

A randomized controlled trial on Integrated Supported Employment for persons with
schizophrenia in mainland China

ABSTRACT

Objectives: This randomized controlled trial investigates the effectiveness of Integrated Supported Employment (ISE) as compared to Individual Placement and Support Service (IPS) and Traditional Vocational Rehabilitation (TVR) in mainland China.

Method: One hundred and sixty-two participants with schizophrenia were randomly assigned to ISE ($n=54$), IPS ($n=54$), and TVR ($n=54$) respectively. Blinded assessments on employment rate, job tenure, and psychological outcomes were conducted at admission, completion of three-month program, and follow-up at 7, 11, and 15 months.

Results: Significantly higher employment rate and longer job tenure respectively were found in ISE group (63.0% and 29.56 weeks) as compared to IPS group (50.0% and 25.47 weeks) and TVR group (33.3% and 9.91 weeks). The ISE group also attained the most positive results in almost all psychological outcomes.

Conclusion: This study supports the implementation of ISE in mainland China. Work-related Social Skills Training (WSST) embedded in ISE with generalization strategies can further enhance the vocational and non-vocational outcomes.

Keywords:

Supported Employment

Work-related social skills training

1 Schizophrenia

2 Vocational rehabilitation

3 China

4 **1. Introduction**

5 Although employment is known to have positive effects on psychosocial functioning and
6 social integration (Tsang & Chen, 2007; Warner, 1985; Wilkinson & Marmot, 2003), most of the
7 7.8 million persons with schizophrenia in China are unemployed due to social disadvantages
8 (Fung *et al.*, 2007; Stefan, 2002; Social Exclusion Unit, 2004; Xinhua News Agency, 2007).

9 Vocational rehabilitation for persons with schizophrenia is a core intervention in
10 occupational therapy (College of Occupational Therapists, 2009) but its implementation is
11 lagging behind on mainland China due to the lack of rehabilitation professionals such as
12 occupational therapists (Li *et al.*, 2014). Our research team in Hong Kong explored and
13 developed evidence-based occupational therapy interventions resulting in the development of the
14 Integrated Supported Employment (ISE) (Tsang *et al.*, 2009). ISE integrates individual
15 placement and support (IPS) (Drake & Becker, 1996) and Work-related Social Skills Training
16 (WSST) (Tsang & Pearson, 2001) to augment the vocational outcomes of supported employment
17 by providing training on workplace social skills (Crowther *et al.*, 2001). The employment rate of
18 the traditional vocational rehabilitation (TVR) is below 20% (Bellamy *et al.*, 1986). TVR
19 involves lengthy pre-vocational training before seeking open employment. In IPS participants,
20 the employment rate is higher (about 50%) than TVR but remains sub-optimal (Drake & Becker,
21 1996; Drake *et al.*, 1999). IPS includes job development and placement, ongoing work support,

1 and coordination of vocational services with multi-disciplinary teams (Drake et al., 1999). With
 2 the addition of WSST to IPS, ISE protocol is developed which yields highest employment rate
 3 and job tenure (Tsang *et al.*, 2009). The 10-session WSST (Tsang & Pearson, 2001) is
 4 incorporated into IPS to equip participants with job interview skills, basic conversation and
 5 social survival skills for effective communication, and cooperative working relationship with
 6 supervisors, colleagues, and customers to further enhance their competence in job seeking and
 7 maintenance (Tsang, 2003). WSST is based on a framework with a three-tiered approach
 8 covering the basic skills, the core skills and the outcomes following the acquisition of these skills
 9 (Tsang & Pearson, 1996). Ongoing follow-up support is provided to ensure the generalization of
 10 the social skills in assisting participants in developing, maintaining, and improving interpersonal
 11 competence. For example, when the participant has difficulties dealing with the supervisor, the
 12 case worker would analyze the situation and review the social skills learned so as to devise
 13 strategies for further improvement. The participants valued this continuous input as found in our
 14 qualitative study (Yu *et al.*, 2016). A RCT (Tsang *et al.*, 2009) showed significantly higher
 15 employment rate (78.8%) and longer maintenance rate (23.84 weeks) in the participants received
 16 ISE than those received IPS alone (Tsang *et al.*, 2009). Employment is defined as full-time or
 17 part-time job in the free job market and maintenance refers to the continuous work for two
 18 months or more with at least 20 hours per week (Mak *et al.*, 2006). To demonstrate the
 19 effectiveness on the mainland, we initiated the ISE program in Wuxi, an economically developed
 20 city on mainland China. Two pilot studies there indicated the positive effects of ISE over IPS (Li
 21 *et al.*, 2013; Lu *et al.*, 2015). Despite these several publications, other research findings seem
 22 lacking over the past few years. This paper reports a full-scale RCT in Wuxi investigating the
 23 effectiveness of ISE as compared to IPS and TVR. It was hypothesized that ISE with the

