

A randomized controlled trial of evidence-based supported employment: Nonvocational outcomes

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Revised/Accepted: December 2012

Abstract.

BACKGROUND: While the Individual Placement and Support (IPS) model of supported employment has been shown to improve competitive employment outcomes, randomized controlled trials have consistently failed to show improved nonvocational outcomes for IPS participants compared to participants receiving traditional vocational services.

AIMS: This study evaluated the impact of IPS on nonvocational outcomes for clients with severe mental illness (SMI).

METHODS: A longitudinal analysis of data from a randomized controlled trial compared IPS to a stepwise vocational approach on employment outcomes over two years. Nonvocational outcomes were symptoms, psychiatric hospitalizations, quality of life, and social networks. Results: Although the total sample showed improvement in several nonvocational domains over time, there were largely no differences between groups in nonvocational outcomes at follow-up or in their rates of improvement over time.

CONCLUSIONS: Participation in supported employment alone is not sufficient to positively impact most nonvocational outcomes in people with severe mental illness.

Keywords: Supported employment, individual placement and support model, vocational services, nonvocational outcomes, severe mental illness

1. Introduction

The Individual Placement and Support (IPS) model of supported employment is a well-validated evidence based practice that has been shown to successfully assist people with severe mental illness (SMI) in finding and maintaining work [1]. In an effort to understand the broader impact of supported employment, studies have also examined whether these services may impact nonvocational outcomes. Nonvocational outcomes encompass those that are not directly related to

employment or the workplace, including clinical and social variables, well-being and quality of life, and other important outcomes, such as the ability to live independently and frequency of substance use.

Several published randomized controlled trials have examined the impact of IPS on nonvocational outcomes [7, 11–13, 16, 17, 22, 25, 29, 30]. With one recent exception, these studies have consistently found no differences between IPS and controls across a range of nonvocational outcomes, leading to the conclusion that IPS supported employment does not directly impact nonvocational outcomes. However, using a sophisticated statistical modeling approach, Kilian et al. [19] found that IPS participants had fewer days of psychiatric hospitalization across 18 months compared with participants in

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the control group receiving traditional vocational services. An older retrospective study also warrants mentioning in that it also found that clients in the IPS group had a lower number of psychiatric hospitalizations and psychiatric emergency services visits as compared to clients receiving traditional vocational services [15].

The current study sought to corroborate the general finding of no impact on client outcome for IPS outside the employment domain; we examined an array of nonvocational outcomes that are of central importance to the overall well-being and functioning of participants, including psychiatric symptoms, overall quality of life and quality of life sub-domains, and social networks. We also evaluated the impact of IPS supported employment services on inpatient service utilization. Considering the bolus of conclusions drawn from prior studies, we hypothesized that participants assigned to IPS would not differ over time in any nonvocational outcomes compared with participants receiving a stepwise vocational model.

2. Methods

2.1. Overall design

This study examines 2-year outcomes from a randomized controlled trial comparing IPS to a stepwise vocational model, the Diversified Placement Approach (DPA). The study was conducted at a psychiatric rehabilitation center in a large urban setting in the midwest. The employment outcomes have been previously reported [6]. One hundred eighty-seven clients with SMI enrolled in psychiatric rehabilitation services and who expressed an interest in working and had been unemployed for at least 90 days prior to study entry. Other inclusion criteria consisted of attendance to two informational sessions about the study, no physical illness that would prevent two-year study participation, and agreement to be excluded from services provided in the non-assigned vocational program. Participants with active substance use were not excluded from study participation. Participants were then randomly assigned to one of the two vocational programs and began receiving employment services per the tenets of the vocational model (IPS or DPA). Because the intent was a fully randomized design, participants were not matched across groups. Participants were followed over two years and nonvocational outcomes were assessed semi-annually (symptoms, quality of life, social networks) and yearly (psychiatric hospitalizations). Interviews were conducted face-to-face at

baseline and every three months thereafter (as indicated in the “Measures” section, some nonvocational outcomes were collected every six months), collecting comprehensive data, including employment outcomes, nonvocational outcomes, and job satisfaction (after a job start). Participants were paid \$5 to \$15 depending on the duration of the interview (semi-annual interviews were more lengthy) [6].

