

Temperament and Character Profile in Obsessive Compulsive Disorder (OCD): A Pre and Post Intervention Analysis

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Abstract

Objective: The present study examines the pattern of changes in temperament and character profiles of Obsessive Compulsive Disorder (OCD) patients following 8-20 weeks of treatment for obsessive compulsive symptoms (OC symptoms).

Methodology: The study also investigated the relationship between the temperament and character pattern and the severity of OC symptoms. A sample of 52 patients who met DSM IV TR criteria was assessed using Temperament Character Inventory, Yale Brown Obsessive Compulsive Scale, Hamilton Depression rating scale and Hamilton Anxiety Rating Scale. After baseline assessment of 52 OCD patients only 40 OCD patients, who complied with medication for 8-20 weeks were re-assessed using the same measures as a follow-up assessment.

Result: Finding indicated that after treatment the patients showed significantly lower score on Harm Avoidance whereas Self Directedness and Cooperativeness was significantly poorer in comparison to normal subjects. Severity of OC symptoms was correlated with Self Directedness, and co morbid anxiety was correlated with high Harm Avoidance and low Cooperativeness.

Conclusion: These findings suggest that temperament is more amenable to treatment than character dimensions of OCD patients.

Keywords: Obsessive Compulsive Disorder; Temperament Character Inventory; Baseline assessment; follow-up assessment

Introduction

Obsessive Compulsive Disorder (OCD) is characterized by recurrent and intrusive thoughts and repetitive behaviors. It interferes with the social and occupational functioning of patients, and thereby causes serious affliction for patients and their family members [1]. Personality profile of an individual is found to have a bearing on the vulnerability to develop a specific psychopathology [1]. The inter relationship of personality with the predisposition to develop a psychopathology is explained by various models like a predisposition model, which posits that personality traits:

- (a) Contribute to the onset of a psychiatric disorder (vulnerability) and
- (b) Influence the course and symptom expression of the disorder [2].

OCD being a complex disorder has been seen to be influenced by specific personality types, as regards its psychopathology and treatment and outcome [1]. Studies have tried to establish a relationship between personality traits and OCD [3]. It has been seen that higher order personality traits, such as high neuroticism and, low extraversion and sensation seeking [3-5] and low order personality

traits, such as perfectionism and inflated responsibility [6,7] have not been found to be related to OCD. However; if we look at the "Big Five-Factor" model of personality [8] the dimensions of 'neuroticism' and 'impulsiveness' have been found to be related to OCD [7]. Cloninger [9] classified human temperament with its genetic component into 4 dimensions, namely novelty seeking (NA), harm avoidance (HA), reward dependence (RD), and persistence (P). Cloninger and his colleagues [8] supplemented it with the concept of acquired character in which genetic components contributed upto 10% to 15%, and the environmental component up to 30% to 35%. The environmental component of character include self-directedness (SD), cooperativeness (C), and self-transcendence (SD).

The previous studies report to various limitations in terms of pre and post consistency of results, adequacy of sample size, poorly matched controls, absence of documenting depression and anxiety for the interpretation of temperament and character personality dimensions [10-12]. As OCD subjects have been found to have high rates of co morbid depression and anxiety [13], which can in turn influence the profiles of temperament and character, therefore documenting these two aspects (depression and anxiety) in OCD subjects would give a clearer picture [14,15]. Studies have also been limited in their consideration of dimensions like taking only temperament [16,17] or only character [2,18,19]. Maximum number of studies have looked at a single assessment [2,16,20,21] very few

studies have done a longitudinal assessment and considered the effect of treatment [18,22].

Looking at the various methodological lacunae in the literature the present study was planned. We decided to address the various methodological issues, a pre and post treatment examination of temperament and character of OCD patients. Attempt to correlate the same with the severity of OCD. The measurement of the severity of depression and anxiety was also undertaken. The study also tried to address the clinical variables, which were hitherto not given much consideration [2,16,20,21].