inclusion of work-related social skills training would outperform IPS and TVR in terms of employment rate and job tenure, and some important psychological outcomes such as psychiatric status, self-efficacy, and social functioning as measured by validated tools. A secondary objective was to determine whether the vocational interventions originally developed in Hong Kong could be applied with effectiveness on the mainland.

2. Methods

2.1. Participants

Between 2013 and 2015, 162 participants were recruited from Wuxi Mental Health Center which is a modern psychiatric hospital providing clinical services and rehabilitation interventions (Nanjing Medical University, 2013). The inclusion criteria included: (1) age 18 or above; (2) a diagnosis of schizophrenia for at least two years; (3) being unemployed; (4) willingness to give informed consent; (5) no obvious cognitive, learning, and/or neurological impairment as reflected on minimum scores of the MMSE; (6) completion of primary school education; and (7) a desire to work. Anyone with a score lower than 18 on the 30-item Mini-Mental State Examination (Chiu *et al.*, 1994) was excluded. The recruited participants were assigned to the ISE, IPS, or TVR using the concealed randomization feature in SPSS. The diagnosis of the participants was verified by the Chinese Version of the Structural Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders IV (So *et al.*, 2003). Individual written informed consent was obtained following Institutional Review Board approval. Demographic data of the participants are summarized in Table 1.

2.2. Measures

The Employment Outcome Checklist (EOC) was used to assess the employment outcomes of the participants including the number of job interviews attended, the number of jobs obtained, number of hours per week worked, and salary received from each of the jobs (Tsang & Pearson, 2001). The Chinese Job Termination Checklist (CJTC; Becker *et al.*, 1998) was used to collect information on the participants' job terminations (Mak *et al.*, 2006).

The Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962) was used to assess the participants' psychiatric status including the positive and negative symptoms ranging from 1 (not present) to 7 (extremely severe) associated with a diagnosis of schizophrenia. The Chinese General Self-efficacy Scale (CGSS; Chiu & Tsang, 2004) was used to assess optimistic self-beliefs of the participants to cope with a variety of difficult demands in life on a scale from 1 (not at all true) to 4 (exactly true). The Global Assessment of Functioning (GAF; American Psychiatric Association, 2013) was used to assess the level of psychosocial functioning of the participants ranging from 1 (severely impaired) to 100 (extremely high functioning). The Personal Wellbeing Index (PWI; International Wellbeing Group, 2006) was used to measure the subjective dimension of quality of life of the participants ranging from 0 (completely dissatisfied) to 10 (completely satisfied).

2.3. Intervention Protocols

2.3.1. Individual Placement and Support (IPS)

The IPS program (Drake & Becker, 1996) adhered to the eight implementation principles (Bond, 2004). Its practices include job development and placement, ongoing work support, coordination of vocational services with multi-disciplinary teams, indefinite services, and job

choices by participants (Drake *et al.*, 1999). In this study, these eight principles were closely adhered by the research team.

2.3.2. *Integrated Supported Employment (ISE)*

The ISE program is an evidence-based vocational rehabilitation intervention for people with schizophrenia which integrates IPS and WSST (Figure 1). WSST is added to IPS in order to further enhance the vocational outcomes in particular job tenure (Tsang, 2003).

The ISE participants joined the 10-session WSST (Tsang & Pearson, 2001) during the first three months after the admission to the study and prior to the stage of obtaining employment so as to enhance their competencies in seeking and maintaining employment. Follow-up support aimed to assist participants in developing, maintaining, and improving cooperative relationships with supervisors, co-workers, and customers. Details of the ISE protocol may be found in an earlier publication by the PI (Tsang *et al.*, 2009).

