Long term work continuation of employees with mental disorders: A prospective cohort study of a clinical sample

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Abstract

It is important to investigate the factors that influence how patients with mental disorders, who recover after clinical treatment, are able to continue working after their return to work. This study reports on long-term work continuation in a clinical sample, examining duration of work continuation, timing of sick leave recurrence, and risk factors influencing sick leave recurrence.

Study participants comprised 38 employees who took sick leave for mental disorders; participants were followed for five to nine years after return to work.

Estimated mean period of work continuation was 4.8 years. Approximately half of all cases of recurrent sick leave took place within one year of returning to work. Educational level was significantly associated with work continuation.

Long-term work continuation in a clinical sample appears comparable to that of workplace samples. There may be a need to provide focused support for employees with mental disorders, particularly during the first year after return to work.

I Introduction

Mental disorders can lead to high rates of recurrent sick leave (Koopmans et al., 2011; Roelen et al., 2010; Virtanen et al., 2011) and impact the affected person's productivity and overall life (Greener et al., 2005; Lasserre et al., 2016; Lerner et al., 2008).

Since work is an important component of recovery (Slade et al., 2014), there should be significant interest in knowing how patients who return to work are able to sustain working status.

With regard to work continuation in the case of employees with mental disorders who return to work after sick leave, there are several short-term studies that feature follow-up periods of one to four years (Arends et al., 2014; Endo et al., 2015; Koopmans et al., 2008; Sado et al., 2014). Although long-term prognosis is more important when discussing the influence of a mental disorder on the working life of an individual, we found only four cohort studies with follow-up periods of more than five years: two Dutch studies that followed employees of Dutch Post and Telecommunication companies for up to seven years (Koopmans et al., 2011; Roelen et al., 2010), and two Finnish studies that followed employees in the Finnish public sector for up to seven years (Ervasti et al., 2013; Virtanen et al., 2011). The samples in these studies were taken from a single workplace or organization, and therefore results may reflect specific or unique circumstances of those particular environments. A report on a sample taken from a clinical facility, where participants come from a variety of work environments, may further inform the findings of previous studies. To the best of our knowledge, this is the first report on long-term work continuation in a sample taken from a treatment facility.

In this study, we report on long-term work continuation in a clinical sample, and investigate 1) the duration of work continuation, 2) timing of sick leave recurrence, and 3) risk factors influencing sick leave recurrence.

Ⅱ Methods

1. Participants

We prospectively followed a cohort of individuals who took sick leave due to mental disorders and concurrently received outpatient treatment at NTT Medical Center Tokyo between November 1, 2002, and March 31, 2006. Study participants came from 19 separate companies, representing industries such as telecom company, municipal government, and automotive company. Written informed consent was obtained from 38 of the 43 patients (88.4%) who met the criteria for inclusion in the study. Patients who did not provide written informed consent were excluded from the study.

2. Variables

The dependent variable was the number of days of work continuation. The first day of "work continuation" was defined as the day of full-time return to work. The last day of this variable was defined as the last working day prior to sick leave recurring due to a physician-certified mental disorder. The day of censoring (last day of work continuation) was defined as either the final day of the study (October 2012), the day of termination of employment, the day of being transferred to another company, or the

last day of work before taking sick leave due to an illness other than a mental disorder.

We examined the following factors as potential explanatory variables: age at time of return to work, sex, years of education, marital status, job rank (defined as a managerial or non-managerial job position), number of previous job changes, clinical diagnosis, number of previous hospital admissions, number of previous sick leave episodes, and cumulative duration of previous episodes of sick leave. Age, sex, duration of education, job rank, clinical diagnosis, number of previous sick leave episodes, and cumulative amounts of previous sick leave were taken from previous studies (Endo et al., 2015; Ervasti et al., 2013; Koopmans et al., 2011; Koopmans et al., 2010; Sado et al., 2014; Virtanen et al., 2011). Marital status, number of previous job changes, and number of previous hospital admissions were chosen specifically for this study as exploratory, potentially influencing factors. To conduct the log-rank test, all explanatory variables were categorized as shown in Table 1. Clinical diagnosis was determined according to the International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10).

3. Statistical analysis

The period of work continuation was estimated by the Kaplan-Meier method. Factors capable of predicting work continuation were assessed by the log-rank test (all variables were categorized as shown in Table 1). Statistical analyses were conducted using SPSS for Windows (IBM, Armonk, NY, USA), version 21.0.

4. Ethical considerations

This study was approved by the Medical Ethics Committee of NTT Medical Center Tokyo, and was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. All participants provided written informed consent after receiving a full explanation of the study.

