



# Emotional intelligence and personality in major depression: Trait versus state effects

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## Abstract

Several studies have explored the link between depression and personality with classical personality questionnaires like the Revised NEO Personality Inventory and the Temperament and Character Inventory (TCI). However, no studies have been conducted with the revised form of the TCI (TCI-R). Moreover, since a few studies conducted on normal subjects suggest that Emotional Intelligence (EI) would be lower in depression, but that the concept has not been explicitly measured in patients with major depressive disorder, EI was assessed here with the modified version of Schutte's scale among a group of depressive patients. In addition, both personality and EI measures were carried out during the clinical state of depression and after the remission to assess the state versus trait aspect. The study was conducted on 54 major depressive inpatients (20 in remission) and 54 matched controls. As expected, depressive patients exhibited higher score on harm avoidance (HA), and lower scores on persistence (P), self-directedness (SD), cooperativeness (C), optimism/emotional regulation subscore, and total EI score as compared with controls. In the period of remission, patients again had elevated scores on HA, and lower scores on SD. In contrast, the total EI score did not differ between controls and depressive patients in remission. The results confirm that some personality dimensions are dependent on both state and trait aspects of depression, and suggest that EI only seems to be affected during the clinical state.

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## 1. Introduction

The relationship between personality and depression is extremely complex: personality features may predispose an individual to depression; the personality can be modified after a depression; the personality can modify the clinical presentation of a depressive disorder; and finally the personality can be conceptualized as a subclinical

manifestation of a depressive disorder (Akiskal et al., 1983; Hirschfeld et al., 1997). Concerning the personality dimensions proposed by Cloninger et al. (1993), several studies have demonstrated that harm avoidance (HA, i.e., the tendency toward an inhibitory response to signals of aversive stimuli that lead to avoidance of punishment and non-reward), self-directedness (SD, i.e., the ability of an individual to control, regulate and adapt his behaviour to fit the situation in accord with individually chosen goals and values), cooperativeness (C, i.e., the ability that accounts for individual differences in identification and acceptance of other people), self-transcendence (ST, i.e., a characteristic associated with spirituality and referring

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generally to identification with everything conceived to be essential and consequential parts of a unified whole), but not novelty seeking (NS, i.e., the tendency to respond actively to novel stimuli leading to pursuit of rewards and escape from punishment), and reward dependence (RD, i.e., the tendency for a positive response to signals of reward to maintain or resist behavioural extinction) dimensions may be related to depression (Strakowski et al., 1995; Chien and Dunner, 1996; Hansenne et al., 1999). More particularly, depressed patients exhibited higher scores on HA and ST dimensions, and lower scores on SD and C dimensions (Hansenne et al., 1999).

In these studies, the dimensions were assessed by the Temperament and Character Inventory (TCI; Cloninger et al., 1994). However, Cloninger (1999) developed a revised version of the TCI (TCI-R) introducing two major modifications. First, the original TCI was a true–false questionnaire, instead of a 5-point Likert scale ranging from 1 (definitively false) to 5 (definitively true) for the TCI-R, thus enhancing the precision of measurement for subscales. Second, in the original TCI, the persistence dimension (P, i.e., perseverance despite frustration and fatigue based on resistance to extinction of intermittently reinforced behaviour) was measured by only one short scale, whereas in the TCI-R, this dimension has 35 items and four subscales (eagerness of effort versus laziness; work hardened versus spoiled, ambitious versus underachieving, perfectionist versus pragmatist) to improve its description and measurement. In addition, the TCI-R adds a new subscale for RD (RD2; open to warm communication versus aloofness). The TCI-R exhibits solid psychometric properties (Hansenne et al., 2005). Therefore, it is of interest to study personality dimensions based on the TCI-R in major depression. Moreover, few studies have investigated the “state” versus “trait” effect of the personality dimensions in major depression. Black and Sheline (1997) reported that the SD score increased after successful pharmacotherapy of the depressive episode, suggesting a “state” dependence of this dimension. Previous studies also demonstrated a “state” dependence of the HA dimension (Hansenne et al., 1999). Consequently, the first aim of the study is to assess the “state” versus “trait” effects of the seven dimensions of the TCI-R in a sample of depressive inpatients.

