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Personnel Time Required for Supported Employment and Education Services for Individuals in a Recent-Onset Psychosis Treatment Program

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Abstract

Aim: Individual Placement and Support (IPS) improves vocational outcomes in first-episode psychosis patients, but policy makers need information on costs (and personnel time required) to conduct effective IPS.

Methods: Using chart records of 42 clients in a first-episode psychosis study, we examined service time for specific activities over 18 months.

Results: The IPS specialist averaged 92(SD=62) minutes per client per week: 39% of time was spent in direct client contact, 9% in meetings without the client, 14% in meetings with the treatment team, 14% in supervision and 24% on travel time. Time required was significantly higher when participants were seeking work/school placements, decreased over duration of enrollment, and was similar for those using work versus school support.

Conclusions: IPS service time covers numerous activities, is reduced when not seeking work/school placements and required less time over enrollment duration. Financing structures should support the full range of IPS services.

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Data Sharing Statement: Due to restrictions in informed consent at the time of data collection, data can only be shared with investigators affiliated with the UCLA Aftercare Program. Investigators interested in doing collaborative data analyses can contact Keith Nuechterlein to discuss options.

Keywords

supported employment; supported education; Individual Placement and Support (IPS); time use; first-episode psychosis

Introduction

The Individual Placement and Support (IPS) model of supported employment services has demonstrated effectiveness in over 26 randomised controlled trials (Bond, 2019). For younger participants, including those with recent-onset psychosis, IPS has been expanded to include supported education services (Nuechterlein et al, 2008, Swanson et al, 2017, Bello et al, 2017, IPS, 2019). U.S. estimates of annual IPS cost for adult clients range from about \$4000–\$8000, with personnel costs comprising about 70% of total costs (Latimer, 2006; Salkever, 2013). Policy makers need information on the personnel time required, and the corresponding costs, in order to plan effective service delivery of IPS to younger participants.

Investigators at UCLA led a randomised controlled trial of IPS after a first-episode of psychosis (Nuechterlein et al 2020). In the 18-month study, 83% of IPS clients in the IPS intervention engaged in school or competitive employment in the first six months (Nuechterlein et al, 2020). The goal of our current analysis was to assess the intensity of IPS service use over time. We hypothesized that service use would be higher for those seeking work/school placement and would decline over time.

Methods

Participants and Study Design:

Intervention methods have been previously reported (Nuechterlein et al 2020). Of the 46 participants assigned to IPS, four were missing time use data, leaving a study group of 42. The 42 clients received IPS plus atypical antipsychotic medication, weekly psychiatrist visits, individual case management and therapy, and family support (Nuechterlein et al, 2020). The IPS specialist, working with the clinical team, coordinated interventions to optimize work or school participation, and participated in weekly team meetings (Nuechterlein et al, 2008; 2020). The IPS specialist received weekly supervision from the principal investigator and an IPS trainer. The IPS services had good fidelity (score of 101 of 125) (Nuechterlein et al, 2020). The original study was approved by the Institutional Review Board (IRB) of University of California Los Angeles (UCLA): all procedures complied with the Helsinki Declaration of 1975 (2008 revision) (Nuechterlein et al, 2020). The secondary data analysis for this study was deemed not human subjects by the IRB of the New York State Psychiatric Institute.

Measures:

The IPS specialist maintained logs of the time spent per client by week, divided into five main categories: direct client contact, meetings without the client present, meetings with the treatment team, supervision, and travel time. Additionally, the IPS specialist recorded the

specific services provided, from a list of 44 potential activities: 15 for those seeking and 29 for those maintaining work/school placements. The time log form is in the online Supplementary material.

Demographic and clinical information included whether the client chose to use IPS for work support, school support or both simultaneously. Demographics included age, gender, race/ethnicity, years of education completed at baseline, number of months of employment at baseline, and years of education of the highest educated parent. Diagnosis was based on Research Diagnostic Criteria (RDC) and dichotomized as schizophrenia or schizoaffective disorder.

