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Obsessional personality features in employed Japanese adults with a lifetime history of depression: assessment by the Munich Personality Test (MPT)

■ **Abstract** *Background* Although a number of studies have reported on the association between obsessional personality features as measured by the Munich Personality Test (MPT) "Rigidity" scale and depression, there has been no examination of these relationships in a non-clinical sample. *Methods* The dimensional scores on the MPT were compared between subjects with and without lifetime depression, using a sample of employed Japanese adults. The odds ratio for suffering from lifetime depression was estimated by multiple logistic regression analysis. To diagnose a lifetime history of depression, the Inventory to Diagnose Depression, Lifetime version (IDDL) was used. *Results* The subjects with lifetime depression scored significantly higher on the "Rigidity" scale than the subjects without lifetime depression. In our logistic regression analysis, three risk factors were identified as each independently increasing a person's risk for suffering from lifetime depression: higher levels of "Rigidity", being of the female gender, and suffering from current depressive symptoms. *Conclusion* The MPT "Rigidity" scale is a sensitive measure of personality features that occur with depression.

■ **Key words** Munich Personality Test · Personality · Depression · Non-clinical sample

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Introduction

Certain obsessional personality features, such as being overly self-conscious, orderly to an extreme, rigidly moralistic, and overly scrupulous, have been clinically described as premorbid personality traits specific to patients with unipolar depression in German-speaking countries (e. g., "Typus melancholicus" (Tellenbach 1961), as well as in Japan (e. g.,"imodithymia" (Shimoda 1950). Ever since von Zerssen (1969) developed a psychometric-sound personality test, the F-list, which was established for assessing "Typus melancholicus" by expert German psychiatrists including Tellenbach himself, empirical studies have shown an association between these premorbid personality features and unipolar depression (Frey 1977; Sato et al. 1992, 1993; von Zerssen 1982; von Zerssen et al. 1970). However, some studies showed no evidence for the dominance of the "Typus melancholicus" in unipolar depression (Bech et al. 1980; Matussek and Feil 1983; Furukawa et al. 1997). Accordingly, there remains a discrepancy among the extant studies, and it appears that the importance of "Typus melancholicus" as an indicator of unipolar depression is not necessarily accepted throughout the world.

Von Zerssen et al. (1988) developed a new personality test, the Munich Personality Test (MPT), by using factor analysis. In the MPT, obsessional personality traits were classified under the term "rigidity," a more homogenous factor. A number of studies have shown that depressive patients score higher on the Rigidity dimension, as classified by the MPT, than do normal control subjects, (von Zerssen et al. 1997), bipolar patients (Sauer et al. 1997), neurotic patients (Bronisch and Hecht 1989; Sakado et al 1997), and schizophrenic patients (Heerlein et al. 1997). In addition, increased levels of Rigidity were demonstrated among relatives of patients with unipolar depression (Krieg et al. 1990; Maier et al. 1992; Lauer et al. 1997).

To date, however, no rigorous study of a non-clinical sample has been undertaken to determine the relation-

ship between "Rigidity" (as defined by the MPT) and depression. On the basis of a sample of employed Japanese adult volunteers, the present study attempts to confirm the association between Rigidity and lifetime depression. If in fact Rigidity is an indicator of depression, it should be possible to reliably discriminate between subjects with and without a lifetime history of depression, even in a non-clinical sample.

Methods

■ Measures

MPT

The MPT (von Zerssen et al. 1988) is a self-rating questionnaire with 51 items composed of 6 scales for personality (neuroticism, extraversion, frustration tolerance, rigidity, isolation tendency, and esoteric tendencies) and 2 control scales (orientation towards social norms, and motivation). Neuroticism and extraversion on the MPT are nearly identical to the corresponding concepts advocated by Eysenck and Eysenck (1964). Frustration tolerance refers to resiliency or stress tolerance. Rigidity represents a kind of obsessionality (orderliness, devotion to duty or family members, and scrupulousness). It has been confirmed that this dimension contributes to validation of the "Typus melancholicus" concept (Mundt et al. 1997). Both the isolation tendency classification and esoteric tendencies dimensions were derived from Kretschmer's (1936) descriptions of "Schizothymie". "Orientation towards social norms" measures either a tendency towards socially desirable self-description or a tendency towards certain behaviors in relation to social norms. "Motivation" merely assesses adequate responses that fulfill the requirements of the test. "Orientation towards social norms" was treated as a personality dimension, because this dimension partially correlated with the Six Factor Test to assess 6 personality dimensions, including the so-called "big five" factors of personality (von Zerssen 1994). We used the Japanese version of the MPT, which was translated in keeping with the back-translation method; its reliability has been confirmed elsewhere (Sakado et al. 1996a).

