

The Continuity Between *DSM-5* Obsessive-Compulsive Personality Disorder Traits and Obsessive-Compulsive Symptoms in Adolescence: An Item Response Theory Study

Elie De Caluwé, MSc; David C. Rettew, MD; and Barbara De Clercq, PhD

ABSTRACT

Objective: Various studies have shown that obsessive-compulsive symptoms exist as part of not only obsessive-compulsive disorder (OCD) but also obsessive-compulsive personality disorder (OCPD). Despite these shared characteristics, there is an ongoing debate on the inclusion of OCPD into the recently developed *DSM-5* obsessive-compulsive and related disorders (OCDs) category. The current study aims to clarify whether this inclusion can be justified from an item response theory approach.

Method: The validity of the continuity model for understanding the association between OCD and OCPD was explored in 787 Dutch community and referred adolescents (70% female, 12–20 years old, mean = 16.16, SD = 1.40) studied between July 2011 and January 2013, relying on item response theory (IRT) analyses of self-reported OCD symptoms (Youth Obsessive-Compulsive Symptoms Scale [YOCSS]) and OCPD traits (Personality Inventory for *DSM-5* [PID-5]).

Results: The results support the continuity hypothesis, indicating that both OCD and OCPD can be represented along a single underlying spectrum. OCD, and especially the obsessive symptom domain, can be considered as the extreme end of OCPD traits.

Conclusions: The current study empirically supports the classification of OCD and OCPD along a single dimension. This integrative perspective in OC-related pathology addresses the dimensional nature of traits and psychopathology and may improve the transparency and validity of assessment procedures.

J Clin Psychiatry 2014;75(11):e1271–e1277
© Copyright 2014 Physicians Postgraduate Press, Inc.

Submitted: February 5, 2014; accepted May 14, 2014 (doi:10.4088/JCP.14m09039).

Corresponding author: Elie De Caluwé, MSc, Department of Developmental, Personality and Social Psychology, Ghent University, Henri Dunantlaan 2, B-9000 Ghent, Belgium (Elie.DeCaluwe@UGent.be).

Over the last decades, research has convincingly shown that obsessive-compulsive symptoms exist not only in the course of the obsessive-compulsive disorder (OCD) but also in disorders that share several features with OCD in terms of phenomenology, comorbidity, neurology, genetic factors, and treatment response.¹ It has been suggested that these related disorders can be positioned along a single dimension of obsessive-compulsive behavior,² which is reflected in the new chapter “Obsessive-Compulsive and Related Disorders” (OCDs) of the recently released fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*.³ This category includes OCD, body dysmorphic disorder, hair-pulling disorder, skin-picking disorder, hoarding disorder, OCDs due to substance/medication or another medical condition, and other specified and unspecified OCDs.³

Prior to the publication of *DSM-5*, there had been substantial debate among researchers and clinicians on the disorders to be included in this OCDs category.^{4,5} One candidate disorder that was ultimately not included is obsessive-compulsive personality disorder (OCPD). Proponents argued that OCPD resembles OCD in numerous aspects,^{6–8} including the symptom profile, specific heritability of OCPD within families of OCD probands, a comparable treatment response to selective serotonin reuptake inhibitors, similar frontostriatal neurocircuitry aspects,^{6,8} and similar presence of developmental precursors that are already observable at a young age.^{9–11} However, differences have also been put forward,⁸ such as the finding that OCD is experienced as an egodystonic and seriously disabling disorder,³ whereas OCPD is believed to be more egosyntonic¹² and has been described as the personality disorder with the least functional impairment.¹³ Recently, Pinto and colleagues¹⁴ also found that OCD is characterized much more by obsessions, whereas OCPD generally evidences a more pronounced level of self-control.

This debate finally resulted in the decision to keep OCPD solely in the personality disorders section and not to cross-list it in the OCDs chapter. Possibly, the new proposal was too controversial,⁸ or the evidence on the continuity between OCPD and OCD was too limited.⁸ The current article aims to address this issue and explores potential continuities between OCPD and OCD using item response theory (IRT) (see below).¹⁵ Researchers can apply IRT in community samples when examining clinical variables,¹⁵ enabling them to investigate whether 2 constructs can be situated on the same continuum (continuity hypothesis) and to explore their relative severity.^{16,17} Remarkably, IRT has not yet been used to specifically elucidate whether OCPD traits and OCD symptoms can be situated on the same continuum. Also, in younger age groups, this issue has not been addressed, despite the evidence underscoring that both OCPD traits¹⁰ and OCD symptoms¹¹ occur in adolescents, that early OCD increases the risk for developing OCPD in adulthood, and that early-onset OCD and OCPD share a common pathogenesis.¹⁸

The current study has 2 objectives: First, we empirically test the validity of the continuity hypothesis for OCPD traits and OCD symptoms in adolescence. Second, we examine whether OCD symptoms can be understood as more severe compared to OCPD traits. These OCPD traits will be described with the newly constructed *DSM-5* trait measure Personality Inventory for *DSM-5* (PID-5),¹⁹ whereas OCD symptoms will be measured with a recently developed and age-specific tool

- Current evidence supports continuity between obsessive-compulsive personality disorder (OCPD) and obsessive-compulsive disorder (OCD) in youth that goes from perseveration and rigid perfectionism through clinically significant compulsions and severe obsessions.
- Cross-listing OCPD in both the personality disorders and obsessive-compulsive and related disorders chapters in future editions of the *DSM* may represent a more valid taxonomic background for assessing obsessive-compulsive-related pathology.
- To assess OCPD from adolescence onward, clinicians can rely on the Personality Inventory for *DSM-5*, focusing on the facets of rigid perfectionism and perseveration.

capturing early obsessive-compulsive symptomatology and impairment (Youth Obsessive-Compulsive Symptoms Scale [YOCSS]²⁰).