Materials and Methods

Sample

Fifty two OCD patients, who met the inclusion (age 18-60 years, male or female, average IQ, compliance with medication) and exclusion (Yale Brown Obsessive Compulsive Scale, YBOCS, scores <15 (to rule out less severe cases for a robust interpretation) ?, organicity, other psychiatric disorders, below average IQ criteria were selected from the outpatient section(OPD) of the department of psychiatry and department of psychosocial OPD of the Central Institute of Psychiatry (CIP), Ranchi, Jharkhand, India. A written informed consent was taken from each subject. The subjects were administered the tools at the first assessment called the 'baseline' assessment. Out of the original cohort of fifty two, forty subjects who complied with the treatment protocol and could be followed up to 8-20 weeks were assessed using the same tools for the 'follow up' assessment. Another group of subjects who were age and sex matched were taken as a control group and they were normal as they were in the normal range of cut off of all the scales.

Materials

1. Temperament and Character Inventory (TCI). Developed by Cloninger, et al. [23], is a quantitative rating of seven dimensions of personality. It evaluates four major temperament dimensions (harm avoidance, novelty seeking, reward dependence, and persistence) and three major character dimensions (self-directedness, cooperativeness, and self-transcendence). Each of these higher-order temperament and character dimensions is composed of certain components or subscales. The self-report version of the TCI has 240 items with forced binary answer of true/false type. The administration of the scale takes about 30 to 45 minutes. The TCI comprises four temperament scales and three character scales. . The temperament scales are called Novelty Seeking (NS), Harm Avoidance (HA), Reward Dependence (RD) and Persistence (PE). The character scales are: Self-Directedness (SD), Cooperativeness (CO) and Self-Transcendence (ST).

2. Yale-Brown Obsessive Compulsive Scale (YBOCS). This scale was developed by Goodman, Price, Rasmussen, et al. [24] to measure OCD. It consists of 10 observer-rated items scored on a 5 point Likert type scale. The scale is widely used in clinical trials and takes about 10 to 15 minutes to administer. The scale has a good reliability and validity.

3. Alexander Pass Along Performance Test of Intelligence. Developed by Alexander [25] this test assesses concrete and abstract intelligence. The test comprises boxes that contain number of small blocks, which are coloured either red or blue. All blocks have a definite size relationship, and the combination of blocks varies with the problem solving and the difficulty increases with the tasks. The test measures the insight with which a subject reacts to a novel situation. The test is used to assess intelligence.

4. Hamilton Rating Scale for Depression (HDRS). Developed by Hamilton in 1960 [26]. This test assesses depression based on 24 items, graded from 0-2 to 0-4 points, and yielding a maximum score of 64 points. The cut-off scores for different levels of depression are as follows: 0-6 = not depressed; 7-17 = mildly depressed; 18-24 = moderately depressed; 25-64 = severely depressed [27].The test is highly reliable and valid, used widely in research studies.

5. Hamilton Rating Scale for Anxiety (HARS) developed by Hamilton [28]. The scale is widely used as an assessment instrument for anxiety symptoms in psychiatry, and is designed to evaluate changes in symptoms over time. The scale consists of 14 items that cover 13 symptoms of anxiety. Each item is rated on a 4 point scale (0 = not present, 4 = severe) on an unanchored severity scale. The score range is 0-56. Those who score 5 or less are considered having no anxiety. Other categories are: 6-14 = mild anxiety; 15-28 = moderate anxiety; 29-42 = severe anxiety and 43-56 = very severe anxiety.

The administration of all the tools was done in a single setting to each subject. The time taken for assessment varied from two to two and half hours. The data was examined using SPSS version 16 for windows

Results

Table 1 presents the clinical characteristics of the OCD group. The mean age of onset is 24.22 ± 12.17 and duration mean is 6.840 ± 5.715. A majority of them had past history of mental illness (70%), and precipitating factors (77.5%), and had received some treatment (65%) for illness. The mean scores on YBOCS, HDRS, HARS, are 31.35, 23.92, and 18.55 respectively.

