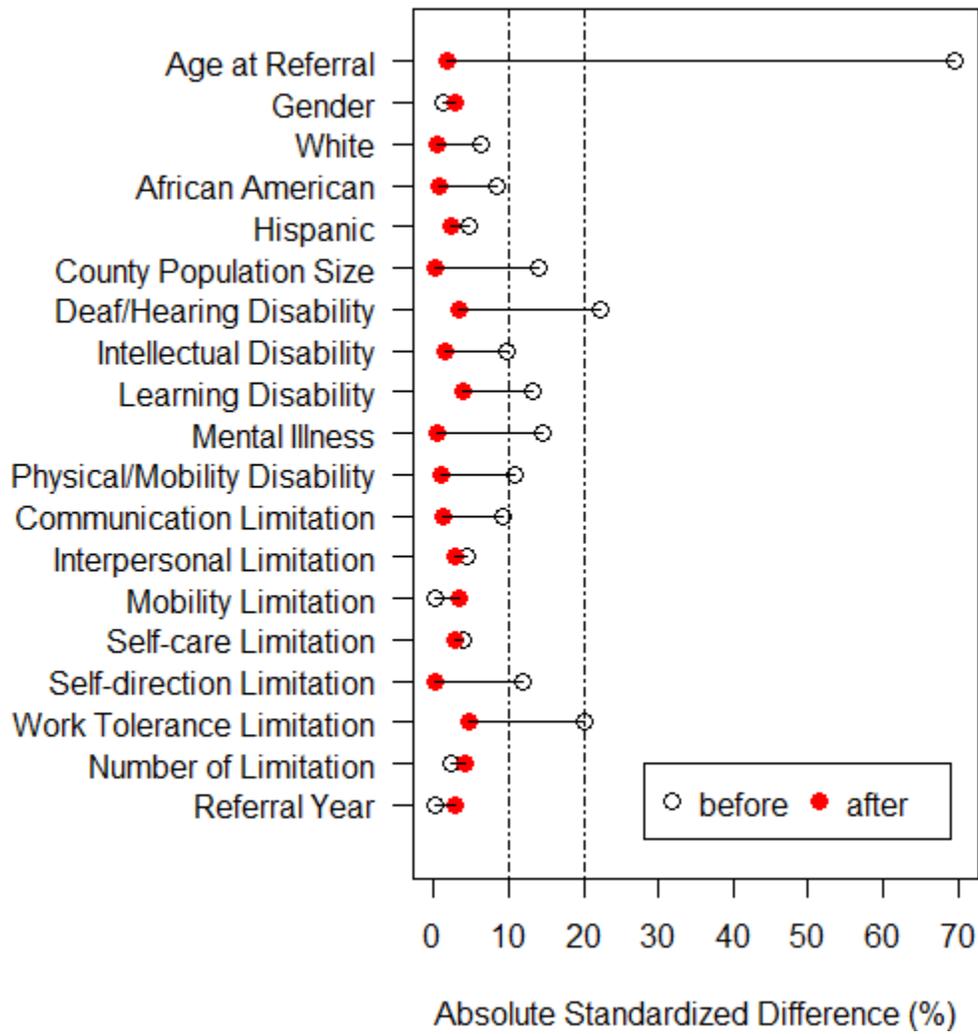


Figure 1. Absolute Standardized Difference (%) for Each Matching Characteristics, Before and After Propensity-score Matching on All Individuals.

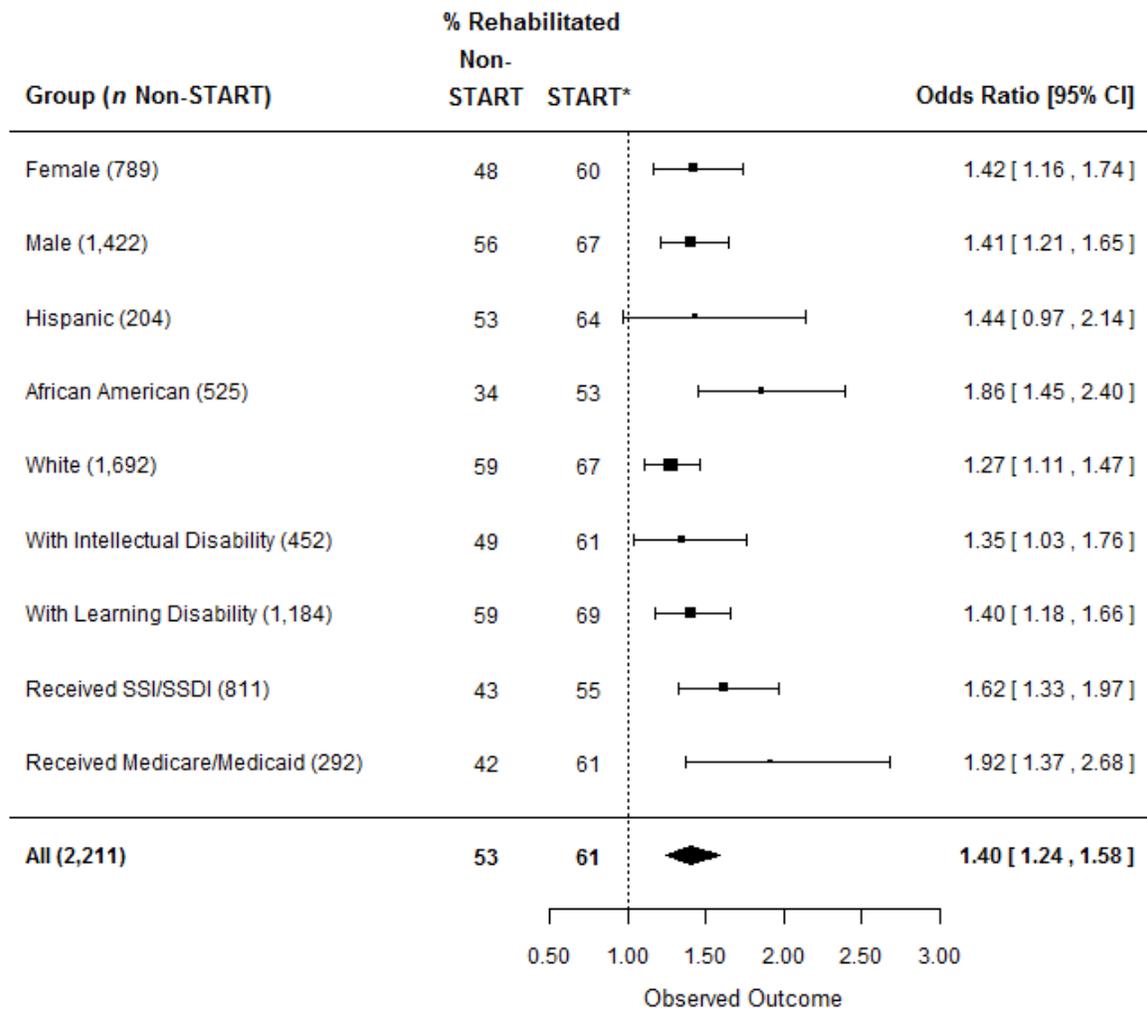


Figure 2. Odds of Vocational Rehabilitation of Propensity-score Matched Youth Receiving START Compared to All and Subgroups of Non-START Youth in the Study. START* = Propensity-score Matched START, CI = Confidence Interval, SSI = Supplemental Security Outcome, SSDI = Social Security Disability Insurance.