METHOD

Participants and Procedure

A combined sample ($N = 787$, 70% female, 12–20 years old; mean age = 16.16 years, $SD = 1.40$) of community ($n = 686$, 72.2% female; mean age = 16.31 years, $SD = 1.27$) and referred ($n = 101$, 55.4% female; mean age = 15.14 years, $SD = 1.79$) adolescents was used for the current study and assessed between July 2011 and January 2013. Adolescents from the community sample were recruited in high schools and completed the questionnaires at school or at home after written informed consent was provided. The referred sample included adolescents referred to mental health services for a variety of mental health problems. This sample was collected in the course of the Personality and Affect Longitudinal Study (for further information on sample characteristics, see De Bolle et al²¹). Written informed consent was obtained from all participants, and the Ghent University Ethical Review Board approved the study.

Measures

PID-5. All adolescents described their maladaptive personality traits by answering 220 items on a 4-point Likert scale (0 = “very false or often false,” 1 = “sometimes or somewhat false,” 2 = “sometimes or somewhat true,” and 3 = “very true or often true”).¹⁹ These items group together into 25 empirically derived lower-level trait pathology facets that are hierarchically organized in 5 broad maladaptive trait domains. Acceptable psychometric properties are reported for use in adolescents.²² In the current study, only the PID-5 facets perseveration, rigid perfectionism, intimacy avoidance, and restricted affectivity are included because these describe OCPD in the *DSM-5* personality disorders model in section III. These 4 PID-5 facets showed acceptable to good reliability in the current study, with α coefficients of .83, .87, .74, and .75, respectively. For an OCPD diagnosis, *DSM-5* suggests that 3 or more of these traits have to be present, including rigid perfectionism as a necessary condition. This algorithm,

however, is more stringent compared to a previous *DSM-5* proposal,^{23–29} suggesting only 2 facets (perseveration and rigid perfectionism) that were put forward based on earlier—and congruent with later—research.

YOCSS. The YOCSS is a self-report questionnaire that independently assesses the presence (57 items) and impairment (11 items) of early obsessive-compulsive symptoms, with items rated on a 5-point Likert scale (1 = “not at all characteristic,” 2 = “little characteristic,” 3 = “more or less characteristic,” 4 = “characteristic,” and 5 = “very characteristic”).²⁰ The 57 items that describe obsessive-compulsive symptoms empirically cluster together in 3 OCD symptom domains (obsessive, compulsive, and order/clean/perfect symptom domains), each including several facets. The YOCSS shows an acceptable reliability, with support for convergent and incremental predictive validity beyond other obsessive-compulsive measures.²⁰ The present study reports only on the OCD symptom domains, showing adequate Cronbach α values of .89 (obsessive), .87 (compulsive), and .88 (order/clean/perfect), as well as on the impairment score ($\alpha = .89$).

Statistics

Item response theory analyses were conducted to test whether OCPD traits and OCD symptoms reflect the same underlying latent trait (continuity hypothesis). We relied on IRT and Pearson product-moment correlations to investigate whether OCD is located at a more maladaptive position of the distribution and to explore which of the specific OCD symptom domains can be considered as most severe. We specifically used the Samejima graded response IRT model (a 2-parameter logistic IRT model for 1 dimension), which is appropriate for ordered categorical responses.³⁰ Both constructs are not immediately observable but can be assessed indirectly by items that cluster together in facets or symptom domains. Hence, the items within each of the PID-5 facets (and YOCSS symptom domains) were collapsed to indicate the facet (or symptom domain) as an ordinal variable. Thus, we used the highest (ie, aggregated) level of each construct (OCPD PID-5 trait facets and OCD YOCSS symptom domains) and not the individual items.

As the standard IRT procedure requires discrete variables, we recoded the mean scores of these facets and symptom domains into 3-category discrete variables based on the original response labels of the PID-5 (ie, 0 = “very false or often false,” 1 = “sometimes or somewhat false,” 2 = “sometimes or somewhat true,” and 3 = “very true or often true”) and YOCSS (ie, 1 = “not at all characteristic,” 2 = “little characteristic,” 3 = “more or less characteristic,” 4 = “characteristic,” and 5 = “very characteristic”), as suggested by De Bolle et al.²¹ A 3-category metric was chosen because both instruments rely on different response formats, thus requiring a common metric to allow for a direct comparison.^{16,21,31} For the OCPD facets, we used the following cutoffs: score < 1 (category 0), $1 \leq \text{score} < 2$ (category 1), and score ≥ 2 (category 2). Similarly, we followed De Bolle et al²¹ and introduced cutoffs for the OCD symptom domains: score < 2.5 (category 0), $2.5 \leq \text{score} < 3.5$

(category 1), and score ≥ 3.5 (category 2). Hence, 3 categories were obtained (0 = “not true,” 1 = “somewhat or sometimes true,” and 2 = “very or often true”).