2.2. Sample characteristics

Participants were 187 adults with SMI including 92 participants in the IPS group and 95 in the DPA group. Most participants had a schizophrenia-spectrum disorder ($N = 105$, 56.1%) or an affective disorder ($N = 77$, 41.2%). Just over 30% of participants in each group had a substance use disorder [6]. Participants were mostly male ($N = 119$, 63.6%) and African American ($N = 95$, 50.8%) or white ($N = 68$, 36.4%). The total sample had a mean age of 38.8 ($SD = 9.56$) years. The majority of participants had a high school education or above ($N = 154$, 82.4%). Most participants had worked competitively for at least a year in the past ($N = 133$, 71.1%).

2.3. Vocational programs

IPS has been well described in the literature [1] and its effectiveness improving competitive employment outcomes has been well established [3, 13]. The components of the model include integration of mental health treatment with employment services and an exclusive focus on competitive employment *only* (rather than noncompetitive work). Other central principles of IPS include a rapid job search with a de-emphasis on pre-vocational activities, a focus on client choice and abilities, on-the-job training when necessary, a focus on competitive work (i.e., vocational workers do not spend their time on non-work related tasks such as case management), small caseload sizes, and time-unlimited, ongoing follow along support provided by the vocational worker. On-going follow along support means that the vocational worker will engage in activities with the client, such as the teaching of job tasks, training of co-workers and supervisors addressing effective ways of working with the client, modification of the work environment to meet client’s needs and address the limitations set forth by his/her disabilities throughout their tenure at a job. Employers made accommodations for employees when necessary (e.g., arranging a work schedule that is flexible, allowing time to attend provider appointments, etc.) [2].

In order to determine the extent to which the program models were implemented as intended, fidelity was measured. The main reports describes high fidelity to the IPS model across the study, with the exception of lower fidelity reported at one of the two study sites on the IPS team at baseline (IPS fidelity at this site rebounded to higher levels as the study progressed and early problems were resolved) [6]. Several fidelity components are worthy of note. For instance, IPS vocational workers made a strong effort to match participants' occupational preferences with jobs. In addition, vocational workers maintained fidelity to the programmatic element featuring consistent follow-along support; participants engaged in services received a mean of approximately two follow-along contacts from vocational specialists per month. Mean number of follow-along contacts in a quarter predicted the number of weeks worked in the subsequent quarter [28].

The Diversified Placement Approach (DPA) is a highly regarded employment model of psychiatric rehabilitation. DPA originated out of the clubhouse model and was developed at Thresholds, a psychiatric rehabilitation center in Chicago, Illinois. This model is characterized by an emphasis on paid employment, offering a broad array of employment opportunities, including not only competitive employment, but also noncompetitive positions in sheltered employment, work crews, and agency-run businesses. Clients often begin in a group placement that is less threatening than an individual placement and brings the opportunity to increase vocational outcomes, such as work-related skills, and nonvocational factors, such as social networks. These placements may be permanent or temporary and vary in duration, with job movement made at the discretion of the client and team in accordance with his or her progress, limitations, and the availability of jobs. In other words, clients typically progress through a series of job placements spanning from a less independent position to a completely independent competitive job at a rate commensurate with factors such as their comfort level, work skills, symptom severity, and transportation availability. However, it is important to note that DPA is flexible enough to allow for movement in the other direction, from more independent to less independent job placements when appropriate. In addition, other noteworthy tenets of DPA include small case loads (15 clients or less), an emphasis on communication between team members, prevocational activities and formal assessment aimed at gauging the client's readiness for work, broad job development that takes advantage of disability hiring

initiatives and may involve placing several clients at the same community business, on the job training, and indefinite, on-going follow along support [20]. Moreover, across the study period, all DPA sites averaged fidelity ratings above a 4.0 on the DPA fidelity scale, indicating high fidelity and thus proper implementation of the DPA program model [6].

