



## Which Stress Does Influence Returning to Work in Japan, Inside or Outside the Workplace?

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### Abstract

**Background:** In this cohort study, we investigated the background factors promoting and inhibiting a return to work after long-term absence from work due to sickness among psychiatric outpatients.

**Methods:** We surveyed 73 psychiatric outpatients who were absent from work for a long time (POAWs), and 42 POAWs who were followed up until the 2-year time point. GHQ-30, NEO-FFI, MPS, RSS and questionnaires inquiring about background factors, including relationships with others, were used, and the data were compared those who had returned to the work by the 2-year time point with those who had not.

**Results:** Factors promoting a return to work were “extroversion (NEO-FFI)”, “organization (MPS)”, and “neuroticism (NEO-FFI)”, whereas “concern over mistakes (MPS)” was an inhibitory factor. Period of absence from work was markedly associated with psychological stress outside the workplace, while depression, anxiety, and even psychological stress inside the workplace were not.

**Conclusions:** POAWs left from work by the result of psychiatric problems like depression, anxiety and so on. These were the result of their background factors, their characteristics, and psychological stress in/outside the workplace. After two-year psychiatric treatment, their psychological stress outside the workplace remained as an essential matter. These were inescapable because they were set in private place, while stress at the workplace could be left at the workplace.

**Keywords:** Absence, Work, Psychology, Stress, Workplace

### Introduction

Recently, in parallel with a similar trend worldwide, deterioration of working conditions in Japan has led to an increase in the incidence of depression or maladjustment in the workplace. Psychiatric disorders are now the most common reason for long-term absence from work. After treatment, the work-related consequences for such patients, who have suffered a range of psychiatric conditions, vary. Some are able to return to work, some

may need further long-term sick leave after temporary return to work, and others may end up leaving their jobs entirely. However, the factors affecting the prognosis of these psychiatric outpatients remain unclear.

There has been some discussion with regard to which factors have the most influence on maladjustment and depression, such as psychological stress in or outside the workplace, personality

traits or characteristics, and so on. In our previous study, we addressed two issues (1,2). One was whether a successful return to work was possible beyond 1 year after the start of treatment for psychiatric outpatients with work maladjustment who had been absent from work for more than 8 weeks due to any F3 or F4 disorders defined by the ICD-10. The other was the presence of possible background factors that may have affected the patients during their absence from work. We also examined the current tendency for Japanese female workers to become isolated, not only in the workplace but also at home, the significance of perfectionism among workers, and how perfectionism might affect male and female workers differently (2).

In the present cohort study, we investigated circumstances in the workplace 2 years after our initial study, together with the associated background factors.

### ***Subjects and methods***

We surveyed 78 psychiatric outpatients who had been absent from work (POAWs) for less than 8 weeks and had been diagnosed as having F3 or F4 disorders defined by the ICD-10 (World Health Organization 1992) (3) at the Department of Psychiatry, Tokyo Jikei University School of Medicine, between September 2007 and August 2009. One year later, we conducted a further cohort study of these patients to determine whether they had been able to return to work by the 2-year time point, and compared those who had (RWs) with those who had not (nRWs).

The survey items included: age, gender, presence of a spouse and children, scheduled and excess working hours, Global Assessment of the Functioning (GAF) at the baseline, any psychological stress-related experiences within the last six months, their degree of work satisfaction, actual support from any environment, relationship with superiors, colleagues, and subordinates, and other background information. We used a questionnaire that had originally been developed by us, as well as the GHQ-30 (General Health Questionnaire-30) (4), MPS (Multidimensional Perfectionism

Scale) (5,6), NEO-FFI(7), and RSS (Rosenberg Self-Esteem Scale) (8).

The GHQ-30, developed by Goldberg DP(4), is a shorter version of the GHQ-60, and includes six subscales: “general illness”, “somatic symptoms”, “sleep disturbance”, “social dysfunction”, “anxiety and dysthymia”, and “suicidal depression”. The questionnaire uses a four-grade Likert scoring method to assess mental health. Normally, the total score for the GHQ-30 is six or lower in 85% of healthy adults. The Japanese version of the GHQ-30 was developed by Nakagawa Y and Daibo I (4) and its reliability and validity have been confirmed.

