# A Randomized Controlled Trial of a Supported Employment Program for Persons With Long-Term Mental Illness in Hong Kong

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**Objectives:** Supported employment is an evidence-based practice that has proved to be consistently more effective than conventional vocational rehabilitation in helping people with severe mental illness find and sustain competitive employment. Most research on the effectiveness of supported employment comes from the United States. This study examined the effectiveness and applicability of a supported employment program based on the individual placement and support model in a Hong Kong setting. Methods: Ninety-two unemployed individuals with long-term mental illness who desired competitive employment were randomly assigned to either a supported employment program or a conventional vocational rehabilitation program and followed up for 18 months. Both vocational and nonvocational outcomes were measured. Results: Over the 18-month study period, compared with participants in the conventional vocational rehabilitation program, those in the supported employment group were more likely to work competitively (70% versus 29%; odds ratio=5.63, 95% confidence interval=2.28-13.84), held a greater number of competitive jobs, earned more income, worked more days, and sustained longer job tenures. Repeated-measures analysis of variance found no substantive differences between participants in the two groups and no significant change from baseline over time for psychiatric symptoms and self-perceived quality of life. <u>Conclusions:</u> Consistent with previous research findings in the United States, the supported employment program was more effective than the conventional vocational rehabilitation program in helping individuals with long-term mental illness find and sustain competitive employment in a Hong Kong setting. The supported employment program based on the individual placement and support model can thus be recommended for wider use in local mental health practice. (Psychiatric Services 59:84-90, 2008)

he importance and benefits of work in enhancing personal and economic outcomes for individuals with long-term mental illness have been widely documented (1,2). In psychiatric rehabilitation, work has been found to be associated with a range of benefits, including improved symptoms, higher global functioning, greater satisfaction with finances, improved self-esteem, and improved sense of recovery (3-7). Because work is important both in maintaining mental health and in promoting the recovery of those who have experienced mental health problems (8), much attention has been focused on assisting this population gain and sustain employment.

Although various vocational rehabilitation programs, such as hospitalbased workshop training, vocational guidance and counseling, and sheltered workshops, have been developed and implemented over the past half century, no studies have shown statistically significant advantages in terms of finding and sustaining competitive employment for individuals with long-term mental illness (9,10). In recent years, a new approach known as supported employment has been developed. Unlike the traditional "train-place" model of vocational rehabilitation in which a person is trained to "get ready" for a competitive job, supported employment emphasizes a "place-train" approach that rapidly places individuals with mental

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illness in real-world competitive employment settings, so they can experience the benefits and challenges of these situations, and it then provides the necessary training and support to successfully maintain these placements (11).

A number of studies have reviewed the current research on the effectiveness of supported employment for individuals with severe mental illness (12–15). More than ten randomized controlled trials of supported employment for people with long-term mental illness have been published (16–26). All these studies have consistently shown that supported employment is superior to other conventional vocational rehabilitation programs in helping people with mental illness obtain competitive employment.

People with mental illness in Hong Kong have rates of employment that are similar to those in other developed countries. According to the General Household Survey (27), the overall employment rate for people with mental illness in Hong Kong is about 30%. Conventional vocational rehabilitation programs, such as hospital-based prevocational preparation programs and community-based sheltered workshops, are widely adopted in the mental health field in Hong Kong to enhance vocational outcomes of individuals with mental illness. Supported employment was introduced to Hong Kong in 1994, and it has been increasingly expanded to meet the vocational goals of patients with a variety of disabilities. Apart from the Hospital Authority, a statutory body managing all public hospitals in Hong Kong, there are a total of 43 centers managed by various nongovernment organizations that are funded by the government to provide supported employment for people with disabilities (28). The objectives of the service are to serve as an avenue for upward mobility for people with disabilities in sheltered workshops and to prepare them to work independently in an open and competitive setting (29).

Although supported employment has been practiced in Hong Kong for more than a decade, not much is known about its effectiveness and applicability in the local context. A local study on the provision of an integrated individualized supported employment program for people with mental illness has previously been conducted (30). However, that study adopted a pre-post design and lacked a control group for comparison. Because most empirical evidence suggesting the greater effectiveness of supported employment compared with a variety of other rehabilitation models comes from research conducted in the United States, it remains uncertain whether supported employment would be more effective than other vocational rehabilitation programs in countries with different economic and welfare structures (12).