Ⅲ Results

1. Characteristics of study participants

Table 1 lists attributes of study participants. Mean age at time of return to work was 40.5 years (standard deviation [SD] = 8.1), and 52.6% of participants were over 40 years of age. Over 90% of participants were male, and more than 70% were college graduates. Close to 80% of participants were diagnosed with mood disorders, 15% with schizophrenia, schizotypal and delusional disorders, and 5% with anxiety-related disorders. The mean number of previous sick leave episodes was 3.4 (SD = 4.1). Nearly 60% of participants had experienced previous episodes of sick leave. The mean period of cumulative sick leave was 23.7 months (SD =

14.6). Nearly 80% of participants had experienced episodes of sick leave that lasted longer than one year.

2．Work continuation

The Kaplan-Meier survival curve for work continuation is shown in Figure 1. Estimated mean period of work continuation was 4.8 years (95% CI = 3.4-6.1). Estimated median period of work continuation was 3.3 years (95% CI = 0-6.8). Fifteen participants (39.4%) did not experience a recurrence of sick leave between the time they returned to work and the end of the follow-up period.

3．Timing of recurrence

Among participants who experienced a recurrence of sick leave, 28.9% did so during the first year after return to work, which accounted for 47.8% of total recurrence in the present sample.

4．Factors influencing sick leave recurrence

Results of the log-rank test of risk factors are shown in Table 1. Educational level significantly predicted work continuation ($P < 0.05$). Participants with 16 or more years of education had significantly longer periods of work continuation than those with less than 16 years of education.

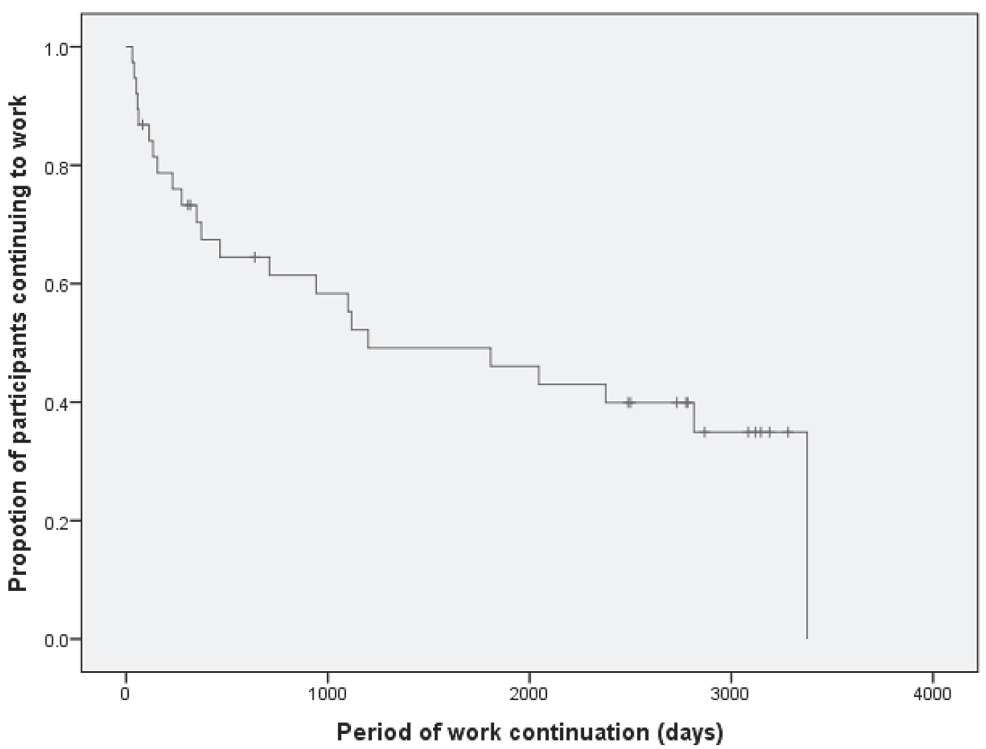

Figure 1. Kaplan-Meier survival curve for work continuation.

