

Running head: UNDERSTANDING OCPD IN ADOLESCENCE

Understanding Obsessive-Compulsive Personality Disorder in Adolescence:
A Dimensional Personality Perspective

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Abstract

The validity of the Axis II Obsessive-Compulsive Personality Disorder (OCPD) category and its position within the Cluster C personality disorder (PDs) section of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, APA, 2000) continues to be a source of much debate. The present study examines the associations between general and maladaptive personality traits and OCPD symptoms, prior to and after controlling for co-occurring PD variance, in a general population sample of 274 Flemish adolescents and further explores the incremental validity of two different maladaptive trait measures beyond general traits. The results demonstrate that the number of (general and maladaptive) personality-OCPD associations decreases after controlling for a general personality pathology factor, with the FFM factor Conscientiousness and its maladaptive counterpart Compulsivity as remaining correlates of OCPD. The findings further suggest to complement the general NEO-PI-R (Costa & McCrae, 1992) scales with more maladaptive items to enable a more comprehensive description of personality pathology variance. Implications for understanding and assessing OCPD in the developmental context of adolescence are discussed.

Keywords: Obsessive-Compulsive Personality Disorder, Personality Dimensions, Personality Pathology, Adolescence

Understanding Obsessive-Compulsive Personality Disorder in Adolescence: A
Dimensional Personality Perspective

The current categorical classification system for mental disorders, as specified in the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV; American Psychiatric Association, 2000), conceptualizes personality disorders (PDs) as qualitatively distinct diagnostic entities. According to DSM-IV, the Obsessive-Compulsive PD (OCPD) is assigned to the Cluster C PDs and consists of a chronic maladaptive pattern of excessive preoccupation with orderliness, perfectionism, and mental and interpersonal control affecting all areas of life. In addition to general Cluster C characteristics, such as anxiety and fearfulness, OCPD may also include overattention to details, excessive devotion to work, overconscientiousness, inability to discard worn or worthless objects, inability to delegate tasks, miserliness and rigidity (APA, 2000).

The specific DSM-criteria for OCPD have undergone substantial changes throughout DSM-editions, complicating attempts to examine this disorder. Similar to most diagnostic DSM-categories, OCPD is also affected by clinical heterogeneity and comorbidity, inadequate coverage and arbitrary thresholds for abnormality (Clark, 2007; Widiger & Trull, 2007). In response to these problematic boundary issues and the high co-occurrence (Summerfeldt, Huta, & Swinson, 1998; Mancebo, Eisen, Grant, & Rasmussen, 2005) with Axis I obsessive-compulsive disorder (OCD) in particular, an integration of OCPD into a broadly defined obsessive-compulsive spectrum of disorders (Fineberg et al., 2007) has recently been suggested. In addition, compared to other PDs, OCPD is associated with the least overall functional impairment (Skodol et al., 2002), further contributing to an underestimation of the disorder and complicating its treatment. In sum, these conceptual and diagnostic issues raise questions about the

tenability of OCPD as a diagnostic category and its position on Axis II and underline that further research is warranted to improve our understanding of this disorder.

Dimensional Conceptualizations of Personality Disorders

In contrast to the traditional categorical classification approach, recently proposed dimensional conceptualizations of PDs suggest an integrative model that subsumes general and maladaptive personality traits into a common structure (Widiger & Simonsen, 2005; Widiger & Trull, 2007; Widiger, Livesley, & Clark, 2009), that can be represented by four of the five dimensions of the Five-Factor Model (FFM; Costa & McCrae, 1992). This FFM of personality is the most comprehensive and widely used framework of general personality functioning and includes five higher-order domains: Neuroticism (N) (or Emotional Instability), Extraversion (E), Openness to experience (O), Agreeableness (A) and Conscientiousness (C). Its most well-known operationalization, the NEO-PI-R (Costa & McCrae, 1992), further distinguishes six lower-order facets under each basic dimension. A considerable body of research with the NEO-PI-R has supported the applicability of the FFM across cultures (McCrae & Terracciano, 2005) and informants (McCrae et al., 2004), as well as its validity for describing individual differences in younger age groups (De Fruyt, Mervielde, Hoekstra, & Rolland, 2000).

A second wave of research has convincingly demonstrated that Axis II PDs can be understood in terms of extreme manifestations of the Five-Factor Model domains and facets (Widiger & Costa, 2002). At the domain-level, seminal review studies (Livesley, 2001; Saulsman & Page, 2004) concluded that “each personality disorder displays a FFM profile that is meaningful and predictable given its unique diagnostic criteria” (Widiger et al., 1994). At the more differentiating facet-level, several research groups (Widiger et al., 2002, Lynam & Widiger, 2001; Samuel & Widiger, 2004) proposed

specific facet predictions for each Axis II disorder relying on different methods, including theoretical, expert, and researcher FFM PD descriptions. Across these studies, FFM facet predictions were found highly consistent, with significant convergent and discriminant validity (Mullins-Sweatt & Widiger, 2006). Relying on meta-analytical evidence, Samuel and Widiger (2009) recently concluded to consider OCPD primarily as a disorder of excessive conscientiousness, characterized by high scores on all facets of Conscientiousness, with a somewhat weaker relation with the Competence facet.