The MPS, developed by Frost et al. (5), is a multi-dimensional assessment scale designed to evaluate the level of perfectionism. It consists of 35 question items, and includes six subscales: “concern over mistakes: CM”, “personal standard: PS”, “parental expectations: PE”, “parental criticism: PC”, “doubt about actions: DA”, and “organization: O”. The MPS uses a five-grade Likert scoring system ranging from “I completely agree” to “I completely disagree”. The Japanese version of the MPS was developed by Tanaka et al (6) and its reliability and validity have been confirmed. The NEO-FFI (60 items) (7), a shorter version of the NEO-PI-R (240 items), is employed to measure five personality dimensions known as the “BIG 5”: neuroticism, extroversion, openness, agreeableness, and conscientiousness. The Japanese version of NEO-FFI was developed by Shimonaka et al. (9) and its reliability and validity have been confirmed.

We used the Brief Job Stress Questionnaire (BJSQ) (10), published by the Ministry of Health, Labour and Welfare of Japan, to assess the levels of emotional strain experienced in and outside the workplace. The BJSQ, developed on the basis of the JCQ (Job Content Questionnaire) (11,12) and the NIOSH job stress questionnaire (13,14), is designed to measure the level of daily stress experienced within the last six months.

The present study was conducted with approval from the Ethics Committee of Tokyo Jikei University School of Medicine. We clarified which back-

ground factors at the baseline could affect a successful return to work within two years.

### Statistical analysis

To identify the demographic factors influencing differences in outcome between POAWs and controls, logistic regression analysis at a significance level of 0.05 was carried out using the SAS software package version 9.1. (15).

## Results

Among 78 POAWs at the baseline, 64 were followed up. Those eliminated included one whose diagnosis was changed to schizophrenia (F20),

and 13 who discontinued visiting the hospital after 1 year. Furthermore, 22 POAWs were eliminated because they ceased visiting the hospital beyond 2 years from the baseline, leaving a total of 42 POAWs who were followed up until the end-point. As shown in Fig. 1, 27 POAWs returned to work (23 to their original workplace, and 4 to a new workplace), whereas 15 did not (10 again becoming absent from work, and 5 becoming unemployed). Fig. 2 shows a breakdown of working status at the 1- and 2-year time points. Table 1 shows the diagnosis, average age, and GAF at the baseline for the 42 POAWs who were followed successfully.