All analyses were carried out in Mplus 7.1 (Muthén & Muthén, 2013; Los Angeles, California)³² and SPSS 20 (IBM Corporation; Armonk, New York).³³ To verify unidimensionality, which is a prerequisite for an IRT model with 1 latent variable, we conducted exploratory factor analysis (EFA) (oblimin rotation) and confirmatory factor analysis (CFA) with categorical factor indicators, relying on the weighted least square mean and variance adjusted estimator. The comparative fit index (CFI)³⁴ and Tucker Lewis index (TLI)³⁵ were reported, with values higher than 0.90 pointing to a good fit and values higher than 0.95 pointing to an excellent fit.³⁶ Also, the root mean square error of approximation (RMSEA)³⁷ was reported, with values of $\leq .10$ pointing to an acceptable fit,^{38,39} especially in case of models with low degrees of freedom.⁴⁰ Finally, the standardized root mean square residual (SRMR)³⁶ was reported, with values $\leq .08$ referring to a good model fit.³⁶

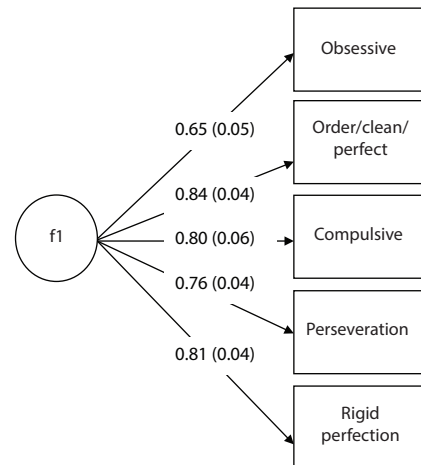
RESULTS

Unidimensionality Verification

An EFA on the OCPD + OCD model (including PID-5 perseveration, PID-5 rigid perfectionism, PID-5 intimacy avoidance, PID-5 restricted affectivity, YOCSS obsessive symptom domain, YOCSS compulsive symptom domain, and YOCSS order/clean/perfect symptom domain) resulted in the following eigenvalues: 3.58, 1.29, 0.70, . . . suggesting a 2-factor model. This 2-factor model (CFI = 0.98, TLI = 0.95, RMSEA = 0.06, SRMR = 0.06) showed that 2 OCPD facets (intimacy avoidance and restricted affectivity) formed a separate factor, with loadings of 0.58 and 0.69. However, given that unidimensionality is a prerequisite for an IRT model with 1 latent variable, we explored the 1-factor EFA solution showing an acceptable fit with indices: CFI = 0.92 and RMSEA = 0.10. However, the TLI (0.88) and the SRMR (0.12) were inadequate, and the loadings of intimacy avoidance (0.42) and restricted affectivity (0.54) were substantially lower. According to Samuel et al,^{16,31} we dropped the OCPD facets intimacy avoidance and restricted affectivity to improve the model fit. This decision is also in line with studies showing that OCPD can be adequately captured by perseveration and rigid perfectionism,^{23–29} which are the 2 remaining facets in the current model. After removing the intimacy avoidance and restricted affectivity facets, the EFA resulted in the following eigenvalues of 3.23, 0.84, 0.46, . . . suggesting a 1-factor model.

Subsequently, a CFA was conducted to test the unidimensionality of the new OCPD + OCD model (perseveration, rigid perfectionism, obsessive symptom domain, compulsive symptom domain, and order/clean/perfect symptom domain). An adequate fit of the 1-factor model was obtained, with CFI = 0.96, TLI = 0.93, and RMSEA = 0.10, confirming essential unidimensionality.⁴¹ The standardized coefficients and standard errors are presented in Figure 1.

Figure 1. One-Factor Confirmatory Model for the OCPD + OCD Model^a



^aCoefficients (loadings) on the diagram are standardized, and standard errors are presented in parentheses. OCPD was measured by 2 PID-5 facets (perseveration and rigid perfectionism) and OCD by 3 YOCSS symptom domains (obsessive, order/clean/perfect, and compulsive symptom domain).

Abbreviations: f1 = factor 1, OCD = obsessive-compulsive disorder, OCPD = obsessive-compulsive personality disorder, PID-5 = Personality Inventory for DSM-5, YOCSS = Youth Obsessive-Compulsive Symptoms Scale.

IRT Parameter Estimation

Table 1 presents the IRT parameters for the OCPD + OCD model. The discrimination parameters (α) refer to the strength of the OCPD facets and OCD symptom domains to measure the underlying latent trait. All discrimination parameter values are higher than 1.35, indicating a high discrimination, except for the obsessive symptom domain that shows a rather moderate discrimination of 1 (ie, between 0.65 and 1.34).⁴² These results suggest that all indicators are able to discriminate among individuals across the latent trait that underlies the OCPD and OCD constructs. In addition, the OCPD facets represented a larger mean α value (2.31) than the OCD symptom domains (2.06), indicating that the OCPD facets discriminate slightly better among individuals across the latent trait. To examine if this difference is statistically significant, we followed the procedure of Samuel et al³¹ and converted the means and SD values to Cohen d values. The effect size for the difference in a parameter values was 0.34, which is generally considered a small effect.⁴³