2.4. Measures

Nonvocational outcomes were collected via interview and objective records. The research team interviewed clients regarding symptoms and quality of life at baseline, 6, 12, 18, and 24 months. Using the Positive and Negative Syndrome Scale (PANSS) [18], we obtained measures of total symptoms and five symptom subscales (positive, negative, cognitive, hostility, emotional discomfort). In the current sample, interrater reliability coefficients were as follows: 0.90 for the total scale; 0.81 for the Positive syndrome; 0.63 for the Negative syndrome; 0.94 for the Emotional Discomfort scale; 0.54 for the Hostility scale; 0.74 for the Cognitive scale. These intra-class coefficients were based on a random sampling of 71 PANSS interviews rated by two trained raters [6]. Furthermore, based on established standards, a total score of 58 was considered mild illness, 75 moderate illness, 95 marked illness, and 116 severe illness [26].

Overall quality of life, satisfaction with leisure activities, and satisfaction with finances were assessed with an abbreviated version of Lehman's Quality of Life Interview [23]. In community samples of people with severe mental illness, the QOLI has been found to have adequate reliability and validity [24]. Quality and quantity of social networks was assessed at baseline, 3, 9, 15, and 21 months using a newly developed social network scale adapted from several standardized scales [8]. In the current study, the SNA had good baseline internal consistency (alpha coefficient = 0.82) and modest test-retest reliability (r values ranging from 0.36 to 0.56). Hospitalization data were collected yearly (including the year prior to the study) through participant self-report, case manager reports, client charts, and hospital discharge records; these data were verified through Medicaid claims (for participants who were Medicaid clients).

2.5. Data analyses

Differences between vocational programs (independent variable) on continuous nonvocational outcomes

(dependent variable) across the study (i.e., symptoms, quality of life, social networks) were examined using mixed effects regression modeling to determine changes over time and differences between vocational groups independent of baseline differences. Because nonvocational outcomes did not vary according to demographics or participant background characteristics [6], no covariates were included in the model. When significant differences were found in mixed effects regression analyses, *t*-tests were then conducted to determine the specific follow-up period(s) at which the groups differed. Hospitalization data were analyzed using nonparametric Mann Whitney tests due to the positively skewed sampling distribution. All *p* significance levels were set at 0.05, two-tailed.

3. Results

Complete competitive employment outcomes including weeks worked, hours work, wages earned, etc. are reported in the main paper. Overall, participants who obtained a job worked on average over 20 hours per week and over 40 weeks in total out of the study period. In addition, between groups analyses demonstrate significantly better employment outcomes for IPS as compared with DPA. Amongst participants who gained competitive work across the study, total earnings did not significantly differ according to employment group. Participants in both groups who obtained competitive employment during the study period earned an average of approximately \$7000 total and an average of over \$8.00 per hour worked [6]. As stated earlier, efforts were made to match participant preference with type of job. The majority of participants preferred and worked in clerical or service positions.

Overall, participants in the two employment programs had comparable nonvocational outcomes across 24 months, as shown in Table 1. The IPS and DPA groups did not significantly differ on symptoms or symptom domains at baseline or during follow-up; both groups reported mild to moderate symptom levels across the study period. Similarly, the groups did not differ on days of psychiatric hospitalization, overall quality of life, or quality of life domains at baseline or any follow-up periods. Participants in the IPS group reported significantly better social networks than DPA participants at baseline, $t(183) = 2.60, p = 0.01$ and 3 months, $t(167) = 2.94, p = 0.00$. The groups did not differ on social networks at subsequent follow-up periods. The overall results did not change when excluding

participants with missing data at the 24-month follow-up period.

Both vocational groups had significantly fewer hospitalization days, $F(1,185.0) = 62.6, p = 0.00$, and reported significantly improved overall quality of life, $F(1,170.3) = 6.86, p = 0.01$; satisfactions with finances, $F(1,170.3) = 27.0, p = 0.00$; and stronger social networks, $F(1,165.3) = 72.5, p = 0.00$ over the 24-month follow-up period.

