Different Personalities Between Depression and Anxiety

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We examined the different personality dimensions between depression and anxiety with Cloninger's seven-factor model of temperament and character. The Temperament and Character Inventory (TCI), which measures four temperament and three character dimensions of Cloninger's personality theory (125-item short version), the Self-rating Depression Scale (SDS), and the State-Trait Anxiety Inventory (STAI) were administered to 223 Japanese students. With hierarchical regression analysis, the SDS score was predicted by scores of Harm-Avoidance, Self-Directedness, and Self-Transcendence, even after controlling for the STAI score. The STAI score was predicted by scores of Self-Directedness and Cooperativeness, even after controlling for the SDS score. More importance should be attached to these dimensions of character because they might contribute to both depression and anxiety. © 1998 John Wiley & Sons, Inc. J Clin Psychol 54: 1043–1051, 1998.

The relationship between personality and depressive or anxious mood has been the subject of argument (Clark, Beck, & Stewart, 1990; Clark & Watson, 1991; Clark, Watson, & Mineka, 1994). On the one hand, in the cognitive model of psychopathology, it is assumed that each neurotic disorder can be characterized by a cognitive content specific to that disorder (Beck, 1976): depressed disorders are characterized by a devaluation of self and negative attitudes toward the past and future, whereas anxiety disorders are marked by themes of danger and anticipated harm in future situations. On the other hand, Clark and Watson (1991) proposed a tripartite model to explain the overlapping and distinct features of depression and anxiety. This model postulates that depression and anxiety consist of three factors: a general distress factor (negative affectivity) shared by depression and anxiety, a specific depression factor characterized by low positive affectivity, and a specific anxiety factor of autonomic arousal.

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Previous studies proposed that various personality traits were relevant to depression and anxiety, for example, neuroticism, negative cognition (automatic thoughts), attributional style, and so forth (Ahrens & Haaga, 1993; Beck, Brown, Steer, Eidelson, & Riskind, 1987; Boyce, Parker, Barnett, Cooney, & Smith, 1991; Clark et al., 1990). However, these personality traits are simultaneously correlated to both depression and anxiety. For example, Ahrens and Haaga (1993) reported that attributional style (stable and global causal attributions for negative events) measured by the Expanded Attributional Style Questionnaire (Peterson & Villanova, 1988) was positively correlated to both depression, measured by the Beck Depression Inventory (Beck, Rush, Shaw, & Emery, 1979) (r = .31, $p < .01$), and anxiety measured by the Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988) ($r = .38$, $p < .01$). Moreover, a high correlation between depression and anxiety is well known (e.g., Gotlib & Cane, 1989; Tanaka-Matsumi & Kameoka, 1986). Therefore, to clarify the type of personality that contributes distinctively to depression and that which contributes to anxiety, we should examine the relationship of personality with specific depression and specific anxiety, excepting the general factor overlapping distressed mood.

Although the personality traits differentiating depression and anxiety still are not clarified, Cloninger's seven-factor model of temperament and character (Cloninger, Svrakic, & Przybeck, 1993) might be a promising tool to solve the research question. This is because the model was developed to explain various psychopathologies, such as personality disorders, psychoses, anxiety disorders, and mood disorders (Cloninger, 1987; Cloninger, Svrakic, Bayon, Przybeck, 1996). This psychobiological model clearly divides personality into temperament and character, and postulates interaction between the two. The temperament dimensions consist of Novelty-Seeking (NS), Harm-Avoidance (HA), Reward-Dependence (RD), and Persistence (P), which are independently heritable and become manifest early in life. Novelty-Seeking indicates a heritable bias in the activation or initiation of behavior; individuals high in Novelty-Seeking tend to be enthusiastic and to engage quickly with whatever is new and unfamiliar. Harm-Avoidance indicates a heritable bias in the inhibition of behavior; individuals high in this dimension tend to be inhibited and shy in most social situations. Reward-Dependence indicates a heritable bias in the maintenance or continuation of ongoing behavior; high Reward-Dependence individuals tend to be tender-hearted, warm, sensitive, dedicated, dependent, and sociable. Persistence was originally thought to be a component of Reward-Dependence but was later regarded as discrete; Persistence measures perseverance maintained despite frustration and fatigue. Individuals high in Persistence tend to be industrious, hard-working, persistent, and stable.