A more stringent test for the continuity hypothesis can be derived from the difficulty parameters (β), referring to the severity of the indicators. Parameters with higher values are more severe, as they are more difficult to endorse and are graphically situated on the right part of the continuum. The current difficulty parameters for threshold 1 demonstrate that the level of the latent trait at which the likelihood of responding “somewhat or sometimes true” becomes higher than that of responding “not true,” is systematically higher for the OCD than for the OCPD indicators, which is consistent with the continuity hypothesis (Table 1). The Cohen d effect size for the difference in the β_1 parameter values of OCD and OCPD was 7.03, signifying a very large effect⁴³ and

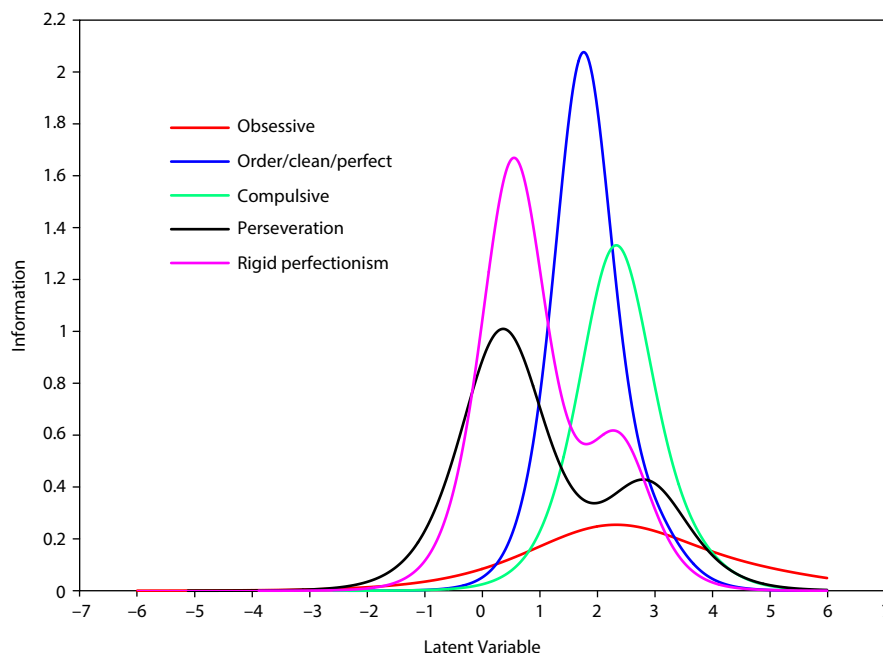
Table 1. Item Response Theory Model Parameter Estimates for the OCPD + OCD Model

Parameter	OCPD (PID-5 facets)			OCD (YOCSS symptom domains)				Cohen <i>d</i> ^b
	Perseveration	Rigid Perfectionism	Mean ^a	Obsessive	Compulsive	OCP	Mean ^a	
Discrimination or α (SE)	2.02 (0.25)	2.60 (0.40)	2.31	1.00 (0.00)	2.30 (0.58)	2.88 (0.71)	2.06	0.34
Difficulty or β (SE)								
Threshold 1	0.35 (0.13)	0.54 (0.21)	0.45	2.28 (0.12)	2.32 (0.85)	1.76 (0.91)	2.12	7.03
Threshold 2	2.86 (0.47)	2.37 (0.67)	2.62	5.09 (0.36)	3.66 (1.13)	3.05 (1.38)	3.94	1.69

^aThe mean value of the IRT parameters was calculated for both the OCPD and OCD constructs (eg, the discrimination parameters for perseveration and rigid perfectionism are 2.02 and 2.60, respectively, and the mean of these 2 values is 2.31).

^bCohen *d* effect sizes.

Abbreviations: IRT = item response theory, OCD = obsessive-compulsive disorder, OCP = order/clean/perfect, OCPD = obsessive-compulsive personality disorder, PID-5 = Personality Inventory for *DSM-5*, SE = standard error, YOCSS = Youth Obsessive-Compulsive Symptoms Scale.

Figure 2. Information Curves for the OCPD + OCD Model Indicating OCPD-OCD Continuity^a

^aOCPD was measured by 2 PID-5 facets (perseveration and rigid perfectionism) and OCD by 3 YOCSS symptom domains (obsessive, order/clean/perfect, and compulsive symptom domain). The latent variable scale can be thought of as analogous to a *z* score scale (mean = 0, SD = 1).
Abbreviations: OCD = obsessive-compulsive disorder, OCPD = obsessive-compulsive personality disorder, PID-5 = Personality Inventory for *DSM-5*, YOCSS = Youth Obsessive-Compulsive Symptoms Scale.

