ARTICLE

The Costs of Providing Supported Employment Services to Individuals with Psychiatric Disabilities

Robert E. Cimera
Kent State University

Objective: The purpose of this study was to determine whether supported employees with psychiatric disorders cost Vocational Rehabilitation more to serve than supported employees with other conditions (e.g., mental retardation). Method: A structured cost-accounting methodology was used to compare the adjusted costs (in FY 2005 dollars) of services received by all supported employees funded by Vocational Rehabilitation in Wisconsin from FY 2002 to FY 2005. Results: Supported employees with psychotic and non-psychotic disorders were among the least costly populations to serve via supported employment. They averaged annual per capita expenditures of $3,846 and $2,579, respectively. Supported employees, as a whole, generated average annual per capita expenditures of $4,683. Conclusions: Based upon data presented here and by other researchers, it would appear that individuals with psychiatric disorders are cheaper to serve than populations more traditionally referred to supported employment (e.g., individuals with mental retardation). If this conclusion is disseminated to referring agencies, perhaps individuals with psychiatric disorders will be referred to supported employment in greater numbers.

Keywords: supported employment, psychiatric disorders, costs, vocational rehabilitation

Supported employment programs enable individuals with disabilities to become gainfully employed in competitive positions within the community (Bellamy, Rhodes & Albin, 1986; Wehman, Revell, & Kregel, 1998). Although supported employment’s original mission was to assist individuals with even the most severe conditions (Bellamy, Rhodes, Mank, & Albin, 1988; Rusch, 1990), recent reviews of the literature have consistently found that individuals with schizophrenia and other psychiatric disorders are consistently under-represented in supported employment programs across the United States (Bond, Drake, Mueser, & Becker, 1997; Bond et al., 2001; Bond, 2004). Given the high unemployment rates of individuals with psychiatric disorders (Hall, Graf, Fitzpatrick, Lane, & Birkel, 2003; Unger, Pardee, & Shafer, 2000), their desire to become employed (Anthony & Rogers, 1995; Crowther, Marshall, Bond, & Huxley, 2001; Larson et al., 2007), as well as numerous studies that have found supported employment to be effective for this population (Bond, 2004), the question of why individuals with psychiatric disabilities are not partaking in supported employ-
Rehabilitation for serving supported employees with psychotic mental illnesses was $7,190 over a 21-month period. This is compared to $8,811 for individuals with non-psychotic mental illnesses, $8,942 for individuals with moderate to severe mental retardation, and $13,030 for individuals with cerebral palsy.

Although a pioneer in the area of cost-analysis, the findings from Noble et al. (1991) are undoubtedly dated sixteen years after their publication. Further, their results have not been corroborated by other research.

The purpose of this study was to expand on the work presented by Noble and colleagues (1991) and explore the costs of providing services to supported employees with various psychiatric conditions. The present research did this in several ways. First, it investigated the costs of supported employees with psychiatric conditions over a four-year period, rather than the 21-month period explored by Noble et al. This increased duration will provide a clearer picture of the longitudinal programmatic costs generated by this population.

Second, this study compared the costs generated by individuals with various psychiatric disorders (i.e., psychotic versus non-psychotic). Costs generated by these populations are also compared to other populations (e.g., individuals with mental retardation, sensory impairments, and mobility limitations).

Finally, this study investigated the impact that severity of condition (i.e., “most significant” versus “significant”) has on the costs of services that supported employees obtained. This is to say, the present study attempts to answer the question: “Do individuals with more severe psychiatric disorders cost more to serve in supported employment than individuals with milder conditions?”

Methods

Data and Data Collection

The reimbursement costs of all services funded by Vocational Rehabilitation (VR) from FY 2002 to FY 2005 for every supported employee (i.e., all individuals for whom supported employment was a vocational goal in their IPE) served throughout Wisconsin were obtained directly from Wisconsin’s Department of Workforce Development. In addition to the amount for which services were reimbursed per each fiscal quarter, Wisconsin’s Department of Workforce Development also provided the following data on every person receiving supported employment services throughout the state: (a) a non-personal identification number (i.e., case number) so that costs of each supported employee could be tracked from fiscal quarter to fiscal quarter, (b) the supported employees’ primary disability (e.g., mobility limitation, sensory impairment, mental retardation) and its cause, if known (e.g., accident, illness, congenital defect), and (c) the severity of the supported employee’s primary condition (i.e., “most significant” versus “significant”).