On the other hand, the character dimensions consist of Self-Directedness (SD), Cooperativeness (C), and Self-Transcendence (ST). These character dimensions mature from infancy through late adulthood and influence personal and social effectiveness by insight learning about self-concepts. Self-Directedness refers to the ability of an individual to control, regulate, and adapt behavior to fit the situation in accord with individually chosen goals and values. Individuals high in Self-Directedness tend to have good self-esteem, to admit faults, and to accept themselves as they are. Cooperativeness was formulated to account for individual differences in acceptance of other people; cooperative individuals tend to be socially tolerant, empathic, helpful, and compassionate. Self-Transcendence refers generally to identification with everything conceived as essential and to consequential parts of a unified whole. Self-transcendent individuals are described as unpretentious, fulfilled, patient, creative, selfless, and spiritual.

Although many studies have examined the relationships between Cloninger's personality dimensions and depression or anxiety (Brown, Svrakic, Przybeck, & Cloninger,

1992; Cloninger, 1986; Cloninger et al., 1996; Cowley, Roy-Byrne, Greenblatt, & Hommer, 1993; Joffe, Bagby, Levitt, Regan, & Parker, 1993; Svrakic, Przybeck, & Cloninger, 1992; Tanaka, Kijima, & Kitamura, 1996; Wetzel et al., 1992), only three studies examined the relationship of personality with both depression and anxiety (Brown et al., 1992; Cloninger et al., 1996; Svrakic et al., 1992). However, Brown et al. (1992) and Svrakic et al. (1992) examined only dimensions of temperament. Cloninger et al. (1996) examined the correlations between various kinds of psychopathology (e.g., depression, dysthymia, anxiety, and somatization) and temperament and character dimensions. However, because these authors did not control for a general factor of depression and anxiety, their results on the relationship between personality and depression or anxiety are contaminated by the general factor.

In this study, we examined the relationship of personality with the specific depression factor and the specific anxiety factor. Because the scores of self-report measures of depression and anxiety are highly correlated (e.g., Gotlib & Cane, 1989; Tanaka-Matsumi & Kameoka, 1986), we controlled for the anxiety level in examining the relationship between depression and personality. In the same way, the depression level was controlled in examining anxiety and personality.

METHOD

Participants and Procedure

To examine the relationship of personality with depression and anxiety, we administered two sets of questionnaires to introductory psychology students in Japan, within a 3-month interval. In Time 1, a total of 377 students completed the Temperament and Character Inventory, 125-item, Japanese version (revised to a 4-point scale; Cloninger et al., 1993; Kijima et al., 1996) and the Self-rating Depression Scale, Japanese version (SDS; Fukuda & Kobayashi, 1973; Zung, 1965) in their psychology class. Three months later (Time 2), 388 students who took the same class were invited to complete the SDS and the State-Trait Anxiety Inventory, Japanese version state form (STAI; Shimizu & Imae, 1981; Spielberger, Gursuch, & Lushene, 1970). In this study, we reported the relationship among the TCI (Time 1), and the SDS and STAI (Time 2). A total of 223 students (105 men and 118 women) ages 18–28 ($M = 19.2$ years, $SD = 1.4$) successfully completed these three scales. Any measures of the individuals participating in both Time 1 and Time 2 were not different from those of the participants who responded in either Time 1 or Time 2.

Measures

Temperament and Character. The Temperament and Character Inventory (TCI; Cloninger et al., 1993), Japanese version (Kijima et al., 1996) measures four temperament dimensions (Novelty-Seeking, Harm-Avoidance, Reward-Dependence, and Persistence) and three character dimensions (Self-Directedness, Cooperativeness, and Self-Transcendence). The TCI 125-item short version was used instead of the TCI 240-item full version. Although the original TCI is a true-false questionnaire, we changed the dichotomous scale into a 4-point scale in this study; each item was rated 1 (*strongly disagree*) to 4 (*strongly agree*) (Kijima et al., 1996).