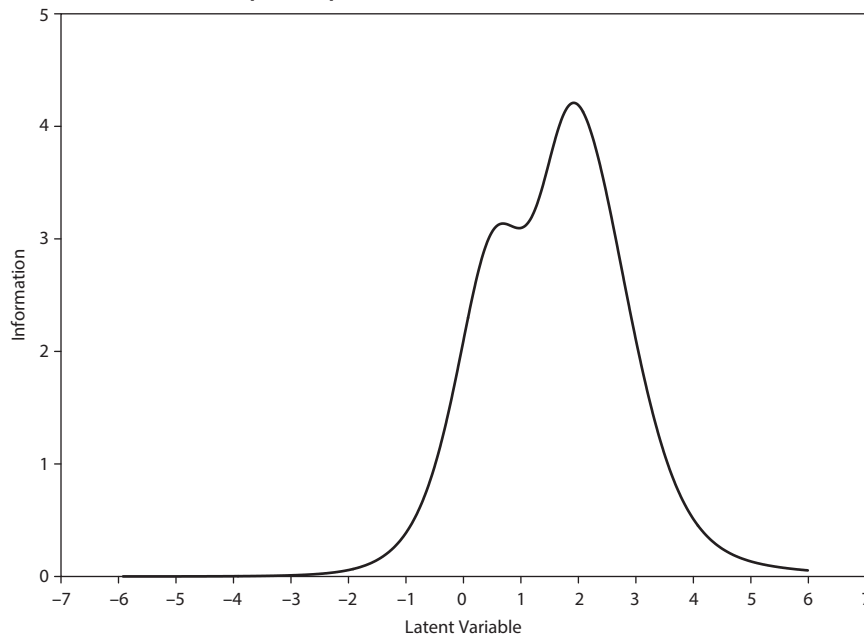
indicating that the OCD variables are much more extreme than the OCPD variables. Similarly, difficulty parameters for threshold 2 systematically show that the latent trait at which the likelihood of responding “very or often true” becomes higher than that of responding “somewhat or sometimes true” is always higher for the OCD than for the OCPD indicators (with a large Cohen *d* effect size of 1.69),⁴³ again showing that the OCD variables are more extreme than the OCPD variables and supporting the continuity hypothesis (Table 1).

This continuity result is also reflected in the information curves for the OCPD + OCD model (Figure 2). “Information” (y-axis) is an index that describes how precisely a facet or symptom domain can measure a trait at various points along the trait continuum (x-axis),⁴⁴ plotted as a function of the latent trait level. The discrimination parameters (α) determine the slopes of the information curves, and the difficulty parameters (β) determine the areas where the slopes of the information curves are the most steep. Figure

2 shows that the PID-5 OCPD facets and YOCSS OCD symptom domains are situated across the underlying latent trait in terms of information value and indicate continuity. More specifically, the OCPD and OCD variables jointly delineate a spectrum of obsessive-compulsive phenomena, ranging from perseveration and rigid perfectionism (on the left, ie, less severe) through clinically significant compulsive behavior and severe obsessional thoughts (on the right, ie, more severe).

By summing the individual information curves from Figure 2, a test information function for the OCPD + OCD model was obtained in Figure 3, representing the amount of information provided by all the variables together.⁴⁵ More specifically, this figure shows a mount-shaped test information curve as a function of a latent variable (ie, obsessive-compulsive phenomena level) on a *z* score metric (mean = 0, SD = 1). This figure reflects that both the OCPD and OCD variables index the broader obsessive-compulsive

Figure 3. Test Information Function for the OCPD + OCD Model as a Function of a Latent Variable (ie, obsessive-compulsive phenomena level) on a z Score Metric (mean = 0, SD = 1)^a



^aThe graphic indicates that both the OCPD and OCD variables index the broader obsessive-compulsive spectrum at different levels of severity.

Abbreviations: OCD = obsessive-compulsive disorder, OCPD = obsessive-compulsive personality disorder.

spectrum at different levels of severity, pointing to the continuity of obsessive-compulsive phenomena. Hence, both Figures 2 and 3 clearly support the OCPD-OCD continuity hypothesis.

The results further show that the OCD indicators are located at more extreme levels of the continuum compared to the OCPD indicators, underscoring that the OCD indicators can be interpreted as more severe. This is also supported by the finding that the YOCSS impairment score has a significantly stronger (z statistic = 6.1, $P < .001$) correlation with the OCD symptom domains (mean $r = 0.55$; range, 0.48–0.63; $P < .001$) than with the OCPD facets (mean $r = 0.30$; range, 0.21–0.39; $P < .001$).

With OCD subcomponents as the focus, the results show that the obsessive symptom domain has the highest IRT difficulty parameter and can be interpreted as the most severe OCD symptom domain. This domain also showed the highest Pearson correlation with the YOCSS impairment score ($r = 0.63$, $P < .001$), whereas the other OCD domains show a lower, though significant, correlation with the impairment score (0.48 for the order/clean/perfect and 0.53 for the compulsive symptom domain).

DISCUSSION

The current study aimed to contribute to the debate on whether OCPD should also be represented in a spectrum that includes obsessive-compulsive-related disorders based on evidence suggesting that OCPD resembles OCD in various ways.^{6–8} In the *DSM-5*, however, OCPD was kept solely in the personality disorders section, potentially because evidence on the continuity of OCPD and OCD was too scarce during the *DSM-5* revision process.⁸ The present study aimed to

further elucidate this continuity hypothesis on OCD-OCPD from an empirical perspective, and it conducted IRT analyses in a large group of adolescents. The present study specifically hypothesized that OCD symptoms can be interpreted as more severe compared to OCPD traits and explored the degree of severity for each of the 3 specific OCD symptom domains.

The IRT analyses, in addition to the prerequisite factor analyses, clearly showed that the OCD and OCPD constructs mapped onto the same underlying latent trait, hence underscoring the continuity hypothesis. This finding corroborates the results of a recent study²¹ on personality-psychopathology relations at a young age, demonstrating that the continuity model can be considered as a viable model for explaining many associations between traits and psychopathology. Similar conclusions have been drawn from studies on other psychiatric disorders, perhaps most notably with regard to attention-deficit/hyperactivity disorder.⁴⁶ The current findings indicate that the traits-psychopathology continuity not only applies to higher-order dimensions²¹ but also can serve as a valid framework for understanding the relationship between more specific traits and disorders.

