Patterns of Temperament and Character in Subjects With Obsessive-Compulsive Disorder

In Kyoon Lyoo, M.D., Ph.D.; Dong Woo Lee, M.D.; Yeon Su Kim, M.A.; Seog Weon Kong, M.D.; and Jun Soo Kwon, M.D., Ph.D.

Background: The purpose of this study was to assess the temperament and character patterns of obsessive-compulsive disorder (OCD) patients and to investigate the relationship between patterns of temperament and character and the severity of obsessive-compulsive symptoms.

Method: The subjects were 40 patients who met DSM-IV criteria for OCD and 40 age-, sex- and IQ-matched healthy controls. All subjects completed Cloninger's Temperament and Character Inventory. Other instruments included the Yale-Brown Obsessive Compulsive Scale, the Beck Depression Inventory, and the Beck Anxiety Inventory.

Results: OCD patients showed significantly higher scores of harm avoidance and lower scores of novelty seeking and self-directedness compared with healthy comparison subjects. In addition, the high harm avoidance and low self-directedness scores are correlated with a greater severity of obsessive-compulsive symptoms in OCD subjects (multiple regression analysis, $\beta = 0.39$, $t = 2.54$, $df = 34$, $p = .016$; $\beta = -0.41$, $t = 2.46$, $df = 34$, $p = .019$, respectively).

Conclusion: OCD patients had distinct patterns of temperament and character compared with healthy comparison subjects. In addition, these patterns are specifically related to the severity of obsessive-compulsive symptoms.

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Reprint requests to: Jun Soo Kwon, M.D., Ph.D., Department of Psychiatry, Seoul National University Hospital, 28 Yongon-dong, Chongno-gu, Seoul, South Korea 110-744 (e-mail: kwonjs@plaza.snu.ac.kr).

Obsessive-compulsive disorder (OCD) is a psychiatric disorder characterized by recurrent and invasive thoughts and repetitive behaviors. It degrades the social and occupational function of patients, thereby causing serious affliction for patients and their family members.[1]

Etiologic understanding of OCD based on psychosocial theories, including a traditional psychoanalytical theory, prevailed in the past.[1] Since the 1980s, interest and research in OCD have rapidly increased, driven in part by the awareness of the high prevalence of OCD[2,3] and the availability and active application of advanced research tools, including quantitative assessment of pathologic behaviors and psychopharmacology[4,5] and structural and functional brain imaging tools.[6,7]

An important theory that merits attention in the field of OCD research stems from the biogenetic understanding of temperament and character that underlies patterns of human behavior. Cloninger[8] classified human temperament, with its genetic component ranging from 40% to 60%, into 4 dimensions: novelty seeking, harm avoidance, reward dependence, and persistence. Cloninger and colleagues[9] then supplemented his theory of biogenetic temperament with concepts of acquired character, with genetic components ranging from 10% to 15% and the nonrandom environmental component ranging from 30% to 35%; these aspects of character include self-directedness, cooperativeness, and self-transcendence.

Pfohl et al.[10] used Cloninger's Tridimensional Personality Questionnaire[8] to evaluate temperament in subjects with OCD. This questionnaire is an earlier version of the Temperament and Character Inventory (TCI),[9] which mainly measures biogenetic temperament. OCD subjects had significantly greater harm avoidance scores compared with comparison subjects. This finding was replicated by Richter et al.[11] using the same instrument. In line with these studies of biogenetic temperament in subjects with OCD, Bejerot et al.[12] extended the research to include acquired character, as well as temperament, and found that patients with OCD had significantly greater scores of harm avoidance in temperament and lower scores of self-directedness and cooperativeness in character than did healthy comparison subjects.

Limitations of those 3 previous studies on OCD,[10–12] which have consistently reported distinct patterns of bio-

genetic temperament and character relative to comparison subjects, include relatively small sample sizes, lack of well-matched control cases, and failure to sufficiently consider the concurrent depressive and anxiety symptoms in interpreting profiles of temperament and character. OCD has been consistently reported to have high rates of comorbid depression and anxiety,[13] which, in turn, can influence the profiles of temperament and character in OCD subjects.