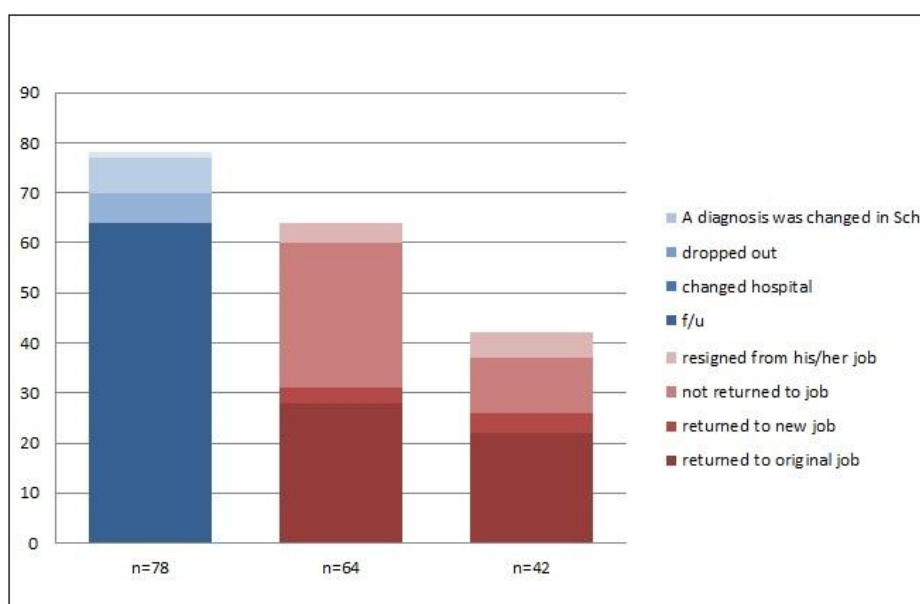


Fig. 1: Clinical course of 78 psychiatric outpatients

Table 1: Diagnosis of the psychiatric outpatients who could be followed up 2 year at the first line survey

ICD	diagnosis	male	female	total	age	GAF
F3	Bipolar affective disorder	0	0	0	41.0±9.1	52.5±6.8
	Depressive episode	15	3	18		
	Dysthymia	2	2	4		
F4	Panic disorder	1	0	1	40.0±6.5	55.0±8.5
	Generalized anxiety disorder	0	0	0		
	Adjustment disorder	11	5	16		
	Somatization disorder	0	3	3		
	total	29	13	42		

Age and GAF are expressed as mean±SD

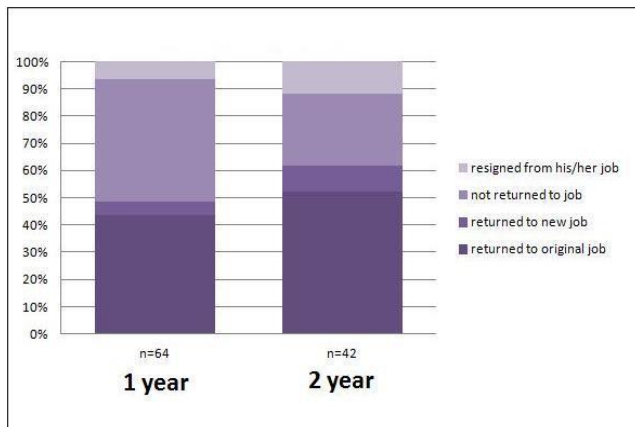


Fig. 2: The proportion of prognosis at 1 and 2 year

**Comparison of RWs and nRWs after 2 years**  
**Background factors**

The diagnosis, age and GAF of the RWs (n=27) and nRWs (n=15) are presented in Table 1. There

were 22 patients (17 males and 6 females) with a diagnosis of F3 and 20 (12 males and 8 females) with F4. Patients having both F3 and F4 disorders were categorized as F3.

Table 2 shows sociodemographic characteristics including age, gender, presence of a spouse and children, scheduled and excess working hours, GAF at the baseline, any psychological stress-related experience within the last six months, level of work satisfaction, and actual support from any environment. The average age did not differ between RWs and nRWs for either males or females. Both RWs and nRWs were highly educated. The proportions of male and female RWs having a spouse and one or more children were 51.9% and 49.1%, respectively, and those of nRWs were 60.0% and 58.7%, respectively.

Table 2: Sociodemographic characteristics-1

	RWs	nRWs
n	27	15
Average age (years old: mean±SD)	40.4±8.6	40.0±7.7
Spouse		
Yes	14 (51.9)	9(60.0)
No	13 (48.1)	6 (40.0)
Child		
Yes	27 (49.1)	8 (58.7)
No	28 (50.9)	6 (41.3)
Type of job		
Clerical staff/Executive officer	9 (34.6)	9 (49.3)
Planner	2 (9.1)	1 (9.3)
Sales representative	5 (14.5)	0 (12.0)
Technician/Researcher	2 (9.1)	2 (8.7)
Store personnel/Service business	2 (0.0)	0 (0.0)
Specialist	2 (1.8)	1 (2.0)
Financial worker	0 (5.5)	0 (0.0)
Creative field	1 (3.6)	0 (2.0)
IT-related worker	3 (21.8)	1 (15.3)
Others	0 (0.0)	3 (2.0)
Working time (hours: mean±SD)	205.5±57.7	240.3±166.2
Overtime hours (hours: mean±SD)	43.6±42.1	39.9±28.8
Psychological stress inside the workplace (score: mean±SD)	6.8±6.2	5.7±4.7
Psychological stress outside the workplace (score: mean±SD)	2.6±2.2	4.0±2.9