Participants

From FY 2002 to FY 2005, 2,271 supported employees were funded by VR throughout Wisconsin. Of these, 1,084 were served in FY 2002, 1,178 in FY 2003, 1,258 in FY 2004, and 1,150 in FY 2005.

Upon entering Vocational Rehabilitation, VR counselors assessed each supported employee and classified their disabilities. For the sake of simplicity, the 56 disabling conditions and etiologies coded by VR counselors were collapsed into 10 categories: (a) psychotic mental illnesses (e.g., schizophrenia, schizopreniform disorder, schizoaffective disorder, delusional
disorders), (b) non-psychotic mental illnesses (e.g., mood disorders, anxiety disorders, somatoform disorders), (c) sensory impairments, (d) mental retardation, (e) traumatic brain injuries (TBI), (f) physical and mobility limitations, (g) autism spectrum disorders, (h) communication difficulties not caused by sensory impairments, mental retardation, TBI, or autism (e.g., speech impairments resulting from strokes), (i) other learning disabilities not caused by mental retardation, autism, or TBI (e.g., specific learning disabilities, ADHD, etc.), and (j) other health impairments (OHI) (e.g., cancer, blood disorders, asthma).

After being assessed, the severity of each person’s condition was categorized as being either “most significant” (i.e., “category one” disabilities) or “significant” (i.e., “category two” disabilities). Under section 7(21) (A) of the Rehabilitation Act, the definition of these classifications have been left up to each state. According to Wisconsin’s Division of Vocational Rehabilitation (2007, p. 1), an individual has a most significant disability if “a severe mental or physical impairment exists that seriously limits three or more functional capacities in terms of an employment outcome and whose vocational rehabilitation requires multiple services over an extended period of time.” An individual has a significant disability if “a severe mental or physical impairment exists that seriously limits one or more functional capacities in terms of an employment outcome and whose vocational rehabilitation requires multiple services over an extended period of time” (Wisconsin Division of Vocational Rehabilitation, 2007, p. 1).

Conversion of Dollar Values
Because the value of a dollar changes over time, all costs of services had to be converted to identical units (i.e., FY 2005 dollars). This was accomplished by multiplying the cost of services by the consumer price index (CPI)\(^2\) of the base year (i.e., FY 2005) and then dividing the result by the CPI of the year in which the costs were originally designated (Levin & McEwan, 2000). For instance, in order to convert $1 of services obtained in FY 1970 to FY 2005 dollars, $1 would be multiplied by 2005’s CPI (i.e., 195.3). The product would then be divided by 1970’s CPI (i.e., 38.8). The result indicates that $1 of FY 1970 money is the equivalent of $5.03 in FY 2005 money.

Results
As can be seen in Table 1, the annual per capita costs of supported employees with psychiatric disorders were consistently among the lowest of the populations studied. Specifically, individuals with non-psychotic mental illnesses had an average annual per capita cost of $2,488 over the four-year period investigated (i.e., FY 2002 to FY 2005). Individuals with psychotic mental illnesses had an average annual per capita cost of $3,841.

Individuals with other health impairments (OHI) were the only individuals who were cheaper to serve than persons with various mental illnesses (i.e., $3,637). However, given the small sizes of the OHI category (i.e., 2 in FY 2002, 5 in FY 2003, 7 in FY 2004, and 8 in FY 2005) as well as the wide variability of conditions represented (e.g., asthma, blood disorders, cancer), their cost data may not be meaningful or reliable, especially since the costs generated by one individual could have skewed the results considerably (see