Emotional intelligence (EI) is the ability to recognize and express emotions in yourself, and the ability to understand the emotions of others. Recently has the scientific community become interested in EI, in order to discern what is true among the huge number of claims on this subject. Indeed, there is still controversy about whether EI represents an entity that differs from what

psychologists in the field of intelligence, personality and applied psychology already know under other names (Matthews et al., 2002). At present, scientists tend to restrict studies of the effects of EI to its influence on quality of life quality, educational attainment, and occupational success, and the results are promising. Few studies have examined the relationship between EI and depression. However, a better emotional regulation is related to lower perception of stress and a better quality of life, which has obvious implications to prevent depressive states, and subjects with higher EI report elevated psychological well-being and happiness (Austin et al., 2005; Furnham and Petrides, 2003). Therefore, it could be postulated that EI should be reduced in depressive patients. Indeed, some findings among normal (non-depressed) subjects suggest such an association.

Saklofske et al. (2003) reported negative correlations between EI and loneliness and depression-proneness, and positive correlations between EI and subjective happiness and life satisfaction among undergraduate students. Ciarrochi et al. (2002) showed that subjects that can manage others’ emotions seem to respond less intensively to stressful situations and exhibit less suicidal ideation, less depression, and less hopelessness; they express more empathy and they have better social support that protects them from negative feelings. In contrast, subjects higher on emotional perception reported greater depression, hopelessness, and suicidal ideation. Schmidt and Andrykowsky (2004) demonstrated that EI is associated with lower distress and lower avoidance of the disease among a sample of women with breast cancer; moreover, high EI could act as a buffer against the negative impact of a toxic social environment. These studies suggest that the EI dimension of emotional regulation is the core feature of the association between EI and depression. Therefore, the second aim of the present study is to test the hypothesis of a negative association between EI and depression, to assess the impact of EI on depressive severity among a group of depressed inpatients, and to assess whether EI in depression is “state” or/and “trait” dependent.

## 2. Methods

### 2.1. Subjects

The study was conducted in 54 depressive inpatients admitted to the Psychiatric Unit of the Regional Hospital Center of Liège (Belgium). The sample consisted in 34 women and 20 men with a mean age of 44.5 years (S.D. = 8.7). All diagnostic assessments were performed by local psychiatrists, and the patients met

the criteria for major depressive disorder according to the DSM-IV (American Psychiatric Association, 1994), with a score of at least 18 on the 17-item Hamilton Depression Rating Scale (HDRS, Hamilton, 1967). The patients had neither concurrent DSM-IV axis I disorder nor personality disorders as described in DSM-IV axis II. The patients were free of medical illness, as confirmed by clinical examination, past history, electrocardiogram, electroencephalogram, chest X-ray, and routine laboratory tests. Among these patients, 20 (15 women) with a mean age of 47.5 years (S.D. = 7.9) were studied when they were in a period of remission. Remission was defined by clinical assessment and by a score lower than 7 on the 17-item HDRS, and a score lower than 2 on item 1. The control group was matched for gender, age and education. Control subjects were recruited among the staff of the Psychiatric Unit and among relatives. They all underwent a medical interview to exclude psychiatric or somatic disorders, and had a score lower than 8 on the 17-item HRDS (mean score of 2.4; S.D. = 2.3).

## 2.2. Personality and emotional intelligence assessments

The depressed patients completed the 240-item self-report TCI-R during the initial days of hospitalization (time 1); the control group was instructed to complete the questionnaire at home. The translation of the TCI-R in French translation of the TCI-R was performed by Péliissolo et al. (2000), who previously translated the original TCI into French (Péliissolo and Lépine, 2000). The French version of the TCI-R has excellent psychometric properties (Hansenne et al., 2005). When they

Table 2

Comparisons between depressed patients in remission (time 2) and depressed patients in time 1 for TCI-R dimensions and EI total score and sub-scores