The carefully designed manualized WSST was used to help the participants enhance their social competence in job seeking and maintenance. After gaining employment, whenever they faced interpersonal problems, their case workers would remind and review the social skills learned with them and help them set behavioral goals for further improvement in the near future. In addition, a problem-solving approach was adopted to help participants generalize the social skills to their workplace. The effectiveness of these interventions is supported by our qualitative study (Yu *et al.*, 2016).

2.3.3. *Traditional Vocational Rehabilitation (TVR)*

The TVR participants received traditional service including comprehensive vocational assessment including work interest exploration, situational assessment using the Workshop Behavior Checklist (WBC; Tsang & Ip, 2002), and pre-vocational training to equip the participants with specific work skills and work habits for later upgrading to competitive employment.

2.4. Employment Specialists and Quality Assurance

Three psychiatric nurses served in the role as Employment Specialist (ES) to carry out the ISE or IPS protocol with the ES to participant ratio at 1:27. ES is a professional who serves to support consumers to overcome obstacles in seeking jobs. The participants were allocated to the ES based on administrative convenience. There were approximately the same numbers of cases in IPS or ISE assigned to ESs to minimize the effects of differential personal, enthusiasm, and commitment levels because they were not blinded to their conditions. The quality assurance of the two protocols was ensured by training of the ESs, regular multi-disciplinary meetings, and the use of the 15-item fidelity scale (Bond *et al.*, 2002). Aspects of quality included staffing (3 items), organization (3 items), and services (9 items) respectively. The item was assessed on a 5-point Likert scale ranging from 1 indicating “not implemented” and 5 indicating “fully implemented”. The scale had a total score from 15 to 75. Adherence of the two protocols was from 65 to 68 (87%–91%) for the IPS and from 64 to 67 (85%–89%) for ISE. The services for TVR group were provided by staff members (including occupational therapist and nurses) of the mental health center providing sheltered vocational training (Tsang *et al.*, 2009).

2.5. Data Collection

The length of the interventions in ISE, IPS, and TVR groups was fifteen months respectively. An independent, trained, and blind assessor with an occupational therapy background conducted the assessments at admission (baseline), completion of the three-month program, and post-program follow-up at seven, eleven, and fifteen months.

2.6. Data Analyses

The baseline scores and the demographic variables were compared by either mixed ANOVA or Chi-square to detect significant differences between participants of the three groups. Mixed ANOVA measures with post-hoc analysis were employed to determine if there were significant differences among the three groups at baseline and different stages of the study. Competitive employment referred to full-time or part-time jobs in the free job market that anybody could apply, and the salary was based on the market value and paid directly by the employers (Mak *et al.*, 2006). Those having continuously worked for two months or more with at least 20 hours per week were considered successful. The cumulative employment rate at different follow-up periods was also reported. The longest duration of a job that was sustained by the participant during the study was considered the job tenure. In the study, three months were used to prepare participants for job readiness. Consequently, the assessment at the seventh month after joining the program was operationally adopted as the baseline for the vocational outcomes including employment rate, job tenure, number of job terminations, and salary.

The participants ($n=162$) were subject to intent-to-treat analyses on the employment rates. Similarly, for those with all assessments completed, analyses of other employment outcomes were also conducted. The drop-out cases were also included. Chi-square was used to analyze the employment rates of the three groups at different intervals. The participants who dropped out were excluded as their job information was not known in the description and the Chi-square

analysis. In addition, employment information of the participants at the seventh, eleventh, and fifteenth months was used to calculate the number of terminations. In all post-doc comparisons, an alpha value of 0.05 with Bonferroni adjustments was used.

3. Results

3.1. Demographics of participants

There were no statistically significant differences among the three groups in gender ($X^2 = .36, df = 2, p = .84$), educational level ($X^2 = 6.01, df = 6, p = .42$), employment history ($X^2 = .65, df = 2, p = .72$), and age ($F = 1.79, df = 2160, p = .21$). For example, the mean ages of ISE, IPS and TVR were 32.26, 34.70 and 31.48 respectively and the proportions of those with working experience in the three groups were 53.7%, 55.6% and 61.1% respectively.

3.2. Employment Rates

During the follow-up period, 34 (63.0%) of ISE participants obtained competitive employment, compared with 27 (50.0%) of IPS, and 18 (33.3%) of TVR participants at the fifteenth month. The employment rate of the ISE group was significantly higher than the TVR ($p = .002$) and significantly more participants in the ISE group were employed than the IPS group ($p = .002$).