### Table 1–The Average Annual Cost to Vocational Rehabilitation by Disabling Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>FY 2002</th>
<th>FY 2003</th>
<th>FY 2004</th>
<th>FY 2005</th>
<th>Average Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Psychotic Mental Illnesses</td>
<td>$1,107 (1108)</td>
<td>$1,679 (1132)</td>
<td>$1,955 (1173)</td>
<td>$3,827 (1164)</td>
<td>$2,579</td>
</tr>
<tr>
<td>Other Health Impairments</td>
<td>$2,205 (2)</td>
<td>$2,677 (5)</td>
<td>$2,652 (7)</td>
<td>$6,331 (8)</td>
<td>$3,637</td>
</tr>
<tr>
<td>Psychotic Mental Illnesses</td>
<td>$3,628 (165)</td>
<td>$3,653 (137)</td>
<td>$2,529 (108)</td>
<td>$6,404 (80)</td>
<td>$3,846</td>
</tr>
<tr>
<td>Communication Difficulties</td>
<td>$1,807 (10)</td>
<td>$4,876 (15)</td>
<td>$2,410 (16)</td>
<td>$5,989 (27)</td>
<td>$4,286</td>
</tr>
<tr>
<td>Other Learning Difficulties</td>
<td>$3,932 (75)</td>
<td>$4,562 (97)</td>
<td>$2,782 (111)</td>
<td>$6,757 (108)</td>
<td>$4,337</td>
</tr>
<tr>
<td>Autism Spectrum Disorders</td>
<td>$6,529 (18)</td>
<td>$3,657 (35)</td>
<td>$3,132 (55)</td>
<td>$6,705 (46)</td>
<td>$4,716</td>
</tr>
<tr>
<td>TBI</td>
<td>$3,209 (46)</td>
<td>$5,087 (64)</td>
<td>$2,998 (66)</td>
<td>$7,651 (65)</td>
<td>$4,848</td>
</tr>
<tr>
<td>Mental Retardation</td>
<td>$4,522 (504)</td>
<td>$4,600 (528)</td>
<td>$2,742 (547)</td>
<td>$8,225 (503)</td>
<td>$4,969</td>
</tr>
<tr>
<td>Physical and Mobility Limitations</td>
<td>$4,988 (119)</td>
<td>$6,032 (122)</td>
<td>$2,333 (128)</td>
<td>$7,420 (109)</td>
<td>$5,098</td>
</tr>
<tr>
<td>Sensory Impairments</td>
<td>$3,281 (37)</td>
<td>$8,187 (43)</td>
<td>$3,996 (47)</td>
<td>$9,593 (40)</td>
<td>$6,257</td>
</tr>
<tr>
<td>Grand Average (Sample Size)</td>
<td>$4,194 (1,084)</td>
<td>$4,664 (1,178)</td>
<td>$2,671 (1,258)</td>
<td>$7,364 (1,150)</td>
<td>$4,683</td>
</tr>
</tbody>
</table>
This finding is surprising given their under-representation in supported employment programs (Bond et al., 1997; Bond et al., 2001; Bond, 2004) as well as their potentially extensive vocational needs (Green et al., 2000; Harvey et al., 2004). It seems logical to assume that these needs would increase the amount of job coach support required and thus increase the programmatic costs of supported employment (Cimera, 2007). However, given the present data, and the data furnished by Noble et al. (1991), this doesn’t seem to be the case.

Table 1).

As can be seen in Figure 1, individuals with “most significant” psychotic disorders were generally more expensive than individuals with “significant” psychotic disorders. The only exception occurred in FY 2005 when supported employees with significant psychotic disorders were 13.6% more costly to serve than supported employees with most significant psychotic disorders (i.e., $8,414 versus $5,778). However, averaged over the four-year period (FY 2002 to FY 2005), both populations incurred roughly the same annual per capita expenditures (i.e., $3,932 versus $3,565) (see Figure 1).

Finally, as can be seen in Figure 2, individuals with most significant, non-psychotic disorders were cheaper for Vocational Rehabilitation to serve than individuals with significant, non-psychotic disorders in three out of four years investigated (i.e., FY 2003, FY 2004, and FY 2005). Moreover, when the average annual costs are examined, individuals with most significant, non-psychotic disorders were 19.1% less expensive to serve than peers with significant, non-psychotic disorders ($3,346 versus $4,137, respectively) (see Figure 2).

Conclusions

From the data presented above, several salient points are worthy of discussion. The first involves the partial replication of Noble and colleagues’ (1991) findings that supported employees with psychiatric disorders are less costly to serve than supported employees with other conditions. Specifically, Noble et al. found that individuals with psychotic disorders were cheaper to serve in supported employment than any of the populations investigated (i.e., $7,190 over a 21-month period). Supported employees with non-psychotic disorders were 22.5% more costly to serve than peers with psychotic disorders ($8,811 over a 21-month period), but were still significantly less expensive than individuals with most other conditions (e.g., mental retardation).