Depression. The Japanese version (Fukuda & Kobayashi, 1973) of the Self-rating Depression Scale (SDS: Zung, 1965) consists of 20 items and measures depressive symptoms

for a recent week. Each item is rated as 1 (*a little of the time*) to 4 (*most of the time*); the total SDS score can range from 20 to 80, a higher score indicating more severe depression.

Anxiety. The State-Trait Anxiety Scale (STAI; Spielberger et al., 1970), Japanese version (Shimizu & Imae, 1981) is composed of two scales—the state form and the trait form. Each scale consists of 20 items that indicate the presence or absence of specific anxiety symptoms. The STAI Japanese version state form was used in this study. The 20 state anxiety items are each scored on a 4-point scale of intensity, ranging from 1 (*not at all*) to 4 (*very much so*). A higher score of the STAI indicates more severe anxiety.

RESULTS

The means and standard deviations of the TCI, SDS, and STAI scores are shown in Table 1. There were no sex differences in the scores on the SDS (men: $M = 41.2$, $SD = 8.1$; women: $M = 42.3$, $SD = 6.8$; $t(221) = 1.14$, *ns*), the STAI (men: $M = 44.4$, $SD = 11.0$; women: $M = 43.1$, $SD = 8.9$; $t(221) = 1.04$, *ns*), and all TCI scales, except for Reward-Dependence scores (men: $M = 41.0$, $SD = 5.1$; women: $M = 43.9$, $SD = 6.0$; $t(221) = 3.86$, $p < .001$). The correlation coefficients among all variables used in this study are also summarized in Table 1. Among the TCI subscales, correlations obtained in this study are comparable with those of the American general population sample (Cloninger et al., 1993), except for correlation between Novelty-Seeking and Harm-Avoidance (this study: $r = .37$; Cloninger et al.'s study: $r = .08$). As shown in Table 1, both scores of the SDS and the STAI are positively correlated with the Harm-Avoidance score (SDS: $r = .48$; STAI: $r = .36$), and negatively correlated with the Self-Directedness score (SDS: $r = .59$; STAI: $r = .51$) and Cooperativeness score (SDS: $r = .26$; STAI: $r = .30$).

To examine the relationships of the TCI scales with the SDS and STAI, hierarchical regression analyses were used. Consistent with previous studies (e.g., Tanaka-Matsumi & Kameoka, 1986), the correlation coefficient between the SDS and the STAI was high (Table 1: $r = .64$, $p < .001$). Because it is necessary to partial out a general factor shared by depression and anxiety (Clark et al., 1994), in examining the effects of the TCI scores on the SDS score, we entered the STAI score into the regression equation and controlled this variable among the participants. In the same way, when the effects of TCI scores on the STAI score were examined, the SDS score was entered as a covariate. Furthermore, a set of four temperament scales of the TCI was entered into the regression equation before entering a set of three character scales of the TCI. Temperament is assumed to be strongly heritable and to involve percept-based habit and skill formation, whereas character is assumed to be weakly heritable and to involve concept-based goals and values influenced by sociocultural learning (Cloninger et al., 1993).

Thus, to examine the relationship of personality to depression, we first entered demographic variables (sex and age); second, the STAI score as a covariate; third, a set of temperament scale scores (Novelty-Seeking, Harm-Avoidance, Reward-Dependence, and Persistence); and finally, a set of character scale scores (Self-Directedness, Cooperativeness, and Self-Transcendence). As shown in Table 2, after controlling for demographic variables and the STAI score among the participants, a set of temperament scale scores and a set of character scale scores significantly predicted the SDS score (temperament: $F(7,215) = 9.55$, $p < .001$; character: $F(10,212) = 7.64$, $p < .001$). Of the four temperament scales, the Harm-Avoidance score significantly predicted the SDS score ($t(215) = 5.16$, $p < .001$) and was positively correlated with it (*pr* .33). Of the three character scales, the Self-Directedness and Self-Transcendence scores significantly predicted the SDS score (Self-Directedness: $t(212) = 3.90$, $p < .001$; Self-Transcendence: $t(212) =$