In the current study, we evaluated the patterns of biogenetic temperament and character in OCD subjects, using a larger number of OCD subjects (N = 40) and age-, sex-, and IQ-matched healthy comparison subjects (N = 40) than did previous studies. In addition, concurrent depressive and anxiety symptoms were measured and taken into consideration when the relationship between patterns of temperament and character and the severity of obsessive-compulsive symptoms in subjects with OCD was assessed.

METHOD

Subjects

Forty outpatients with OCD and 40 age-, sex-, and IQ-matched healthy comparison subjects were selected for our study. OCD subjects were recruited from the Obsessive-Compulsive Disorder Clinic of the Seoul National University Hospital, Seoul, South Korea. Twenty-five (62.5%) of the OCD subjects were medication free for at least 2 weeks at the time of evaluation. The diagnoses of OCD were made according to DSM-IV[14] OCD criteria mainly by the consensus of 2 board-certified psychiatrists (D.W.L. and J.S.K.). Exclusion criteria were comorbid DSM-IV Axis I disorders, current or past neurologic illness, mental retardation, and substance abuse as evaluated by history, physical examination, and laboratory testing (complete blood count, urinalysis, liver function test, and serology). Thirty-eight of 78 subjects who initially met criteria for OCD were excluded according to exclusion criteria. Healthy comparison subjects, who were without any current or lifetime Axis I or II disorders, were recruited through advertisement at the same institution. The presence of Axis I or II disorders was determined by the Structured Clinical Interview for DSM-IV (SCID)[15] and the Diagnostic Interview for Personality Disorders (DIPD),[16] respectively. The SCID and the DIPD were conducted by 2 board-certified psychiatrists (D.W.L. and J.S.K., respectively).

After complete description of the study to the subjects, written informed consent was obtained.

Measurement

The TCI, self-report questionnaire version, was used to measure biogenetic temperament and acquired character. It consists of 240 items measuring 4 dimensions of temperament, i.e., novelty seeking, harm avoidance, reward dependence, persistence, and 3 dimensions of character, i.e., self-directedness, cooperativeness, and self-transcendence. The Korean version of the TCI proved to be reliable and valid by internal consistency (Cronbach $\alpha = .77$), test-retest reliability ($r = .81$), and factor analysis in a recent study using a sample of 550 nonclinical subjects.[17]

The severity of obsessive-compulsive symptoms was assessed by the Yale-Brown Obsessive Compulsive Scale (Y-BOCS).[18] It consists of 10 observer-rated items scored on a 5-point Likert scale, from 0 to 4 points. The level of depressive symptoms was measured by the Korean version of the Beck Depression Inventory (BDI)[19] and the severity of anxiety symptoms was measured by the Korean version of the Beck Anxiety Inventory (BAI).[20] Each inventory consists of 21 items scored on a 4-point Likert scale, from 0 to 3. IQ was measured by the short form of the Wechsler Adult Intelligence Scale, Revised (WAIS-R)[21] consisting of the picture arrangement, block design, arithmetic, and vocabulary sections.

Statistical Analysis

Differences in demographic variables between subjects with OCD and healthy subjects were analyzed using an independent t test for continuous variables and a chi-square test for categorical variables.

Initially, the subscales of temperament and character were compared between subjects with and without OCD using independent t tests. As a next step, the influence of temperament and character on the severity of obsessive-compulsive symptoms was analyzed using the more comprehensive model of multiple regression analyses, controlling for age, gender, and level of depression and anxiety.

RESULTS

Demographic and clinical characteristics of subjects with OCD and healthy comparison subjects are presented in Table 1. No significant differences were found between groups in age, gender, education, or IQ. Mean ± SD scores for Y-BOCS, BDI, and BAI in OCD subjects were 24.8 ± 6.9, 21.4 ± 11.6, and 21.1 ± 13.4, respectively.

Mean scores and standard deviation on TCI subscales in subjects with and without OCD are presented in Figure 1. Independent t tests indicated that OCD subjects had significantly higher mean scores on harm avoidance and lower mean scores on novelty seeking and self-directedness compared with healthy comparison subjects.

