Economic impacts and cost-effectiveness of evidence-based supported employment for people with severe mental illness: A review of the literature

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Abstract

This paper begins by briefly describing the rationale for, principles, and evidence in support of, the Individual Placement and Support (IPS) model of supported employment for people with mental illness. It then summarizes the literature concerning the impacts of programs of this type on health care cost offsets and on its cost-effectiveness. Factors that appear likely to influence cost-effectiveness, including rules governing disability benefits and earned income, and the unemployment rate, are also discussed. The review concludes that the data trend toward supported employment being associated with a reduction in health care costs, which is likely to increase over time. Although further research is desirable, the evidence to date strongly favors a policy of at least gradually replacing traditional vocational rehabilitation programs with IPS programs.

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Background

People with severe mental illness (mainly schizophrenia, schizoaffective disorders, bipolar disorder and major depression) represent 2 to 3% of the population (1). Relatively few among this population work: even in the United States, where unemployment rates are low, only about 10 to 30% of people with severe mental illness work, including in sheltered settings (2, 3). Yet various surveys conducted among people with severe mental illness and who are users of mental health services suggest that about 50 to 70% of them would like to work in competitive work settings, if only on a part-time basis (4-6). Like most people, they see in work not only a means of increasing their income, but also a source of personal satisfaction, an important support to a positive sense of self, and a marker of full-fledged citizenship.

Studies indicate that work is associated with many benefits for people with severe mental illness. It increases their satisfaction with life. The quality of life of people with severe mental illness who are working, whether measured subjectively or according to a number of objective measures, is higher than that of others who are not working (7). Employment, especially competitive employment, has been associated with reduced symptomatology, enhanced self-esteem and greater satisfaction with vocational rehabilitation services and finances (8-11). Furthermore, work provides a respite to family members of people who have severe mental illness (8, 9).

Moreover, work is generally thought to constitute an essential element of recovery, which modern thinking about services for people with severe mental illness considers to be their ultimate goal (10). Definitions of recovery, whether put forward by professionals or service users (11), are numerous (12-14). William Anthony, an influential author in the field of psychosocial rehabilitation, proposes the following definition, which incorporates several elements found in a number of other definitions, notably an understanding of recovery as being both a process and an end state:

“...recovery is a deeply personal, unique process of changing one's attitudes, values, feelings, goals, skills, and/or roles. It is a way of living a satisfying,
hopeful, and contributing life. Recovery involves the development of new meaning and purpose in one's life as one grows beyond the catastrophic effects of psychiatric disability” (10), p. 159.

The vision of recovery takes its source not only in the first-person accounts of people who have recovered and described their experience, but also in a series of longitudinal studies (15). These concluded that people initially diagnosed with a severe mental illness often recover, later in life, a level of functioning equivalent or nearly equivalent to that of people the same age who never received such a diagnosis (16-18). It then becomes natural to seek to re-orient mental health services so that they promote recovery to the greatest extent possible.

As stated above, work is thought to play an essential role in recovery (12). Admittedly, quantitative studies supporting this assertion are almost non-existent; indeed, we are only beginning to learn how to measure recovery as an intervention outcome (19). But testimonies of people who have recovered attribute to work an important place in their progress. Moreover, several studies and testimonies suggest an important association between the experience of recovery and community integration, that is, a life outside of sheltered settings, in apartments, job and leisure activities available to all and shared with others who do not have a severe mental illness (19). Work in competitive settings, paid at the minimum wage or better and available to anyone, clearly contributes to community integration.

In most developed countries today, vocational rehabilitation programs for people with severe mental illness tend to be of one of two types: (1) programs intended to help prepare them for work, but that do not actually engage them in productive work – people may remain in such programs for periods of varying lengths, sometimes stretching indefinitely; or (2) programs that provide real, paid opportunities for productive work, but in sheltered settings, so that the person’s co-workers are mainly comprised of other people with disabilities. Whether the program is of the first or the second type, it is
relatively rare for people with severe mental illness to proceed to true competitive employment.

