Patients with Gilles de la Tourette syndrome have widespread personality differences

Morounke O. Trillini, Kirsten R. Müller-Vahl *

Clinic of Psychiatry, Socialpsychiatry and Psychotherapy, Hannover Medical School, Carl-Neuberg-Str. 1, D-30625 Hannover, Germany

ABSTRACT

Only little is known about pathological personality traits in patients with Gilles de la Tourette syndrome (GTS). The aim of this study was to further investigate the prevalence of personality traits in adults with GTS. We used a variety of rating scales to assess not only personality traits, but also severity of tics, quality of life, and comorbidities (obsessive-compulsive disorder (OCD), attention deficit hyperactivity disorder (ADHD), depression), in a large group ($n=50$) of patients. Our major finding was that pathological personality traits are very common in patients with GTS encompassing a wide range of different personality traits, but most typically personality traits related to cluster C. Demand-anxious was the most common personality trait, while histrionic personality trait was absent. Patients' quality of life was more impaired by personality traits than comorbidities. Personality traits were more common in patients with comorbid OCD and depression, while comorbid ADHD had no influence. Our findings, therefore, corroborate the hypothesis that GTS plus OCD represents a more severe subtype of GTS, and support the assumption that OCD and depression, but not ADHD, are part of the GTS spectrum.

© 2015 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Gilles de la Tourette syndrome (GTS) is a chronic neuropsychiatric disorder characterized by multiple motor and one or more vocal tics with childhood onset (American Psychiatric Association, 2009). In many patients, GTS is associated with comorbidities ("GTS plus") such as attention deficit hyperactivity disorder (ADHD), obsessive-compulsive disorder (OCD), and depression. At least in clinic populations, only 12% of patients suffer from no comorbid psychopathology ("pure GTS") (Freeman et al., 2000). While in recent years, many researchers focused on psychiatric comorbidities (Chou et al., 2013; Freeman and Tourette Syndrome International Database Consortium, 2007; Gorman et al., 2010; Roessner et al., 2007; Spencer et al., 1998; Mol Debes, 2013), only very few studies investigated personality traits and personality disorders in patients with GTS (Cavanna et al., 2007; Robertson et al., 1997; Eddy et al., 2013; Cath et al., 2001).

In general, personality can be defined as an individual's characteristic pattern of thinking, feeling and behaving in different contexts. However, until today there is no universal consensus on the definition of personality. This is also reflected in different approaches to define, classify, and measure both normal personality and pathological personality traits and disorders. Most often

the Big Five-Factor Model (FFM) is used to describe human personality. The FFM emphasizes five major dimensions of personality including openness, conscientiousness, extraversion, agreeableness, and neuroticism. However, it has been argued that the FFM neglects other important domains of personality (John and Srivastava, 1999). According to DSM-5 (American Psychiatric Association, 2013), personality disorders are associated with ways of thinking and feeling about oneself and others that significantly and adversely affect how an individual functions in many aspects of life. In DSM-5, 10 distinct types of personality disorders are defined: paranoid, schizoid, schizotypal, antisocial, borderline, histrionic, narcissistic, avoidant, dependent, and obsessive-compulsive personality disorder. In contrast, according to ICD-10, only nine different types of personality disorders are defined (exclusively schizotypal personality disorder). They are grouped into three clusters: Cluster A (odd and eccentric) including paranoid, schizoid, and schizotypal personality disorder; Cluster B (dramatic, emotional, and erratic) including antisocial, borderline, histrionic, and narcissistic personality disorder, and Cluster C (anxious and fearful) including obsessive–compulsive, avoidant, and dependent personality disorder. However, the classification of personality disorders is still highly controversial. This was also reflected during the preparation of the DSM-5: for example, it was proposed to reduce the number of personality disorders from 10 to five. In addition, there is an ongoing debate as to whether personality disorders are better defined categorically or dimensionally. Using a dimensional approach includes an increased focus

on personality *traits* and acknowledges the continuity between (normal) personality and (pathological) personality disorders. Accordingly, personality *traits* are defined as "enduring patterns of perceiving, relating to, and thinking about the environment and oneself that are exhibited in a wide range of social and personal contexts" (American Psychiatric Association, 2009). There is substantial evidence that psychiatric disorders are mediated by specific personality traits. For example, it has been demonstrated that high neuroticism is a vulnerability factor for comorbid psychiatric disorders in patients suffering from major depression and anxiety disorders (Khan et al., 2005). Different instruments can be used to measure personality traits. Depending on the respective test and the underlying concept, a different number of different personality traits will be assessed.