Several adult (Ball et al., 1997; Dyce & O'Connor, 1998; Huprich, 2003; Saulsman & Page, 2004) and adolescent (Decuyper, De Clercq, De Bolle, & De Fruyt, 2009; De Clercq & De Fruyt, 2003) studies suggested however that OCPD is not comprehensively captured by the FFM, which can be partly explained by the limited ability of the NEO-PI-R to cover certain maladaptive variants of general trait dimensions, such as high Conscientiousness (Clark, 2007; Nestadt et al., 2008). Some researchers therefore argued that a comprehensive dimensional assessment of personality pathology should additionally include specific measures that focus on the pathological range of trait characteristics, such as Livesley's Dimensional Assessment of Personality Pathology - Basic Questionnaire (DAPP-BQ, Livesley & Jackson, in press). This hierarchical dimensional measure includes 18 specific personality pathology facets that are structured into four higher-order dimensions, i.e. Emotional Instability, Dissocial Behavior, Inhibitedness and Compulsivity. This higher-order structure conceptually represents the extremes of four of the FFM dimensions (Livesley, Jang, & Vernon, 1998), and empirically relates to the FFM dimensions (Widiger, 1998).

Corroborating the FFM-Axis II research, Bagge and Trull (2003) formulated specific relations between the DAPP-BQ lower-order traits and DSM-IV PDs, hypothesizing that OCPD is associated with elevated scores on the Anxiousness,

Rejection, Intimacy Problems, Restricted Expression, and Compulsivity facets and low scores on the Submissiveness facet. These hypotheses were mainly supported, pointing to meaningful DAPP-BQ - OCPD associations in adulthood (Bagby, Marshall, & Georgiades, 2005; Bagge & Trull, 2003), that go beyond the FFM conceptualization of OCPD in terms of a 'high conscientiousness disorder'.

Obsessive-Compulsive Personality Disorder from a Developmental Perspective

Although the DSM-IV presumes that the onset of PDs, including OCPD, is considered to be in late adolescence or early adulthood (APA, 2000), there is a growing body of research that acknowledges the relevance of PD precursors at a much younger age (Cicchetti & Crick, 2009). From a dimensional viewpoint, developmental studies have further demonstrated the validity of the FFM in childhood and adolescence (Buyst, De Fruyt, & Mervielde, 1994; De Fruyt et al., 2000; Digman, 1989; John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994), and its usefulness for describing Axis II disorders in younger age groups (De Clercq & De Fruyt, 2003; De Clercq, De Fruyt, & Van Leeuwen, 2004). Parallel to adult research on the dimensional components of personality disorders, several research groups recently focused on the dimensional structure of potential Axis II precursors from a specific maladaptive trait perspective, resulting in reliable and valid measures that were either adapted from adult dimensional measures (DAPP-BQ-A; Tromp & Koot, 2009), or constructed from an age-specific bottom-up approach (DIPSI; De Clercq, De Fruyt, Van Leeuwen, & Mervielde, 2006). Across these measures, the dimensional structure appeared to show similarities with the adult structure of personality pathology, further supporting the idea to conceptualize personality pathology across the artificial boundaries of adult age (Widiger, De Clercq & De Fruyt, 2009). Tromp and Koot (2009) indicated that adolescent maladaptive trait facets relate in a similar way to the Axis II OCPD pattern as has been suggested for

adults (Bagge & Trull, 2003), and concluded that the lower-order DAPP-BQ-A dimensions such as Rejection, Compulsivity, low Conduct Problems, and low Restricted Expression contributed to a comprehensive understanding of the OCPD disorder from an adolescent perspective.

PD Comorbidity and Uniqueness

Despite the relevance of the higher- and lower level FFM dimensions to represent PD criteria and their usefulness in personality pathology assessment, patients with different PDs may still display a similar FFM configuration (Morey, Gunderson, Quigley, & Lyons, 2000; Morey et al., 2002) that is generally characterized by elevated scores on Neuroticism, and below average scores on Extraversion, Agreeableness, and Conscientiousness. In an attempt to account for comorbidity among DSM-IV PDs, Trull, Widiger and Burr (2001) controlled for shared variance among PDs, partialling out the summed scores on the other nine PDs. The advantage of this approach is that it enhances insight in the unique aspects of a particular PD and its associations with FFM traits. De Clercq and De Fruyt (2003) controlled for PD comorbidity and examined relationships between specific lower-order FFM traits and DSM-IV PD symptoms as hypothesized for adults by Widiger et al. (2002) in a general population sample of adolescents using NEO-PI-R residual facet scores that were controlled for shared variance with their FFM domains. They found that OCPD variance was captured by the unique variance of C3: Dutifulness and C4: Achievement striving, beyond comorbid PD features (De Clercq & De Fruyt, 2003).

