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THE RELEVANCE OF PERSONALITY ASSESSMENT IN ESTIMATING THE RISK OF ONSET AND THE OUTCOME OF MAJOR DEPRESSIVE DISORDER

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Abstract

In the past two decades, numerous studies have focused on the relationship between the psychobiological model of temperament and character and the development and evolution of major depressive disorder. This interest has been generated primarily because this particular model was developed as a tool for a comprehensive diagnosis of mental disorders. Such a diagnosis model, based on fewer diagnostic categories and a more phenomenological and person oriented approach seems to be supported by more recent research.

The aim of this paper was to review the latest developments in this area, but in the context of the initial development of the psychobiological model of temperament and character, i.e. as a tool for the comprehensive diagnosis of depressed individuals.

Data published so far supports the following observations: (1) high harm avoidance and low self-directedness are risk factors for the development of major depressive disorder, but further research is needed to clearly establish the role of the other dimensions or their facets as predictors for the development of a depressive episode; (2) although some evidence has been obtained so far regarding the use of harm avoidance, novelty seeking, reward dependence and cooperativeness in predicting treatment response in major depressive disorder, further research is needed to clarify and/or to replicate these findings; and (3) data on temperament and character dimensions related to relapse in major depressive disorder are insufficient, although some evidence has been brought to support the hypothesis that high harm avoidance scores, and low self-directedness and novelty seeking scores might serve as predictors; further prospective studies need to be carried out to establish their utility in this respect.

Keywords: major depressive disorder, personality assessment, temperament, character

Introduction

Major depressive disorder (MDD) is considered one of the leading causes of disability and death worldwide [1,2]. Therefore, considerable efforts are currently made to better understand the factors that influence the incidence of MDD and the rates of relapse.

Described by Cloninger and colleagues, the psychobiological model of temperament and character is constructed around four temperament dimensions: novelty seeking (NS), harm avoidance (HA), reward dependence (RD) and persistence (P); and around three character dimensions: self-directedness (SD), cooperativeness (C) and self-transcendence (ST), measured using the Temperament and Character Inventory (TCI) [3]. The authors postulated that temperament dimensions are genetically independent, manifest in early life and influence perceptual memory

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and habit formation. Character dimensions, on the other hand, develop through insight and environmental learning, they only mature in adulthood and significantly influence personal and social lives [3].

As defined by the authors [4,5], HA refers to the extent to which a person is rather anxious, pessimistic, shy and fatigable, rather than risk-taking, optimistic, out-going and vigorous; NS evaluates the extent to which a person is rather exploratory, extravagant, impulsive, quick-tempered and disorderly rather than reserved, frugal, rigid, stoical and orderly; RD quantifies the extent to which a person is rather sentimental, sociable, approval seeking and warm rather than critical, aloof, detached and cold; P assesses the extent to which a person is rather overachieving (i.e. eager, determined, ambitious and perfectionist) than underachieving (i.e. apathetic, spoilt, carefree and pragmatic). The character dimensions describe aspects of mature mental self-government: SD assesses the extent to which a person is rather responsible, purposeful, resourceful and self-accepting than blaming, aimless, inept and vain; C quantifies the extent to which a person is reasonable, empathic, helpful and principled rather than prejudiced, revengeful, hostile and opportunistic; and ST refers to the extent to which a person is judicious, idealistic, faithful and spiritual rather than repressive, practical, skeptical and materialistic.

Cloninger and collaborators created the psychobiological model of temperament and character as part of an attempt to develop a conceptual model for the comprehensive diagnosis of psychiatric patients, starting from the study of personality [5]. They postulated that the structure of personality is the same in psychiatric patients and controls, and that the differences between these groups are registered in the mean values of personality dimensions [5]. Subsequently, they separated genetically independent dimensions (temperament) from dimensions that modulate emotional conflicts (character) [3]. Therefore, the study of the relationship between this model and the development and evolution of MDD could lead to a new understanding of the vulnerability generated by personality traits for the onset, evolution and relapse of MDD.

The aim of this paper was to review the latest developments in this area, but in the context of the initial development of the psychobiological model of temperament and character, i.e. as a tool for the comprehensive diagnosis of depressed individuals.

Temperament, character and the risk for depression

Most of the studies conducted so far concluded that high HA on the one hand, and low SD on the other hand are rather consistently associated with clinical depression and depressed mood, whereas the associations between NS, RD, P, C, ST and depression are weaker [6,7]. However, the debate remains open, since different studies reached different conclusions [8].

Persons with high HA scores are described as cautious, tense, shy, pessimistic, apprehensively anxious, fearful and fatigable, traits that are considered to be markers of emotional vulnerability to depression [4,5]. Furthermore, HA is considered to be the TCI correspondent of behavioral inhibition [9], which in turn is considered to reflect sensitivity to stress on a behavioral level [10].

