Personality Traits in an Italian Sample: Relationship with Anxiety and Depression

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Abstract: Personality traits provide a description of individual emotional and cognitive processes that modulate thoughts, feelings and behaviour. Few studies have investigated the relationship of personality traits with depression and anxiety in the general Italian population. The aim of the present study was to replicate previous evidences about the association of personality traits with anxiety and depression in a general Italian population sample.

We recruited 418 volunteers through different sources; such as university, newspaper advertisement, hospital, and elderly association. 327 subjects accepted to participate to the study and were screened with the Mini-International Neuropsychiatric Interview (M.I.N.I.) in order to assess DSM-IV Axis I disorders and with the Temperament and Character Inventory (TCI) in order to measure personality traits.

Based on the assessment made by the MINI, the whole sample consisted of 266 (81%) subjects without and 61 subjects (19%) with life-time DSM-IV Axis I disorders. Volunteers with life-time anxiety and depressive disorders showed high scores in Harm Avoidance as well as low scores in Self-Directedness and in the Novelty Seeking subscale "Exploratory Excitability".

Our results support previous evidences showing that personality traits, in particular Harm Avoidance and Self-Directedness, could represent markers of vulnerability for depression and anxiety disorders.

Keywords: Personality traits, TCI, Depression, Anxiety.

INTRODUCTION

Personality traits are individual characteristics that influence cognition, emotions, and behaviour, leading to adaptive or maladaptive responses. Cloninger [1] have proposed the Temperament and Character Inventory (TCI), which includes four temperament (Novelty Seeking (NS), Harm Avoidance (HA), Reward Dependence (RD) and Persistence (P)) and three character (Self-Directedness (SD), Cooperativeness (C), Self-Transcendence (ST)) scales. TCI represents a useful instrument to measure personality in the light of Cloninger's psychobiological model of personality. Temperament dimensions are highly heritable and stable throughout life [2] and are correlated to emotional reactions and habits. In contrast, Cloninger [3] originally proposed that the character dimensions were weakly heritable and influenced by social learning. However, their successive study [4] showed that the heritability of the character dimensions (27–45%) is comparable to that of the temperament dimensions (30–42%).

The relationship of personality traits with mood and anxiety disorders is extremely complex. Personality features may predispose to psychiatric disorders, mainly affective and anxiety disorders, and viceversa, some personality traits could be a consequence or complication of chronic debilitating disorders such as chronic depression or anxiety disorders. Among personality traits, the HA dimension of the TCI [5-11] and the NEO Personality Inventory dimension "neuroticism" [12-14], which is highly related to HA [15, 16], have been positively correlated with anxiety and depression. On the contrary, other personality dimensions, such as SD [10, 11, 17, 18], C [6, 19] and NS, in particular the subscale NS1 [7, 20, 21], have been negatively correlated with depression and/or anxiety.

Mostly, the above mentioned studies have investigated the relationship of personality traits with depression and anxiety disorders in clinical samples. Only few studies [18, 21-23] have been undertaken in the general population. The aim of the present study is to replicate previous evidences about the association of personality traits with anxiety and depression in a general Italian population sample.

MATERIALS AND METHODOLOGY

In order to constitute a general population control sample for genetic studies of psychiatric disorders we recruited in Brescia, Italy, 418 people through different sources; such as University of Brescia, local newspaper advertisement, Fatebenefratelli's hospitals employees, and local elderly associa-

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Table 1. Sociodemographic Characteristics of the Sample (N = 327)

Characteristic	Healthy Subjects (266)		Life-Time DSM-IV Axis I DISORDERS SUBJECTS (61)		Statistic; *p*
	N	%	N	%	
Age strata					F = 4.09; 0.044
18-30	36	14%	8	13%	
31-50	108	41%	12	20%	
51-70	97	36%	33	54%	
over 70	25	9%	8	13%	
mean age (±SD)	49.45 (±15.86)		54.48 (±16.23)		
Sex					$\chi2 = 7.89$; p=0.005
Female	146	55%	47	77%	
Male	120	45%	14	23%	
Education					F = 3.93; 0.048
University	98	37%	15	25%	
High school	87	33%	20	33%	
Professional school	59	22%	16	26%	
Elementary school	22	8%	10	16%	
mean years (±SD)	12.9 (± 5.0)		11.3 (± 4.6)		
Marital Status					$\chi2 = 21.59$; p<0.001
Single	67	25%	9	15%	
Married or Cohabiting	166	62%	31	51%	
Divorced	22	8%	11	18%	
Widowed	11	4%	10	16%	
Work Status					$\chi2 = 9.61$; p=0.048
Student	40	15%	2	3%	
Employed	120	45%	23	38%	
Housewife	46	17%	16	26%	
Unemployed	2	1%	1	2%	
Pension	58	22%	19	31%	

tions. The study was approved by the local Ethic Committee (Fatebenefratelli Hospital "San Giovanni di Dio" - Brescia, Italy) and participants gave written informed consent.