Clinical Variables	Mean / n (%) (N = 40)	SD
Age of onset (years)	24.22	12.17
Duration (years)	6.84	5.715
Diagnosis as per digit four of ICD-10-DCR	Prominent obsession	16 (40)
	Prominent compulsion	5(12.5)
	Mixed obsession & compulsion	19(47.5)

History of Past mental Illness	Absent	14 (35)	-
	Mental	26(65)	-
Family history of mental illness	Present	28(70)	-
	Absent	12(30)	-
Precipitating factors	Present	31(77.5)	-
	Absent	9(22.5)	-
Treatment History mental Illness	Absent	14(35)	-
	Mental	26(65)	-
Yale-Brown Obsessive Compulsive Scale (Y BOCS)		31.35	7.07
Hamilton Depression Rating Scale (HDRS)		23.92	7.05
Hamilton Anxiety Rating Scale (HARS)		18.55	6.39
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	Mental	26(65)	-
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Hamilton Anxiety Rating Scale (HARS)		18.55	6.39

Table 1: Clinical Characteristics of the experimental group

Table 2 presents comparison of temperament and character dimensions of OCD patients and the normal controls. Results indicate a significant difference between normal and OCD subjects on harm

avoidance and cooperativeness suggesting that OCD subjects scored high on harm avoidance and were less cooperative with both figures reaching a statistically significant level.

TCI variables		OCD patients (N = 40)	Normal (N=40)	χ^2 (df=2)	P
		n (%)	n (%)		
Novelty Seeking	Above range	0 (0)	2 (2.5)	2.2	.333

	Normal range	11 (27.5)	9 (22.5)		
	Below range	29 (72.5)	29 (72.5)		
Harm Avoidance	Above range	30 (75)	7 (17.5)	26.821	.000***
	Normal range	0 (0)	1 (2.5)		
	Below range	10 (25)	32 (80)		
Reward Dependence	Above range	1 (2.5)	1 (2.5)	1.57	.455
	Normal range	8 (20)	4 (10)		
	Below range	31 (77.5)	35 (87.5)		
Persistent	Above range	1 (2.5)	1 (2.5)	4.12	.127
	Normal range	8 (20)	2 (5)		
	Below range	31 (77.5)	37 (92.5)		
Self -Directedness	Above range	1 (2.5)	1 (2.5)	7.903	.019*
	Normal range	10 (25)	18 (45)		
	Below range	30 (75)	21 (52.5)		
Cooperativeness	Above range	4 (10)	18 (45)	10.716	.005**
	Normal range	14 (35)	9 (22.5)		
	Below range	22 (55)	13 (32.5)		
Self -Transcendence	Above range	0 (0)	4(10)	4.616	.246
	Normal range	9 (22.5)	6 (7.5)		
	Below range	31 (77.5)	30 (75)		

Table 2: Comparative scores of temperament and character dimensions of experimental (OCD) and control group (normal). * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3 shows TCI scores at “baseline” and “follow up” assessments, on the character dimensions of cooperativeness there was statistical significance indicating that with intervention the cooperativeness had increased at follow up. Other dimensions were similar at baseline and at follow up assessment. Chi square revealed that on novelty seeking is significantly low in those OCD patients who are not having family

history of mental illness (57.5%) in comparison to those characterized by the family history of mental illness (15%). Chi-square revealed that the majority of the OCD patients without precipitating (57.5%) had significantly low reward dependence in comparison to those with precipitating factors (20%).

Variables		OCD group		χ^2 (df=2)	P
All TCI dimensions		Base line n (%) (N = 40)	Fallow up n (%) (N = 40)		
Novelty seeking	Above normal range	0 (0)	2 (5)	2.20	.333
	Normal range	11 (27.5)	9 (22.5)		
	Below normal range	29 (72.5)	29 (72.5)		
Harm avoidance	Above normal range	30 (75)	27 (67.5)	.549	.459
	Normal range	0 (0)	0 (0)		
	Below normal range	10 (25)	13 (32.5)		
Reward dependence	Above normal range	1 (2.5)	3 (7.5)	1.083	.582