The present study supports Noble et al.’s (1991) general findings. It found that individuals with psychiatric disorders were less expensive to serve than individuals with nearly all other conditions investigated. However, unlike Noble and colleagues, supported employees with psychotic disorders were 49.1% more expensive than supported employees with non-psychotic disorders ($3,846 versus $2,579, respectively).
Perhaps the reason for the lack of participation in supported employment is that referral sources believe that individuals with psychiatric disorders require extensive and costly services. If this is true, dissemination of the present study's findings, as well as the findings of Noble et al. (1991), may help correct this misconception. Moreover, once referral sources begin to understand the economic advantages of placing individuals with psychiatric disorders in supported employment, more individuals with these conditions may become competitively employed within their communities.

The second point of discussion arising from the presented data is that severity of condition did not significantly influence average annual costs of services. For instance, individuals with "significant" non-psychotic disorders were only 23.6% more expensive to serve than individuals with "most significant" non-psychotic disorders ($4,137 versus $3,346). Individuals with most-significant psychotic disorders, on the other hand, were only 10.3% more expensive than individuals with significant psychotic disorders ($3,932 versus $3,565).

Of course, these results are most likely attributed to how "severity" of condition was defined by Vocational Rehabilitation counselors in Wisconsin. Without a more systematic and rigorous means of quantifying one person's mental illness as being more or less severe than another person's condition, such comparisons may be meaningless. Still, it is interesting to note that even individuals deemed by their VR counselor to have "most significant" disabilities are cheaper to serve compared to populations that are more represented in supported employment (e.g., persons with mental retardation).

A final point of discussion arising from the presented data involves the trends of conditions served in supported employment throughout Wisconsin from FY 2002 to FY 2005. Specifically, although the number of supported employees in general remained relatively stable from FY 2000 ($n=1,080) to FY 2005 ($n=1,150) as did the number of individuals with mental illnesses ($n=273 in FY 2002 and $n=244 in FY 2005), the numbers of individuals with psychotic disorders decreased steadily from year to year. More precisely, in FY 2002, 165 individuals with psychotic disorders were served by VR in supported employment. By FY 2005, this number decreased by more than half (i.e., 80).

Supplementary analyses reveal that VR consumers with psychotic disorders in Wisconsin were referred to supported employment at roughly the same rate from FY 2002 to FY 2005 (i.e., 3.6%); however, the overall number of consumers with these diagnoses who were referred to VR decreased over the period investigated. The reason for this steady and significant decrease is unclear. Although there is considerable disagreement regarding actual numbers, it does not appear as if the incidence rate of psychotic disorders is decreasing (American Psychiatric Association, 2000; Fearon et al., 2006; Leao et al., 2006), so it is unlikely that the decrease is due to a downward trend of the population as a whole. It could be that individuals with psychotic disorders in Wisconsin are being served in greater numbers by other state agencies, such as the Department of Mental Health, or opting out of services altogether. Additional data are required for the exploration of this issue.

Although an extension of the existing and very limited literature base, this study has several shortcomings that should be addressed by future research. For example, the present research considered only expenditures derived by Vocational Rehabilitation, and not other funding sources, such as the Department of Mental Health. Given that VR funds the initial placement and training of supported employees, they tend to acquire the lion's share of supported employment's costs (Cimera, 2007). Future research will need to determine whether the follow-along costs, which are not paid for by VR, accrued by supported employees with psychiatric disorders are higher than those with other conditions.

Secondly, as with Noble et al. (1991) in New York, the data presented here was gathered in only one area of the country (i.e., Wisconsin). Past research has indicated that cost of services varies substantially from state to state (Cimera, 2000). Consequently, results from one location may not apply to another. For this reason, a national study on the costs of supported employment is warranted.

Thirdly, also as with Noble et al. (1991), this study presents no analysis of the quality of the services received or the employment outcomes achieved by each group of supported employees. For instance, it may be that supported employees with psychiatric disorders are cheaper to serve because they work fewer hours in the community than all other populations and thus require fewer hours of job coaching. Such a theory could not be tested using the available data.

