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Regular Articles

Title

**Factors Associated with Work Outcome among Individuals with Schizophrenia:
Investigating Work Support in Japan**

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Abstract

As the mental health care system in Japan is putting an increased emphasis on community rehabilitation, an effective working-support program is needed for patients with schizophrenia. In order to examine personal factors associated with competitive employment, a retrospective, cross-sectional study was conducted with patients involved in an integrated program that provides both psychiatric care and a working-support service for patients with schizophrenia. Thirty six schizophrenic outpatients who were employed in the working support program participated. Patients were divided into a working group and a non-working group, depending on whether they worked more or less than 20 hours a week. The working group significantly differed from the non-working group in that they were more likely to have completed high school ($p < 0.05$, Fisher's exact probability test), disclosed their disability to their employers ($p < 0.05$, Fisher's exact probability test) and worked less than 20 hours in their initial employment ($p < 0.001$, Fisher's exact probability test). Logistic regression analysis revealed that the disclosure of disabilities (odds ratio = 6.00, $p = 0.02$), shorter initial working-time (odds ratio = 27.6, $p < 0.001$), or higher educational level (odds ratio = 6.42, $p = 0.02$) increased the probability of success of competitive employment. For the other outcomes (severity of psychotic symptoms, disability of daily life or subjective QOL), there was no difference between the two groups ($p > 0.05$, respectively, Mann-Whitney's U-test). In this program, participation in competitive employment may not be associated with the severity of psychotic symptoms, disability of daily life or subjective QOL but may be promoted by the disclosure of disabilities, shorter initial working-time and higher education.

Key words: schizophrenia, supported employment, vocational rehabilitation, occupational therapy, day-care

1. Introduction

Japan presently has about 350,000 psychiatric beds available for their citizen, which is the highest number per population size in the world [18]. The Japanese government recently announced a policy promoting the discharge of 72,000 inpatients [12]. As more than half of those long-hospitalized in psychiatric hospitals are patients with schizophrenia, increasing attention has been paid to rehabilitation programs to help these patients live and work in the community. As a result, the number of community mental health facilities, such as day-care facilities, sheltered workshops and group homes, has recently increased in Japan [19]. Still, vocational rehabilitation facilities for patients with mental disorders are not as widely available as those for physically disabled persons, and typically suffer from a shortage of support staff and support techniques [1,10,20].

In terms of employment programs for patients with mental disorders, the place-then-train approach has been found to be more effective than the train-then-place approach in the U.S.A. and Canada [7,17]. The Individual Placement and Support (IPS) program, a representative of the place-then-train approach, has been reported to improve vocational outcomes [3,4,8,9]. In Japan, the train-then-place approach had been used as a hospital-based rehabilitation program for inpatients with mental disorders [16], but it did not result in a higher rate of employment [10]. IPS has recently been used in a government program called Assertive Community Treatment-Japan (ACT-J) [12], and has had an impact on work outcomes, but it is not clear whether it increases the employment rate or is cost-effective in mental health environments.

In this study, we examined a program involving highly integrated psychiatric care and a working-support service based on a place-then-train approach via day-care called Integrated Working Support program in a Day-care facility (IWSD). IWSD is based on nine empirically

derived principles:

- 1) All patients who want to work are accepted.
- 2) A greater importance is attached to a wish to work than to accomplishment.
- 3) A place-then-train approach is used.
- 4) Vocational rehabilitation services are provided by day-care and evening-care.
- 5) Even when working is not possible, work is considered a valuable trial.
- 6) The goal is community life, not only working life.
- 7) The importance of pre-occupational training and evaluation is de-emphasized.
- 8) Active support is provided after getting a job.
- 9) Patient's community life is continuously supported by day-care staff.

A retrospective and cross-sectional study was conducted to determine the factors associated with competitive employment in the IWSD for patients with schizophrenia. We also investigated the other three outcomes, the severity of psychotic symptoms, disability of daily life and subjective QOL for patients with schizophrenia who participated in the IWSD.