Consistent with the literature, the analyses confirmed that OCD can be considered as more severe than OCPD.^{3,12,13,47} Across the obsessive-compulsive domains, the obsessive domain appears to be the most severe aspect of OCD symptomatology, referring to “recurrent and persistent thoughts, urges or images that are experienced as intrusive and unwanted.”^{3(p235)} Given that OCD and OCPD-related pathology share several components that shape their continuity and are graphically closely related, this finding may suggest that it is especially the obsessive symptomatology as defined by the American Psychiatric Association criteria that

causes the subjective feelings of impairment. This hypothesis is congruent with a study in adults,⁴⁸ indicating that the disabling character of obsessions is much more substantial compared to other symptoms of OCD.

The present study also sheds some light on the conflicting OCPD definitions. One definition is based on the recently constructed *DSM-5* trait model that relies on 4 *DSM-5* trait facets (rigid perfectionism, perseveration, intimacy avoidance, and restricted affectivity).³ An alternative OCPD definition includes only rigid perfectionism and perseveration and is based on empirical evidence advocating that a comprehensive OCPD description can be obtained by relying solely on these 2 facets.^{23–29,49} The present results support this second conceptualization, as we demonstrated that only these 2 facets were located on a continuum with OCD. Moreover, these results are also congruent with a study⁵⁰ showing that the PID-5 facets rigid perfectionism and perseveration are significant OCPD predictors, whereas the other 2 are not.

The current study results suggested that intimacy avoidance and restricted affectivity (ie, the 2 remaining OCPD PID-5 traits) had to be removed from the model in order to achieve unidimensionality. This can possibly be explained by the fact that these traits are conceived as indicators of the higher-order domain of detachment, shifting away the attention from the conscientiousness/disinhibition core of OCPD.³ A model that includes these 2 facets in addition to rigid perfectionism and perseveration may thus not align with the core aspects of OCPD, hence resulting in a less adequate fit.

Clinical Implications

The current IRT results demonstrate that early OCPD traits and OCD symptoms can be situated on the same spectrum, ranging from mild to severe. This finding of continuity suggests that OCPD may also be included in the OCRDs category, since they do not qualitatively differ from each other, at least not in adolescence. The cross-listing of OCPD in the OCRDs chapter beyond its primary classification within the personality disorder section may be clinically relevant because it would offer a better taxonomic background for describing and treating 2 manifestations of psychopathology that are, in essence, related. Their classification under a single umbrella of OC-related disorders addresses the traditional problems of co-occurrence across different categories, as well as the difficulties in assigning specific symptoms to 1 of the 2 disorders.^{6,8} Such integrative perspective is also in line with the finding that OC-related pathology shares a common genetic liability from childhood onward,¹⁸ as indicated by the fact that OCPD is 2 times more common in relatives of OCD patients.^{4,8}

Classifying both OCD and OCPD in a single taxonomic category also fits with how broad taxonomic models, such as the five-factor theory,⁵¹ conceptualize the trait-psychopathology interrelationship. More specifically, this theory understands symptomatology as a characteristic maladaptation, shaped by the biologically determined trait structure of the individual and the environment. Traits

and symptoms are hence considered as related constructs. The interactive contribution of individual dispositions and environmental aspects to the development of behavioral, emotional, or cognitive manifestations of personality is more explicitly elaborated in the trait-activation theory.⁵² A recent extension of this model toward the specific developmental processes of personality disorder precipitants was provided by De Fruyt and De Clercq.⁵³ On the basis of the idea that traits are not necessarily maladaptive but rather turn into maladaptive patterns that lead to impairment under certain circumstances and in specific contexts,⁵⁴ they proposed to evaluate the level of impairment of a young individual in terms of the developmental tasks at school, in family life, and in social functioning that are specified for children or adolescents. This severity/impairment level may serve as a starting point for clinical decision making in terms of treatment and implies that treatment should focus on those aspects that are most strongly related to impairment. Reconceptualizing the assessment of OC-related pathology in terms of this severity, however, may be one of the major challenges for clinical practice.

Limitations and Suggestions for Further Research

Our study should be viewed with some limitations. First, the sample was not diagnosed with OCD/OCPD; however, IRT can be applied when psychopathology does not reach the level of diagnosis.¹⁴ Nevertheless, future research should be expanded to clinical samples. Second, although self-reports seem a very reliable source of information,^{55,56} future studies should investigate whether these results can be replicated using observer ratings. Third, we focused on adolescents, but future studies may examine the generalizability of this continuity idea toward other age groups. It is, for instance, an interesting avenue to explore whether the continuous nature of OCD and OCPD at a young age remains similar across age or whether adulthood is characterized by a dimensionally more complex relationship among both disorders.

CONCLUSION

Based on IRT analyses in adolescents, this study showed that OCPD traits and OCD symptoms are related constructs that can be described along a single underlying spectrum, with OCD (especially the obsessive symptom domain) holding a more extreme position in terms of severity compared to OCPD. This finding may create new avenues for including OCPD into revisions of the OCRDs category, ultimately attempting to create a psychiatric taxonomy that values the dimensional nature of psychopathology and further advocates diagnostic parsimony.