327 subjects accepted to participate to the study. All subjects were assessed for life-time DSM-IV Axis I disorders through the Mini-International Neuropsychiatric Interview (M.I.N.I.) [24]. The seven Cloninger's dimensions of personality were assessed by the Italian version of TCI, a 240-item, true-false, self-report questionnaire [3]. In order to avoid biases in the filling of the TCI, subjects who obtained a score lower than 27/30 at the Mini Mental State Examination (M.M.S.E.) [25] was excluded from the study.

The association between mental disorders and TCI dimensions was analysed by the multivariate analysis of variance, using TCI scores as dependent variables, diagnoses as independent variable, and age and education as covariates (MANCOVA). Chi-square ($\chi2$) test was used to evaluate the association between groups and categorical variables. With these parameters we had a sufficient power (0.95) to detect a small effect size (d = 0.09) for the HA dimension.

All analyses were conducted using the SPSS statistical software, version 12.0 (SPSS Inc. Chicago, IL).

RESULTS

Sociodemographic characteristics of the sample are shown in Table **1**. Based on the assessment made by the MINI, the whole sample consisted of 266 (81%) subjects without and 61 subjects (19%) with life-time DSM-IV Axis I disorders. In the disordered group, 40 subjects had Major Depressive Disorder, 3 subjects had Panic Disorder, 21 had Generalized Anxiety Disorder, 6 had Dysthymia, 1 had Bipolar Disorder, 1 had alcohol abuse, and 1 substance abuse (the total number exceeds the number of subjects due to the presence of comorbidity). One subject was excluded because obtained a score lower than 27/30 at the MMSE. Since the aim of the study was to investigate the relationship between unipolar major depression and anxiety disorders with per-

Table 2. TCI Scores Stratified According to the Diagnosis Assessed by M.I.N.I.

Subscale	TCI Scales	Mean +/- S.D.		MANCOVA
		Healthy Subjects (n = 266)	Patients (n = 57)	F; p
Temperament Scales				
NS	Novelty Seeking	44.45 +/- 12.87	41.93 +/- 12.66	0.456; 0.500
NS1	Exploratory excitability	51.54 +/- 20.21	40.83 +/- 19.37	**8.187; 0.004**
NS2	Impulsiveness	37.44 +/- 23.17	39.82 +/- 22.87	0.754; 0.386
NS3	Extravagance	53.51 +/- 17.19	52.63 +/- 18.25	0.065; 0.799
NS4	Disorderliness	35.53 +/- 17.07	35.61 +/- 16.80	0.011; 0.916
HA	Harm Avoidance	41.10 +/- 16.17	58.90 +/- 18.84	**38.331; <0.0001**
HA1	Anticipatory worry	36.81 +/- 19.14	55.50 +/- 23.10	**26.116; <0.0001**
HA2	Fear of uncertainty	60.23 +/- 23.49	76.44 +/- 21.00	**15.308; <0.0001**
HA3	Shyness	41.49 +/- 24.38	55.26 +/- 29.12	**9.136; 0.003**
HA4	Fatigability and asthenia	31.12 +/- 20.76	52.63 +/- 26.69	**37.715; <0.0001**
RD	Reward Dependence	61.25 +/- 14.88	64.91 +/- 15.25	1.341; 0.248
RD1	Sentimentality	63.53 +/- 19.47	70.17 +/- 19.41	0.786; 0.376
RD3	Attachment	61.56 +/- 24.84	61.84 +/- 25.81	0.146; 0.703
RD4	Dependence	57.02 +/- 21.55	60.23 +/- 23.73	1.629; 0.203
P/RD2	Persistence	54.98 +/- 22.28	49.78 +/- 26.46	1.890; 0.170
Character Scales				
SD	Self-directedness	75.90 +/- 13.42	65.63 +/- 16.11	**14.356; <0.0001**[4]
SD1	Responsibility	82.19 +/- 19.35	66.01 +/- 27.62	**17.327; <0.0001**
SD2	Purposeful	69.92 +/- 20.75	57.02 +/- 21.65	**10.667; 0.001**
SD3	Resourcefulness	81.50 +/- 22.47	62.81 +/- 32.17	**16.687; <0.0001**
SD4	Self-acceptance	68.97 +/- 22.20	67.47 +/- 21.45	0.006; 0.938
SD5	Congruent	79.70 +/- 15.25	70.62 +/- 20.24	**7.905; 0.005**
C	Cooperativeness	79.10 +/- 10.63	75.94 +/- 11.52	2.031; 0.155
C1	Social acceptance	83.22 +/- 17.30	77.85 +/- 21.78	3.032; 0.083
C2	Empathy	70.89 +/- 20.83	63.66 +/- 20.57	3.016; 0.083
C3	Helpfulness	76.46 +/- 16.46	72.15 +/- 15.67	0.218; 0.641
C4	Compassion	81.62 +/- 16.02	82.63 +/- 17.68	0.010; 0.921
C5	Pure-hearted	81.37 +/- 14.29	79.73 +/- 14.41	0.480; 0.489
ST	Self-transcedence	38.16 +/- 17.46	42.26 +/- 17.07	0.139; 0.709
ST1	Self-forgetful	39.78 +/- 19.27	42.90 +/- 21.37	0.431; 0.512
ST2	Transpersonal	36.30 +/- 23.96	43.08 +/- 19.82	0.066; 0.798
ST3	Spiritual acceptance	38.08 +/- 23.73	41.16 +/- 23.46	0.003; 0.954

sonality traits, we excluded from the analysis participants with other diagnosis (4 subjects). Thus, subjects were divided in two groups; one composed of healthy subjects (266) and one of subjects with depressive and/or anxiety disorders life-time (57 subjects).