2. Methods

2.1. Study setting

The study was conducted at Inuo Hospital, a psychiatric hospital, which is located in Saga Prefecture, Japan. The hospital is in a rural region about 30 km south of Fukuoka city and provides psychiatric treatment at the inpatient and outpatient units and rehabilitation services at a hospital-attached day-care and evening-care facility. IWSD was provided and delivered through the multidisciplinary teams (Fig. 1).

2.2. Subjects

Between April 1993 and April 2004, 140 patients participated in the IWSD program for 1 year or longer. Of these patients, 86 were diagnosed with schizophrenia (F20) based on the ICD-10 diagnostic criteria [26]. In April 2004, the 36 patients (average age 42.0 yrs, 10 females, 26 males) were in the IWSD program (Table 1). The mean duration of illness was 18.2 years, during which time the patients had been hospitalized an average of 4.9 times (range: 1-14).

The objective of the study was explained to all 36 patients, and the survey and study were performed after obtaining informed consent.

2.3. Survey

The survey was performed between April and July 2004. Information about the patients was obtained from medical records and by interviews. Data collected included age, gender, educational background, marital status, onset age, duration of hospitalization, frequency of hospitalizations, duration of working-support services, the presence or absence of receiving social security benefits for the disabled, living with parents, job experience, work condition, working support method, and disability disclosure to work supervisors (Table 1). At the survey point, patients were divided into two groups, a working group and a non-working group, depending on whether they worked more or less than 20 hours a week. The non-working group included patients who failed to pursue competitive work. Twenty hours was chosen as the cut-off point because employment insurance is guaranteed for labor of more than 20 hours a week in Japan.

2.4. Measures

At the survey point, three measurement scales were used:

1. Positive and Negative Syndrome Scale (PANSS). PANSS was used to assess the severity of psychiatric symptoms [15]. PANSS is a 30-item rating scale that constitutes three rationally

derived categories: positive symptoms, negative symptoms, and general symptoms. PANSS was assessed by the treating psychiatrists.

2. Life Assessment Scale for the Mentally Ill (LASMI). LASMI was developed to assess an individual's disabilities in daily life [13,14]. It uses five categories of daily life to assess the social skills of mentally ill patients. LASMI is a 40-item rating scale that constitutes five rationally derived categories: Daily Living, Interpersonal Relations, Work, Endurance & Stability, and Self-Recognition. In each subcategory, subjects were rated with a 5-point scale (absence of problem = 0, presence of serious problem = 4). A low score indicates a high degree of independent living in society. Mean scores for each category were obtained by dividing the total score by the number of items. LASMI was assessed by the day-care staff, whose duration of clinical experience was 14.7 ± 5.8 years (mean \pm S.D.).

3. Quality of life (QOL). QOL assessment was made according to the World Health Organization. The WHO-QOL 26 questionnaire is a generic measure of subjective QOL [25]. Of the 26 items, 24 are divided into four categories: physical domain, psychological domain, social relationships, and environment; two items indicate a general QOL impression. Each item is rated on a 5-point scale. The scores for each category and total score are shown as average scores ranging from 1 to 5. A higher score means a satisfactory or good QOL. The WHO-QOL 26 was self-rated by patients.

2.5. Data analysis

Demographic data on patients were compared between the working and non-working groups using Fisher's exact probability test or Mann-Whitney's U-test. For logistic-regression analysis, these demographic data were used as independent variables, while competitive employment of more than 20 hours a week was used as a dependent variable. At the survey point, PANSS,

LASMI, and WHO-QOL26 scores were compared between the two groups by Mann-Whitney's U-test. Computed data analysis was performed using statistical software, SPSS 11.5J for Windows (SPSS Inc., Chicago, IL, USA).

3. Results

3.1. Demographic factors associated with competitive employment

The working group consisted of 19 patients (53%, 14 males and 5 females) with a mean age of 42.1 years (Table 1). The non-working group consisted of 17 patients (47%, 12 males and 5 females) with a mean age of 41.9 years.