Inventory to Diagnose Depression, Lifetime version (IDDL)

To diagnose a lifetime history of depression, we used the IDDL (Zimmerman and Coryell 1987). The IDDL is a highly structured questionnaire containing 22 items covering broad depressive symptoms. Respondents are asked to report if they have ever experienced certain depressive symptoms at those times when they felt the most profoundly sad or depressed, and, if so, if the symptoms persisted for more than 2 weeks. Subjects whose depressive episodes were due, for example, to bereavement can be excluded through their answers to questions on the test about the cause of the depressive episode. The IDDL was originally designed to diagnose a lifetime history of major depressive disorder according to the DSM-III (American Psychiatric Association, 1980). However, it also contains all of the questions required to diagnose a major depressive episode based on the DSM-IV (American Psychiatric Association 1994) criteria. We developed a Japanese version of the IDDL, and found that it is very accurate in diagnosing a lifetime history of DSM-III-R (American Psychiatric Association 1987) major depression (Uehara et al. 1995; Sakado et al. 1996b). Since the diagnostic criteria for major depressive episode are the same in the DSM-III-R and DSM-IV, problems with using the DSM-IV algorithm for the IDDL were not expected to arise.

Beck Depression Inventory (BDI)

The BDI (Beck et al. 1961) is a self-report inventory with 21 items for assessing broad depressive symptoms. In order to determine whether or not a subject was in a depressed state, the BDI was also conducted along with the above questionnaires. The subjects who scored more than 15 points on the BDI were judged to be suffering from a current depression according to the criteria proposed by Frank et al. (1991).

■ Subjects and procedure

The sample used in the present study consisted of employed adult volunteers recruited from 3 hospitals and 2 companies in the Niigata City area. They were asked to participate in this study on a volunteer basis, with no financial reward offered, through the co-authors (T. Seki and M. Kojima). The hypothesis of this study was not given to the subjects. After informed consent was obtained, 656 individuals completed the 3 questionnaires. They were also asked questions to obtain demographic data. All of the questionnaires were collected and then given back to us by the subjects' managers or supervisors at their worksites. Five hundred fifty-one (84 %) of the subjects returned the questionnaires. Thirty-seven subjects were disqualified for not filling out all of the questionnaire. There were 530 remaining subjects. Since the mean scores on the MPT were not significantly different among the subjects working in hospitals and the subjects working in companies, after adjusting for the effects of age, gender, and education, all of the data was combined and analyzed together. Afterwards, 36 (7 %) of the subjects who scored more than 15 points on the BDI were excluded because the responses they gave on their questionnaires might have been distorted. Finally, 494 (93 %) of the subjects (226 men and 268 women), with a mean age of 36.9 years (SD = 10.1; range = 18–70), were included in the present study. The subjects' average duration of education was 14.1 years (SD = 1.9; range = 9–18). Forty-one subjects (8 %) were judged by the IDDL as having had a lifetime history of DSM-IV major depressive disorder. These subjects consisted of 12 men (29 %), and 29 women (71 %). Their depressive episodes, as reported by the IDDL, occurred when they were 15–42 years old (mean = 28.7 years, SD = 7.5). There were no significant differences in age or education between the subjects with and without a lifetime history of depression (age: 37.0 vs. 37.7 years, t = –0.5, d. f. = 492, P = 0.60, 2-tailed; education: 13.8 vs. 14.1, t = 0.2, d. f. = 52.1, P = 0.23, 2-tailed). The sex ratio, however, was different between the two subject groups (chi-square = 4.9, d. f. = 1, P = 0.03, 2-tailed); therefore, it was necessary to control for the effect of gender.