With regard to the type of occupation, white-collar workers including managerial workers accounted for the majority of RWs and nRWs. Psychological stress both in and outside the workplace was higher for nRWs than for RWs, but the difference was not statistically significant. No significant differences between RWs and nRWs were found with regard to relationships with superiors, colleagues and family (Mann-Whitney U test).

### Results obtained using the GHQ, NEO-FFI, MPS and RSS

#### i) GHQ

Analysis of variance revealed no significant differences ( $P<0.05$ ) between RWs and nRWs for any of the GHQ subscales. Only for General illness did nRWs show a greater tendency than RWs

(General illness:  $Z=1.71$ ,  $P<0.10$ ). Table 3 shows the means and standard deviations.

#### ii) NEO-FFI

The results for NEO-FFI are shown in Table 3. The extraversion and openness scores for RWs were significantly higher than those for nRWs (extraversion:  $Z=-2.75$ ,  $P<0.01$ , openness:  $Z=-2.60$ ,  $P<0.01$ ).

#### iii) MPS

Analysis of variance revealed no significant differences ( $P<0.05$ ) between RWs and nRWs for any of the MPS subscales. Only for Organization did RWs show a greater tendency than nRWs (Organization:  $Z=-1.88$ ,  $P<0.10$ ). Table 4 shows the means and standard deviations.

#### iv) RSS

As shown in Table 3, the RSS scores did not differ between RWs and nRWs.

Table 3: The result of GHQ, NEO-FFI, MPS and RSS

		RW(n=27)	nRW(n=15)
<b>GHQ</b>	GHQ score	19.7±5.6	21.7±4.7
	General Illness	3.2±1.5*	4.1±0.80*
	Somatic Symptoms	3.0±1.6	3.0±1.4
	Sleep Disturbance	3.7±1.3	3.4±1.9
	Social Dysfunction	3.2±1.3	3.7±1.3
	Anxiety and Dysphoria	4.1±1.3	4.4±0.82
	Suicidal Depression	2.5±2.3	3.1±2.1
<b>NEO-FFI</b>	Neuroticism	30.9±7.4	31.8±6.3
	Extraversion	21.7±5.8*	14.4±7.9*
	Openness	28.3±6.2*	23.1±5.5*
	Agreeableness	31.0±4.5	30.0±6.9
	Conscientiousness	27.0±5.8	26.5±6.8
<b>MPS</b>	CM	26.0±8.8	31.0±8.2
	PS	20.0±5.9	20.0±6.9
	PE	12.0±5.5	10.0±5.4
	PC	9.0±3.2	8.8±3.4
	D	11.0±2.8	12.0±2.7
	O	19.0±4.8*	16.0±6.6*
<b>RSS</b>		30.9±3.6	30.3±6.4

Scores are expressed as mean±S.D./ \*  $P<0.10$  \*\*  $P<0.01$

### Return to, or retirement from work as factors affecting the period of absence

In order to clarify the effects of baseline background factors contributing to a return to work, we used stepwise logistic regression analysis. The

factors significantly related ( $P<0.05$ ) (odds ratio) to a return to work were “extraversion” (NEO-FFI) (0.787), “organization” (MPS) (0.630), “concern over mistakes” (MPS) (1.401), and “neuroticism” (NEO-FFI) (0.782), as shown in Table 4.



As seen in terms of the odds ratio, factors promoting a return to work were “extroversion”, “organization”, and “neuroticism”, whereas “concern over mistakes” was an inhibitory factor.