	Depressed (time 1)	Remitted depressives (time 2)	<i>P</i>
NS	95.7±16.9	96.6±15.6	NS
HA	118.6±18.1	103.3±17.1	<0.001
RD	100.2±13.4	103.8±12.4	NS
P	110.4±20.5	119.3±15.9	0.02
SD	122.3±19.7	138.6±17.8	<0.001
C	134.1±16.5	137.5±13.0	NS
ST	72.2±16.3	75.8±17.4	NS
Optimism/mood regulation	41.1±4.8	45.4±4.8	0.01
Appraisal of emotions	33.4±7.7	34.9±6.3	NS
Utilisation of emotions	18.6±3.6	19.2±3.8	NS
EI total	134.8±18.4	144.5±16.8	0.02

NS (novelty seeking), HA (harm avoidance), RD (reward dependence), P (persistence), SD (self-directedness), C (cooperativeness), ST (self-transcendence).

were in remission (time 2), 20 patients completed the TCI-R once again at the end of their hospitalization.

EI was assessed by a French version of the modified version of Schutte's scale (Schutte et al., 1998) proposed by Austin et al. (2004). The translation was performed independently by two psychologists and a back translation was carried out by a native speaker. Elizabeth Austin approved the translated version. This 41-item scale gives a total EI score and three sub-scores: "optimism/mood regulation", "utilisation of emotions", and "appraisal of emotions".

## 2.3. Statistical analyses

All the statistical analyses were performed using Statistica (7.1) for Windows (Statsoft France, 2000). Differences on TCI-R dimensions and on total EI as well as EI sub-scores between the patient sample and the control group on the one hand, and between the patients in time 2 and time 1 (within factor) and the patient in time 2 and the control group (between factor) on the other hand, were assessed by multivariate analysis of variance (MANOVA), with TCI-R and EI scores as dependent variables and group (depressed/controls; depressed at time 2/depressed at time 1; depressed at time 2/controls) as independent variables. Stepwise multiple regression analyses were used to examine the relationship between the severity of depression and the TCI-R and EI scores, as well as between EI and the TCI-R dimensions.

Table 1

Comparisons between depressed patients (time 1) and controls for TCI-R dimensions and EI total score and sub-scores

	Depressed	Controls	<i>P</i>
NS	95.2±15.4	99.8±11.4	NS
HA	120.8±18.5	86.6±16.5	<0.001
RD	98.2±14.0	104.1±13.7	NS
P	106.9±23.8	124.5±15.7	<0.001
SD	122.8±20.8	154.4±14.5	<0.001
C	130.7±15.9	139.2±14.8	0.02
ST	72.8±15.4	66.3±15.8	0.03
Optimism/mood regulation	41.1±7.2	47.9±5.5	<0.001
Appraisal of emotions	30.2±7.6	38.2±5.8	<0.001
Utilisation of emotions	19.0±3.9	20.2±2.9	NS
EI total	131.7±18.1	153.2±14.6	<0.001

NS (novelty seeking), HA (harm avoidance), RD (reward dependence), P (persistence), SD (self-directedness), C (cooperativeness), ST (self-transcendence).

### 3. Results

Multivariate analysis showed that depressed patients (time 1) had lower scores for persistence, self-directedness and cooperativeness than controls, and higher scores for harm avoidance and self-transcendence (Table 1). Concerning EI, depressed patients had lower EI total scores and lower scores for the subscale “optimism/mood regulation”, as well as for “appraisal of emotions” (Table 1). The other scores did not differ between the two groups.

As compared with the depressed state (time 1), patients in remission (time 2) had lower harm avoidance scores, but higher persistence and self-directedness scores, and they had higher scores on the total EI scale as well as on “optimism/mood regulation” subscale (Table 2). The other scores did not differ between the two groups.

Comparisons between patients in remission and the control group showed that the depressed patients had higher scores for harm avoidance and self-transcendence, and lower score on self-directedness as compared with controls. The other dimensions did not differ between the two groups. Concerning EI, the two groups did not differ for either the total score or the sub-scores (Table 3).