	Normal range	8 (20)	7 (17.5)		
	Below normal range	31 (77.5)	30 (75)		
Persistence	Above normal range	1 (2.5)	1 (2.5)	.083	.960
	Normal range	8 (20)	7 (17.5)		
	Below normal range	31 (77.5)	32 (80)		
Self directedness	Above normal range	0 (0)	0 (0)	2.051	.152
	Normal range	10 (25)	24 (60)		
	Below normal range	30 (75)	16 (40)		
Cooperativeness	Above normal range	4 (10)	2 (5)	24.107	.000***
	Normal range	14 (35)	3 (7.5)		
	Below normal range	22 (55)	35 (87.5)		
Self transcendence	Above normal range	0 (0)	4 (10)	4.616	.099
	Normal range	9 (22.5)	6 (15)		
	Below normal range	31 (77.5)	30 (75)		

Table 3: Comparative assessment of temperament and character dimensions of OCD patients at baseline and at follow up. *** p < .001.

Chi square revealed that the majority of the OCD patients (62.5%) with history of mental illness were having low cooperativeness in comparison to those without history of mental illness.

Table 4 presents the correlations of clinical variables with various dimensions of the TCI for the OCD patients. There were significant correlations of YBOCS scores with cooperativeness and self-directedness. It indicates that among all clinical variables only YBOCS is significantly associated with TCI dimensions; which means that

more severe the OCD the lower the score in character dimensions of cooperativeness and self-directedness. The significant correlations of YBOCS score with self-directedness, of HDRS score with self-directedness score and of HARS scores with harm avoidance, self-directedness and cooperativeness. Further, age of patients was negatively correlated with novelty seeking, and age of onset was negatively correlated with self-directedness.

Variables	Baseline Assessment						
	Novelty Seeking	Harm Avoidance	Reward Dependence	Persistence	Co-cooperativeness	Self-Directedness	Self-Transcendence
Age	127	54	0.115	0.05	0.123	0.066	0.074
Age of onset	193	0.038	0.091	0.046	0.377	0.048	0.026
Duration	0.004	0.072	0.042	0.204	0.125	0.225	0.059
Y-BOCS	0.14	0.366	0.152	0.139	.5690**	.434**	0.136
HDRS	0.187	0.058	0.036	0.039	0.167	0.083	69
HARS	0.015	0.037	0.038	0.038	0.257	0.152	0.02
Variables	Follow up Assessment						
	Novelty seeing	Harm avoidance	Reward dependence	Persistence	Self directedness	Cooperativeness	Self transcendence
Age	-.321(*)	-0.004	0.072	0.035	0.179	-0.053	0.1
Age of onset	-0.274	0.111	0.045	-0.108	-.432(**)	-0.172	0.146
Duration	-0.17	-0.132	0.058	0.174	-0.221	0.11	-0.015

YBOCS2	-0.002	-0.278	-0.06	-0.054	-.361(*)	0.245	-0.209
HDRS2	-0.059	-0.27	0.016	-0.087	-.484(**)	0.276	0.018
HARS2	0.106	-.541(**)	0	-0.07	-.467(**)	-.362(*)	-0.05

Table 4: Correlation between clinical variables and temperament character dimensions of OCD at baseline assessment and follow up assessment (N=40). *p < .05/**p < .01/**** p < .001.

Table 5 presents the comparison of scores of YBOCS, HDRS and HARS of the OCD patients at the baseline and follow up assessments in comparison of TCI scores. There was a significant decrease in

YBOCS, HDRS and HARS scores at the follow up assessment of OCD patients.

Variables	Mean ± SD	t (df= 38)	P
YBOCS Baseline assessment	31.35 ± 7.076	12.970***	.001
YBOCS Follow up assessment	23.75 ± 7.149		
HDRS Baseline assessment	23.925 ± 7.050	3.907***	.001
HDRS Follow up assessment	18.625 ± 8.220		
HARS Baseline assessment	18.55 ± 6.392	3.365**	.002
HARS Follow up assessment	15.225 ± 7.583		

Table 5: Scores of OCD patients on YBOCS, HDRS and HARS at baseline and follow up assessments. **p < .01/**** p < .001.