3.3. Job Tenure

Group x time interaction effect showed overall significance among the three groups ($p = .002$). With post-hoc comparison, the ISE group had longer job tenure (29.56 weeks) than the TVR group (9.91 weeks) between the seventh and fifteenth months ($p = .002$). Following the same pattern of comparison, the ISE group had significantly longer job tenure (29.56 weeks) than the IPS group (25.47 weeks) between the seventh and fifteenth months ($p = .002$).

3.4. BPRS, CGSS, GAF and PWI

Group x time interaction effect showed overall significance among the three groups in BPRS [$F=6.63, p = .00$], CGSS [$F=2.78, p = .01$], GAF [$F=2.06, p = .04$] and PWI [$F=11.88, p = .00$] respectively. With the exception of the CGSS, the group that received ISE had significantly higher scores on the BPRS, the GAF, and the PWI than both the IPS and TVR groups. Table 2 summarizes the data.

3.5. Job Termination

A significant difference ($p = .00$) on the average number of unwanted job terminations per participant was found between the ISE group and the IPS group which was 1.94 and 2.44 times respectively in the fifteenth month.

4. Discussion

Our main hypotheses that ISE outperforms other groups in both vocational and non-vocational outcomes are supported.

For vocational outcomes, significantly higher employment rate and longer job tenure were found in ISE participants than in IPS and TVR participants. These figures support previous international findings (Drake & Becker, 1996; Drake *et al.*, 1999) that IPS outperforms conventional approaches of vocational rehabilitation; and Hong Kong (Tsang *et al.*, 2009) that ISE outperforms both IPS and TVR. This study provides evidence as to the application of IPS in mainland as the prototype and justifies that adding WSST to IPS in both Hong Kong and Wuxi augments employment outcomes of IPS. Although the IPS participants also received similar follow-up services, they did not focus on behavioral rehearsal of social skills that are necessary for handling the interpersonal conflicts participants encountered in their workplace. This has constituted the main difference between the IPS protocol and ISE protocol.

1 Fewer job terminations among ISE participants may be explained from a cultural
2 perspective. Employers in Chinese societies are very concerned with their employees'
3 interpersonal competency and solidarity (Tsang *et al.*, 2007). As many problems leading to job
4 termination were related to interpersonal difficulties (Becker *et al.*, 1998), it is reasonable to
5 suggest that significantly fewer number of job terminations in the ISE participants as compared
6 with the IPS participants may be related to the WSST in ISE.

7 For non-vocational outcomes, the ISE participants had significantly better improvement
8 than the other participants in psychiatric symptoms, social functioning, and well-being. In
9 general, persons with schizophrenia are not motivated to initiate or sustain their engagement in
10 tasks needed in their occupational role (American Psychiatric Association, 2000). ISE alleviated
11 this dysfunction by having the employment specialists to encourage and support the participants
12 to maintain their worker role through overcoming obstacles in the job seeking and maintenance
13 process. The generalization of WSST into the real work environment was effective for job
14 sustainability of the participants which in turn improved their social functioning. Through
15 continuously reviewing their social competency, the participants became more aware of what
16 worked and what did not work in the vocational rehabilitation process (Glover, 2007). This
17 understanding could then help them develop better insight on how to sharpen their strategies to
18 maintain their worker roles which in turn further improved their social functioning (Erol *et al.*,
19 2015). The enhancement in the employment rate and job maintenance rate in the participants has
20 geared them toward re-engaging in a meaningful life role (Li *et al.*, 2015) which could in turn
21 contribute to their psychological wellbeing.

22 Despite the encouraging results, there are limitations in this study. The participants were
23 recruited by convenience sampling which may pose problems with regard to generalizing the

1 results. Besides, there might be potential bias among employment specialists due to the effect of
2 allegiance (King, 2006; Luborsky *et al.*, 1999) that they might have favored the participants of
3 the ISE group. Nonetheless, it was countered by the equivalent fidelity ratings in delivering IPS
4 services.