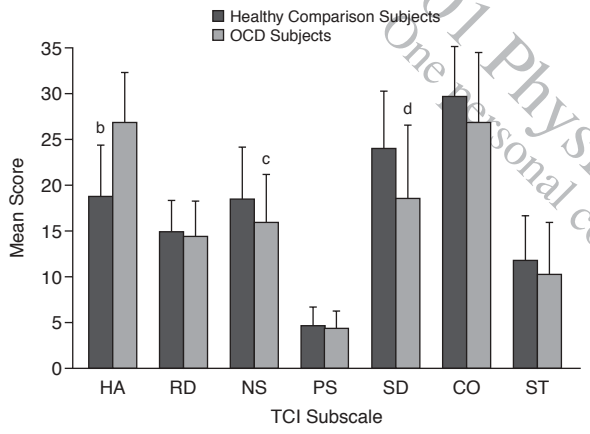
Multiple regression analyses were performed to examine the influence of harm avoidance, novelty seeking, and self-directedness on the severity of obsessive-compulsive symptoms, as evaluated by the Y-BOCS scores, in subjects with OCD, controlling for age, gender, and level of depression and anxiety. High harm avoidance and low self-directedness scores significantly predicted higher Y-BOCS scores, indicating more severe symptoms, controlling for age, gender, and level of depression and anxiety (multiple regression analysis, $\beta = 0.39$, $t = 2.54$ $df = 34$, $p = .016$;

Table 1. Demographic Characteristics of Subjects With Obsessive-Compulsive Disorder (OCD) and Healthy Comparison Subjects[a]

Demographic Variable	Subjects With OCD (N = 40)	Healthy Comparison Subjects (N = 40)
Age, y	28.6 ± 8.0	28.5 ± 8.4
Gender, male, N (%)	24 (60.0)	24 (60.0)
Education, y	14.2 ± 2.0	14.2 ± 3.1
IQ	110.1 ± 12.3	113.1 ± 12.1
Yale-Brown Obsessive Compulsive Scale score	24.8 ± 6.9	… …
Beck Depression Inventory score	21.4 ± 11.6	… …
Beck Anxiety Inventory score	21.1 ± 13.4	… …

[a]Results are reported as mean ± SD unless otherwise indicated. There were no significant differences in age, gender, education, and IQ between subjects with OCD and healthy comparison subjects.

Figure 1. Comparison of Temperament and Character Inventory (TCI) Scores Between Obsessive-Compulsive Disorder (OCD) Subjects and Healthy Comparison Subjects[a]



[a]Abbreviations: HA = harm avoidance, RD = reward dependence, NS = novelty seeking, PS = persistence, SD = self-directedness, CO = cooperativeness, ST = self-transcendence.
[b]Between-group comparison:
independent t test, t = 6.495, df = 78, p < .001.
[c]Between-group comparison:
independent t test, t = 2.090, df = 78, p = .039.
[d]Between-group comparison:
independent t test, t = 3.295, df = 78, p = .015.

Table 2. Influence of Temperament and Character on Symptom Severity in Subjects With Obsessive-Compulsive Disorder (OCD)[a]

	Subjects With OCD (N = 40)		Healthy Comparison Subjects (N = 40)		Statistics			
TCI Subscale	Mean	SD	Mean	SD	β	t	df	p
Harm avoidance	26.8	5.5	18.6	5.8	0.39	2.54	34	.016
Self-directedness	18.7	8.2	24.1	6.5	–0.41	2.46	34	.019

[a]Abbreviation: TCI = Temperament and Character Inventory. Multiple regression analyses were used to assess the influence of harm avoidance and self-directedness scores on the scores on the Yale-Brown Obsessive Compulsive Scale, controlling for age, sex, and concurrent depression and anxiety.

β = –0.41, t = 2.46, df = 34, p = .019, respectively) (Table 2).

When analyses were repeated with the medication status at the time of evaluation entered into statistical models, they showed no significant difference.

DISCUSSION

The current study is in line with previous reports on biogenetic temperament and character in subjects with OCD. However, it is different from the previous studies in a few ways. First, the findings of differences in temperament and character profile were considered as a possible factor that can predict the severity of obsessive-compulsive symptoms. However, it should be noted that whether temperament causes psychopathology or vice versa remains controversial and that different methods of measuring temperament and character do not produce identical results. Second, the influence of comorbid depressive and/or anxiety symptoms was taken into consideration in the final regression models since it is well known that subjects with OCD have a high prevalence of comorbid depression and anxiety[13] and that this comorbidity may influence the profiles of temperament and character.