Table 1. *Means, Standard Deviations, and Correlation Coefficients of the Self-Rating Depression Scale (SDS), the State-Trait Anxiety Inventory (STAI) State Form, and the Temperament and Character Inventory Scales (N = 223).*

	1	2	3	4	5	6	7	8	*M*	*SD*
1 SDS	—	—	—	—	—	—	—	—	41.78	7.45
2 STAI	.64***	—	—	—	—	—	—	—	43.70	9.94
3 Novelty-Seeking	−.12	−.10	—	—	—	—	—	—	50.54	7.89
4 Harm-Avoidance	.48***	.36***	−.37***	—	—	—	—	—	53.71	8.78
5 Reward-Dependence	−.16*	−.15*	.16*	−.07	—	—	—	—	42.53	5.77
6 Persistence	−.16*	−.09	−.15*	−.09	.13*	—	—	—	13.47	2.75
7 Self-Directedness	−.59***	−.51***	.06	−.55***	.09	.20**	—	—	64.41	9.61
8 Cooperativeness	−.26***	−.30***	−.06	−.19**	.51***	.34***	.34***	—	71.51	8.23
9 Self-Transcendence	.08	−.00	.25***	−.13	.13	.22**	−.04	.14*	30.98	6.27

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2. *Hierarchical Multiple Regression Analyses Predicting the Scores of the State-Trait Anxiety Inventory (STAI) State Form and the Self-rating Depression Scale (SDS) with Scales of the Temperament and Character Inventory (N = 223)*

	SDS				STAI			
Dependent Step Variables	R^2 Change	*F* Change	(*df*)	*pr*	R^2 Change	*F* Change	(*df*)	*pr*
1. Demographics	.006	.65	(2, 220)	—	.005	.60	(2, 220)	—
Sex	—	—	—	−.004	—	—	—	.023
Age	—	—	—	.076	—	—	—	−.067
2. Covariate	.418	158.67***	(3, 219)	—	.418	158.676***	(3, 219)	—
	—	—	—	.648***	—	—	—	.648***
3. Temperament	.087	9.55***	(7, 215)	—	.005	.50	(7, 215)	—
Novelty-Seeking	—	—	—	.044	—	—	—	.024
Harm-Avoidance	—	—	—	.332***	—	—	—	.089
Reward-Dependence	—	—	—	−.124	—	—	—	−.017
Persistence	—	—	—	−.109	—	—	—	.039
4. Character	.048	7.64**	(10, 212)	—	.037	4.88**	(10, 212)	—
Self-Directedness	—	—	—	−.259***	—	—	—	−.176**
Cooperativeness	—	—	—	.060	—	—	—	−.145*
Self-Transcendence	—	—	—	.146*	—	—	—	−.051

Note.—For sex, male coded as 1, female coded as 2. For predicting STAI, SDS is entered as covariate; for predicting SDS, STAI is entered as covariate.
*$p < .05$. **$p < .01$. ***$p < .001$.

2.15, $p < .05$). The Self-Directedness score was negatively correlated with the SDS score ($pr = .26$), whereas the Self-Transcendence score was positively correlated ($pr = .15$). The temperament and character scores explained about 13% of the variance of the SDS score.

To examine the relationship of personality to anxiety, demographic variables were entered, then the SDS score followed by a set of temperament scale scores, and finally a set of character scale scores (Table 2). Although a set of temperament scale scores did not predict the STAI score after controlling for demographic variables and the SDS score among participants ($F(7,215) = .50$, *ns*), a set of character scale scores significantly predicted the STAI score ($F(10,212) = 4.88$, $p < .01$). Of the three character scales, the Self-Directedness and Cooperativeness scores significantly predicted the STAI score (Self-Directedness: $t(212) = 2.61$, $p < .01$; Cooperativeness: $t(212) = 2.13$, $p < .05$) and both scores negatively correlated with the STAI score (Self-Directedness: $pr = .18$; Cooperativeness: $pr = .15$).