In the present study we aim to extend our knowledge on obsessive-compulsive personality pathology and its antecedents at young age by exploring whether similar (domain- and facet-level) FFM-OCPD relations as previously described in adulthood (Bagge & Trull, 2003; Lynam & Widiger, 2001; Widiger et al., 2002) and adolescence

(De Clercq & De Fruyt, 2003; Tromp & Koot, 2009) can be observed in a general population sample of adolescents relying on the NEO-PI-R and two distinct age-specific maladaptive trait measures (e.g. DAPP-BQ and DIPSI). Our first objective is to examine these FFM-OCPD associations prior to and after controlling for co-occurring PD variance in order to inspect the relationships between general and maladaptive personality dimensions and OCPD variance that is shared with other PDs or is unique to the OCPD construct. Although OCPD as currently defined in DSM-IV is to be considered as a disorder of overconscientiousness in terms of the FFM (Samuel & Widiger, 2009), we hypothesize that the residualized OCPD construct, beyond PD-comorbidity, will particularly be associated with Conscientiousness-related traits. Additionally, starting from suggestions about the relevance of additional maladaptive traits to comprehensively describe the variety of pathological personality manifestations (Clark, 2007; Nestadt et al., 2008), we further expect a unique surplus value of C-related traits within the maladaptive range of personality to predict unique OCPD variance. Therefore, the second objective of our study is to investigate the incremental validity of two distinct maladaptive trait measures beyond a general trait measure to predict disorder symptoms of OCPD as a broadly versus narrowly operationalized construct.

Method

Participants and Procedure

Adolescents ($N= 274$) and their mothers were recruited via secondary schools in Flanders by trained undergraduate psychology students of Ghent University. Students distributed inventories for the mothers and adolescents in the classrooms in two different packages and provided detailed oral and written instructions on how to complete questionnaires. Adolescents and their parents were informed about the general objectives and procedures of the research. All participants were assured that the data

would be treated confidentially and only serve research purposes. Written informed consent was obtained from all participants at the moment of assessment. The sample included 130 boys (47.80%) and 142 girls (52.20%), with a mean age of 191.71 months ($SD = 15.70$), ranging from 149 to 215 months.

Measures

NEO-Personality Inventory-Revised (NEO-PI-R). FFM personality traits were described using the Dutch authorized translation of the NEO-PI-R (Costa & McCrae, 1992; Hoekstra, Ormel, & De Fruyt, 1996). Although this instrument was initially developed to assess personality in adulthood, recent studies underscored its applicability and validity in adolescent and pre-adolescent samples (De Fruyt et al., 2000; De Fruyt et al., 2009; Markey, Markey, Tinsley, & Ericksen, 2002; McCrae et al., 2002). In the present sample, domain-level Cronbach alpha coefficients ranged from .85 (Openness to experience) to .92 (Conscientiousness) for the self-ratings and from .85 (Openness to experience) to .95 (Conscientiousness) for maternal ratings. Facet-level reliabilities for the self-ratings ranged from .46 (Openness to Values) to .82 (Openness to Fantasy) with a median value of .72. Facets of the maternal ratings showed reliability coefficients ranging from .45 (Openness to Values) to .84 (Achievement Striving and Deliberation) with a median value of .76. Correlations between maternal and adolescent reports ranged from .43 (Neuroticism) to .66 (Openness) at the domain-level.

Assessment of DSM-IV Personality Disorders Questionnaire (ADP-IV). The ADP-IV is a Dutch self-report inventory developed by Schotte and De Doncker (1994), relying on the DSM-IV criteria of the 10 Axis II PDs. Since the DSM-IV-criteria for PDs refer to symptoms that emerge in adolescence, it can be assumed that this inventory is also applicable in an adolescent population (De Clercq & De Fruyt, 2003). The questionnaire consists of 94 items, each measuring 'trait' as well as

‘distress/impairment’ characteristics of a DSM-IV criterion. Both trait and distress scales are necessary to delineate a categorical PD diagnosis, but for the purpose of the present study only the trait scale for OCPD was used. Mothers were used as primary informants of adolescents’ personality pathology symptoms, with a Cronbach alpha coefficient of .80 for the OCPD scale.

Dimensional Assessment of Personality Pathology – Basic Questionnaire (DAPP-BQ). The DAPP-BQ (Livesley & Jackson, in press) is a 290-item self-report measure with five response categories. The items are grouped in 18 lower-order facets, hierarchically organized in a four-factor structure. For the present sample, a Dutch translation of the DAPP-BQ (De Fruyt, 2000; Van Hiel, Mervielde, & De Fruyt, 2004) was used.¹ A recent study showed that the DAPP-BQ can be reliably administered in adolescents, both in community and referred groups (Krischer, Sevecke, Lehmkuhl, & Pukrop, 2007). Adolescents in the present study provided DAPP-BQ self-ratings with Cronbach alpha coefficients ranging from .82 (Restricted Expression) to .92 (Anxiousness) with a median value of .87. Principal component analysis of the 17 DAPP-BQ scales, followed by oblimin rotation, produced a factor-loading matrix that was highly comparable to the structure obtained in previous studies (Bagge & Trull, 2003; Krischer et al., 2007; Livesley, Jang, & Vernon, 1998). The decrease of eigenvalues (6.85, 2.44, 1.78, 1.48, .69, .60, .51...) indicated a four-factor solution, explaining 73.84% of the total variance. Factor scores were computed and factors were labeled Emotional Dysregulation, Dissocial Behavior, Inhibition and Compulsivity, explaining respectively 40.31, 14.36, 10.50 and 8.68 % of the total variance.

¹ The items of the Self-Harm scale were omitted because of the low endorsement rates in general populations and the rather offensive content of the items for adolescents.