To enhance the generalizability of supported employment, an international six-country randomized controlled trial was conducted in Europe to determine the effectiveness of the individual placement and support model of supported employment with reference to differences in service culture and socioeconomic context (31). The study presented here, representing the first randomized controlled trial of supported employment in a Chinese community, addresses the issue of whether the improved competitive employment outcomes of the individual placement and support model of supported employment could also apply to individuals with long-term mental illness in a Hong Kong setting.

# Methods

#### Participants and setting

The participants in the study presented here were patients who had been diagnosed at least two years ago as having a mental illness. Persons met inclusion criteria for the study if they were aged between 18 and 55 years (working age range), expressed an interest in competitive employment, did not have any serious medical condition that might affect their longterm ability in competitive work, and were willing to participate in the study.

With reference to Machin and Campbell's (32) statistical tables for the design of a clinical trial, sample size required for this study was estimated. On the basis of the results of a local study on supported employment (33) and the employment data in the General Household Survey (27), the probabilities of competitive employment in the supported employment group and in the conventional vocational rehabilitation group were .6 and .3, respectively. Using .3 minimal detectable difference, .8 statistical power, and a two-tailed significance level of .05, the sample size required for the study in each arm was about 42. To minimize the effect of attrition, the sample size was increased by 10%. Therefore, a total sample of 92 with 46 in each group was needed.

Participants were recruited between 2001 and 2003 from patients of the Occupational Therapy Department, Kwai Chung Hospital in Hong Kong. This hospital is one of the major supported employment service centers of the Hospital Authority of Hong Kong offering supported employment services to individuals with mental illness. The department is staffed by experienced employment specialists (occupational therapists with at least one year of clinical experience in the rehabilitation of patients with mental illness), which enabled the provision of adequate staff support for the study. Also, the department had a strong linkage with various employment establishments in the community, which was essential for the success of this study. Approval to conduct the study was obtained from the Hospital Ethics Committee, Kwai Chung Hospital.

After written consent from participants was obtained, participants were individually randomly assigned to either the supported employment or the conventional vocational rehabilitation group by using random numbers generated by computer.

# Program descriptions

Test intervention. The supported employment program of this study was based on the individual placement and support model. The model, its key principles, and empirical findings have been fully described in the literature (34–36). Participants allocated to the supported employment group were assigned an employment specialist attached to their clinical service. The employment specialist was integrated into the participant's clinical management team, thus facilitating communication between the participant and multidisciplinary professionals. The employment specialist assisted the participant to search for a competitive job on the basis of his or her educational background, work preference, and previous work experience. Once employed, on-the-job training and follow-along support was provided to help the individual retain the job for as long a period as possible. If employment was terminated for any reason, the employment specialist would assist the participant to recover from job loss and help him or her look for another job. To ensure that there was sufficient support for each participant, the maximum caseload of each employment specialist was limited to 20 at any time.

To ensure that the supported employment program was up to fidelity standard, the individual placement and support program developers, Robert Drake, M.D., Ph.D., and Deborah Becker, M.Ed., were invited by the investigators to come to Hong Kong in February 2003 to conduct a one-week intensive training on the program implementation of individual placement and support as well as to rate the present supported employment program by using the Individual Placement and Support Fidelity Scale (37). The rating was based on information provided by the program manager and direct observation of program functioning. The local individual placement and support program received high ratings of implementation fidelity (scored 69 out of 75, which is equivalent to good implementation of supported employment).

*Control intervention.* Conventional vocational rehabilitation programs assume that people with long-term mental illness have some functional deficits that prevent them from fitting into competitive work settings and require a period of preparation before entering into regular employment. To facilitate a smooth transition to the real-world work settings, individuals receiving conventional vocational rehabilitation are typically placed in sheltered workshops. An income-generating work opportunity in a planned environment is used to provide training for people with disabilities to develop work-related skills and relationships, which allows for potential advancement to open employment (29).