Stepwise regression conducted among depressed patients at time 1 showed that the HDRS score was explained only by the harm avoidance dimension ( $\beta=0.67$ ;  $t(50)=41.7$ ;  $P<0.001$ ;  $R^2=0.43$ ), and that the EI score was explained by persistence, reward dependence, self-directedness, and self-transcendence dimensions both among depressed patients at time 1

(persistence,  $\beta=0.44$ ,  $t(50)=12.5$ ,  $P<0.001$ ; reward dependence,  $\beta=0.38$ ,  $t(50)=11.3$ ,  $P<0.001$ ; self-directedness,  $\beta=0.21$ ,  $t(50)=3.1$ ,  $P=0.09$ ; self-transcendence,  $\beta=-0.13$ ,  $t(50)=1.2$ ,  $P=0.27$ ;  $R^2=0.44$ ) and among controls (persistence,  $\beta=0.36$ ,  $t(50)=12.1$ ,  $P<0.001$ ; reward dependence,  $\beta=0.31$ ,  $t(50)=9.2$ ,  $P<0.001$ ; self-directedness,  $\beta=0.37$ ,  $t(50)=14.2$ ,  $P<0.001$ ; self-transcendence,  $\beta=0.25$ ,  $t(50)=5.7$ ,  $P=0.02$ ;  $R^2=0.51$ ).

### 4. Discussion

The main findings of the present study are that depressed patients exhibit lower scores for persistence, self-directedness and cooperativeness as compared with controls, and higher scores for harm avoidance and self-transcendence. Moreover, the total EI score and the subscales “optimism/mood regulation” and “appraisal of emotions” are lower among the depressive patients. Interestingly, patients in remission have lower harm avoidance scores, but higher scores for persistence and self-directedness, and higher scores on the total EI scale as well as on the subscale “optimism/mood regulation” as compared with their scores during the depressed state. Finally, patients in remission show higher scores for harm avoidance and self-transcendence, and lower score on self-directedness than to controls.

The findings on the personality dimensions confirm and extend the findings of previous studies (Hansenne et al., 1999; Cloninger et al., 2006). Indeed, these studies have reported that depressed patients are characterized by higher scores on self-transcendence and harm avoidance dimensions, but lower scores on self-directedness and cooperativeness. The finding concerning the persistence dimension has not been reported before because this dimension was assessed by only eight items with the TCI, whereas the TCI-R includes 35 items for this dimension. Persistence is defined as perseverance despite frustration and fatigue, and the low scores among depressed patients are not surprising, especially since items measuring this dimension relate to persistence at working duties. Indeed, a core symptom of depression is fatigue and loss of energy. More interesting are the results obtained among patients in remission. As compared with the clinical state, remitted depressives have lower scores on harm avoidance, but higher scores for persistence and self-directedness, which means that these dimensions are state dependent. Moreover, as compared with the control group, the results show that the self-directedness score is lower in remitted depressives, and that the harm avoidance score is higher and the self-transcendence score is marginally higher, which means that these dimensions could be considered as “trait” markers. In

Table 3  
Comparisons between depressed patients in remission (time 2) and controls for TCI-R dimensions

	Remitted depressives (time 2)	Controls	P
NS	96.6±15.6	99.8±11.4	NS
HA	103.3±17.1	85.8±16.5	<0.001
RD	103.8±12.4	104.1±13.7	NS
P	119.3±15.9	124.5±15.7	NS
SD	138.6±17.8	154.4±14.5	<0.001
C	137.5±13.0	139.3±14.8	NS
ST	75.5±17.4	66.3±15.8	0.03
Optimism/Mood regulation	45.5±4.8	47.9±5.5	NS
Appraisal of emotions	34.9±6.3	38.2±5.9	NS
Utilisation of emotions	19.2±3.8	20.2±2.9	NS
EI total	144.6±16.8	153.2±14.6	NS

NS (novelty seeking), HA (harm avoidance), RD (reward dependence), P (persistence), SD (self: 2 directedness), C (cooperativeness), ST (self-transcendence).



consequence, these dimensions constitute vulnerability or protective factors. In contrast, the persistence dimension is not considered as a vulnerability factor, and reflects only the loss of energy often encountered in depression. Finally, the present results confirm the strong relationship between the severity of depressive symptoms as assessed by the HDRS and the dimension of harm avoidance.