5 To conclude, this study suggests that mainland China needs to adopt ISE with more focus
6 on WSST to augment the vocational and non-vocational outcomes of IPS in Chinese
7 communities. Finally, the ISE protocol is likely to be applicable to the mainland cities with well
8 developed market driven economy provided that appropriate professional training, for example,
9 by occupational therapists is available. With the enhancement of the vocational and non-
10 vocational outcomes through ISE, the social functioning of the persons with schizophrenia can
11 be improved which is the core philosophy and practice of psychosocial rehabilitation in
12 occupational therapy (Wang *et al.*, 2015). This further highlights the crucial and unique role of
13 occupational therapists in the development and provision of innovative and evidence-based
14 vocational rehabilitation models in China. This first RCT provides compelling evidence on
15 applying ISE on the mainland. It is expected that the quality of life of the persons with
16 schizophrenia can be enhanced through securing employment and achieving social inclusion. To
17 optimize the benefits to this clientele, leaders in occupational therapy department should explore
18 the feasibility in launching this evidence-based ISE intervention in the clinical practice.

References

- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders (4th ed.)*. Washington, DC: American Psychiatric Association.
- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders (5rd ed.)*. Washington, DC: American Psychiatric Association.
- Becker, D.R., Drake, R.E., Bond, G.R., Xie, H., Dain, B.J., & Harrison, K. (1998). Job terminations among persons with severe mental illness participating in supported employment. *Community Mental Health Journal*, 34(1), 71–82.
- Bellamy, G.T., Rhodes, L.E., & Albin, J.M. (1986). *Supported employment*. In W. Kiernan, & J. Stark (Eds.), *Pathways to employment for adults with developmental disability* (pp. 129–138). Baltimore: Paul Brookes Publishing Co.
- Bond, G.R., Campbell, K., Evans, L.J., Gurvey, R., Pascaris, A., & Tice, S., et al. (2002). A scale to measure quality of supported employment for persons with severe mental illness. *Journal of Vocational Rehabilitation*, 17, 239–250.
- Chiu, F. K., Lee, H. C., Chung, W. S., & Kwong, P. K. (1994). Reliability and validity of the Cantonese version of the Mini-Mental State Examination: a preliminary study. *Journal of Hong Kong College of Psychiatry*, 4, 25-28.

Chiu, F.P., & Tsang, H.W. (2004). Validation of the Chinese general self-efficacy scale among individuals with schizophrenia in Hong Kong. *International Journal of Rehabilitation Research*, 27(2), 159-161.

College of Occupational Therapists (2009). *Occupational therapy in vocational rehabilitation: a brief guide to current practice in the UK*. UK: College of Occupational Therapists.

Crowther, R.E., Marshall, M., Bond, G.R., & Huxley, P. (2001). Helping people with severe mental illness to obtain work: a systematic review. *British Medical Journal*, 322, 204–208.

Drake, R.E., & Becker, D.R. (1996). The individual placement and support model of supported employment. *Psychiatric Services*, 47, 473 -475.

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.

Erol, A., Delibas, H., Bora, O., & Mete, L. (2015). The impact of insight on social functioning in patients with schizophrenia. *International Journal of Society Psychiatry*, 61(4), 379-85.

1 Fung, K.M.T., Tsang, H.W.H., Corrigan, P.W., Lam, C.S., & Cheung, W.M. (2007). Measuring
2 self-stigma of mental illness in China and its implications for recovery. *International Journal of*
3 *Society Psychiatry*, 53, 408–418.

4
5 Glover, H. (2007). *Lived experience perspectives*. In R. King, C. Lloyd & T. Meehan (Eds.),
6 *Handbook of psychosocial rehabilitation*. UK: Blackwell Publishing Ltd.

7
8 International Wellbeing Group (2006). *Personal Wellbeing Index (4th ed.)*. Melbourne:
9 Australian Centre on Quality of Life, Deakin University.

10
11 King, R. (2006). Intensive case management: a critical re-appraisal of the scientific evidence for
12 effectiveness. *Administration and Policy in Mental Health and Mental Health Services Research*
13 33(5), 529–539.

14
15 Li, D., Tsui, M.C.M., & Yuan, G. (2014). China's new Mental Health Law needs to tackle
16 manpower imbalance of professionals in schizophrenia psychosocial rehabilitation. *International*
17 *Journal of Social Psychiatry*, 40, 410.