Data Analytic Procedures:

We used one-way analysis of variance with Bonferroni corrections to examine service use differences over time. We used population-averaged random effects models to examine whether the time varied for use of IPS over time, for those seeking work/school placement, and for use of IPS for school versus work support (individuals using IPS for both school and work simultaneously are excluded from the latter model, due to low numbers). Random effects models accounted for the panel nature of the data, with up to 78 observations for each of the 42 participants. All regression models controlled for demographics, work/school history and diagnosis. We imputed missing parental education data for three individuals with the sample mean to avoid sample loss.

Results

The average age of participants was 23.2 years (SD=4.2), with n=28 (67%) male, n=10 (24%) white non-Hispanic, n=10 (24%) black non-Hispanic, n=10 (24%) Hispanic, and n=12 (29%) other. On average, the highest educated parent had 14.6 (SD=3.5) years of education. On average, participants had completed 13.1 (SD=1.8) years of education at baseline, and had 35.2 (SD=44.1) months of work experience. Most (n=34; 81%) had a diagnosis of schizophrenia and n=8 (19%) had a diagnosis of schizoaffective disorder.

Table 1 describes services per client per visit. Overall, the IPS specialist spent an average of 92 (SD=62) minutes on each client per week (median 95 minutes, inter-quartile range [35–130], range [0–455]). Of the 92 minutes of average time spent per client, 39% (36/92) was spent in direct contact with the client, 9% (8/92) in calls or meetings without the client present, 14% (13/92) in meetings with the treatment team, 14% (13/92) in supervision, and 24% (22/92) in travel. Time spent varied by the duration of client's enrollment, with significant decreases in months 13–18. Overall time and time spent in direct client contact was higher for those seeking work/school placement.

Table 2 describes characteristics associated with total time spent per client by week. In the first model, use of IPS for seeking work/school placement was associated with greater IPS time ($\beta=16.74$ (Standard Error (SE) 3.13), $p<0.01$), and IPS time significantly declined with the number of weeks in the program ($\beta=-0.30$ (SE 0.06), $p<0.01$). IPS time was also higher for participants with schizophrenia versus schizoaffective disorders ($\beta=21.73$ (SE 8.60), $p<0.05$). No significant differences were observed for age, gender, race/ethnicity, parental

education, or the participant's own education or employment history. In the second model, there were no significant differences in the time spent for use of IPS for school vs work activities ($\beta=-2.08$ (SE 4.45), $p=0.64$). Participants using both services simultaneously at any given timepoint were excluded from this analysis; a sensitivity analysis including these participants still found no significant differences between those using work or school supports. Consistent with the first model, time use was significantly higher for those seeking work/school placement ($\beta=16.03$ (SE) 3.23), $p<0.01$) and for those with schizophrenia versus schizoaffective disorders ($\beta=21.74$ (SE 9.68), $p<0.05$), and significantly lower for those with more weeks in the program ($\beta=-0.24$ (SE 0.07), $p<0.01$).

Discussion

In this study, which demonstrated effective implementation of IPS for young people with recent-onset psychosis (Nuechterlein et al, 2020), the IPS specialist spent an average of 92 minutes per client per week, with less than half (39%) in direct client contact. The principles of the IPS model (Becker and Drake, 2003, Bond 1998; 2004) include a number of other activities, including development activities with employers and school personnel without the client present, travel time to support work in the community, and integration with the mental health treatment team. Overall time per week decreased with longer duration in the program and decreased when clients were not seeking school/work placement. Moreover, significant differences were not found for those using IPS for work versus school support. Clients with schizophrenia required more time than those with schizoaffective disorder.

Our data confirm that effective IPS, whether focused on employment or education goals, requires intensive work, a majority of which occurs without the client's presence. Most of this extra-client time emphasizes integration of services and development of work/school opportunities. Our data also confirm that IPS services decrease significantly after someone finds a placement and in the second year of services, indicating less service needs. Both of these interpretations are consistent with other studies (Whitworth, 2018, Burns et al 2015, Bond and Kulka, 2011).