The working group differed from the non-working group in that the members of the working group were more likely to have 1) completed high school (58% vs. 18%), 2) disclosed their disability to their employers (84% vs. 47%) and 3) worked less than 20 hrs in their initial employment (89% vs. 24%) (Table 1). No significant differences were noted in marital status, mean age at initial hospitalization, mean duration of illness, mean frequency of hospitalization, job experience, duration of working support, living with parents, or receiving social security benefits for the disabled between the two groups.

A logistic regression analysis revealed the following variables were significantly associated with competitive employment: shorter initial working-time (odds ratio = 27.6, $P < 0.001$), higher educational level (odds ratio = 6.42, $P = 0.02$), disclosure of disabilities (odds ratio = 6.00, $P = 0.02$) (Table 2).

3.2. PANSS, LASMI and WHO-QOL26 scores between the working and non-working groups

On PANSS, we found no significant differences in the average total score between the groups at the survey point (Table 3). No significant differences were noted in the categories of positive,

negative, and general symptoms.

On LASMI, there were no significant differences in the average total score between the groups (Table 3). No significant differences were noted between the groups in the following categories: Daily Living, Interpersonal Relations, Work, or Self-Recognition, while the working group had significantly less problems in the Endurance & Stability category (working; 2.2 ± 1.0 vs. non-working; 3.1 ± 0.9 , $p = 0.004$) (Table 3). As for each item in the category, the working group had significantly less problems in the means of transportation (0.7 ± 0.9 vs. 1.3 ± 0.7 , $p = 0.02$) in Daily Living, change of pace (1.7 ± 0.9 vs. 2.4 ± 0.6 , $p = 0.02$) in Work, and the current degree of social adaptation (2.1 ± 0.8 vs. 2.9 ± 0.7 , $p = 0.002$) and endurance and stability (2.4 ± 1.2 vs. 3.3 ± 1.0 , $p = 0.02$) in Endurance & Stability.

The mean value of QOL26 was 3.0 in both the working and non-working groups, showing no significant difference (Table 3). No significant differences were noted in the scores of physical domain, psychological domain, social relationship, environment, or QOL impression in the two groups.

4. Discussion

This was a retrospective and cross-sectional study of an integrated program of psychiatric care and working-support in a day-care facility in Japan. Place-then-train approaches to vocational rehabilitation are more effective than traditional train-then-place approaches [9,17]. A highly integrated supported employment (SE) model is more effective than a weakly integrated SE model in terms of work outcome [5]. This IWSD program achieved a higher employment rate (53%). This finding suggests that IWSD may be as effective as a highly integrated SE program.

IWSD is similar to IPS but differs from IPS in several respects. The goal of IPS is competitive employment in integrated work settings, rather than prevocational, sheltered, or segregated work experiences [2]. On the other hand, the IWSD program aims at not only helping patients to find competitive work but also helping patients who failed to attain successful work outcomes to participate in a sheltered workshop program and to receive financial support to live in the community. IPS services are provided in the community, rather than in mental health treatment or rehabilitation settings [2], whereas IWSD services are provided to outpatients as a place-then-train approach by the hospital-attached day-care staff. The two models differ in the way the work of the professionals is integrated. In the IPS model, employment specialists link with all of treatment teams and collaborate directly with the clinicians. On the other hand, in the IWSD, the hospital-attached day-care staff learn and train for vocational rehabilitation and link with employers and employment specialists (Fig1). These differences might have a different impact on work outcomes.