18
19 Li, D., Yuan, G., Xu, Z., Zeng, Y., & Zhang, G. (2013). Effects of supported employment on
20 vocational rehabilitation for schizophrenia patients: a randomized controlled study. *Chinese*
21 *Journal of Behavioral Medicine and Brain Science*, 2, 8-10.

- 1
- 2 Lu, A.J.B., Yu, J., Li, D., & Tsang, H.W.H. (2015). Implementing Integrated Supported
- 3 Employment (ISE) in mainland China: a case vignette. *Journal of Rehabilitation*, 81, 51-57.
- 4
- 5 Luborsky, L., Diguier, L., Seligman, D.A., Krause, E.D., Johnson, S., & Halperin, G., et al.
- 6 (1999). The researcher's own therapy allegiances: a "wild card" in comparisons of treatment
- 7 efficacy. *Clinical Psychology Science and Practice*, 6(1), 95–106.
- 8
- 9 Mak, C.S., Tsang, H.W.H., & Cheung, L.C.C. (2006). Job termination among individuals with
- 10 severe mental illness participated in a supported employment program in Hong Kong. *Psychiatry*,
- 11 69, 239–248.
- 12
- 13 Nanjing Medical University (2013). The Affiliated Wuxi Mental Health Center. Available:
- 14 <http://english.njmu.edu.cn/s/97/t/255/p/101/c/4045/list.htm>.
- 15
- 16 Overall, J.E., & Gorham, D.R. (1962). The Brief Psychiatric Rating Scale. *Psychological*
- 17 *Reports*, 10, 799-812.
- 18
- 19 So, E., Kam, I., Leung, C.M., Pang, A., & Lam, L. (2003). The Chinese-Bilingual SCID-I/P
- 20 Project: Stage 2: reliability for anxiety disorders, adjustment disorders and 'no diagnosis'. *Hong*
- 21 *Kong Journal of Psychiatry*, 13, 19–25.
- 22

1 Social Exclusion Unit (2004). *Mental health and social exclusion*. UK: Office of the Deputy
2 Prime Minister.

3
4 Stefan, S. (2002). *Hollow promises: employment discrimination against people with mental*
5 *disabilities*. Washington, DC: American Psychological Association.

6
7 Tsang, H., & Ip, Y.C. (2002). Development and validation of the Workshop Behavior Checklist:
8 a scale for assessing work performance of people with severe mental illness. *International*
9 *Journal of Social Psychiatry*, 46, 110–121.

10
11 Tsang, H., & Pearson, V. (1996). A conceptual framework on work-related social skills for
12 psychiatric rehabilitation. *Journal of Rehabilitation*, 62(3), 61-67.

13
14 Tsang, H.W. & Chen, E.Y. (2007). Perceptions on remission and recovery in schizophrenia.
15 *Psychopathology*, 40, 469.

16
17 Tsang, H.W.H. (2003). Augmenting Vocational Outcomes of Supported Employment with
18 Social Skills Training. *Journal of Rehabilitation*, 69(3), 25-30.

19
20 Tsang, H.W.H., Angell, B., Corrigan, P.W., Lee, Y.T., Shi, K., & Lam, C.S., et al. (2007). A
21 cross-cultural study of employers' concerns about hiring people with psychotic disorder:
22 implications for recovery. *Social Psychiatry and Psychiatric Epidemiology*, 42(9), 723-733.

1 Tsang, H.W.H., Chan, A., Wong, A., & Liberman, R.P. (2009). Vocational outcomes of an
 2 integrated supported employment program for individuals with persistent and severe mental
 3 illness. *Journal of Behavior Therapy and Experimental Psychiatry*, 40(2), 292-305.

4
 5 Tsang, H. W. H., & Pearson, V. (2001). Work-related social skills training for people with
 6 schizophrenia in Hong Kong. *Schizophrenia Bulletin*, 27(1), 139-148.

7
 8 Wang, W., Zhang, G., Tsui, M.C.M., & Li, D. (2015). Vocational rehabilitation improves insight
 9 and social functioning of people with schizophrenia. *International Journal of Social Psychiatry*,
 10 61(5), 515.

11
 12 Warner, R. (1985). *Recovery from schizophrenia: psychiatry and political economy*. London:
 13 Routledge.

14
 15 Wilkinson, R., & Marmot, M. (2003). *Social determinants of health: The solid facts (2nd ed.)*.
 16 Geneva: World Health Organization.