The results concerning EI suggest only a “state” effect because patients in remission do not show differences from controls, but when patients are ill, the total score and the scores of two subscales (i.e., “optimism/mood regulation” and “appraisal of emotions”) are lower in the clinical group than in controls. The results also show that the subscale “optimism/mood regulation” is more particularly dependent on the clinical state since it is modified in the remission phase as compared with the acute phase of the depressive episode. This is the first study that investigated the relationships between EI and depression. Several findings on control subjects have previously demonstrated a link between depression and IE. Brown and Schutte (2006), when examining the relationship between EI and subjective fatigue among university students, demonstrated that higher EI was associated with less fatigue, probably because EI allows individuals to develop coping strategies, such as healthier mood, as well as more adaptive ways of interpreting the world and better social supports to ameliorate the effects of physical stresses. Extremera and Fernandez-Berrocá (2006) also reported that high levels of emotional clarity and mood repair were related to low levels of depression. Finally, Martínez-Pons (1997) showed that EI correlated positively with life satisfaction, but negatively with depression symptomatology, suggesting that individuals with high EI report greater life satisfaction and fewer depression-related symptoms than those with low EI.

The present study has important clinical implications. Since “optimism/emotional regulation” is the core dimension found in depression, therapeutic strategies could be developed as an important part of the psychological treatment. However, since the scores of this dimension are only affected by the clinical state, one cannot conclude that the dimension is an enduring emotional deficit in depression. Nevertheless, the introduction of a therapeutic strategy designed to enhance the ability to maintain a positive mood and to reduce a negative one could be very important during the depressive episode, as suggested by Palmer et al. (2002). Training of this type might help to prevent future depressive relapses, as well as improving the quality of the clinical recovery from the depressive episode.

The relationships between EI and personality dimensions show that the dimensions of persistence, reward

dependence, self-directedness and self-transcendence explain 51% of the variance of the EI score among the control group and 44% among the depressed one. This is the first study that assesses such relationships with the dimensions proposed by Cloninger et al. (1993). Austin et al. (2005) reported a negative correlation between neuroticism and EI, and positive ones for the dimensions of extraversion, openness and agreeableness. There was no significant correlation between EI and conscientiousness. Based on the high positive relationship between the dimensions of neuroticism and harm avoidance (Zuckerman and Cloninger, 1996), the fact that harm avoidance was not a predictor of the EI total score is surprising. In contrast, since the dimensions of reward dependence and agreeableness are positively correlated, the positive associations found here between EI and reward dependence are in agreement with the findings of Austin et al. (2005). Individuals characterized by sentimentality and attachment are logically more likely to develop good emotional regulation. Again, the positive association between self-directedness and EI means that individuals with personal resources and self-acceptance are more disposed to manage and regulate their emotion. Concerning persistence, the present result is in agreement with the study by Martínez-Pons (1997) showing that EI correlated positively with task mastery, suggesting that individuals with high EI are more likely to work harder at perfecting tasks.

The present findings suggest that EI is largely state dependent. However, given that reward dependence is trait-like in depressives, it is possible that if the sample of depressives had contained more patients with low reward dependence scores that EI might also have shown some trait-like effects. Therefore, it could be expected that EI will have both state and trait components which vary from sample to sample depending on the distribution of scores on temperament and character.

In conclusion, the study confirms and extends previous studies relating personality dimensions and depression, and more particularly the finding concerning the persistence dimension. Emotional intelligence is largely dependent on the clinical state in this sample of depressives, and mostly the dimension of emotional regulation. However, the small sample of the depressed patients included in this study limits the conclusions, and further studies on larger groups of patients are needed to replicate the findings. Moreover, it should be noted that the control group included staff members, and that these subjects probably complete questionnaires under the influence of a social desirability focus even if they were not familiar with the content of the scales.

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