Robertson et al. (1997) investigated for the first time the prevalence of personality disorders in 39 adult patients with GTS. Using the Structured Clinical Interview for DSM-III-R Personality Disorders II (SCID-II) (Spitzer et al., 1989), they found one or more personality disorders in 64% of patients. When using the self-rating Screening Test for Co-Morbid Personality Disorders (STCPD) (Dowson, 1992) even 71% of patients demonstrated ≥ 1 personality disorder. According to SCID-II, the following types of personality disorders were diagnosed in descending order: borderline (52%), depressive (23%), obsessive–compulsive (23%), paranoid (23%), passive–aggressive (23%), avoidant (21%), antisocial (10%), narcissistic (10%), hysterical (8%), schizoid (8%), schizotypal (5%), and self-defeating (2%). Cavanna et al. (2007) specifically investigated the prevalence of schizotypal personality traits in 102 adults with GTS. Using both the Schizotypal Personality Questionnaire (SPQ) (Raine, 1991) and SCID-II, 15% of patients were diagnosed with schizotypal personality disorder. Obsessional behavior and anxiety disorders were found to be the strongest predictors for the presence of schizotypal symptoms. There was a positive correlation between the presence of multiple psychiatric comorbidities and schizotypy scores. Cath et al. (2001) investigated 15 patients with GTS without OCD, 14 with GTS+OCD, seven with tics+OCD, 15 with "tic-free" OCD, and 26 controls using the Impulsivity subscale of the Emotionality Activity Sociability Impulsivity Scale (EASI-III) (Buss and Plomin, 1975) and the Eysenck Personality Questionnaire (EPQ) (Eysenck and Eysenck, 1975). Both tics and OCD were associated with increased neuroticism scores (EPQ). OCD was also associated with decreased extraversion (EPQ). In a recent study, Eddy et al. (2013) investigated 25 adult patients with GTS compared to 25 healthy controls. Using the Ten-Item Personality Index (TIPI) (Gosling et al., 2003), four of five TIPI scores (extraversion, conscientiousness, emotional stability, and openness) were significantly reduced in GTS compared to normal controls. Patients with "pure GTS" (without OCD and ADHD) ($n=15$) still demonstrated reduced scores for two domains (extraversion and emotional stability) compared to normal controls. Personality scores were not related to tic severity. There was a positive correlation between emotional stability scores and comorbid depression.

The aim of this study was to further investigate the prevalence of personality *traits* in a large group of adult patients with GTS. Since we wanted to investigate whether GTS is associated with specific personality *traits* (not *disorders*), we used the Inventory of Clinical Personality Accentuations (ICP) and ICP-Ergänzungsmodul ("Extension module") (ICP-E) (instead of the SCID-II). In addition, the ICP/ICP-E measures not only personality traits covered by DSM-5 and ICD-10, respectively, but also 13 additional traits. We hypothesized that personality traits are more common in patients with GTS compared to the general population. Furthermore, we hypothesized that common comorbidities such as ADHD, OCD, and depression might be mediated by specific personality traits and that there is a correlation between the number and type of personality traits and both tic severity, quality of life, and the number and severity of comorbidities.

2. Methods

2.1. Subjects

In this study 50 consecutive adult patients with GTS according to DSM-IV-TR were included. All patients were recruited from the Department of Psychiatry, Socialpsychiatry and Psychotherapy at the Hannover Medical School between June 2010 and May 2012. Inclusion criteria were age between 18 and 65 years. Patients suffering from psychosis, autistic spectrum disorder, mental deficiency, and other significant neurological or psychiatric disorders were excluded from the study. Comorbidities such as OCD, ADHD, and depression as well as medication for GTS were no exclusion criteria. Results were compared with given reference values. Ethics approval for this study was granted by the ethics committee of the Hannover Medical School. All participants gave written informed consent before entering the study.