The Dimensional Personality Symptom Item Pool (DIPSI). Early pathological personality characteristics were assessed using maternal ratings of the DIPSI (De Clercq et al., 2006). The DIPSI offers an age-specific and dimensional description of behavioral, emotional and cognitive trait symptoms observable in children or adolescents. The DIPSI includes 172 items to be rated on a 5-point Likert-scale and are grouped into 27 specific facets of personality pathology, further hierarchically structured in four higher-order personality pathology dimensions. In the present study, domain scale reliabilities ranged from .91 (Compulsivity) to .98 (Disagreeableness and Emotional Instability). Cronbach alpha coefficients for the facets ranged from .77 (Insecure Attachment) to .94 (Affective Liability) with a median value of .88.

Analyses

Bivariate correlations between general (NEO-PI-R) and maladaptive (DAPP-BQ and DIPSI) trait measures with OCPD symptoms and residual OCPD scores were computed. For the NEO-PI-R, both maternal and adolescent ratings were available. The standardized residual score for OCPD was computed by partialling out a general pathology factor (GPF) for OCPD. This GPF represents the common PD variance across the non-targeted PDs and was computed as the sum of the nine remaining PD scores (Trull, Widiger, & Burr, 2001).

Hierarchical regression analyses were conducted with OCPD symptoms or the residual OCPD scores as the dependent variables and the higher-order dimensions of the NEO-PI-R, DAPP-BQ, and DIPSI as predictors. The analyses were restricted to maternal FFM domain ratings. The five NEO-PI-R domains were entered in a first block, followed respectively by the four DAPP-BQ factor scores or the four DIPSI domains in the second block, to determine the incremental validity of a maladaptive trait measure beyond the FFM.

Results

Bivariate Correlations

Due to the large number of tests, an application of the Bonferroni adjustment of the significance level was necessary and correlations at $p < .001$ were judged significant for the NEO-PI-R and the DIPSI and at $p < .01$ for the DAPP-BQ. Table 1 presents the correlation matrix between maternal and self-reported FFM traits and OCPD and residual OCPD scores. OCPD scores were positively related to maternal ratings of all Neuroticism facets with the exception of N5: Impulsiveness, and negatively to the Extraversion facets E1: Gregariousness and E6: Positive Emotions, the Openness to experience facet O4: Actions, and the Agreeableness facets A1: Trust and A2: Straightforwardness. No significant associations with the Conscientiousness facets were observed. However, when considering residual OCPD scores, significant positive associations with maternal ratings on all Conscientiousness facets and negative associations with N5: Impulsiveness and O4: Openness to Actions were observed. No significant correlations with OCPD symptoms were found considering the FFM self-ratings, though the Conscientiousness facets C2: Order, C3: Dutifulness, and C6: Deliberation were positively and N5: Impulsiveness was negatively related to residual OCPD scores.

The associations between raw and residual OCPD symptom scores and two measures specifically designed to describe personality pathology (i.e. the DAPP-BQ and the DIPSI), are described in Tables 2 and 3 respectively. OCPD in adolescence is positively associated with self-ratings on the DAPP-BQ scales Submissiveness, Identity Problems, Affective Lability, Anxiousness, Social Avoidance, Suspiciousness, Insecure Attachment, Restricted Expression and Compulsivity. When using the residual OCPD

symptom score, a positive association with Compulsivity and negative associations with Oppositionality, Stimulus Seeking and Conduct Problems were observed.

Correlations between maternal rated DIPSI scores and OCPD symptoms are described in Table 3 and point to positive associations with all domains and facets of the DIPSI. However, associations become more specific considering the residual OCPD score, including positive associations with all Compulsivity facets (Extreme achievement striving, Extreme order, and Perfectionism) and a negative association with the Resistance facet of Disagreeableness.

Regression Analysis

Hierarchical regression analyses were run to examine the incremental validity of the DAPP-BQ and the DIPSI beyond the FFM. The analyses were restricted to maternal FFM domain ratings and results are reported in Table 4.

In a first series of regressions, the maternal rated NEO domains were entered in a first block of predictors, followed by the self-rated DAPP-BQ factors. The NEO domains accounted for a significant amount of variance in OCPD ($R^2_{adj} = .22$), and the self-rated DAPP-BQ factor scores slightly increased the amount of explained variance in OCPD to $R^2_{adj} = .24$. Examination of the individual beta weights shows that only the NEO domains Conscientiousness and Neuroticism are significant predictors of OCPD, with a unique surplus value of the DAPP-BQ Compulsivity factor score. When considering the residual OCPD score, maternal rated NEO domains accounted for $R^2_{adj} = .16$, with individual beta weights showing that the NEO domains Agreeableness, Neuroticism and Conscientiousness uniquely predicted residual OCPD variance. When adding the DAPP-BQ factor scores, $R^2_{adj} = .18$ of the variance is explained, though this minor increase was not significant ($R^2_{change} = .03$).