17
 18 Xinhua News Agency (2007). More than 7.8 million Chinese suffer from schizophrenia.
 19 Available: <http://www.china.org.cn/english/health/214340.htm>.

20
 21 Yu, L.B., Lu, A.J.B., Tsui, M.C.M., Li, D., Zhang, G.F., & Tsang, H.W.H. (2016). Impact of
 22 Integrated Supported Employment (ISE) program on people with schizophrenia in vocational

rehabilitation outcomes: perspectives of participants and caregivers. *Journal of Rehabilitation*,
82(3), 11-17.

1 Table 1
2 Demographic Characteristics of Participants I.

	ISE (<i>n</i> = 54)	IPS (<i>n</i> = 54)	TVR (<i>n</i> = 54)	<i>X</i> ²	<i>df</i>	<i>p</i> -value
Gender						
Male	24 (44.4%)	21 (38.9%)	23 (42.6%)	0.36	2	0.84
Female	30 (55.6%)	33 (61.1%)	31 (57.4%)			
Education						
Primary	0 (0.0%)	0 (0.0%)	0 (0.0%)	6.01	6	0.42
Junior secondary	28 (51.9%)	28 (51.9%)	27 (50.0%)			
Senior secondary	22 (40.7%)	22 (40.7%)	21 (38.9%)			
Tertiary	4 (7.4%)	2 (3.7%)	6 (11.1%)			
Working experience						
Yes	29 (53.7%)	30 (55.6%)	33 (61.1%)	0.65	2	0.72
No	25 (46.3%)	24 (44.4%)	21 (38.9%)			

Demographic characteristics of participants II

	ISE (<i>n</i> = 54)		IPS (<i>n</i> = 54)		TVR (<i>n</i> = 54)		F-value	p-value
	M	S.D.	M	S.D.	M	S.D.		
Age	32.26	8.03	34.70	7.82	31.48	8.84	1.79	0.21

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1 Table 2

2 Comparison of BPRS, CGSS, GAF and PWI among ISE, IPS and TVR groups.

	Follow-up assessment at seventh month						Follow-up assessment at eleventh month						Follow-up assessment at fifteenth month						Repeated Measured ANOVA	
	ISE		IPS		TVR		ISE		IPS		TVR		ISE		IPS		TVR		<u>Group x time</u>	
	<i>M</i>	S.D.	<i>M</i>	S.D.	<i>M</i>	S.D.	<i>M</i>	S.D.	<i>M</i>	S.D.	<i>M</i>	S.D.	<i>M</i>	S.D.	<i>M</i>	S.D.	<i>M</i>	S.D.	<i>F</i>	<i>p</i>
BPRS	24.41	2.27	24.59	2.02	24.43	1.81	24.41	2.24	24.07	1.91	24.07	1.76	23.11	2.66	23.46	1.99	23.87	1.71	6.36	0.00
CGSS	24.59	5.21	30.52	4.30	20.74	4.79	25.30	5.78	31.74	3.83	22.37	5.09	26.69	6.12	31.54	3.84	23.54	5.27	2.78	0.01
GAF	64.91	3.83	63.00	1.64	62.15	1.94	65.00	3.88	63.50	2.04	62.39	2.06	65.83	4.08	63.69	2.23	62.50	1.97	2.06	0.04
PWI	47.33	13.83	34.37	4.88	24.26	5.65	50.30	13.95	37.17	6.38	25.07	6.44	53.37	13.95	39.33	7.87	25.46	6.53	11.88	0.00

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Implications for Occupational Therapy Practice

This is the first RCT that provides compelling evidence on applying ISE as an evidence-based occupational therapy intervention for people with schizophrenia in China. More RCTs in different countries should be performed to consolidate the evidence; and similarly more qualitative studies should be conducted to explore the views of the stakeholders including the participants, caregivers, and healthcare professionals on the usefulness of this occupational therapy intervention. The followings highlight the practice implications:

- A shift from “train then place” model to “place then train” paradigm in IPS and ISE is needed in psychiatric rehabilitation services in the mainland
- Work-related Social Skills Training can augment the vocational and non-vocational outcomes of IPS
- Professional training from occupational therapy experts should be offered so as to facilitate the implementation of the ISE protocol among the psychiatric rehabilitation teams