DISCUSSION

To examine the relationship of Cloninger's temperament and character with a specific depression factor and a specific anxiety factor, it is necessary to partial out a factor common to both depression and anxiety. Therefore, in predicting the SDS score, we controlled the STAI score among the participants, and in predicting the STAI score, the SDS score was controlled. With hierarchical regression analysis, the SDS score was predicted by both temperament and character: Harm-Avoidance, Self-Directedness, and Self-Transcendence scores. The STAI score was predicted by only two character scores: Self-Directedness and Cooperativeness.

Previous studies reported that high Harm-Avoidance was associated with both depression (Cloninger et al., 1996; Joffe et al., 1993; Tanaka et al., 1996) and anxiety (Cowley et al., 1993; Wetzel et al., 1992). Consistent with these studies, the Harm-Avoidance score predicted the SDS score after controlling for the STAI score. However, in this study, the Harm-Avoidance score did not predict the STAI score, after controlling for the SDS score. Because the residual in the SDS score, after controlling the STAI score, consisted of a specific depression factor, Harm-Avoidance may be associated with only a specific depression factor. Indeed, Cowley et al. (1993) reported that Harm-Avoidance was higher in anxious patients than that in controls, and that anxious patients were more depressed than controls. In Brown et al.'s study (Brown et al., 1992), psychiatric outpatients' Harm-Avoidance scores were highly positively correlated with both depression and anxiety scores. However, the relationship between Harm-Avoidance and anxiety in the previous studies might be a spurious correlation between depression and anxiety.

Self-Directedness contributed to both the specific depression factor and the specific anxiety factor. The relationship of Self-Directedness with depression and anxiety was also reported by Cloninger et al. (1996). These authors examined the correlations between seven personality dimensions of the TCI and various psychopathologies included in the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition-Revised* (DSM-III-R; American Psychiatric Association, 1987), seven Axis-I disorders, six Axis-II disorders, and three adaptive personality styles, and reported that the Self-Directedness score was negatively correlated with most of these psychopathologies. Furthermore, low Self-Directedness is regarded as a common characteristic of all categories of personality disorders (Svrakic, Whitehead, Przybeck, & Cloninger, 1993). Therefore, it is assumed that the low Self-Directedness was either a general predisposition or a complication underlying mental distress as a whole.

On the other hand, high Self-Transcendence contributed to the specific depression factor, whereas low Cooperativeness contributed to the specific anxiety factor. Self-Transcendent individuals seem to be unpretentious, fulfilled, and patient. Uncooperative individuals seem to be socially intolerant, disinterested in other people, unhelpful, and revengeful. In Cloninger's theory (Cloninger et al., 1996), moreover, interactions among three character dimensions are proposed. First, a combination of high Self-Transcendence and low Self-Directedness is associated with being illogical, disorganized, unreliable, and passive. Second, a combination of low Cooperativeness and low Self-Directedness is associated with being immature, sluggish, unreliable, and withdrawn. It is possible that there were relationship between these character types and both depression and anxiety.

In summary, we propose that three character dimensions of Cloninger's theory are divided into two types in relation to psychopathology. First, low Self-Directedness might make individuals vulnerable to mental distress in general. Second, high Self-Transcendence with low Self-Directedness might contribute to the development of general distress leading to depression, whereas low Cooperativeness with low Self-Directedness might contribute to the development of general distress leading to anxiety. The latter type of Cloninger's character dimensions (Self-Transcendence and Cooperativeness) is not usually concerned with mental distress, but because these character dimensions might contribute to both depression and anxiety, clinicians and researchers should attach more importance to them.

Further studies are needed to investigate the relationships of personalities with specific depression and specific anxiety in clinical samples. Moreover, longitudinal studies are necessary to examine whether people with these temperaments and characters are vulnerable to depression and anxiety.

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