In a second series of hierarchical regressions, the maternal rated DIPSИ domains were entered in the second step, increasing the amount of explained variance from $R^2_{adj} = .22$ for the NEO-PI-R maternal ratings to $R^2_{adj} = .47$, demonstrating that an age-specific maladaptive trait measure considerably contributes to the explanation of OCPD symptoms. Examination of the individual beta weights shows that only the NEO domains Conscientiousness and Neuroticism are significant predictors of OCPD, with a unique surplus value of the DIPSИ Compulsivity domain. Considering the residual OCPD symptom score, the NEO domains explained $R^2_{adj} = .15$ of the variance in OCPD, with an increase in the amount of explained variance up to $R^2_{adj} = .28$ when adding the DIPSИ domains. Individual beta weights show that the NEO domains Agreeableness, Neuroticism and Conscientiousness are unique predictors of residual OCPD variance, with a surplus value of DIPSИ Compulsivity and low Disagreeableness.

Discussion

The purpose of the present paper was to review and examine the associations between OCPD symptoms and OCPD residual scores, controlled for co-occurring personality pathology, with general and maladaptive personality traits in adolescence. In addition, the incremental validity of two maladaptive trait measures beyond a general trait measure was examined.

OCPD as a diagnostic entity

OCPD symptoms in the present manuscript were operationalized in a broad and a more specific way. The broader DSM-IV-based operationalization shows that OCPD symptoms share substantial variance with other PD variance in adolescence, leaving about 53 percent ($R^2_{adj} = .53$) of unique variance, including measurement error. It is important to distinguish among these two different perspectives when examining the relationships with other variables, such as for example indices of impairment or

alternative personality descriptive models. If unique OCPD variance is associated with impairment, then this is an important argument to further consider the operationalization of these PD symptoms in future editions of DSM. In a similar vein, it is important to examine whether dimensional personality descriptive measures (both general and maladaptive) capture common and/or unique variance of the OCPD construct, to ascertain their status as comprehensive measures of the entire range of personality pathology symptoms (Widiger & Trull, 2007). If the dimensional personality measures would only capture shared variance among PDs, then this would invalidate their status as potential alternative operationalizations of the more unique aspects of various expressions of personality pathology.

OCPD and general personality dimensions

The FFM dimensions showed significant associations with OCPD symptoms and residual OCPD scores, except for the adolescent NEO self-ratings and OCPD symptoms. OCPD symptoms and maternal rated NEO-PI-R traits showed a pattern of positive associations with Neuroticism, and negative associations with selective facets of Extraversion, Agreeableness and Openness to experience. Considering the clinical profile of OCPD, one would particularly expect high scores on the Conscientiousness domain, especially on facets such as order (preoccupation with details, rules, lists, order), achievement striving (excessive devotion to work and productivity), dutifulness (overconscientiousness and scrupulousness), self-discipline (organized, reliable, hard-working and punctual), and competence (perfectionism) (Widiger et al., 2002). Counter to these assumptions, no significant associations between OCPD symptoms and Conscientiousness were found for the maternal NEO ratings, corresponding with the idea that the NEO-PI-R might be somewhat limited in its coverage of maladaptive variants of high Conscientiousness (Clark, 2007; Haigler & Widiger, 2001; Nestadt et

al., 2008). Our results show that OCPD symptoms are related to a configuration of FFM traits, even at the facet-level, that is common for different personality disorders (Morey et al., 2000; 2002), rather than demonstrating a unique characteristic profile for OCPD.

As we expected, the associations with the more narrowly defined OCPD construct, excluding disorder variance shared with other PDs, are much more consistent with the previously hypothesized pattern of relationships in adults (Widiger et al., 2002; Lynam & Widiger, 2001; Widiger & Mullins-Sweatt, 2009). The residual OCPD symptom score is significantly associated with all Conscientiousness facets, O4: Openness to Actions, and N5: Impulsiveness for maternal NEO ratings and with three of the six Conscientiousness facets and with N5: Impulsiveness for the self-ratings. Controlling for shared PD variance retains the associations with aspects of Conscientiousness, but leads to a decline of the associations with Neuroticism facets, except for N5: Impulsiveness. The negative association with the N5: Impulsiveness facet is in line with this facet's content referring to a lack of control on more drift-like tendencies and tensions, and its substantial negative secondary loading on the Conscientiousness dimension.

OCPD and maladaptive dimensional measures

The associations with two distinct measures describing maladaptive trait variance were also examined, including their increment beyond the general traits. Both descriptive systems have very different backgrounds and enable one to examine the associations with OCPD symptoms from divergent perspectives. The DAPP-BQ can be primarily considered as a dimensional descriptive system representing dysfunctional personality variance in adulthood that recently showed to be valid in adolescence (Tromp & Koot, 2008), whereas the DIPSI is a taxonomy specifically developed to describe maladaptive traits in childhood (De Clercq et al., 2006).

OCPD symptoms correlated with several self-reported DAPP-BQ scales, though most relations disappeared when considering unique OCPD variance, except for the association with Compulsivity that even slightly increased. The OCPD residual scale was additionally negatively correlated with Oppositionality, Stimulus seeking, and Conduct problems. The fact that many of the previously significant associations with OCPD disappeared after partialling out common PD variance, suggests that these scales are correlates confined to non-specific PD variance.