Factors predicting competitive employment in IWSD were disability disclosure, initial working time, and educational level. In SE models, disability disclosure is an important factor in finding and keeping a job [2]. In IWSD, 25 employers understood and cooperated with IWSD, so disclosure of disability might allow rapid job-search activity and adjustment to working conditions. Nevertheless, one-third of the patients in the IWSD program did not want to disclose their disability, possibly to avoid the stigma of being mentally ill [11], and possibly because of a belief that they would receive less support than the physically disabled [16]. Renaming of schizophrenia at 2002 from "Seishin Bunretsu Byo" ("split mind disease") to "Togo Shitcho Sho" ("integration disorder") has been reducing the stigma in Japan [24]. New laws to provide support for the disabled and to encourage their promotion went into effect in

2006 and are expected to provide more advantages to patients with schizophrenia who want to work [23].

In the IWSD, competitive employment was associated with reduced working hours at the beginning of employment. In IPS, most patients start in entry level jobs or in jobs that require working 5 to 10 hours per week [2, 3], which leads to competitive employment. In any program, it takes time for the patients to get accustomed to new surroundings, since they suffer from schizophrenic symptoms. The ability of a patient to work a reduced number of hours at the beginning of employment might depend on whether the disability was disclosed to the employers. If the disability is disclosed to the employer, the IWSD team could actively participate in supported employment on site, which might make it more likely that employers would allow patients to start working on a part-time basis.

Under the IWSD program, patients with lower education levels did not have favorable vocational outcomes. Many studies also reported that the level of education is related to outcome [21]. Based on these results, it might be necessary to tailor programs for patients with various levels of education.

The PANSS, LASMI, and WHO-QOL26 scores were not significantly different between the working and non-working groups. Some employment specialists might think that patients with severe symptoms could not work. However, that was not the case in this study, because no differences in PANSS scores were found between the groups. Significant differences in some disabilities in daily life were observed in the two groups, which is fairly consistent with other studies [6]. The fact that WHO-QOL26 scores did not differ, diverges from findings of other studies that vocational status had a strong influence on subjective QOL [22]. The lack of difference in the QOL26 scores may be partly due to the goals of the IWSD: to improve

community life, not only the working environment, to comply with the patient's preferences, and to provide the non-working group with day-care.

The main limitation of this study is its retrospective and cross-sectional design, in which characteristics of patients with schizophrenia were assessed retrospectively and their symptoms, social activity, and QOL were assessed only at a single time point. Prospective and longitudinal studies in a larger number of cases are necessary to prove the effectiveness of IWSD and to identify other factors that are related to work outcome under the program.

5. Conclusions

In the IWSD program, participation in competitive employment may be promoted by the disclosure of disabilities, shorter initial working-time and higher education. The IWSD goal is to promote community life, not solely working. The program may be useful for patients with schizophrenia who want to work, and it should not deteriorate the subjective QOL in those who failed to pursue competitive employment.

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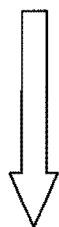
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Fig. 1. Integrated Working Support Program based in a Day-care facility (IWSD).

Before employment

1. Participation in general day-care and evening-care programs: No specific pre-working evaluation or training program is performed, and only job guidance is provided.
2. Consultation and interview concerning working: Confirmation of motivation, conditions, and systems of employment.
3. The client and an occupational therapist collaborate in the job search.
4. The program has about 25 collaborative employers.
5. In the interview stage, the IWSD staff may provide transportation to and from interviews and may accompany the client in the interviews, depending on the client's disclosure preferences.
6. The client chooses either a step-up support program for starting with short-time labor or a support program for a more challenging job that starts with more than 20 hours a week.

IWSD staff; Occupational
Therapists, Psychiatrists,
Clinical Psychologists,
Psychiatric Social Workers
and Nurses.



Related facilities;
Public Employment Security Office (PESO
or "Hello Work"), Public Health Center,
Employment Center for the Disabled and
Municipal Welfare Office.

During employment

1. Ongoing support is provided as needed at the work site, in the office, or in the client's house.
2. Interview 1-3 times per week in day-care and evening-care.
3. Group meeting in day-care and evening-care.