4. Discussion

The findings of this study complement the pattern of results from prior randomized controlled trials demonstrating that IPS generally has no direct effects on improvements or deterioration in nonvocational domains across time. The finding that participation in high expectation employment programs are associated with worse nonvocational outcomes [14] simply has not received support in the current study or in prior studies of IPS [4]. Moreover, one possible interpretation for our finding that both IPS and DPA accumulated fewer days of hospitalization across the two-year follow-up is consistent with a recent finding suggesting a beneficial impact of IPS services on reduced psychiatric hospitalizations. Specifically, Kilian and colleagues [17] found an advantage for IPS compared with a control group of traditional vocational services; the difference between our findings (i.e., no group differences between IPS and DPA in hospitalizations) and the Kilian et al. [19] study may be explained by the use of a stronger control group in the current investigation. In addition, we found that both employment groups reported improved quality of life and social networks over time, probably reflecting the impact of enrollment in the overall psychiatric rehabilitation program. The only significant differences found between IPS and DPA were in social networks at baseline and three months. These group differences did not hold up over time and thus they do not indicate treatment effects.

The findings suggest that enrollment in IPS is not sufficient to enhance client outcomes outside the competitive employment domain, with the possible exception of psychiatric hospitalizations. Future study is needed to fully understand the impact of IPS services on hospitalizations over time. Moreover, our working hypothesis is that working extended periods of time in competitive employment may be the critical ingredient associated with improvements in nonvocational domains over time [5, 21]. Using data from this study,

Table 1
Descriptive statistics and hypothesis testing

Variables	IPS <i>N</i> = 92		DPA <i>N</i> = 95		df	Tests of fixed effects, <i>F</i>	Mann Whitney	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
<i>PANSS total symptoms</i>					1,182.3	1.40		0.24
Baseline	59.24	13.84	61.56	15.83				
6 months	58.15	16.61	61.56	16.11				
12 months	52.00	25.14	51.16	28.64				
18 months	50.07	28.30	47.32	31.98				
24 months	59.90	15.97	62.95	19.16				
<i>PANSS positive subscale</i>					1,184.2	3.61		0.06
Baseline	12.16	5.22	13.68	6.26				
6 months	12.35	4.97	13.71	6.14				
12 months	12.78	5.17	12.83	6.09				
18 months	12.47	6.14	13.13	5.93				
24 months	13.43	5.82	13.45	6.33				
<i>PANSS negative subscale</i>					1,182.0	0.03		0.88
Baseline	14.84	5.07	15.18	5.54				
6 months	14.65	5.81	14.58	5.73				
12 months	14.95	5.57	14.52	5.44				
18 months	14.42	5.76	14.91	5.58				
24 months	14.20	6.29	15.87	8.00				
<i>PANSS cognitive subscale</i>					1,182.0	0.14		0.99
Baseline	36.65	4.76	36.68	4.75				
6 months	34.92	5.96	34.18	6.94				
12 months	34.36	6.27	34.71	7.23				
18 months	34.82	7.11	33.79	7.45				
24 months	34.54	6.27	35.74	7.15				
<i>PANSS emotional discomfort subscale</i>					1,183.3	0.68		0.41
Baseline	10.54	4.43	10.66	4.97				
6 months	10.54	4.95	11.35	4.71				
12 months	8.66	7.65	8.38	8.34				
18 months	8.07	8.52	7.22	9.25				
24 months	10.88	4.99	10.71	4.52				
<i>PANSS hostility scores</i>					1,178.3	0.60		0.44
Baseline	5.89	2.34	6.13	2.32				
6 months	6.06	2.14	6.26	2.36				
12 months	5.85	1.95	6.41	2.34				
18 months	5.92	2.40	6.18	2.24				
24 months	6.09	2.26	6.26	2.25				
<i>Hospitalization days</i>								
Hospitalizations year prior	14.90	25.39	13.74	25.97			−1.34	0.18
Hospitalizations year one	4.86	12.71	8.32	22.60			0.42	0.67
Hospitalizations year two	5.59	13.31	9.69	24.24			0.67	0.50
<i>Overall quality of life</i>					1,182.1	0.59		0.44
Baseline	4.57	1.60	4.39	1.72				
6 months	4.71	1.48	4.58	1.64				
12 months	4.76	1.55	4.80	1.62				
18 months	4.96	1.45	4.82	1.61				
24 months	4.70	1.54	4.71	1.47				
<i>Satisfaction with finances</i>					1,170.3	0.20		0.65
Baseline	3.20	1.48	3.30	1.46				
6 months	4.11	1.73	3.55	1.48				
12 months	4.05	1.63	3.94	1.41				
18 months	4.01	1.63	3.98	1.52				
24 months	3.91	1.50	3.82	1.51				
<i>Satisfaction with leisure activities</i>					1,164.4	0.16		0.69
Baseline	4.77	1.16	4.56	1.24				
6 months	4.86	1.08	4.73	1.16				
12 months	4.67	1.18	4.64	1.02				