A third approach to vocational rehabilitation emerged in the 1980s: supported employment. Supported employment involves helping a person who has a mental illness (or another type of disability) find and keep a competitive job, with limited or no preparatory steps. In the early 1990s, Deborah Becker and Robert Drake, of the New Hampshire-Dartmouth Psychiatric Research Centre, described a specific way of providing supported employment services for people with severe mental illness, which they called “individual placement and support”, or IPS (20, 21).

The IPS model has seven principles:

1. **Competitive employment is the goal.** Competitive employment is defined as employment paid at the minimum wage or better, and not reserved for people with disabilities.

2. **No pre-screening for work readiness.** Any person with a severe mental illness who expresses a desire to work can be registered in an IPS program.

3. **Focus on consumer choice.** Vocational advisers help clients find jobs that correspond to the clients’ own preferences. (In some cases, further training or education may appear most relevant (14).)

4. **Rapid job search.** The IPS model follows a “place-train”, rather than a “train-place” approach.

5. **Integration of vocational advisors into clinical teams.** Each vocational advisor is assigned to one or two clinical teams, with whom he or she maintains day-to-day contact.

6. **Individualized and long-term support.** Vocational advisors continue to offer individualized supports to clients as long as clients want them.

7. **Provision of benefits counseling.** Vocational advisors provide clients accurate, up-to-date information on the consequences for their health or welfare benefits of any working scenarios they may be contemplating.
The results of 15 randomized trials of programs that have followed the IPS model fairly or very closely, conducted in the United States (22-28), Australia (29), Hong Kong (30), Canada (31), and Europe (32), as well as numerous other studies following less rigorous designs, have all yielded the same result: IPS is more effective than other tested approaches at helping people with severe mental illness obtain competitive employment, and spend more time working in competitive settings (33). The variety of countries where such studies have been conducted suggests that this superior effectiveness appears to hold in a variety of institutional, economic and cultural contexts. Of particular relevance to the European context, the European trial was conducted in 6 cities located in as many countries. Two long-term studies also suggest that the benefits of IPS are maintained over a period of at least 8 to 12 years, for at least about a third of clients (10, 11). Furthermore, there is growing evidence that adherence to the principles of IPS as originally defined by Becker and Drake is associated with superior competitive employment outcomes (32, 34-41). The principle of integration of vocational and mental health services, in particular, is supported by a wide range of quantitative (26, 27, 29, 30, 46, 47) and qualitative (41-45) studies. It is also the one that poses the greatest organizational challenges to implementation of IPS, as funding streams and program management for health and vocational rehabilitation services are typically separate. Nonetheless, in most countries where IPS has been implemented, including in several European countries (32), acceptable or high levels of fidelity have been attained.

**Methods**

Studies on IPS were identified from electronic data bases, scanning of reference lists, and expert consultations. More specifically, the Medline and PsycINFO databases were searched over the period 1995 to August 2007, using the keywords “individual placement and support” first, then also “supported employment” in combination with “mental illness”, “mentally ill”, or “psychiatric”. Among these, articles that provided evidence concerning the impacts of supported employment on resource use, costs, earnings, taxes or welfare payments were identified.
Results

Costs of supported employment

Using detailed cost data from seven U.S. sites where high-fidelity supported employment sites had been implemented, and based on the average structure of costs observed at these sites (46), we can estimate the cost per active place \( C_{ap} \) (that is, per client who is actually receiving services) at approximately:

\[
C_{ap} = \left( \frac{\text{Compensation of vocational advisor}}{18} \right) \times 1.4
\]

For example, if the compensation of a supported vocational advisor is €30,000 per year, the cost per place would be estimated as: \( \left( \frac{\€30,000}{18} \right) \times 1.4 = €2,333 \). If instead it is €45,000, then the cost per place rises to €3,500.

Furthermore, in the same study, for every 10 places in a supported employment program, on average, 18 clients received services over the course of a year. This results both from some clients being successfully placed and not needing any further support, at least for a period of time, and other clients losing interest and withdrawing from the program. This would mean, then, that if the cost per place is €2,333, and a program has a budget sufficient to offer, say, 54 places (3 vocational advisors times 18 clients), the total cost of the program would be €125,982, and over the course of a year the program could expect to provide services to about 54 x (18/10) = 97 clients. Thus each of these 97 clients would have cost, on average, over the course of the year, about \( \frac{€125,982}{97} = €1,299 \), or about €1,300.