■ Data analysis

We first compared the mean scores on each dimension of the MPT between the subjects with and without lifetime depression (Mann-Whitney U-test). In order to ensure an α level of 5 % for each test, the Bonferroni-Holm procedure (Holm 1979) was used. In order to evaluate the predictive power of the MPT dimensions to lifetime depression, multiple logistic regression analysis was performed, using any variables which reached a conventional level significant in the univariate analysis. The odds ratios were judged to be significant if their 95 % confidence intervals did not include 1.0.

For the analyses, the statistical software SPSS 8.0J for Windows (SPSS Japan 1998) was used.

Results

Table 1 shows a comparison of the MPT scores of subjects with and without a lifetime history of depression. The score for rigidity was significantly higher in subjects with lifetime depression than it was in those without lifetime depression (9.3 (SD = 3.8) vs. 8 (SD = 3.7), z = –2.4, P = 0.02; α = 0.05 when adjusted according to the Bonferroni-Holm procedure). No other differences in the MPT dimensions were found between subjects with lifetime depression and those without lifetime depression

The relationship between the MPT scales and the BDI

Table 1 Comparison of MPT dimensions between subjects with and without lifetime depression

	Subjects with lifetime depression (n = 41) mean (SD)	Subjects without lifetime depression (n = 453) mean (SD)	Z	P (2-tailed)
Extraversion	11.1 (5.9)	10.8 (5.5)	−0.2	0.88
Neuroticism	9.5 (5.4)	8.0 (4.7)	−1.72	0.09
Frustration tolerance	6.3 (3.3)	7.4 (3.4)	−2.0	0.046
Rigidity	9.3 (3.8)	8.0 (3.7)	−2.4	0.02[a]
Isolation tendency	4.5 (2.4)	4.2 (2.5)	−0.8	0.42
Esoteric tendencies	2.2 (1.8)	1.9 (1.8)	−1.5	0.14
Orientation towards social norms	14.3 (2.7)	14.1 (2.4)	−0.8	0.45

MPT Munich personality test, *CI* confidence interval
[a] Group mean significantly different ($\alpha = 0.05$; adjusted according to Bonferroni-Holm procedure).

Table 2 Relationship between BDI and MPT dimensions

	r_s	P
Extraversion	0.01	0.81
Neuroticism	0.26	0.00
Frustration tolerance	−0.12	0.01
Rigidity	0.13	0.01
Isolation tendency	0.07	0.14
Esoteric tendencies	0.12	0.01
Orientation towards social norms	−0.19	0.00

BDI Beck Depression Inventory, *MPT* Munich Personality Test
r_s: Sperman correlation coefficient

was clarified by calculating the correlation coefficients prior to performing the logistic regression analysis; we did this because the MPT scales may be influenced to some degree by subtle depressive symptoms. Spearman correlation coefficients of the BDI score to the scores on the MPT scales were: 0.01 (P = 0.81) for "extraversion," 0.26 (P = 0.00) for "neuroticism," –0.12 (P = 0.01) for "frustration tolerance," 0.13 (P = 0.01) for "rigidity," 0.07 (P = 0.14) for "isolation tendency," 0.12 (P = 0.01) for "esoteric tendencies," and –0.19 (P = 0.00) for "orientation towards social norms" (Table 2). This analysis suggested that the mood of the subjects at the time they took the MPT was a possible factor influencing the assessment of personality.

Thus, in the logistic regression analyses, "rigidity" and the BDI score were taken as independent variables, and a history of lifetime depression as a dependent variable. Gender was also included as an independent variable in this analysis.

Our logistic model is shown in Table 3. The odds ratios constitute the relative risks for a lifetime history of depression. A significant odds ratio was found for all variables. To interpret the results, we will describe subjects reporting a 5-point higher score on "rigidity" and the BDI. Subjects reporting a 5-point higher score for "rigidity" were 1.7 times more likely to have a lifetime history of depression. Subjects reporting a 5-point higher score for the BDI were 1.7 times more likely to have a lifetime history of depression. In addition, female subjects were 2.7 times more likely to have a lifetime history of depression. When these three variables were used in our logistic regression analysis, 92% of the subjects were correctly classified as suffering from, or not suffering from, lifetime depression.