Table 1. Predictors for recurrence of sick leave

Predictors	Attributes	N	%	Estimated survival days	SE*	χ^2	P-value
Age at return to work	≤39	18	47.4	2125.9	342.9	2.18	0.14
	≥40	20	52.6	1313.3	297.5		
Sex	Male	35	92.1	1676.1	249.3	0.66	0.42
	Female	3	7.9	2171.0	832.0		
Education	<16years	9	23.7	1007.1	369.5	4.42	0.04
	≥16years	29	76.3	1955.5	286.1		
Marital status	Single	16	42.1	1414.9	329.5	0.64	0.43
	Married	22	57.9	1869.1	324.4		
Job rank	Non-manager	29	23.7	1516.7	254.1	2.49	0.12
	Manager	9	76.3	2338.9	562.4		
ICD-10 diagnosis	F2	6	15.8	1473.1	515.7	0.26	0.88
	F3	30	78.9	1776.6	276.7		
	F4	2	5.3	711.0	0		
Number of hospital admissions	0	21	55.3	1890.6	300.6	0.35	0.56
	≥1	17	44.7	1515.6	386.5		
Number of career changes	0	34	89.5	1693.3	259.4	0.12	0.73
	≥1	4	10.5	1847.0	495.3		
Number of previous sick leave episodes	<3	23	60.5	2030.0	287.8	1.84	0.18
	≥3	15	39.5	1238.9	375.7		
Duration of sick leave (months)	<12	7	18.4	1803.6	438.5	0.09	0.76
	≥12	31	81.6	1686.4	276.9		

*SE: standard error

Ⅳ Discussion

The median period of work continuation in the present study, as estimated with the Kaplan-Meier method, was 3.3 years, while the mean was 4.8 years. In other long-term follow-up studies, Koopmans et al. (2010, 2011) reported median periods of work continuation of 0.8 to 0.9 years (10 to 11 months), while Virtanen et al. (2011) and Ervasti et al. (2013) both reported mean periods of 2.2 years (26 months). With regard to short-term studies, Sado et al. (2014) reported that the mean period of work continuation in men was 2.5 years (910.3 days), while in women the mean was 2.6 years (958.7 days). With the exception of Koopmans et al., these previous studies conducted with workplace samples have reported that patients who return to work after sick leave continued working between 2.2 and 2.6 years. The present study suggests that long-term work continuation in clini-

cal samples can be similar or better.

Among previous studies, a few have looked at samples with common mental disorders and depression only (Arends et al., 2014; Endo et al., 2015; Koopmans et al., 2011). Other studies that included general mental disorders also had a high proportion of mood disorders in their samples (Ervasti et al., 2013; Sado et al., 2014; Virtanen et al., 2011). Close to 80% of participants in this study had some kind of mood disorder as a diagnosis.

In one study that reported the number of previous sick leave episodes, 13% of participants had more than three episodes of sick leave (Sado et al., 2014), while in the present sample the ratio was higher, at 39.5%. In general, however, diagnoses and the characteristics of previous sick leave episodes in the present sample seem largely comparable to those of previous studies.

The proportion of participants who experienced a recurrence of sick leave during the entire follow-up period was approximately 60%, and roughly half (28.9%) of these had a recurrence of sick leave within one year after returning to work. These results are consistent with results reported in previous studies (Endo et al., 2013; Karlson et al., 2014; Koopmans et al., 2010), and indicate that there may be a need to provide focused support for employees with mental disorders particularly during the first year after return to work.

The log-rank test revealed that participants with higher levels of education were at lower risk of sick leave recurrence. This resembles findings in one study (Ervasti et al., 2013), where it was reported that higher socioeconomic status (SES), defined as level of education and occupational position, was related to lower recurrence of work disability. Generally speaking, lower SES has been reported to be related to poorer treatment adherence (Warden et al., 2009) and higher treatment resistance (Rush et al., 2009). Further study is required to determine whether this accounts for the observed poorer work continuation prognosis of individuals with lower levels of education.

Previous studies have reported that age, occupational position, education, and diagnosis influence continuation of work (Ervasti et al., 2013; Koopmans et al., 2011; Koopmans et al., 2010; Virtanen et al., 2011). This study failed to replicate these previous findings, however.

Limitations of this study include its small sample size and the fact that the sample is from a single institution. However, this is the first report on long-term prognosis of work continuation in a clinical population. Since long-term work continuation is an important component of an individual's recovery, and given that, from the perspective of broader society, work continuation has the potential to compensate for productivity lost

due to mental illness, further study of this issue is warranted.

Ⅴ Conclusion

Long-term work continuation in the clinical sample examined for this study was found to be a median 3.3 years and mean 4.8 years, which is generally comparable to previous studies of workplace samples. There may be a need to provide focused support for employees with mental disorders, particularly during the first year after return to work. Recurrence of sick leave was significantly associated with level of education.

Acknowledgements

This study was supported by a research grant from the Ministry of Health, Labor and Welfare of Japan (2014-Seishin-Ippan-002).

Conflict of interest

The authors declare that they have no relevant conflicts of interest.

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