Table 1. Characteristics of 36 people with schizophrenia

Characteristics	Total (N=36)		Working (N=19)		Non-working (N=17)		P	
	N or mean	(%)	N or mean	(%)	N or mean	(%)		
Age (years)	42.0 ± 11.2		42.1 ± 11.9		41.9 ± 10.7		ns	
Age at initial hospitalization (years)	23.9 ± 8.3		23.8 ± 8.4		23.9 ± 8.4		ns	
Duration of illness (years)	18.2 ± 8.3		18.3 ± 9.6		18.1 ± 7.0		ns	
Number of hospitalizations	4.9 ± 3.3		4.2 ± 3.0		5.8 ± 3.6		ns	
Length of IWSD (months)	91.8 ± 36.2		85.9 ± 38.4		98.3 ± 33.4		ns	
Gender	Male	26	(72)	14	(74)	12	(71)	ns
Marital status	Single	30	(83)	15	(79)	15	(88)	ns
Education	> High school	14	(39)	11	(58)	3	(18)	< 0.05
Receiving social security benefits		26	(72)	14	(74)	12	(71)	ns
Living with parents		28	(78)	17	(89)	11	(65)	ns
Job experience		23	(64)	11	(58)	12	(71)	ns
Disclosure of disability		24	(67)	16	(84)	8	(47)	< 0.05
Initially less than 20 hours per week		21	(58)	17	(89)	4	(24)	< 0.001

ns; not significant.

Table 2. Logistic regression analysis of factors influencing working outcome

variable	OR	95%CI	P
Age (years)	1.00	0.94~1.06	0.97
Age at initial hospitalization (years)	0.99	0.92~1.08	0.99
Duration of illness (years)	1.00	0.96~1.09	0.94
Number of hospitalizations	0.86	0.69~1.07	0.17
Length of IWSD (months)	0.99	0.97~1.01	0.31
Gender Male	0.85	0.20~3.69	0.86
Marital status Single	0.50	0.08~3.16	0.46
Education > High school	6.42	1.40~30.1	0.02*
Receiving social security benefits	0.89	0.22~3.75	0.89
Living with parents	4.64	0.79~27.24	0.09
Job experience	0.71	0.18~2.89	0.64
Disclosure of disability	6.00	1.26~28.50	0.02*
Initially less than 20 hours per week	27.6	4.37~27.62	<0.001**

OR; odds ratio. CI; confidence interval

*P<0.05, **P<0.01

Table 3. Test scores of working and non-working groups

Test	Subtest	Working (N=19)	Non-working (N=17)	P
Positive and Negative Syndrome Scale (PANSS)	Average PANSS score	1.9 ± 0.6	2.1 ± 0.4	ns
	Positive	12.1 ± 5.0	14.4 ± 5.4	ns
	Negative	12.2 ± 7.4	12.9 ± 3.7	ns
	General	33.8 ± 9.5	35.9 ± 6.4	ns
Life Assessment Scale for the Mentally Ill (LASMI)	Average LASMI score	1.5 ± 0.6	1.8 ± 0.5	ns
	Daily living	1.1 ± 0.7	1.3 ± 0.6	ns
	Interpersonal relations	1.6 ± 0.6	1.8 ± 0.5	ns
	Work	1.6 ± 0.7	2.1 ± 0.7	ns
	Endurance & Stability	2.2 ± 1.0	3.1 ± 0.9	< 0.01
	Self-Recognition	1.7 ± 0.8	1.9 ± 0.7	ns
Quality of Life (WHO-QOL26)	Average QOL score	3.0 ± 0.4	3.0 ± 0.3	ns
	Physical domain	3.2 ± 0.4	3.1 ± 0.4	ns
	Psychological domain	2.8 ± 0.6	2.8 ± 0.4	ns
	Social relationships	2.7 ± 0.5	2.8 ± 0.5	ns
	Environment	3.0 ± 0.4	3.0 ± 0.3	ns
	QOL impression	2.9 ± 0.7	2.8 ± 0.6	ns

mean ± S.D., ns; not significant.