Empirical evidence of a cost offset

Alternative vocational rehabilitation programs

The studies that have measured the costs of IPS programs in comparison with alternative vocational rehabilitation programs have either not tested the difference in costs, or found it to be not significant. If one simply looks at the magnitudes of the reported costs, IPS emerges as much cheaper than day treatment centers (47) or about as
costly as other vocational rehabilitation programs (48, 49). (For this purpose we considered only IPS programs, not IPS variants.) Therefore, replacing existing vocational rehabilitation programs with IPS may well make it possible to introduce IPS into a service delivery system without any increase in budget – while, as we have seen, yielding better employment outcomes.

*Hospital use*

What effect do IPS programs have on hospital use? The evidence is quite clear on one point: whatever the concern clinicians may have about increasing the stress level of clients, IPS programs do not increase hospitalizations. Indeed, the data suggest rather that, if there is an effect, it is in the opposite direction. Four RCTs examine hospital use. Three (two of which are in fact tests of IPS variants) find no evidence of a difference in hospitalization rates (49-51); only the EUROQOL 6-centre trial reports 1/3 fewer admissions, and almost 50% fewer hospital days, in the IPS condition (32). Among the five quasi-experimental studies that have looked for an association between hospital admissions or days and being in IPS, three report no evidence of an association (47, 52-54), whereas two others report fewer admissions for the IPS group (47, 55, 56), in one case however only among with higher outpatient mental health service use (56). Among the long-term studies, one reports that, among the 52% of clients they were able to trace about ten years after their entry into an IPS program, 39% reported that they went to the hospital less because of working (45); the other that a “large majority” of the 49% of original study participants they were able to interview reported that they went to the hospital less when they were working (44).

*Use of outpatient services*

The evidence in terms of a potential impact of IPS on use of outpatient mental health services (including emergency department, case management and outpatient clinic services) similarly leans towards use of such services being lower with IPS. Admittedly, the one RCT for which we have such data reports no evidence of an effect of IPS on the proportions of clients received mental health services (24). Similarly, the three New Hampshire studies that have examined this report no evidence of a change associated
with the introduction of IPS (47, 52, 53, 55, 56). As with hospital admissions, however, Henry et al. find that emergency visits are lower for IPS clients who are high users of mental health services, consistent with the notion that tight integration of IPS and mental health services produces better results (56). More significantly, a large-scale and innovative study of use of services of people with mental illness at various stages in the IPS process (pre-IPS, job search, stable employment, interrupted, case closed) reports that hours of case management and other outpatient services are about 1/3 lower following initiation of work through an IPS program (57). The number of individuals included in the study (over 4,600) and its duration (over 11 years) do fairly well establish an association between working and reduced service use; it does not however suffice to establish a causal link.

Inpatient and outpatient service costs

Studies that report results in terms of utilization are not necessarily the same as those that report results in terms of costs. The evidence that emerges from considering the 2 RCTs and the 2 non-RCT studies for which hospitalization costs are available is completely mixed: one RCT (48) and one non-RCT study (47, 52) show lower costs for IPS, the others higher costs (52, 54, 56); the differences are either not statistically significant or not tested. As for the costs of case management and other outpatient services, although the differences are either not significant or not tested, in five out of five studies the costs are somewhat lower for IPS – the difference varying from 9% to 27% across the studies (47-50).

Work earnings and welfare payments

Finally, while supported employment does increase client’s work earnings, this increase is small on average, in the order of $1,000 to $1,500 per client per year on average, at best (23-26, 31, 37, 42, 47-49, 52-55, 58-62). In one (U.S.) study that has considered this, there was no material effect on welfare payments, and the increase in tax revenues was quite small, $125 per client per year (63).
Summary of evidence concerning health care cost offsets

In summary, it seems clear that IPS does not increase hospitalization or other mental health care costs. On balance, the results of the short-term studies suggest a possible modest reduction, which may or may not be discernible in any one particular study. The longer-term Indiana study, and the long-term follow-up studies together suggest, however, that in the long run, working is associated with a material reduction in health care utilization costs. We do not yet have evidence of a material impact on welfare benefits or taxes, as, at least in the short term, average earnings of IPS clients are not much greater than those of non-IPS clients.