In this study, caseload remained less than 20, consistent with IPS fidelity targets. While the IPS specialist might have had additional time available in the first cohort of clients, before the full caseload was established, no significant differences were found in time spent per visit between the first and later cohorts. In addition to client-specific activities, the IPS specialist spent about four hours per week on non-client-specific activities (two hours per week in job development, one in weekly clinical staff meetings and one in administration). The time use estimated in this study is consistent with a full-time position: at IPS fidelity targets of a caseload of 20, approximately 31 hours/week would be spent in client-specific services ($92 \times 20 = 1840$ minutes/ $60 = 30.7$ hours), plus an additional four hours for non-client-specific services; this is approximately equal to one full time position.

Study limitations included the study focus of a single grant-funded research study, in one geographical area, during 2000–2006, with one IPS specialist. The program included interventions separate from IPS (e.g. Workplace Fundamentals Module group activities), and relatively rich resources.

Despite limitations, this study showed that IPS services for young adults with a recent onset of psychosis take about 1.5 hours per week, reduce in time over the duration of IPS, and reduce further when clients are not seeking work/school placements. Similar time investments are required for clients pursuing work versus school support. The wide range of services provided by the IPS specialist, including many that do not involve direct client contact, point to the need for bundled payments, defined as single payments that compensate for an entire process of care, e.g. a single payment for full range of IPS services. Identification of the time use needs can help programs effectively plan resource use.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Time Spent Per Week (Mean, Standard Deviation (SD))

	Overall	By Time in Program				By Whether Seeking School/Work Placement		
		Months 0-6	Months 7-12	Months 13-18	P-value	Seeking School/ Work	Ongoing/ Maintaining	P-value
Total	92 (62)	94 (64)	98 (61)	80 (59)	P<0.001	98 (63)	89 (61)	P=0.003
Direct Contact	36 (35)	40 (36)	35 (35)	29 (32)	P<0.001	42 (39)	33 (33)	P<0.001
Calls/Meetings without client present	8 (16)	7 (14)	10 (17)	7 (16)	P<0.001	7 (13)	8 (17)	P=0.27
Meeting with treatment team	13 (6)	13 (7)	15 (4)	13 (5)	P<0.001	13 (6)	13 (6)	P=0.78
Supervision	13 (5)	12 (6)	14 (3)	12 (5)	P<0.001	12 (6)	13 (5)	P=0.051
Travel	22 (30)	22 (30)	25 (32)	19 (27)	P<0.001	22 (30)	22 (30)	P=0.84

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Table 2.

Time Spent Per Week (in Minutes), by Participant and Treatment Characteristics

	Coeff (St. Error)	Coeff (St. Error)
Use of IPS for seeking work/school placement (ref: ongoing/maintaining services)	16.74 (3.13) ***	16.03 (3.23) ***
Number of weeks in program	-0.30 (0.06) ***	-0.24 (0.07) ***
Use of IPS for school support [†] (ref: use of IPS for employment support)	NA	-2.08 (4.45)
Age	-0.52 (1.09)	-0.83 (1.23)
Male	3.09 (6.28)	1.91 (7.08)
White, non-Hispanic (ref)		
Black, non-Hispanic	-14.25 (8.57)	-8.96 (9.75)
Hispanic	-15.52 (9.94)	-18.71 (11.07)
Other, non-Hispanic	-15.77 (8.40)	-12.24 (9.48)
Parent education (years)	-0.14 (0.99)	-0.80 (1.13)
Years of Education (baseline)	2.21 (2.25)	3.35 (2.56)
Months of employment (baseline)	0.14 (0.10)	0.06 (0.12)
Diagnosis: schizophrenia (ref: schizoaffective)	21.73 (8.60) **	21.74 (9.68) **

p<0.01;**
p<0.05[†]Model examining use of IPS for school versus work support excludes individuals receiving both services simultaneously