Table 6 presents the outcomes of regression (stepwise) analysis in which the baseline assessment of YBOCS score was used as dependent variable, and age, age of onset, duration, baseline assessment of scores in all TCI dimensions, HDRS and HARS scores were used as independent variables. The analysis revealed that baseline assessment of scores in self-directedness and HDRS were significant predictors, while all other clinical variables were excluded. The adjusted R square value for self-directedness alone was 0.296 while that of self-

directedness and HDRS was 0.398 which means that about 40% of variance can be explained by these two variables. Regression analysis (stepwise) of follow up assessment with the same set of variables revealed that baseline assessment of scores in self-directedness and HDRS were the significant predictors; while all other clinical variables were excluded from the regression equation. The adjusted R square value for HDRS score alone was 0.218, indicating that about 22% of the variance in the YBOCS was explained only by this single variable.

Baseline assessment						
Model	Variables entered	R	R square	Adjusted R square	Std. coeff. Beta	Significant
1	Self Directedness	.560	.314	.296	-.560	.001
2	Self Directedness	.655	.429	.398	-.503	.001
	Hamilton depression rating scale				.345	.009
Follow up assessment						
Model	Variables	R	R square	Adjusted R square	Std. coeff. Beta	Significant
1	Hamilton depression rating scale	.448	.238	.218	.448	.001

Table 6: Regression analyses (stepwise) with baseline and follow up assessment of YBOCS score as dependent variable respectively

We used chi square because temperament and character dimensions have three scoring ranges for interpretation (normal, below normal & above normal) and frequency of each cell was also less. Due to the limitations of scoring interpretation, chi square test was used. To know the predicting value of severity of OCD symptoms on temperament and character dimension of personality, regression

analysis was used in order to find whether there is any association between OC symptoms and TCI variables.

Discussion

The present study assessed the temperament and character profile of OCD subjects before and after intervention. The follow up period

ranged from 8 to 20 weeks. The subjects were examined using scales for OCD, anxiety and depression. We did an IQ assessment as a part of the assessment as OCD treatment is known to be affected by the level of intelligence. The domain of temperament and character has not been extensively researched for those who suffer from anxiety disorders, and very few studies examine character variables in patients with OCD. We do not have reference of any study of treatment effect on temperament and character dimensions of OCD patients reported from India. By attempting to identify the features of temperament and character associated with treatment in OCD patients in the Indian Population. As measuring temperament and character in OCD subjects before and after treatment is important because it can help in identifying subgroups of OCD subjects who can respond to treatment positively [29] thereby contributing in formulating effective treatment strategies.

Duration of illness in this study was 6.84+ 5.72 years. Similar findings have been reported in other studies [29,30]. Gothelf et al. [31] found that children with OCD had significantly more total life events and more negative life events in the year before onset. In the present study, both the history of past illness and treatment history were 65%, whereas precipitating factor was 77.5% among OCD patients. About 70% OCD patients had family history of mental illness. Brown [6] found that parents and siblings of OCD patients had more Obsessive Neurosis in comparison to control group. Rasmussen and Tsuang [32] found family history of OCD as a poor prognostic factor.

Studies regarding the temperament and character traits of OCD are not consistent in their results [33-38]. Some researchers have reported lower 'self-directedness' [34,35,38], cooperativeness [33,35,39] or novelty seeking [33,35]

scores, or higher reward dependence [36] scores in OCD subjects. Results of the relationship between temperament and character profiles and OC symptom severity have not been informative like, lower SD [38,40] and higher HA [38] scores have been shown to correlate with OC symptom severity [38] however; this finding was not reproduced in a recent study [33]. The present study assessed the change in the TCI pattern of OCD patients before and after treatment. The findings revealed that effective treatment for obsessive compulsive and depressive symptoms in subjects with OCD was accompanied by a decrease in cooperativeness scores, but there was no change in novelty seeking, harm avoidance reward dependence, persistence, self-directedness and self-transcendence. The present findings can be explained from the perspectives of disorder as well as treatment. Since there was no change in harm avoidance and self-directedness in the experimental group (OCD) subjects, before and after treatment it implies the trait dependent nature of harm avoidance and self-directedness. Similar findings were obtained by Lyoo et al. [22]. However; a related finding that cooperativeness in OCD subjects after treatment was greater from baseline assessment, may indicate state-dependent nature of cooperativeness [22].