Pfohl et al.[10] reported that subjects with OCD had higher mean scores of harm avoidance compared with healthy comparison subjects. They related the fact that OCD patients are typically preoccupied with concerns for contamination or sharp objects to the high harm avoidance scores relative to healthy comparison subjects. Richter and coworkers[11] report that OCD subjects had significantly higher scores of harm avoidance compared with healthy comparison subjects, in accord with the Pfohl et al.[10] report. These 2 studies measured biogenetic temperament in OCD subjects and healthy comparison subjects.

Bejerot and colleagues[12] measured both biogenetic temperament and character in subjects with and without OCD. In their report, subjects with OCD had significantly higher mean scores of harm avoidance and significantly lower mean scores of self-directedness and cooperativeness. They interpreted high score on harm avoidance as reflecting the fact that OCD patients were anxious and avoided dangerous situations.

Our finding that OCD subjects had significantly higher scores of harm avoidance and lower scores of self-directedness compared with healthy comparison subjects is in complete accord with those previous results. This finding also supports that the patterns of temperament and character in OCD subjects are quite similar across ethnicity. As explained in previous studies on temperament in OCD, we assume that high harm avoidance in patients with OCD may be related to excessive concerns for vari-

ous objects. The finding of low self-directedness in OCD subjects can be understood by the clinical characteristics of OCD subjects—they tend to be impeded by invasive obsession and compulsion when they initiate goal-directed activities.

The temperament profile in OCD subjects, high harm avoidance and low novelty seeking with no difference in reward dependence, is associated with methodical (obsessional) and cautious (avoidant) temperaments, respectively.[22] In addition, 18% of OCD subjects (N = 7), whose sums of the self-directedness and cooperativeness scores were in the bottom 10 percentile of the Korean general population, are considered personality disordered.[23]

Our study is different from previous ones in that the severity of OCD symptoms was viewed from the perspective that they may be influenced by characteristic patterns of temperament and character in OCD subjects, which are distinct from those of healthy comparison subjects. Results of the current study indicate that high harm avoidance and low self-directedness scores have a significant relationship with the severity of OCD symptoms. In other words, greater severity of obsessive-compulsive symptoms is, in part, explained by high harm avoidance and low self-directedness of the biogenetic temperament and character of subjects with OCD.

Previous studies on the relationship between the characteristics of temperament and character profile and treatment outcome reported that high levels of harm avoidance and low levels of self-directedness predict poor and slow response to tricyclic antidepressants, selective serotonin reuptake inhibitors, and cognitive therapy.[24–26] The current finding that our OCD subjects also had a similar profile of high harm avoidance and low self-directedness may explain treatment resistance frequently observed in some OCD patients.

Patients with OCD have a tendency to overestimate the hazards of risks and contamination in routine life and, consequently, to have excessive concerns about them.[27] Possibly, this tendency is influenced or strengthened by their biogenetic temperament, i.e., high harm avoidance, and causes excessive concerns for various objects or situations. Low self-directedness of subjects with OCD reflects that their ability to regulate their own thoughts and behaviors is reduced relative to psychiatrically healthy comparison subjects. The severity of OCD symptoms may be exacerbated under the individual environment of low self-directedness, since OCD subjects find it hard to overcome the obsession and compulsion because of low self-directedness, especially when they seek to guide thoughts and behaviors to their goals.

In summary, this study reports differences in biogenetic temperament and character between subjects with and without OCD. Furthermore, the authors tried to analyze the relationship between patterns of biogenetic temperaments and characters and the severity of OCD symptoms, controlling for other possible confounding variables such as age, gender, and level of anxiety and depression. Findings of the current study confirm that the severity of obsessive-compulsive symptoms may be influenced by high levels of harm avoidance and low levels of self-directedness. The current results could not be easily generalized to individuals with OCD in the community, since the OCD subjects in this study were recruited from the OCD outpatient clinic. This finding should be replicated in future studies using samples of different demographic and clinical characteristics.

Further studies that link the characteristic patterns of biogenetic temperament and character in OCD subjects to their possible clinical implications including the severity of obsessive-compulsive symptoms and the course of OCD are recommended.

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