In this study, participants in the control group received a stepwise conventional vocational rehabilitation program in the Occupational Therapy Department of Kwai Chung Hospital. The program was implemented in the form of prevocational training in various work groups in a simulated environment. The primary objective of this program was to equip participants with skills and knowledge related to choosing, obtaining, and keeping a competitive job in the community by using a stepwise train-place approach. Although the participants were attending the program, they were encouraged to seek open competitive employment by themselves by using the normal channels for job hunting, such as newspaper advertisements and Internet searches, as well as personal contacts with potential employers.

#### Outcome measures

Outcomes measured in this study include two categories: vocational and nonvocational. Vocational outcomes include competitive employment rates, time to first job, total days employed, and total earnings, whereas nonvocational outcomes include psychiatric symptoms and self-perceived quality of life. The primary outcome variable is whether the participant successfully obtained competitive employment, which is operationally defined as a job paid at the market rate, for which anyone can apply, and not controlled by a service agency. Major assessments were conducted at baseline and at six-, 12-, and 18month follow-up points by the employment specialists.

#### Measures

The Brief Psychiatric Rating Scale (38) was used to assess participants' mental condition at baseline and at

the six-, 12-, and 18-month follow-up points. It is an 18-item scale to briefly assess participants' psychiatric symptoms. Each item is rated on a 7-point scale, ranging from 0, not present, to 6, extremely severe symptoms. The Hong Kong Chinese Version: World Health Organization Quality of Life Measure was used to measure quality of life of participants (39). It is a self-administered instrument comprising 28 questions categorized into four domains: physical health, psychological status, social relationships, and environment. The total score of each domain is scaled between 4 and 20, with a higher score indicating better selfperceived quality of life. This instrument has demonstrated satisfactory psychometric properties and is ready for clinical use (39).

#### Data analysis

Demographic data including age, sex, education level, marital status, diagnosis, and psychiatric history were analyzed to examine the comparability of the two groups. Values of continuous variables between the two groups were compared by using either the t test or, for nonnormally distributed variables, the Mann-Whitney U test. Odds ratios (ORs) were used to analyze the employment rates of the two groups at different times. For longitudinal data, repeated-measures analysis of variance (ANOVA) under the general linear model was used to examine the time, group, and time-by-group interaction effects (40). All statistical tests are two-tailed with level of significance set at .05, and the 95% confidence interval (CI) is also reported for estimate of treatment effectiveness. Data were analyzed by using the Statistical Package for the Social Sciences for Windows, version 10.0.

#### Results

#### Participant assignment and follow-up

A total of 96 individuals with longterm mental illness were initially recruited for the study; four were excluded before randomization for not meeting the inclusion criteria. Of the remaining 92 participants, 46 each were randomly assigned to either the supported employment group or the conventional vocational rehabilitation group. After randomization, one participant in the control group was lost to follow-up because of loss of the contact point. Complete vocational data were obtained for the remaining 91 participants.

# Demographic and clinical characteristics

The demographic and clinical characteristics of the two study groups were compared (Table 1). No significant differences on any measure of demographic and clinical characteristics were found between the two groups, and the groups were largely equivalent at the outset.

#### Vocational outcomes

Table 2 compares the two groups on outcomes related to competitive employment. The differences in competitive employment outcomes clearly favor the supported employment group. Over the 18-month follow-up period, participants in the supported employment group were more likely than those in the other group to work competitively (70% versus 29%; OR= 5.63, CI=2.28-13.84), hold more competitive jobs (U=610.5, p<.001), earn more income (U= 636.0, p= .001), work more days (U= 699.5, p= .002), and sustain longer competitive job tenure (U=676.0, p=.002). Consistent with a previous local study (30), most of the jobs obtained by the study participants were entrylevel jobs, such as shop assistant, courier, general clerk, and security guard, with minimal requirements in terms of education and work history. It is noteworthy that of the three participants in the supported employment group and of the eight participants in the conventional vocational rehabilitation group who obtained employment in sheltered workshop or agency-run businesses, none was able to proceed to competitive employment.