The findings that the OCD patients had low score in the character domain of cooperativeness after treatment, implies that patients merely responded to pharmacotherapy. As cooperativeness is a character factor, which is learnt, one may expect it to improve with the aid of psychotherapy [41]. It seems that an intensive psychotherapy for a longer duration than given in the present study may bring about some change in cooperativeness with the given level of intervention. There were significant differences in the YBOCS, HDRs and HARS scores of the OCD subjects before and after treatment assessment. Lower scores on all the scales in the post treatment phase are

indicative of decreased symptom, which means reduction in the severity of OC symptoms, depression and anxiety symptoms. Similar results were obtained by Lyoo et al [22], although they had used subjective rating scales for the rating of depression (Beck Depression Inventory) and anxiety (Beck Anxiety Inventory). Thus, treatment effects are clearly indicated regardless of the fact whether the ratings were subjective or objective.

In the present study the OCD subjects, who did not have family history of mental illness, showed low novelty seeking temperament after treatment. This finding indicates that the temperament of novelty seeking maybe an inherent feature in such subjects who have a low level of curiosity characterized by a tendency to adhere to established modes of conduct [24]. It is likely that they overestimate negative outcomes, which may inhibit their exploratory behavior. It may be noted that this trait has emerged at a phase of assessment when the manifest psychopathology and anxiety level of patients had already decreased thus indicating it to be a trait rather than a state marker [42]. The character domain of cooperativeness was found low after treatment, which indicates that treatment has significant effect on it. This again points to cooperativeness as being state dependent. Low reward dependence was noted among those OCD patients who did not have precipitating factors before treatment. This may be attributed to the existence of an internalized locus of control, which manifests in the form of decreased reward dependence [41]. On the other hand it was observed only before treatment, not after treatment. This suggests that reward dependence may be a state related factor. Low novelty seeking was noted with relatively older OCD patients. This may be due to the fact that novelty seeking is indicative of impulsiveness, quick temperedness, curiosity, explanatory excitability and extravagance, symptoms which are opposite to the character of OCD subjects [41,42].

OCD patients have a tendency to overestimate the hazards of risks and continuation in routine life. Hence they have excessive concern about themselves [43]. This tendency is seemingly strengthened by their biogenetic temperament (i.e. high harm avoidance) and generates excessive concern about various objects or situations. Low self-directedness of OCD patients reflects that their ability to regulate their own thoughts and behaviors is reduced relative to physically healthy comparison subjects. The severity of OCD symptoms may exacerbate under the individual condition of low self-directedness. This happens because OCD patients find it hard to overcome obsession and compulsion due to low self-directedness, especially when they seek to guide thoughts and behavior to their goals. Lyoo et al. [38] also found that severity of OC symptoms could be explained by high harm avoidance and low self-directedness of TCI.

In order to determine any association between OC symptoms and TCI variables, we did a multiple regressions (stepwise) analysis. It was found before treatment self-directedness alone accounted for approximately 30% of variance in YBOCS scores, HDRS accounted for another 10% of variance in the severity of OCD. After treatment, only HDRS appeared as a significant predictor of YBOCS scores; it accounted for approximately 21% of the variance in the severity of OC symptoms. These findings indicate that low self-directedness is strongly correlated with OCD before treatment but after treatment low self-directedness turned out to be a state dependent factor, not as a trait factor. On the other hand HDRS seems to be a trait dependent factor because improvement in it was also marked by a reduction in the scores of depression. Similar results have also been found in some previous studies [38].

Conclusion

The present study shows that novelty seeking, self-directedness, harm avoidance are trait dependent and anxiety, depression are state dependent. An assessment of the temperament and character can help in segregating sub groups of OCD subjects who might benefit with intensive psychotherapy at the initiation of treatment. We would like to stress that the decision to exclude low scores of YBOCS was done to ensure the purity of sample and to exclude the overlap with the primary diagnosis of anxiety or depression [41]. The comparison with the control group is part of another study [42].

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