Furthermore, we performed multiple regression analysis by setting the period of absence from work as an objective variable, and GAF at the baseline, NEO-FFI subitems, MPS subitems,

GHQ subitems, RSS, psychological stress in and outside the workplace, and work and family support as the dependent variables. This analysis revealed that only “period of absence from work” was markedly associated with “psychological stress outside the workplace” (0.741), and that depression and anxiety at the baseline were not.

**Table 4:** The result of logistic regression analysis

	State of 2 year f/u (returned to work or not)		
	Estimated Odds Ratio	95% CL.	P-Value
Extraversion	0.787	0.654-0.947	0.0110
Organization	0.630	0.453-0.875	0.0058
Concern over mistakes	1.401	1.806-1.806	0.0093
Neuroticism	0.782	0.617-0.991	0.0419

## Discussion

In view of the increasing number of patients with depression and adjustment disorder, mental health in the workplace has recently come under intense scrutiny in Japan. Studies of factors related to a return to the workplace have been few, and 2-year follow-up studies even fewer. Our present study is valuable because we succeeded in following up such psychiatric outpatients for 2 years, and in clarifying their characteristics at the baseline, GAF, and GHQ data.

A follow-up period of 2 years appears to be a practical outcome measure for Japanese workers who take sick leave. When an employee is absent from work for health reasons, a company generally pays sickness allowance to the person for a maximum of one and a half years in Japan. Therefore, once the 1.5-year maximum limit of sickness allowance has expired, it is inevitable that a patient will need to return, or end up leaving work at around 2 years later. Under these circumstances, it is informative to examine the attitude and state of POAWs at 2 years after the start of an initial layoff from work. As seen in Table 2, the outcome of PAOWs at 2 years was clearer than at 1 year. At 2 years, the proportions of individuals both returning to work and resigning from work increased, whereas the duration of sick leave, pend-

ing statement, was decreased, in comparison to the situation at 1 year.

The 78 outpatients at the baseline had been gradually reduced to 64 after 1 year, and to 42 after 2 years. Those who had returned to work tended to continue visiting our clinic, whereas those who continued to be absent from work tended to stop visiting. Although the proportion of patients who returned to work was higher at 2 years than at 1 year, as seen in Table 2, we were unable to obtain a complete picture because those who dropped out could not be followed up. The increase in the proportion of individuals who had retired by 2 years was reasonably logical.

### *Factors affecting a return to work within 2 years*

Logistic regression analysis showed that baseline factors affecting a return to work within 2 years among long-term absentees with psychiatric disorders were “extraversion”, “neuroticism”, and “perfectionism” (“organization” and “concerns over mistakes”), but not GAF, depression or anxiety. The severity of anxiety and depression at the baseline did not affect a return to work, as these were the main disorders necessitating medical intervention, and mainly showed improvement within 2 years. It is easier for POAWs showing “organization” to return to work because they are

tidy and show good perseverance. However, POAWs with a marked tendency to show “concerns over mistakes” had greater difficulty returning to work. Moreover, it was also easier for POAWs showing “extraversion” to return to work. Culturally, Japanese males are required to exercise extraversion in the workplace; in other words, males who have poor “extraversion” have a harder time adjusting to this type of environment. “Extraversion” leads to better relationships with superiors and colleagues, and therefore such individuals do not drop out or become absent from work for a long period (1,2).

One problematic aspect of the present findings was a perfectionist tendency and neuroticism. “Neuroticism” was a factor that promoted a return to work, whereas “concerns over mistakes” was an inhibitory factor. It will be necessary to examine these two factors in more detail, because they are considered to be similar tendencies.