Very similar findings were observed for the maternal ratings on the DIPSI scales, with OCPD symptoms positively related to all DIPSI domains and facets, further suggesting that OCPD symptoms in adolescence are broadly associated with maladaptive trait variance. Some of these relationships are rather unexpected and sometimes contradictory. For example, OCPD symptoms were positively related to both Disorderliness (extreme low variant of Conscientiousness) and Extreme order (extreme high variant of Conscientiousness) and showed positive associations with both impulsivity and compulsivity. When controlling for the general pathology factor however, only the positive associations with all Compulsivity facets and a negative association with the Resistance facet were retained. These findings suggest that –at least in the experience and perception of mothers- the OCPD construct as conceived in DSM-IV is associated with a broad range of maladaptive traits and is difficult to describe in terms of specific DIPSI components. A better description however can be achieved when considering the narrowly conceived OCPD construct focusing on unique PD variance. These analyses clearly underscore the value of also considering unique OCPD variance relative to the OCPD construct as defined in DSM-IV, given the significant and relevant associations with age-specific dimensional trait measures that only occur when controlling for a common PD component.

In an attempt to explicate what the clinical profile of the narrow OCPD construct is in terms of DSM-IV criteria, we found that correlations between each of the eight ADP-IV items representing the DSM criteria of OCPD and the residualized OCPD score were about .20 lower compared to the broad OCPD score, except for overconscientiousness and miserliness. Hence, these criteria are to be considered unique clinical manifestations of OCPD that is controlled for a general pathology factor, whereas the other OCPD-criteria in DSM-IV still might have some overlap with other PDs. Although, we do not suggest that a more narrow set of criteria should be used to define OCPD in future editions of DSM, we do think that the findings of the present study indicate what the traits and behaviors are that make up the unique components of OCPD, as distinct from other PDs. From the dimensional perspective suggesting a broadly defined OCD spectrum in which an integration of OCPD is proposed (Fineberg et al., 2007), the findings further demonstrate that OCPD is to be located on the compulsive end of the spectrum.

Incremental validity of maladaptive measures

In line with the suggestion to consider maladaptive trait measures beyond a general trait assessment (Clark, 2007; Nestadt et al., 2008) for a more comprehensive description of PDs, we specifically investigated the incremental validity of maladaptive traits in understanding the OCPD construct beyond a measure of general personality. Maternal rated general traits explained respectively 22 and 15 percent of the broad OCPD and residual OCPD variance, and self-ratings on the DAPP-BQ slightly contributed to this explanation. The incremental validity of the maternal DIPSI ratings was substantial explaining respectively 25 and 14 percent on top of the FFM traits for the broadly defined OCPD construct and residual OCPD scores. The FFM factor Conscientiousness and its maladaptive counterpart Compulsivity considerably

contributed to the explanation of OCPD supporting the claim that OCPD in adolescence is to a sizeable extent characterized by overconscientiousness (Widiger et al., 2002). Moreover, it also demonstrates that the NEO-PI-R scales should be complemented with more maladaptive item content to enable a more comprehensive description of personality pathology variance (Haigler & Widiger, 2001). The largely different proportions of additionally explained variance by the DAPP-BQ versus the DIPSI should however be interpreted with caution, because the DAPP-BQ ratings were provided by the adolescents, whereas the mothers provided ratings on the DIPSI inducing shared method variance with the maternal OCPD symptom ratings. In other words, the present data do not allow a direct comparison of the comprehensiveness between both maladaptive trait measures in adolescence.

The developmental context of adolescence

Although the dimensional approach to personality (pathology) assessment allows for developmental considerations, some additional concerns are worth mentioning when interpreting the results of the present study. First, not only are obsessive-compulsive character traits commonly found in the general population, many of the OCPD features such as achievement striving, ambition, order and self-control are also increasingly regarded and rewarded within achievement- and promotion-oriented societies (Pollak, 1979). Hence, adolescents with these characteristics may be seen as successful and driven individuals, challenging both parents and clinicians to determine when the obsessive-compulsive behaviors become a liability hindering the adolescent to function in an adaptive way. Moreover, the developmental stage of adolescence is a turbulent and stressful period accompanied by prominent issues of sexuality, identity and existentialism. This might have influenced the results of the present study in that the observed adolescent OCPD features may not reflect underlying personality pathology

but rather the stressful context of adolescence (Miller, Muehlenkamp, & Jacobson, 2008; Tackett, Balsis, Oltmanns, & Krueger, 2009), where the attempt to maintain a sense of control through meticulous attention to rules, trivial details and schedules in all areas of life may be interpreted as a strategy to cope with the uncertainties and the lack of predictability characterizing the developmental stage of adolescence.

Assessing OCPD in adolescence.

Work towards DSM-V has recently proposed a dimensional model for the assessment of personality pathology in adulthood that integrates general and maladaptive trait measures (Widiger, Livesley, & Clark, 2009). The first step of this integrative hierarchical model involves an assessment of the extent to which an individual's general personality profile shows meaningful deviations (either high or low) in each of the main personality domains. This first assessment would serve as a screening for the presence of specific maladaptive traits associated with each of the extreme scores on general traits (Samuel & Widiger, 2009; Saulsman & Page, 2004), that can further be assessed in the second step, using measures such as the DAPP-BQ (Livesley & Jackson, in press) or the SNAP (Clark, Simms, Wu, & Casillas, in press).