Cost-effectiveness

Can one express the cost-effectiveness of IPS in the form of an incremental cost-effectiveness ratio, preferably in € per QALY? Certainly it is not possible to do the latter at this time, as no trial published to date has measured QALYs. Moreover, it is unlikely that, if any of the trials had measured QALYs, any difference would have been found between the IPS and comparison conditions: although many of the trials have measured non-vocational outcomes such as symptoms and self-esteem, virtually none has detected any effect on such outcomes.

This is not as surprising or definitive as it may seem. None of the supported employment programs tested were able to help all of the clients obtain even one competitive job over the study follow-up. In their forthcoming review of 11 RCTs of high-fidelity programs, Bond et al. conclude that the average competitive employment rate (i.e., the percentage of clients who obtained a competitive job over the study period) was 62% for IPS compared to 25% for controls (33). This implies that IPS made a difference for fewer than 40% of study subjects. Furthermore, even among those who worked, most worked only on a part-time basis, for only part of the study period. Thus it appears likely that the amount of employment was too little, with IPS helping too few clients enter into competitive employment, for there to be a statistically significant difference on such variables between the supported employment and control groups.
In the two long-term follow-up studies cited above, however, many clients indicated that supported employment had helped them gain greater self-esteem and self-confidence, and in one study also that it had helped control their symptoms. Admittedly, such studies are open to alternative interpretations – clients’ self-reports may have been positively biased. Nonetheless, it is possible that the follow-up periods in the randomized studies were too short for the long-term benefits of supported employment to become fully apparent. It is a common anecdotal observation that a significant minority of clients, perhaps a third, after a number of false starts (which could occupy much of the follow-up period of a 12-month or even 18-month RCT) finally find a job which is a good match, and stay in it for many months or even several years. There is some evidence that competitive employment outcomes of IPS clients improve over time (64). Furthermore, it is common in IPS RCTs for clients to be assigned to the supported employment group to realize, once they are enrolled in the study, that they really are not that interested in working. In a natural setting, such clients would leave the program and be replaced by others; but in a rigorous randomized study they need to be kept. Thus, the randomized studies may well understate the effects on non-vocational outcomes of being assigned to a supported employment program.

Other than assessments of the costs and economic benefits of supported employment programs, which have been summarized above, two studies address cost-effectiveness explicitly. Dixon, Hoch and colleagues used data from a trial of IPS conducted in inner-city Washington, D.C, in which IPS was compared with an enhanced vocational rehabilitation program. They estimated that IPS allowed clients to achieve additional hours of competitive work, at an average cost of $13 per hour, or $283 per additional week of competitive work (in fiscal year 1995 dollars) (49). Whether this benefit justifies the cost they leave as an open question.

Chalamat and colleagues attempted to model the costs and benefits of IPS in the Australian context by synthesizing results from studies available up until 2001(65). Assuming that IPS yields no benefits beyond additional competitive employment per se, they conclude that IPS would cost A$10.3 million to implement (95% confidence
interval: 7.4 – 13.6), but that its benefits would be only A$4.7 (95% C.I.: 3.1 – 6.5). Thus, under the assumption that competitive employment yields no intrinsic benefit, they conclude that its costs outweigh its benefits, although recognizing considerable uncertainty in their estimates. It should be noted also that their study assumes that only clients who are not currently enrolled in any vocational rehabilitation program would enroll in IPS: thus they assume no cost offset.

Chalamat and colleagues also point out that rules governing disability income in Australia inhibit people with disabilities such as severe mental illness from seeking competitive employment – thus reducing the cost-effectiveness of IPS. An assessment of the economics of IPS would not be complete without some consideration of factors that could modify cost-effectiveness.