Table 1
(Continued)

Variables	IPS <i>N</i> = 92		DPA <i>N</i> = 95		df	Tests of fixed effects, <i>F</i>	Mann Whitney	<i>p</i>
	M	SD	M	SD				
18 months	4.70	1.25	4.72	1.23				
24 months	4.81	1.20	4.79	1.14				
<i>Social Networks</i>					1,184.4	9.38		0.00*
Baseline	19.82	3.16	18.54	3.55				
3 months	21.99	2.74	20.51	3.70				
9 months	21.74	2.76	20.94	3.83				
15 months	21.97	3.03	21.32	3.01				
21 months	21.99	3.37	21.28	3.04				

**p* < 0.01.

we found that consumers with schizophrenia who were steady workers had decreases in negative symptoms and improvements social networks over time compared with unemployed consumers. This study also found evidence of a beneficial impact of work on lower inpatient service utilization [21].

Service providers should consider such results as they organize and provide psychiatric rehabilitation services. Specifically, IPS programs that maximize competitive employment opportunities and provide assistance in obtaining and maintaining jobs are crucial. That is, strong vocational outcomes via high quality services may be the key to bolstering functioning and improving social networks and quality of life in the SMI population. In addition, vocational workers and leadership involved in planning vocational services should note these findings as indication that simply enrolling persons in services is insufficient to facilitate recovery from mental illness. Other interventions should be considered to enhance well-being in consumers who cannot find and maintain community work (or who do not wish to work) and are at risk for the most negative outcomes (e.g., evidence-based psychotherapy may be useful). Moreover, further studies should focus on ways to improve vocational functioning (thereby indirectly improving nonvocational functioning), especially for consumers who struggle with vocational functioning in the community despite the assistance of supported employment, either through a refinement of current employment services or through the addition of interventions designed to complement existing SE services and address employment barriers. For instance, it has been suggested that cognitive-based approaches may be a useful adjunct to supported employment services [9]; additional study should seek to understand the impact of these services on the nonvocational functioning of consumers with severe mental illness. Lastly, service providers should consider the impact of consumer

preference when providing employment services (e.g., many consumers prefer programs that assist them to find competitive jobs in the community rather than noncompetitive work programs), as consistent with the recovery movement and the emerging emphasis on shared decision making in mental health care [10].

Study limitations should be noted. The sample was consistent of African American and white persons in a large urban area. It is unclear the extent to which the findings will generalize to persons with mental illness in other demographic groups and settings. In addition, because this was a secondary analysis, we were constrained regarding the variables that were collected. Specifically, variables with importance to the functioning and recovery of persons with mental illness were unmeasured, e.g., self esteem, self efficacy, hope, and optimism. The possibility also exists that unmeasured variables impacted differential program effectiveness [27]; that is, while the IPS and DPA groups did not differ on background characteristics and clinical variables at baseline [6], it is possible that they did differ on important unmeasured variable(s) influencing outcomes of interest. Another potential limitation of this study is the risk of Type II error. Hence, it may be that the lack of differences between IPS and DPA simply reflects a lack of statistical power and an inability to detect real differences. However, the sample size was sufficient and our use of mixed effects regression modeling ensured statistical power greater than that of end point analyses. Combined with the findings from similar RCTs comparing employment programs, we can be confident in our conclusion that participation in supported employment services alone does not impact change in most nonvocational outcomes in people with SMI. Moreover, our conclusion is strengthened considering that results of the longitudinal analyses did not change when excluding participants with missing data at the 24 month follow-up period (i.e., there were still no differences in

nonvocational outcomes between IPS and DPA in the completer sample). Secondly, the parent study found that the majority of participants in each group continued receiving services after the first six months of the study period (IPS = 82.3%; DPA = 65.3%). Thirdly, both IPS and DPA had adequate to good program fidelity across the study period [6]. These findings help to exclude lack of participation in the program and poor program implementation as explanations for the lack of a relationship between enrollment in vocational services and nonvocational outcomes.