A similar two-step assessment procedure can be applied in adolescence. Given the validity of the NEO-PI-R/NEO-PI-3 (McCrae, Costa, & Martin, 2005) as a general trait measure in adolescence (De Fruyt et al., 2009), this inventory can be used in the first step, whereas a maladaptive trait measure such as the DAPP-BQ-A (Tromp & Koot, 2008) can be proposed for the second step. Alternatively, this assessment procedure may be organized in a more age-specific way, relying on general and maladaptive trait measures that were specifically designed for even younger ages. Such an age-specific assessment would involve a facet-level assessment of general traits, covered by the Hierarchical Personality Inventory for Children (HiPIC; Mervielde & De Fruyt, 1999;

2002) in the first step, complemented by an assessment of maladaptive traits using the DIPSI (De Clercq et al., 2006). Administering the DIPSI to a child or adolescent scoring outside the average range of normal trait variation may offer an age-specific description of the specific patterns of personality symptoms along the broader dimensions of Disagreeableness, Emotional Instability, Introversiveness and Compulsivity that represent the extremes of four of the five general trait dimensions in Step 1. This second step serves to further explore abnormal trait variation and is not considered for children and adolescents scoring out of the average range of general personality functioning (De Clercq, 2006).

Limitations

The present study has a number of unique features, including a differentiated perspective on a narrow versus a broader conceptualization of OCPD symptoms in adolescence and the inclusion of different measures representing maladaptive trait variation. One should also consider several limitations. Although the personality constructs were assessed with well-validated measures, OCPD was assessed using maternal reports on a DSM-IV oriented inventory. Semi-structured interviews are usually preferred over inventory-based measures for diagnostic purposes. A second constraint is that the current sample was culled from the general population with potentially low prevalence rates of personality pathology, including OCPD. As a result, the present associations may be underestimated due to range restriction, because clinical samples can be expected to exhibit a more wide-spread positioning on general and maladaptive traits. Except for the NEO-PI-R and DAPP-BQ self-ratings, all other ratings were provided by the mothers, inducing shared method variance between OCPD criteria and all personality measures. This common method effect can be observed when comparing the FFM-OCPD associations for maternal versus NEO-PI-R self-ratings,

though significant associations for three facets of Conscientiousness and N5: Impulsiveness were still found. Finally, the Cronbach alpha coefficients of several NEO-PI-R facet-level subscales are quite low, which may have attenuated observed relationships involving these scales (e.g. Openness to Actions). However, similar low internal consistencies for lower-level FFM dimensions have been found across cultures for both self-reports and observer ratings without compromising the validity of the data (e.g. De Fruyt et al., 2009; McCrae et al., 2004; McCrae & Terracciano, 2005). Moreover, despite the low reliability coefficients, substantial FFM-OCPD associations involving these scales were found in the present study, indicating the robustness of the observed relationships.

Future considerations

Several recommendations for future research can be formulated. A necessary first extension is to complement the present design and measures with a semi-structured interview to assess OCPD in a clinical adolescent sample exhibiting a broad spectrum of obsessive compulsive behaviors, thoughts and feelings. The inclusion of an independent impairment measure would further help to disentangle whether unique OCPD variance –beyond a common pathology factor- is associated with substantial impairment for the individual. Finally, using the same informants (self or parental ratings) across measures would facilitate a direct comparison between the incremental validity of different maladaptive trait measures.

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Table 1

Correlations between NEO scores at domain- and facet-level (self- versus maternal report) and ADP-IV Obsessive-Compulsive Personality Disorder Symptoms

NEO domains and facets	OCPD		OCPD _{res}	
	Mother r	Adolescent r	Mother r	Adolescent r
Neuroticism	.42*	.12	-.03	-.09
N1: Anxiety	.37*	.10	.13	.01
N2: Hostility	.38*	.07	-.02	-.12
N3: Depression	.39*	.08	-.00	-.06
N4: Self-consciousness	.26*	.14	-.00	.05
N5: Impulsiveness	.15	-.03	-.23*	-.25*
N6: Vulnerability	.37*	.15	-.03	-.03
Extraversion	-.21	-.19	-.01	-.10
E1: Warmth	-.20	-.18	.08	-.09
E2: Gregariousness	-.23*	-.14	-.06	-.13
E3: Assertiveness	-.12	-.08	.06	-.01
E4: Activity	-.06	-.14	-.00	-.01
E5: Excitement seeking	-.03	-.11	-.15	-.14
E6: Positive Emotions	-.25*	-.16	.03	-.02
Openness	-.10	-.04	-.07	-.04
O1: Fantasy	.06	-.04	-.13	-.11
O2: Aesthetics	-.05	-.02	-.01	-.01
O3: Feelings	-.05	.02	-.05	-.07
O4: Actions	-.27*	-.05	-.22*	-.04

Understanding OCPD in adolescence

O5: Ideas	.03	.00	.15	.08
O6: Values	-.18	-.06	-.05	.01
Agreeableness	-.25*	-.01	.19	.15
A1: Trust	-.21*	-.09	.09	.10
A2: Straightforwardness	-.24*	-.00	.15	.13
A3: Altruism	-.21	-.01	.21	.15
A4: Compliance	-.21	.03	.14	.14
A5: Modesty	-.03	.04	.14	.07
A6: Tendermindedness	-.12	-.03	.05	.05
Conscientiousness	-.06	.06	.35*	.29*
C1: Competence	-.14	-.02	.27*	.19
C2: Order	.03	.09	.28*	.24*
C3: Dutifulness	-.03	.12	.41*	.26*
C4: Achievement Striving	.03	.02	.32*	.16
C5: Self-discipline	-.14	.00	.24*	.18
C6: Deliberation	-.08	.07	.28*	.27*

Note. * $p < .001$ according to the Bonferroni adjustment; OCPD = Obsessive-

Compulsive Personality Disorder symptom score, OCPD_{res} = Obsessive-Compulsive

Personality Disorder symptom score, accounted for the general pathology factor for

OCPD.