The two groups were not homogeneous both for age (healthy subjects 49.45 ± 15.86 (mean±SD) year-old; disordered group 54.14 ± 16.04 year-old; F = 4.10; p = 0.04), sex (55% and 75% females in the healthy and disordered groups respectively; $\chi 2$ = 7.89, p=0.005) and education (healthy subjects 12.9 ± 5.00 years; disordered group 11.53 ± 4.40 years; F = 3.93; p = 0.048).

The mean scores for TCI dimensions sorted by DSM-IV diagnoses are shown in Table **2**. The disordered group showed significantly higher scores than healthy subjects in HA (Harm Avoidance) and lower scores in SD (Self-Directedness) as well as in NS1 (Exploratory excitability).

Because the control and disordered groups were not homogeneous for sex, we carried out also a MANCOVA analysis for females and males separately, in order to evaluate if the results could be affected by gender. Gender did not affect the results observed in the unsplitted sample for HA and SD. However, after splitting the sample by gender, SD5 and C2

were significantly lower only in the female disordered group as compared to the healthy one (data not shown).

DISCUSSION

In the present study, we investigated the correlation of depressive and anxiety disorders with personality traits in a general Italian population sample. The main finding is that subjects with life-time depressive and/or anxiety disorders showed high scores in HA and SD dimensions, as well as in NS1 subscale.

There has long been a strong interest in understanding the relationship between maladaptive personality traits and Axis I psychopathology, and this paper fits within this very rich and extensive literature. Indeed, our results are in agreement with previous data, mainly from clinical samples and general population, which show a strong association of HA and SD dimensions with depressive and anxiety disorders [5-11, 17-19, 23].

Our data provide further evidence that specific personality traits are associated with a lifetime history of depression or anxiety disorders. Longitudinal studies [5, 7, 9, 26] that examined TCI scores during course of recovery from depression found changes in various temperament and character dimensions, except for HA. Even if HA score significantly decreased during the time, it remains higher than healthy controls at the time of full remission; this supports the hypothesis that HA can be considered a partly state dependent trait and, overall, it acts as premorbid factor that predicts the vulnerability to burden of depression.

Therefore, our study supports the hypothesis that the HA dimension of TCI could represent a marker for emotional vulnerability to depression and anxiety disorders. Subjects with high HA could be described as pessimistic worriers who tend to anticipate harm and failure. They are nervous, insecure, unassertive, negativistic, or pessimistic even in situations that do not normally worry other people. On the other hand, low SD scorers often experience distress in defining setting and pursuing meaningful goals and values in everyday life. Thus, TCI SD represents a marker of executive functions that protect a person from depression. Therefore, in agreement with the Beck's "Negative Cognitive Triad" theory of depression [27], sensitivity to life events with negative thoughts about the self, the world, and the future, generated by dysfunctional beliefs, could make one vulnerable to anxiety and mood disorders.

Finally, we found a significant and negative correlation of life-time mood and anxiety disorders with the NS1 subscale. This finding are consistent with previous studies demonstrating, in depressed patients, the tendency to avoid novelty and active exploration of unfamiliar environment [7, 20].

Several socio-demographic factors emerged to be associated with increased risk for depression and anxiety disorders. Low levels of education, loneliness situation and female gender, had a significant prevalence of lifetime history of these diseases. The main limitation of this study was the relatively small sample of population recruited, which did not allow the examination of the relationship between personality traits with depressive and anxiety disorders separately. In addition, the non-significant finding such as the comparison to current versus those with a past history could be non-significant because of the small sample size available. However, differently from previous reports where diagnoses were made by self-report screenings [18, 21-23], in this study participants were assessed with screened the MINI interview by trained psychologists, avoiding the possible bias produced by self-report screenings. Nonetheless, the recruitment of the subjects could origins a selection bias for the fact that the recruited volunteers that gave a positive response to participate to a research study could have a particular personality profile.

CONCLUSION

Our data are consistent with previous evidence about the correlation between HA and SD personality dimensions and NS1 subscale with mood and anxiety disorders. The current study purposed to replicate the findings of previous TCI studies in an Italian sample. This work supports and confirms the hypothesis that individual differences in personality structure and development have a strong influence on the risk of several forms of psychopathology. Clearly, the findings that are being replicated here are neither particularly surprising nor controversial, and it has been replicated many previous times, nevertheless, replication of earlier findings in different population can represent a useful contribution to the literature.

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