In conclusion, importantly, while IPS substantially increases competitive employment outcomes, this study found that IPS services do not affect nonvocational outcomes over time in persons with SMI, with the possible exception of psychiatric hospitalizations. Psychiatric rehabilitation providers should consider these findings when planning, organizing, and providing services. Future research should seek to better understand the specific influence of work and other important variables on nonvocational outcomes over extended periods.

References

- [1] Becker, D. R., & Drake, R. E. (1993). A working life: The individual placement and support (IPS) program. *Concord: New Hampshire-Dartmouth Psychiatric Research Center*.
- [2] Bond, G. R. (1998). Principles of the individual placement and support model: Empirical support. *Psychiatric Rehabilitation Journal*, 22(1), 11-23.
- [3] Bond, G. R. (2004). Supported employment: Evidence for an evidence-based practice. *Psychiatric Rehabilitation Journal*, 27(4), 345-359.
- [4] Bond, G. R., Drake, R. E., & Becker, D. R. (2010). Beyond evidence-based practice: Nine ideal features of a mental health intervention. *Research on Social Work Practice*, 20, 493-501.
- [5] Bond, G. R., Resnick, S. G., Drake, R. E., Xie, H., McHugo, G. J., & Bebout, R. R. (2001). Does competitive employment improve nonvocational outcomes for people with severe mental illness? *Journal of Consulting and Clinical Psychology*, 69(3), 489-501.
- [6] Bond, G. R., Salyers, M. P., Dincin, J., Drake, R., Becker, D. R., Fraser, V. V., et al. (2007). A randomized controlled trial comparing two vocational models for persons with severe mental illness. *Journal of Consulting and Clinical Psychology*, 75(6), 968-982.
- [7] Burns, T., Catty, J., White, S., Becker, T., Koletsi, M., Fioritti, A., et al. (2009). The impact of supported employment and working on clinical and social functioning: Results of an international study of individual placement and support. *Schizophrenia Bulletin*, 35, 949-958.
- [8] Diman, H. L. & McCoy, M. (1998). *Thresholds social network analysis tool*. Unpublished manuscript.
- [9] Drake, R. E., & Bond, G. R. (2011). IPS supported employment: A 20-year update. *American Journal of Psychiatric Rehabilitation*, 14, 155-164.
- [10] Drake, R. E., Cimpian, D., & Torrey, W. C. (2009). Shared decision making in mental health: Prospects for personalized medicine. *Dialogues in Clinical Neuroscience*, 11(4), 455-463.
- [11] Drake, R. E., McHugo, G. J., Bebout, R. R., Becker, D. R., Harris, M., Bond, G. R., et al. (1999). A randomized clinical trial of supported employment for inner-city patients with severe mental illness. *Archives of General Psychiatry*, 56, 627-633.
- [12] Drake, R. E., McHugo, G. J., Becker, D. R., Anthony, W. A., & Clark, R. E. (1996). The New Hampshire study of supported employment for people with severe mental illness: Vocational outcomes. *Journal of Consulting and Clinical Psychology*, 64, 391-399.
- [13] Gold, P. B., Meisler, N., Santos, A. B., Carnemolla, M. A., Williams, O. H., & Kelleher, J. (2006). Randomized trial of supported employment integrated with assertive community treatment for rural adults with severe mental illness. *Schizophrenia Bulletin*, 32, 378-395.
- [14] Goldberg, S. C., Schooler, N. R., Hogarty, G. E., & Roper, M. (1977). Prediction of relapse in schizophrenic outpatients treated by drug and psychotherapy. *Archives of General Psychiatry*, 34, 171-184.
- [15] Henry, A. D., Lucca, A. M., Banks, S., Simon, L., & Page, S. (2004). Inpatient hospitalizations and emergency visits among participants in an individual placement and support (IPS) model program. *Mental Health Services Research*, 6(4), 227-237.
- [16] Heslin, M., Howard, L., Leese, M., McCrone, P., Rice, C., Jarrett, M., et al. (2011). Randomized controlled trial of supported employment in England: 2 year follow-up of the Supported Work and Needs (SWAN) study. *World Psychiatry*, 10(2), 132-137.
- [17] Hoffmann, H., Jackel, D., Glauser, S., & Kupper, Z. (2011). A randomised controlled trial of the efficacy of supported employment. *Acta Psychiatrica Scandinavica*, 125(2), 157-167.
- [18] Kay, S. R., Fiszbein, A., & Opler, L. A. (1987). The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophrenia Bulletin*, 13(2), 261-276.
- [19] Kilian, R., Lauber, C., Kalkan, R., Dorn, W., Rossler, W., Wiersma, D., et al. (2012). The relationships between employment, clinical status, and psychiatric hospitalization in patients with schizophrenia receiving either IPS or a conventional vocational rehabilitation programme. *Social Psychiatry and Psychiatric Epidemiology*, 47(9), 1381-1389.
- [20] Koop, J. I., Rollins, A. L., Bond, G. R., Salyers, M. P., Dincin, J., Kinley, T., et al. (2004). Development of the DPA fidelity scale: Using fidelity to define an existing vocational model. *Psychiatric Rehabilitation Journal*, 28(1), 16-24.
- [21] Kukla, M., Bond, G. R., & Xie, H. (2012). A prospective investigation of work and nonvocational outcomes in adults with severe mental illness. *The Journal of Nervous and Mental Disease*, 200(3), 214-222.
- [22] Latimer, E., Lecomte, T., Becker, D., Drake, R., Duclos, I., Piat, M., et al. (2006). Generalisability of the individual placement and support model of supported employment: Results of a Canadian randomized controlled trial. *British Journal of Psychiatry*, 189, 65-73.
- [23] Lehman, A. F. (1988). A quality of life interview for the chronically mentally ill. *Evaluation Program Planning*, 11, 51-62.
- [24] Lehman, A. F. (1996). Measures of quality of life among persons with severe and persistent mental disorders. *Social Psychiatry & Psychiatric Epidemiology*, 31, 78-88.
- [25] Lehman, A. F., Goldberg, R. W., Dixon, L. B., McNary, S., Postrado, L., Hackman, A., et al. (2002). Improving employ-