Author affiliations: Department of Developmental, Personality and Social Psychology, Ghent University, Ghent, Belgium (Dr De Clercq and Ms De Caluwé); and Departments of Psychiatry and Pediatrics, University of Vermont College of Medicine, Burlington (Dr Rettew).

Potential conflicts of interest: Dr Rettew has received external funding from WW Norton and *Psychology Today*. Dr De Clercq and Ms De Caluwé report no conflicts of interest.

Funding/support: None reported.

Acknowledgment: The authors thank the reviewers for their constructive comments on an earlier version of this article.

REFERENCES

- Hollander E. Obsessive-compulsive disorder and spectrum across the life span. *Int J Psychiatry Clin Pract.* 2005;9(2):79–86.
- Hollander E, Benzaquen SD. The obsessive-compulsive spectrum disorders. *Int Rev Psychiatry.* 1997;9(1):99–109.
- American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition. Arlington, VA: American Psychiatric Association; 2013.
- Hollander E, Braun A, Simeon D. Should OCD leave the anxiety disorders in DSM-V? the case for obsessive compulsive-related disorders. *Depress Anxiety.* 2008;25(4):317–329.
- Mataix-Cols D, Pertusa A, Leckman JF. Issues for DSM-V: how should obsessive-compulsive and related disorders be classified? *Am J Psychiatry.* 2007;164(9):1313–1314.
- Fineberg NA, Sharma P, Sivakumaran T, et al. Does obsessive-compulsive personality disorder belong within the obsessive-compulsive spectrum? *CNS Spectr.* 2007;12(6):467–482.
- Hollander E, Kim S, Braun A, et al. Cross-cutting issues and future directions for the OCD spectrum. *Psychiatry Res.* 2009;170(1):3–6.
- Phillips KA, Stein DJ, Rauch SL, et al. Should an obsessive-compulsive spectrum grouping of disorders be included in DSM-V? *Depress Anxiety.* 2010;27(6):528–555.
- Aelterman N, De Clercq B, De Bolle M, et al. General and maladaptive personality dimensions in pediatric obsessive-compulsive symptoms. *Child Psychiatry Hum Dev.* 2011;42(1):24–41.
- Aelterman N, Decuyper M, De Fruyt F. Understanding obsessive-compulsive personality disorder in adolescence: a dimensional personality perspective. *J Psychopathol Behav Assess.* 2010;32(4):467–478.
- Merlo LJ, Storch EA. Obsessive-compulsive disorder: tools for recognizing its many expressions. *J Fam Pract.* 2006;55(3):217–222.
- Millon T, Davis RD, Millon CM, et al. *Disorders of Personality: DSM-IV and Beyond*. New York, NY: Wiley; 1996.
- Skodol AE, Gunderson JG, McGlashan TH, et al. Functional impairment in patients with schizotypal, borderline, avoidant, or obsessive-compulsive personality disorder. *Am J Psychiatry.* 2002;159(2):276–283.
- Pinto A, Steinglass JE, Greene AL, et al. Capacity to delay reward differentiates obsessive-compulsive disorder and obsessive-compulsive personality disorder. *Biol Psychiatry.* 2014;75(8):653–659.
- McKay D, Neziroglu F. Methodological issues in the obsessive-compulsive spectrum. *Psychiatry Res.* 2009;170(1):61–65.
- Samuel DB, Simms LJ, Clark LA, et al. An item response theory integration of normal and abnormal personality scales. *Pers Disord.* 2010;1(1):5–21.
- Walton KE, Roberts BW, Krueger RF, et al. Capturing abnormal personality with normal personality inventories: an item response theory approach. *J Pers.* 2008;76(6):1623–1648.
- Maina G, Albert U, Salvi V, et al. Early-onset obsessive-compulsive disorder and personality disorders in adulthood. *Psychiatry Res.* 2008;158(2):217–225.
- Krueger RF, Derringer J, Markon KE, et al. Initial construction of a maladaptive personality trait model and inventory for DSM-5. *Psychol Med.* 2012;42(9):1879–1890.
- De Caluwé E, De Clercq B. Development and Validation of the Youth Obsessive-Compulsive Symptoms Scale (YOCSS) [published online ahead of print December 29, 2013]. *Child Psychiatry Hum Dev.*
- De Bolle M, Beyers W, De Clercq B, et al. General personality and psychopathology in referred and nonreferred children and adolescents: an investigation of continuity, pathoplasty, and complication models. *J Abnorm Psychol.* 2012;121(4):958–970.
- De Clercq B, De Fruyt F, De Bolle M, et al. The hierarchical structure and construct validity of the PID-5 trait measure in adolescence. *J Pers.* 2014;82(2):158–169.
- Hopwood CJ, Schade N, Krueger RF, et al. Connecting DSM-5 personality traits and pathological beliefs: toward a unifying model. *J Psychopathol Behav Assess.* 2013;35(2):162–172.
- Hopwood CJ, Thomas KM, Markon KE, et al. DSM-5 personality traits and DSM-IV personality disorders. *J Abnorm Psychol.* 2012;121(2):424–432.
- Morey LC, Skodol AE. Convergence between DSM-IV-TR and DSM-5 diagnostic models for personality disorder: evaluation of strategies for establishing diagnostic thresholds. *J Psychiatr Pract.* 2013;19(3):179–193.