#### Nonvocational outcomes

Repeated-measures ANOVA found no significant group differences between the two groups and no substantive change from baseline over time

#### Table 1

Baseline comparison of demographic and clinical characteristics of patients in Hong Kong with long-term mental illness who desired competitive employment, by study condition<sup>a</sup>

Variable	Suppor employ	ted ment (N=46)	Conventional vocational rehab- ilitation (N=46)	
	N	%	N	%
Age (M±SD)	32.4±8.9		34.7±9.4	
Sex				
Male	25	54	30	65
Female	21	46	16	35
Marital status				
Never married	43	93	40	87
Ever married	3	7	6	13
Education level (U.S. equivalents)				
Primary or below (grade 6 or below)	3	7	6	13
F.1 to F.5 (grade 7 to 11)	29	63	34	74
Postsecondary (grade 12 or above)	14	30	6	13
Diagnosis				
Schizophrenia spectrum	32	70	32	70
Affective disorder	9	20	8	17
Other	5	11	6	13
Number of previous psychiatric				
hospitalizations in the past				
$2 \text{ years } (M \pm SD)$	$1.4 \pm 1.2$		$1.7 \pm 1.5$	
Days in a psychiatric hospital in the	101 100			
past 2 years (M±SD)	$161 \pm 190$		$171 \pm 187$	
Months working at a paid job in the past 5 years (M±SD)	18.4±17.3		$13.0 \pm 15.6$	

<sup>a</sup> No statistically significant differences between the two groups were found at the .05 level.

for psychiatric symptoms and self-perceived quality of life.

# Discussion

# Main study findings

The major finding of this study is that individuals with long-term mental illness who were participating in the supported employment program proved to have more favorable competitive employment outcomes than participants in a conventional vocational rehabilitation program. This finding accords with those from clinical trials conducted in the United States and Canada (16–26). Over the 18-month follow-up period, compared with participants in conventional vocational rehabilitation, those in supported employment were more likely to work competitively, hold more competitive jobs, earn more income, work more days, and have longer competitive job tenure.

Consistent with previous local and overseas studies, the majority of jobs obtained by the participants in this study were short term, entry level, and part-time. Obviously, job retention and career development for people with long-term mental illness pose a continuing challenge for mental health professionals in providing high-quality vocational rehabilitation services.

Consistent with most published trials, the impact of supported employment on nonvocational measures of psychiatric symptoms and quality of life appeared to be negligible. The lack of change in psychiatric symptoms in the study presented here could be due in part to the symptom profile of the study participants-that is, the majority of the participants were outpatients with mild to moderate psychiatric disabilities who manifested very mild residual symptoms that are likely to be stable over time. The lack of substantive change in selfperceived quality of life might possibly be explained by the fact that the main goal of most vocational rehabilitation interventions, including the supported employment program in

# Table 2

Outcomes	Supported employment (N=46)		Conventional vocational rehabilitation (N=46)				
	N	%	N	%	Test statistic	р	95% CI
Obtained any competitive job							
At any time	32	70	13	29	OR=5.63	<.001	2.28 - 13.84
At 6 months	29	63	11	24	OR=5.27	<.001	2.13 - 13.05
At 12 months	25	54	12	27	OR=3.27	.007	1.36 - 7.89
At 18 months	20	43	10	22	OR=2.69	.031	1.08-6.71
Placement in sheltered workshops	3	7	8	18	OR=.32	.100	.08-1.31
Number of competitive jobs							
obtained (M±SD)	$1.33 \pm 1.08$		$.58 \pm 1.05$		U = 610.5	<.001	
Job wages per day (M±SD \$U.S.)	\$12.8±\$12.8		$9.4 \pm 4.7$		U = 173.5	.626	
Total earnings (in thousands)							
$(M \pm SD \$U.S.)$	\$2.3±\$3.1		\$1.1±\$2.2		U=636.0	.001	
Total days employed (M±SD)	$136 \pm 161$		$74 \pm 141$		U = 669.5	.002	
Days to first competitive job							
$(M \pm SD) (N = 46)$	$72 \pm 77$		118±143		U=199.5	.559	
Job tenure, any competitive job							
(M±SD days)	$133 \pm 160$		$75 \pm 143$		U=676.0	.002	

Differences in outcomes for competitive employment over 18 months among patients in Hong Kong with long-term mental illness who desired competitive employment, by study condition<sup>a</sup>

this study, does not, at least for a brief follow-up period, specifically target quality-of-life domains.