2.2. Clinical assessments

The "total tic score" (TTS) (range, 0–50) of the Yale Global Tic Severity Scale (YGTSS) (Leckman et al., 1989) was used to measure tic severity. The Gilles de la Tourette Syndrome-Quality of life scale (GTS-QoL) (Cavanna et al., 2008) was used to measure patients' disease specific quality of life (QoL) (range, 0–100; the higher the sum, the lower the QoL). OCD was measured by using the Yale Brown Obsessive Compulsive Scale (Y-BOCS) (Goodman et al., 1989). The diagnosis of ADHD was obtained by combining the results of the clinical interview, the Wender Utah Rating Scale Short Form (WURS-K) (Ward et al., 1993; Retz-Junginger et al., 2003) (range 0–100, a score ≥ 30 suggests the diagnosis of ADHD), the DSM-IV-Symptom list for ADHD (Rösler et al., 2004) (range, 0–18, a score >6 in either domain suggests the diagnosis of ADHD), and the Conners' Adult ADHD Rating Scale (CAARS) (Christiansen et al., 2011) (range, 0–198, raw scores have to be converted into T-scores, cut-off ≥ 65). The Beck Depression Inventory (BDI) (Beck et al., 1961) was used for the diagnosis of depression.

To diagnose different personality traits we used the Inventory of Clinical Personality Accentuations (ICP) and the ICP-Ergänzungsmodul ("Extension module") (ICP-E) (Andresen, 2006). The ICP is a 132-items questionnaire assessing the following 11 personality traits (according to DSM-IV and ICD-10) in a dimensional way: paranoid, dependent, impulsive–explosive, schizoid, narcissistic, borderline, avoidant, obsessive–compulsive, schizotypal, antisocial, and histrionic personality trait. The 4-point Likert scales range from "completely wrong" to "completely right". Raw scores have to be converted into T-scores. T-scores ≥ 70 are regarded as pathological. In analogy, the ICP-E measures 13 additional personality traits that are not covered by ICD/DSM: depressive, passive–aggressive, demand–anxious ("anforderungs- und leistungsängstlich"), asthenic, frightful, dissociative, obsessive–insecure ("obsessiv-selbstunsicher"), manic-like ("maniform"), cyclothymic, weak-willed ("suchtanfällig, willensschwach"), disorganized, opposing ("opponierend-streitbar"), risk taking/adventurous personality trait.

In addition, we used the NEO-Five Factor Inventory (NEO-FFI) (Borkenau and Ostendorf, 1993; Costa and McCrea, 1992), a 60-items questionnaire, to measure the five domains of personality: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Items are given on a 5-point Likert scale ranging from "completely disagree" to "completely agree".

The Brief Symptom Inventory (BSI) (Derogatis, 1993) was used to measure psychological symptoms including somatization, obsessiveness–compulsiveness, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Three global indices were calculated: Global Severity Index (GSI), Positive Symptom Distress Index (PSDI), and Positive Symptom Total (PST). GSI-scores (indicating general psychological distress) ≥ 63 are regarded as pathological as well as scores ≥ 63 on three of nine subscales.

In addition, we calculated two scores: a comorbidity score indicating the particular number of comorbidities (ranging from 0 (="pure GTS") to 3 (="GTS plus", according to the number of comorbidities: ADHD, OCD, and depression)) as suggested earlier (Spencer et al., 1998; Cavanna et al., 2007; Freeman et al., 2000), and analogously a personality trait score indicating the number of distinct personality traits (according to the ICP/ICP-E) (ranging from 0 to 4 (0="no personality trait", 1=1, 2=2, 3=3, and 4=≥ 4 personality traits).

2.3. Statistical analysis

For statistical analyses, the Statistical Package for Social Sciences (Version 20.0 for Windows; SPSS, Inc., Chicago, IL, USA) was used. Descriptive statistics are presented by means (standard deviation) for continuous variables and by frequencies (percentages) for discrete variables. The null hypothesis was rejected at a p-value < 0.05 and all statistical tests were two-sided. To evaluate differences between groups, unpaired t-tests were calculated for continuous variables and