Discussion

To our knowledge, this study is the first to examine the relationship between the MPT personality dimensions and depression in a non-clinical sample. The results of the present study can be summarized as follows: subjects with a lifetime history of depression had significantly higher scores on "rigidity" or the BDI than subjects without a lifetime history of depression, and scoring higher levels of "rigidity", higher levels on the BDI, and being of the female gender each independently increased the risk for having a lifetime history of depression.

The results of this study primarily confirm previous findings of increased levels of rigidity in depressed patients. In particular, these results are identical to the findings of von Zerssen et al. (1997), in which Japanese

Table 3 Results of multiple logistic regression analysis

Dependent Variable 0 = IDDL (−) 1 = IDDL (+) Independent variables	b	Odds ratio	95 % CI	Wald statistic
Rigidity	0.1	1.7 (for a 5-point score higher)[a]	1.1 to 2.6	5.8 (P = 0.00)
Gender	1.0	2.7[a]	1.3 to 5.6	7.4 (P = 0.01)
BDI	0.1	1.7 (for a 5-point score higher)[a]	1.1 to 2.5	6.1 (P = 0.002)

[a] Significant odds ratio
BDI Beck Depression Inventory

patients in remission from unipolar depression scored higher on "rigidity" than did healthy controls. Since most of the previous studies were conducted in clinical settings, it is possible that the obsessional personality features as observed in a sample of depressive patients are not essential to depression itself, but rather are linked to depressive patients who seek help at psychiatric clinics and hospitals. However, our study showed that obsessional personality traits are linked to depression, even in a non-clinical sample. The replication in a less-biased sample suggests that this linkage may be general.

Studies in which the F-list was used for personality assessment occasionally failed to demonstrate the high prevalence of obsessional personality features in depression. However, these failures may be due to the fact that "Typus melancholicus" consisted not of one unique (i. e., factor-analytically unidimensional) personality trait, but of an aggregation of several personality factors (Furukawa et al. 1997, 1998a). This heterogeneity of the personality construct may have led to inconsistency in the studies in which the F-list was used. In contrast, the rigidity dimension of the MPT, which is more clearly defined, may reach the heart of obsessional personality features in depression. To date, the relationship between the F-list and the MPT has not been studied. It would be beneficial to examine how the two personality tests are related to depression.

Recently, Furukawa et al. (1998b) compared personalities of patients with organic, schizophrenic, mood, and neurotic disorders in a Japanese sample according to the "five-factor model of personality." They found that "conscientiousness," which referred to a disciplined striving after goals and a strict adherence to principles, in the NEO Five-Factor Inventory (NEO-FFI) (Costa and McCrae, 1992) was more pronounced in unipolar depressives than in other psychiatric patients. Since the concept of "conscientiousness" in the NEO-FFI appear very similar to that of "rigidity" in the MPT, the two personality dimensions may be assessing the same personality feature.

Our data showed that there was a gender difference between subjects with and without a lifetime history of depression. Gender was controlled for in the analysis; men and women may each show different profiles of personality. We did not analyze the data after dividing the subjects into men and women, because our sample size of male subjects with lifetime depression was somewhat small. A further study is needed to explore the relationship between MPT personality dimensions and depression, after separating the subjects into two groups according to gender.

We acknowledge some limitations to this study. First, the data used in the study was retrospectively obtained with a cross-sectional design. Ouimette et al. (1996) compared relatives with a past history of mood disorders with those with no history of mood disorders, and found that relatives with a past history of mood disorders differed from both the relatives of depressive

patients and the relatives of controls with no history of mood disorders on several personality traits. They conjectured that depressive experiences may change personality findings. Thus, our findings may be due to this postmorbid change. However, two prospective studies demonstrated that personality assessments are possibly not influenced by the experience of depressive episodes (Clayton et al. 1994; Duggan et al. 1991). Unfortunately, the MPT was not used in these studies, or in any prospective studies. To clarify with certainty the specificity of "rigidity" to depression, a prospective follow-up study should be conducted. Ouimette et al. discussed an alternative interpretation: some relatives may have had residual depressive symptoms that influenced their self-reported personality. However, the present study showed that "rigidity" was associated with lifetime depression independently of current depressive symptoms. In addition, since the present study was conducted on employed adults from a selected population, the results may be biased. Therefore, the study needs to be replicated using on sample from the general population.

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