Consistent with most published studies, the supported employment program in the study presented here proved to be effective in helping individuals with long-term mental illness achieve competitive employment. However, 30% of participants in the supported employment group were unable to obtain a competitive job at any time during the study period. A previous local study had a similar finding (30). Social stigma and reluctance of employers to hire individuals with mental illness may partly account for this finding. In addition, clinical factors, such as cognitive functioning and psychiatric symptoms (41), as well as work-related social skills (42) may also account for the inability to achieve competitive employment on the part of some participants.

Further research is required to investigate the relationships between these variables and employment outcomes. In fact, there is ongoing research investigating the relationships between clinical aspects of psychiatric illness and employment outcomes (41,43). Thus it appears that although the individual placement and support model of supported employment is "on the right track," further enhancement is required to achieve better outcomes for more patients. Enhancing formal education (44) and strengthening thinking skills for work (45) may constitute appropriate strategies to include in the individual placement and support model to boost its effectiveness. Finally, future research should consider a longer-term follow-up, because it is possible that the effects of vocational rehabilitation programs for psychiatric patients may not become significant until much later.

# *Barriers to implementation and dissemination*

Although supported employment appears to be generalizable to local mental health practice, some barriers to its implementation and dissemination should be considered. First, given the rich array of available vocational alternatives other than competitive employment (for example, sheltered workshops, agency-run businesses, and day activity centers), patients and mental health professionals sometimes do not consider competitive employment in integrated settings as the most meaningful rehabilitation strategy. In Hong Kong, a relatively high proportion of patients with mental illness

who are discharged from mental hospitals have been referred to sheltered workshops for stable and longterm placement. People with disabilities working in sheltered workshops usually engage in some piece-rated assembly jobs or join agency-run work crews. They are rarely moved to competitive work (2,14). Second, patients often acquire the wrong impression that returning to competitive work will automatically compromise their eligibility for the government's Comprehensive Social Security Allowance. In this study, a total of 11 participants eventually chose noncompetitive employment, including sheltered workshops and agency-run businesses, despite having been given a detailed explanation about the benefits of competitive employment during the recruitment process. Third, although supported employment has been widely practiced in Hong Kong, many practitioners lack adequate training in implementing the program, which significantly affects service outcome.

# Program generalizability

The results of this study provide evidence that the individual placement and support model of supported employment, originally developed in the United States, is generalizable to Hong Kong, a different cultural and socioeconomic environment. Several factors may account for the successful transfer. First, the availability of a treatment manual of the individual placement and support model (46) and well-researched key principles documented in the literature (15) facilitate program implementation in alternate settings. Second, the provision of an intensive workshop in our setting by the program developers of the individual placement and support model greatly enhanced the process of skill transfer. Finally, the willingness of our clinicians to adopt such a new model and the support from clinical leaders and administrative staff also contributed to successful transfer.

#### Conclusions

Although Hong Kong is well recognized as an economically developed city, the practice of vocational rehabilitation services for people with mental illness lags significantly far behind that of other developed countries. Supported employment has been introduced in Hong Kong for more than a decade, yet not much is known about its outcomes and applicability in local mental health practice. This study, representing the first formally reported demonstration of supported employment outside of North America and Europe, not only adds to the growing body of literature on the effectiveness of supported employment, but it also provides evidence to support the generalizability of a high-fidelity evidence-based practice to Chinese communities.

To increase participation in competitive employment for individuals with long-term mental illness, we recommend shifting the focus from stepwise conventional vocational rehabilitation programs to an individual placement and support model of supported employment with a clear goal of competitive employment and minimal prevocational training. A great challenge for the provision of mental health services in Hong Kong is to make vocational interventions with demonstrated effectiveness available to all who need them. Finally, we must continue to refine and

improve our services so as to help patients, not only to find and keep paid jobs but also to develop longterm careers.

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