It should be noted that ancillary analyses determined that individuals with psychotic and non-psychotic psychiatric disorders received services over roughly the same durations (i.e., 3.51 fiscal quarters versus 3.55 fiscal quarters, respectively). This is comparable to supported employees without psychiatric disorders who averaged receiving services for 3.74 fiscal quarters.
Although these findings indicate that individuals with psychiatric disabilities received cheaper services over approximately the same length of time as did supported employees with other conditions, the quality of these services as well as their outcomes remain unknown. Such issues will have to be explored in future research.

Finally, this present study only examined the monetary programmatic costs of supported employment. No attempt was made at examining the monetary benefits generated by supported employees. Consequently, it is unknown whether individuals with psychiatric conditions have a greater net benefit to taxpayers than individuals with other conditions.

Conclusions

Despite their high rates of unemployment and their desire to work within the community, individuals with psychiatric disorders are under-represented in supported employment programs (Bond et al., 1997; Bond et al., 2001; Bond, 2004). One potential explanation for this is that referral sources and other practitioners are concerned about the costs that funding agencies would accrue if large numbers of individuals with mental illnesses were provided services.

However, the present study found that individuals with psychiatric disorders are far cheaper to serve than individuals with conditions more commonly served in supported employment (e.g., mental retardation). Specifically, supported employees with psychotic mental illnesses generated average annual costs of $3,846. Supported employees with non-psychotic mental illnesses generated an average annual cost of $2,579. In comparison, supported employees with mental retardation, who comprise approximately half of the individuals served in Wisconsin, cost an average of $4,969. Although concern for programmatic expenditures may not be the reason why individuals with mental illnesses aren’t being referred to supported employment, the fact that they are cheaper to serve than other populations may help promote their future participation.

References


CALL FOR PAPERS

PSYCHIATRIC REHABILITATION JOURNAL

The PRJ is seeking submissions for articles (5,000 words) and brief reports (1,500 words) focused on the rehabilitation and recovery of people with serious mental illness. Articles may include, but are not limited to, qualitative and quantitative research studies on innovative program models and topics of employment, education, housing, recovery, and rehabilitation and health promotion, organizational change efforts, and special populations such as dual disorders, women who have experienced trauma, and elderly persons with psychiatric disabilities. We welcome submissions from mental health and rehabilitation researchers and professionals, persons with psychiatric disabilities, and family members. We also welcome perspectives and personal accounts for the “Coping With” and “Speaking Out” sections which are limited to 1,500 words. Material is reviewed for publication on condition that it has not been previously published, including electronic publication, and is not being reviewed for publication elsewhere.

Submission Guidelines for Authors
Contributors to the PRJ should adhere to the Guidelines for Authors specified on the inside back cover of the journal or online at http://www.bu.edu/cpr/prj/authors.html. All manuscripts submitted to the Psychiatric Rehabilitation Journal should be submitted via Manuscript Central located at http://mc.manuscriptcentral.com/prj. Through this site, authors can submit articles and track the review progress up until acceptance for publication. Please disable “comments” and “track changes” in your documents prior to submitting a manuscript.

Research Manuscripts
All research manuscripts should include a structured abstract after the title page with the following information, under the headings: Objective: the primary purpose of the article; Methods: data sources, subjects, design, measurement, data analysis; Results: key findings; and Conclusions: implications, future directions. These headings should also be used to format the article text. Article abstracts should not exceed 250 words. Abstracts for brief reports should not exceed 150 words.

Theoretical Manuscripts
All theoretical manuscripts should include a structured abstract after the title page with the following information, under the headings: Topic: in one sentence; Purpose: thesis or organizing construct and the scope of the article; Sources Used: personal observation, published literature, etc.; and Conclusion: implications, future directions. These headings should also be used to format the article text.

Key Words and Biographical Information
Four (4) key words must be provided to be used for both the print and online versions of the journal. Limited biographical information should include the degrees, titles, and affiliations for each author in two to three lines of text.

APA (American Psychological Association) Style
All manuscripts and references must conform to the style set forth in the Publication Manual (6th ed.) of the American Psychological Association http://www.apastyle.org/ also know as APA style. APA style is an editorial style that consists of rules or guidelines that the Psychiatric Rehabilitation Journal observes to ensure clear and consistent presentation of written material.

To submit an article go to http://mc.manuscriptcentral.com/prj

Send correspondence by e-mail to: Kathleen Furlong-Norman, Managing Editor, e-mail: prj@bu.edu