Table 2

*Correlations between DAPP-BQ scores and ADP-IV Obsessive-Compulsive Personality**Disorder Symptoms*

DAPP-BQ dimensions	OCPD	OCPD _{res}
Submissiveness	.23*	.07
Cognitive Dysregulation	.15	-.09
Identity Problems	.20*	-.07
Affective Lability	.19*	-.07
Oppositionality	.04	-.18*
Anxiousness	.23*	.05
Social Avoidance	.28*	.10
Suspiciousness	.23*	.07
Insecure Attachment	.21*	-.02
Narcissism	.09	-.01
Stimulus Seeking	-.04	-.21*
Callousness	.01	-.11
Rejection	.06	-.00
Conduct Problems	-.00	-.25*
Intimacy Problems	.06	.07
Restricted Expression	.18*	.12
Compulsivity	.20*	.27*

Note. * $p < .01$ according to the Bonferroni adjustment; OCPD = Obsessive-Compulsive Personality Disorder symptom score, OCPD_{res} = Obsessive-Compulsive Personality Disorder symptom score, accounted for the general pathology factor for OCPD.

Table 3

Correlations between DIPS I scores at domain- and facet-level and ADP-IV Obsessive-Compulsive Personality Disorder Symptoms

DIPS I domains and facets	OCPD	OCPD _{res}
Disagreeableness	.46*	-.14
Hyperexpressive traits	.37*	-.10
Hyperactive traits	.43*	.03
Dominance/Egocentrism	.41*	-.07
Impulsivity	.37*	-.16
Irritable-Aggressive traits	.43*	-.11
Disorderliness	.28*	-.12
Distraction	.36*	-.14
Risk behavior	.32*	-.13
Narcissistic traits	.33*	-.13
Affective lability	.41*	-.13
Resistance	.31*	-.23*
Lack of empathy	.41*	-.11
Emotional Instability	.59*	.07
Dependency	.50*	.07
Anxious traits	.56*	.11
Lack of Self-confidence	.43*	.02
Insecure attachment	.57*	.14
Submissiveness	.48*	.08
Ineffective coping	.47*	-.02
Separation anxiety	.46*	.05

Depressive traits	.48*	-.06
Inflexibility	.61*	.14
Introversion	.52*	-.00
Shyness	.47*	-.03
Withdrawal traits	.46*	.07
Paranoid traits	.42*	-.07
Compulsivity	.57*	.43*
Extreme achievement striving	.47*	.35*
Perfectionism	.59*	.40*
Extreme order	.46*	.40*

Note. * $p < .001$ according to the Bonferroni adjustment; OCPD = Obsessive-Compulsive Personality Disorder symptom score, OCPD_{res} = Obsessive-Compulsive Personality Disorder symptom score, accounted for the general pathology factor for OCPD.

Understanding OCPD in adolescence

Table 4

Regression Results

	Predictors	ΔR^2_{adj}	R^2_{change}	Significant predictors
OCPD	Step 1: NEO domains	.22 ^{***}		NEO: Neuroticism (+++), Conscientiousness (++)
	Step 2: DAPP-BQ factor scores	.24 ^{***}	.03 [*]	NEO: Neuroticism (+++), DAPP-BQ: Compulsivity (+)
OCPD _{res}	Step 1: NEO domains	.16 ^{***}		NEO: Agreeableness (++) , Neuroticism (+++), Conscientiousness (+++)
	Step 2: DAPP-BQ factor scores	.18 ^{***}	.03 _(ns)	NEO: Agreeableness (+), Neuroticism (++) , Conscientiousness (++) , DAPP-BQ: Compulsivity (++)
OCPD	Step 1: NEO domains	.22 ^{***}		NEO: Neuroticism (+++), Conscientiousness (++)
	Step 2: DIPSI domains	.47 ^{***}	.25 ^{***}	DIPSI: Compulsivity (+++)
OCPD _{res}	Step 1: NEO domains	.15 ^{***}		NEO: Agreeableness (++) , Neuroticism (++) , Conscientiousness (+++)
	Step 2: DIPSI domains	.28 ^{***}	.14 ^{***}	NEO: Agreeableness (+), DIPSI: Disagreeableness (-), Compulsivity (+++)

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; Significant predictors = those NEO, DAPP-BQ, and DIPSI domain/factor scores significantly related to Axis II Obsessive-Compulsive Personality Disorder at that step; +++ = domain positively related at $p < .001$; ++ = domain positively related at $p < .01$; + = domain positively related at $p < .05$; --- = domain negatively related at $p < .001$; -- = domain negatively related at $p < .01$;

Understanding OCPD in adolescence

- = domain negatively related at $p < .05$.