Factors that could modify cost-effectiveness

Program fidelity and program effectiveness. The relation between program fidelity and outcomes has already been mentioned. There is a growing literature on the practical steps that can be taken to ensure that supported employment programs are implemented with fidelity to the model (66). Furthermore, Drake and colleagues note a significant variation in the effectiveness of different vocational advisors: while some barely manage to help 25% of their clients find work, others, within the same program, can exceed 75% (67). It seems clear that more effective programs are also likely to be more cost-effective, though available data preclude quantification of this assertion.

Client characteristics. A recent study reports that clients who exhibit social inattention and active avoidance require more of the time of vocational advisors’ time, and work fewer hours (68): they thus cost more, for worse outcomes. The cost-effectiveness of supported employment is thus likely to vary according to client characteristics.

Rules concerning benefits. The rules governing the effects of earned income on disability payments and health benefits are likely to influence the cost-effectiveness of an
IPS program. In the EQOLISE study, clients at sites where, according to their vocational advisors, working posed a greater risk of resulting in a reduction in income for the client (i.e., sites where there existed a “benefits trap”) were less likely to work, regardless of whether they were receiving supported employment or other services (32). Furthermore, in the one long-term follow-up study of supported employment clients that has examined this issue, clients reported working part-time not only because it was easier, but also because they feared working more would compromise their disability income and health benefits (44). Thus, the cost-effectiveness of supported employment programs is likely to be greater in settings where rules governing disability income and health benefits encourage, rather than discourage, work.

The unemployment rate. Some earlier studies have suggested that the unemployment rate had little effect on the effectiveness of supported employment (69), but more recent studies tend rather to the conclusion that client employment rates tend to be lower where the overall unemployment rate is higher (32, 35). Thus, cost-effectiveness of supported employment would be expected to be higher in settings where the unemployment rate is lower – although, as is apparent from the previous discussion, such a relationship cannot be quantified at present.

Discussion

The foregoing summary of the evidence to date concerning the economic impacts and cost-effectiveness of IPS suggests, most notably, that there is in fact a health care cost offset from IPS programs, even ignoring any savings from closing down existing vocational programs. Furthermore, it is likely that this cost offset increases over time.

This finding is in fact not surprising. There are a number of possible mechanisms by which the introduction of supported employment could result in a reduction (offset) in health care costs: (1) a vocational advisor could pass on to clinicians important clinical information in a more timely manner than would otherwise occur – for example, a visible deterioration in the mental state of a client that could lead to an emergency visit if not treated quickly; (2) a vocational advisor can also to some extent substitute for a clinician,
for example in helping a client reframe recent events, or in providing encouragement; (3) clients who are busy working have less time to obtain mental health services; (4) clients who are working will tend to have higher incomes, feel better about themselves and thus may feel less need for mental health services.

This result remains, however, tentative. Long-term follow-ups of the costs of mental health services for people who enter supported employment programs and work are needed.\(^1\) A modeling approach, in which the progress of service users entering a supported employment program would be simulated using simulation software, could also prove helpful.

Even if supported employment were to turn out to engender positive net costs, to the extent that it generates health benefits (using a broad definition of health) for service users, it could still of course be deemed cost-effective in comparison with other health interventions. Measuring the benefits of this kind of program in terms of QALYs would be helpful to establish cost-effectiveness in this case. There is some uncertainty however as to the extent to which standard QALY measures are appropriate to fully capture the benefits of employment, which can be construed as health-related only to the extent that a very broad definition of health (encompassing well-being) is adopted.

The introduction of supported employment programs highlights the detrimental effects of policies that discourage people with disabilities from working. The optimal calibration of policies governing disability benefits and earned income constitutes a vexing problem. More generous disability benefits are desirable from at least a short-term humanitarian point of view, but they tend to discourage work. On the other hand, to the extent that earned income can be added to disability benefits, inequities in comparison to non-disabled workers emerge.

\(^1\) In a presentation sponsored by the Sainsbury Mental Health Centre in London, England on March 16 2008, Dr Robert Drake mentioned preliminary results of such a study, which reportedly finds large savings over time for clients who do work.
At a minimum the evidence to date strongly suggests that policy should move in the direction of at least gradually replacing traditional vocational rehabilitation programs with IPS programs. Concurrent, probably mixed-methods evaluations should be conducted in order to determine whether IPS programs should eventually completely supplant traditional programs.

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