- ment outcomes for persons with severe mental illness. *Archives of General Psychiatry*, 59, 165-172.
- [26] Leucht, S., Kane, J. M., Kissling, W., Hamann, J., Etschel, E., & Engel, R. R. (2005). What does the PANSS mean? *Schizophrenia Research*, 79(2-3), 231-238.
- [27] Macias, C., Jones, D. R., Hargreaves, W. A., Wang, Q., Rodican, C. F., Barreira, P. J., et al. (2008). When programs benefit some people more than others: Tests of differential service effectiveness. *Administration and Policy in Mental Health and Mental Health Services Research*, 35(4), 283-294.
- [28] McGuire, A. B., Bond, G. R., Clendenning, D., & Kukla, M. (2011). Service intensity as a predictor of competitive employment in an individual placement and support model. *Psychiatric Services*, 62, 1066-1072.
- [29] Mueser, K. T., Clark, R. E., Haines, M., Drake, R. E., McHugo, G. J., Bond, G. R., et al. (2004). The Hartford study of supported employment for persons with severe mental illness. *Journal of Consulting and Clinical Psychology*, 72, 479-490.
- [30] Twamley, E. W., Narvaez, J. M., Becker, D. R., Bartels, S. J., & Jeste, D.V. (2008). Supported employment for middle-aged and older people with schizophrenia. *American Journal of Psychiatric Rehabilitation*, 11, 76-89.