- Samuel DB, Hopwood CJ, Krueger RF, et al. Comparing methods for scoring personality disorder types using maladaptive traits in DSM-5. *Assessment.* 2013;20(3):353–361.
- Samuel DB, Lynam DR, Widiger TA, et al. An expert consensus approach to relating the proposed DSM-5 types and traits. *Pers Disord.* 2012;3(1):1–16.
- Trull TJ. The Five-Factor Model of personality disorder and DSM-5. *J Pers.* 2012;80(6):1697–1720.
- Widiger TA. The DSM-5 dimensional model of personality disorder: rationale and empirical support. *J Pers Disord.* 2011;25(2):222–234.
- Samejima F. Estimation of latent ability using a response pattern of graded scores. *Psychometrika.* 1969;34(4p2):1.
- Samuel DB, Carroll KM, Rounsaville BJ, et al. Personality disorders as maladaptive, extreme variants of normal personality: borderline personality disorder and neuroticism in a substance using sample. *J Pers Disord.* 2013;27(5):625–635.
- Muthén LK, Muthén BO. *Mplus User's Guide*, Version 7.1. Los Angeles, CA: Muthén & Muthén; 1998–2013.
- IBM SPSS Statistics for Windows, Version 20.0 [computer program]. Armonk, NY: IBM Corp; 2011.
- Bentler PM. Comparative fit indexes in structural models. *Psychol Bull.* 1990;107(2):238–246.
- Tucker LR, Lewis C. A reliability coefficient for maximum likelihood factor analysis. *Psychometrika.* 1973;38(1):1–10.
- Hu L-T, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct Equ Modeling.* 1999;6(1):1–55.
- Browne MW, Cudeck R. Alternative ways of assessing model fit. *Sociol Methods Res.* 1992;21(2):230–258.
- Chen F, Curran PJ, Bollen KA, et al. An empirical evaluation of the use of fixed cutoff points in RMSEA test statistic in structural equation models. *Sociol Methods Res.* 2008;36(4):462–494.
- Kline RB. *Principles and Practice of Structural Equation Modeling*. New York, NY: The Guilford Press; 2011.
- Kenny DA, Kaniskan B, McCoach DB. The performance of RMSEA in models with small degrees of freedom [published online ahead of print July 24, 2014]. *Sociol Methods Res.*
- Stout WF. A nonparametric approach for assessing latent trait unidimensionality. *Psychometrika.* 1987;52(4):589–617.
- Baker FB. *The Basics of Item Response Theory: ERIC Clearinghouse on Assessment and Evaluation*. College Park, MD: University of Maryland; 2001.
- Cohen J. A power primer. *Psychol Bull.* 1992;112(1):155–159.
- Hambleton R, Swaminathan H, Rogers H. *Fundamentals of Item Response Theory*. Newbury Park, CA: Sage; 1991.
- Krueger RF, Finger MS. Using item response theory to understand comorbidity among anxiety and unipolar mood disorders. *Psychol Assess.* 2001;13(1):140–151.
- Rettew DC. *Child Temperament: New Thinking About the Boundary Between Traits and Illness*. New York, NY: W. W. Norton & Company; 2013.
- Walitza S, Melfsen S, Jans T, et al. Obsessive-compulsive disorder in children and adolescents. *Dtsch Arztebl Int.* 2011;108(11):173–179.
- García-Soriano G, Belloch A. Symptom dimensions in obsessive-compulsive disorder: differences in distress, interference, appraisals and neutralizing strategies. *J Behav Ther Exp Psychiatry.* 2013;44(4):441–448.
- Hopwood CJ, Wright AGC, Krueger RF, et al. DSM-5 pathological personality traits and the personality assessment inventory. *Assessment.* 2013;20(3):269–285.
- Anderson J, Snider S, Sellbom M, et al. A comparison of the DSM-5 Section II and Section III personality disorder structures. *Psychiatry Res.* 2014;216(3):363–372.
- McCrae RR, Costa PT. Toward a new generation of personality theories: theoretical contexts for the five-factor model. In: Wiggins JS, ed. *The Five-Factor Model of Personality: Theoretical Perspectives*. New York, London: Guilford; 1996:51–87.
- Tett RP, Burnett DD. A personality trait-based interactionist model of job performance. *J Appl Psychol.* 2003;88(3):500–517.
- De Fruyt F, De Clercq B. Antecedents of personality disorder in childhood and adolescence: toward an integrative developmental model. *Annu Rev Clin Psychol.* 2014;10(1):449–476.
- McCrae RR, Lockenhoff CE, Costa PT. A step toward DSM-V: cataloguing personality-related problems in living. *Eur J Pers.* 2005;19(4):269–286.
- Freeman J, Flessner CA, García A. The Children's Yale-Brown Obsessive Compulsive Scale: reliability and validity for use among 5 to 8 year olds with obsessive-compulsive disorder. *J Abnorm Child Psychol.* 2011;39(6):877–883.
- Rapoport JL, Inoff-Germain G, Weissman MM, et al. Childhood obsessive-compulsive disorder in the NIMH MECA study: parent versus child identification of cases. Methods for the Epidemiology of Child and Adolescent Mental Disorders. *J Anxiety Disord.* 2000;14(6):535–548.

Editor's Note: We encourage authors to submit papers for consideration as a part of our Focus on Childhood and Adolescent Mental Health section. Please contact Karen D. Wagner, MD, PhD, at kwagner@psychiatrist.com.