A relatively recent meta-analysis conducted by Olli Kampman and Outi Poutanen in 2011 [9] concluded that there was a definite and undisputable association between high HA and the occurrence and severity of depression. A more recent study confirmed that patients with MDD register higher HA scores, but found no correlation between HA and the severity of depression [11]. However, several studies not included in the above-mentioned meta-analysis concluded that HA was positively correlated with the severity of depression [6,12-16]. Several explanations can be formulated for these contradictory results. Zaninotto and collaborators did not account for comorbid psychiatric disorders other than dementia, substance use related disorders, schizophrenia-spectrum disorders and mental retardation [11]. This could alter the results, since HA is also correlated with the severity of other possible comorbid disorders like anxiety [17]. Furthermore, their MDD sample size was smaller than the sample sizes of the studies included in Kampman and Poutanen's meta-analysis [9], therefore the question of statistical power can be brought into discussion. In this context, a larger meta-analysis is needed.

However, since the clinical state of depression can influence personality testing, a state vs. trait dependency of HA needs to be discussed. Strong evidence supports its trait dependency. First, HA scores remain higher than in healthy controls after the remission of MDD [8]. Furthermore, siblings of MDD patients register higher HA scores than healthy controls even if have no history of depression [18]. Also, HA scores are associated with platelet serotonergic receptors [19] and are influenced by tryptophan hydroxylase 1 (TPH1) A218C polymorphism, in the sense that subjects with the C-allele score higher on HA [20].

Self-directedness has been described as a marker of executive functions that could protect a person against depression [3], being defined as the ability of an individual to adapt, regulate and control behavior to fit situations in accord with his chosen goals and values [21]. Lower SD scores in MDD patients than in healthy controls represent a well replicated finding in the literature [5,11,21]. SD has been demonstrated to be a predictor for major depression [5] and it negatively correlates with depressed mood [7].

The results on NS, RD, P, C and ST are not consistent. RD has been associated with lower risk for MDD in some studies [5,7], while others have found no association at all [11,22]. Nevertheless, based on the evidence gathered so far, several authors consider that RD might be state dependent [9,21], although they admit the level of evidence

is low [9]. For NS, P, C and ST the results are contradictory and no conclusion can be drawn so far, although some evidence has been produced for each of these dimensions [5,7,11,21,23].

Temperament, character and treatment response in major depressive disorder

Several studies brought evidence that high HA scores could be associated with poor treatment response [17,24], while others found no such correlation [25] or obtained the opposite results [26]. Nevertheless, a relatively recent meta-analysis concluded that there was a positive association between levels of HA and recovery from MDD [9]. Furthermore, results from biological studies seem to support this hypothesis too, although high HA scores are thought to indicate susceptibility to depression. A relatively recent study has showed that subjects with the C-allele in the TPH1 gene score higher on HA and that subjects with the CC genotype have a larger reduction in HA scores after selective serotonin transport inhibitor treatment [20]. On the contrary, some of the previous studies obtained opposite results [27]. However, a meta-analysis has showed that CC genotype individuals have a better overall chance to respond to antidepressant treatment [28], although ethnic background could influence results to some extent [20].

Several other dimensions have also been associated with treatment response in MDD. High NS scores predicted a better treatment outcome in one study [24] and treatment-resistant patients registered lower NS scores in another study [26]. High RD scores were shown to be predictive of a better treatment outcome [24] and low RD scores were shown to be risk factors for treatment-resistant depression [29]. Furthermore, low C was also proven as a risk factor for treatment-resistant depression [29].

Summarizing, further research is needed to clarify the role of HA in predicting treatment response in MDD and to replicate the findings on NS, RD and C.

Temperament, character and relapse in major depressive disorder

A recent prospective study conducted by Asano and collaborators [8] which included patients with remitted MDD, concluded that participants with HA scores above the upper quartile and participants with SD scores below the lower quartile presented significantly shorter times to relapse than participants with HA scores below the lower quartile and participants with SD above the upper quartile. However, when controlling for possible confounding predictors (i.e. age, gender, age at onset of MDD and number of depressive episodes) only SD was found to be predictive [8]. However, their participants were on antidepressant treatment during the entire follow-up period, had a high dropout rate and used quartiles, not an empirically demonstrated threshold to dichotomize the sample. A previous prospective study found that only high HA was associated with relapse [7]. However, a recent cross-sectional study showed that as compared to controls patients with recurrent episodes of MDD registered higher HA scores, lower SD scores and lower NS scores [23]. Further prospective studies need to be realized in order solve this issue.

Conclusions

High harm avoidance and low self-directedness are risk factors for the development of major depressive disorder. Further research is needed to clearly establish the role of the other dimensions or their facets as predictors for the development of a depressive episode.

Although some evidence has been obtained so far regarding the use of harm avoidance, novelty seeking, reward dependence and cooperativeness in predicting treatment response in major depressive disorder, further research is needed to clarify and/or to replicate these findings.

Data on temperament and character dimensions related to relapse in major depressive disorder is insufficient. Although some evidence has been brought to support the hypothesis that high harm avoidance scores, and low self-directedness and novelty seeking scores might serve as predictors, further prospective studies need to be carried out to establish their utility in this respect.

Clarifying these issues would help clinicians improve therapeutic strategies by adapting psychotherapeutic approaches and follow-up duration.

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