With regard to perfectionism, it is generally considered necessary for accomplishing a correct standard of work and is a trait characteristic of individual reliability, having a significant influence in determining professional success (2). Sometimes, however, it can be a hindrance to individuals. Perfectionism has been described as a dispositional tendency to set excessively high standards of performance and to elicit extremely critical self-evaluation (5,16). In such cases, perfectionism is referred to as maladaptive perfectionism or clinical perfectionism. Bieling et al. (17) reported that maladaptive perfectionism was strongly related to symptoms of anxiety, and Blatt SJ (18) emphasized the role of self-criticism as a psychological trait for understanding the nature of depression. He also discussed the similarities between negative aspects of perfectionism and self-criticism, and considered that self-critical individuals had “feelings of unworthiness, inferiority, failure, and guilt ... a chronic fear of disapproval, criticism, and rejection”. On this basis, it is considered that maladaptive perfectionism leads to psychological disorders (19). In the workplace, especially, perfectionists tend to undertake too much work and cannot delegate it to others. When added to the complex human relationships existing in the

workplace, perfectionists tend to become exhausted because they also try excessively hard to keep such relationships balanced. Nakamura et al. (2) suggested that male employees who had high perfectionism tended to be absent from work for a long time, because they undertook too much work and also became exhausted dealing with complex human relationships in the workplace. Perfectionism is needed for success, and adaptive perfectionism is characterized by the desire to excel and to set high but achievable standards, whereas maladaptive perfectionism involves a strong focus on avoiding error, adoption of overly high standards, feelings of self-worth dependent on performance, and responses to failure involving harsh views of the self (20). POAWs imagine a situation in which they cannot adjust themselves to the workplace. Because of their perfectionist tendencies, they may dwell excessively on images of maladjustment during their period of absence, as a result of which they may become depressed, overwhelmed, and lose hope of a smooth return to work in view of their negative associations with the workplace. When they return to work, their unpleasant memories are revived, and they suppress their desire to continue working. POAWs with a marked tendency to show “concerns over mistakes” think that they cannot return to work unless they are convinced that have recovered fully. In other words, they consider they cannot return to work unless they meet the excessively high goal they have set themselves.

On the other hand, “neuroticism” includes anxiety, angry hostility, depression, self-consciousness, impulsiveness and vulnerability. These neurotic tendencies are within the manageable limits of employees who are general healthy, and therefore they are considered to promote a return to work. For example, fear of being stranded in society and self-consciousness are considered to be necessary for promoting rehabilitation to the workplace.

The above results suggest that in order to offer effective psychiatric treatment, it is necessary to grasp the characteristic tendencies of POAWs, and to attempt to lessen their perfectionism. It is also important to grasp the characteristics of em-

ployees, especially perfectionism, from the viewpoint of mental health in the workplace.

### **Factors affecting period of absence from work**

This analysis revealed that only “leave period” was markedly associated with “psychological stress outside the workplace” (0.741), but not depression, anxiety or psychological stress inside the workplace. This means that psychological stress outside the workplace is the most significant factor affecting a return to work after 2 years of psychiatric treatment.

As psychiatric treatment proceeds, most POAWs recover to a certain level and become healthy. Because a cognitive-behavioral approach has been advocated recently, POAWs have been encouraged to focus on, and become introspective about their characteristic tendencies, especially perfectionism, which plays a role in maladjustment after recovery from depression or anxiety. Treatment helps patients to minimize the problems associated with their character, so that they become less affected by them. Psychological stress outside the workplace is a bigger problem than depression, anxiety, or the problems associated with individual characteristics. Employees can escape from psychological stress inside the workplace by taking sick leave or retiring from their job. However, nobody can escape psychological stress related to personal matters, as Nakamura et al. (14) has pointed out. In other words, psychological stress related to personal matters involves an individual’s life. Therefore, it is inevitable that this will have a marked influence on the period an individual takes off work.

The prognosis studies with more long-term and large-scale are required in the future research in order to clarify the issue of returning to work problem of employees.

### **Study limitation**

As the questionnaire used in this study was a subjective, self-completed one, it lacked assessment objectivity. Although this was a cohort study, we were unable to follow up all POAWs from the

baseline. Follow-up was possible only for outpatients who visited the psychiatric clinic regularly and promptly, and this tendency itself may have introduced a degree of bias.

### **Conclusion**

After two-year psychiatric treatment, their psychological stress outside the workplace remained as an essential matter. These were inescapable because they were set in private place, while stress at the workplace could be left at the workplace.

### **Ethical considerations**

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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