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Structure of Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Criteria for Obsessive–Compulsive Personality Disorder in Patients With Binge Eating Disorder

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Abstract

Objective—To examine 1-, 2-, and 3-factor model structures through confirmatory analytic procedures for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) obsessive–compulsive personality disorder (OCPD) criteria in patients with binge eating disorder (BED).

Method—Participants were consecutive outpatients ($n = 263$) with binge eating disorder and were assessed with semi-structured interviews. The 8 OCPD criteria were submitted to confirmatory factor analyses in Mplus Version 4.2 (Los Angeles, CA) in which previously identified factor models of OCPD were compared for fit, theoretical relevance, and parsimony. Nested models were compared for significant improvements in model fit.

Results—Evaluation of indices of fit in combination with theoretical considerations suggest a multifactorial model is a significant improvement in fit over the current DSM-IV single-factor model of OCPD. Though the data support both 2- and 3-factor models, the 3-factor model is hindered by an underspecified third factor.

Conclusion—A multifactorial model of OCPD incorporating the factors perfectionism and rigidity represents the best compromise of fit and theory in modelling the structure of OCPD in patients with BED. A third factor representing miserliness may be relevant in BED populations but needs further development. The perfectionism and rigidity factors may represent distinct intrapersonal and interpersonal attempts at control and may have implications for the assessment of OCPD.

Keywords

obsessive–compulsive personality disorder; binge eating disorder; confirmatory factor analysis; personality; perfectionism; rigidity

OCPD is a relatively understudied personality disorder despite the highest prevalence rate (7.9%) of all personality disorders in community based studies,¹ one of the highest rates (8.7%) in outpatient groups,² and higher prevalence rates in patients with eating disorders.³ A controlled study⁴ reported OCPD as significantly more common in patients with BED, than in a comparison group of general psychiatric outpatients (14%, compared with 6%). Despite the high prevalence of OCPD, little empirical attention has been given to the validity and structure of the OCPD construct as outlined in DSM-IV.⁵

The DSM-IV assumes a unidimensional structure for each of the personality disorder diagnoses. However, clinical views and the limited empirical literature suggest that a multifactorial approach may offer a better understanding of the construct.⁶ Theoretical underpinnings of OCPD highlight deliberateness and effortfulness,⁷ control over self and environment,⁸ and interpersonal rigidity characterized by a demanding and uncompromising stance⁹ that frequently results in interpersonal conflict.¹⁰ Prior examinations suggest that OCPD is a heterogeneous construct encompassing domains of interpersonal control and perfectionism.^{5,6,11,12}

The 2 exploratory examinations of factor structure in OCPD to date revealed 2- and 3-factor solutions that conform to this assertion. Baer¹² reported a 2-factor solution with loadings of perfectionism and rigidity on separate factors based on examination of DSM-III OCPD in a homogenous obsessive-compulsive disorder patient group. Grilo,⁶ in the sole exploratory factor-analytic study of DSM-IV OCPD criteria, reported a 3-factor structure of OCPD in a homogeneous BED patient group in which perfectionism, rigidity, and miserliness factors were identified. The third factor had poor internal reliability leading Grilo⁶ to question its use. Table 1 summarizes the 1-, 2-, and 3-factor models. For the purpose of this study, Baer's¹² 2 factors were extrapolated to DSM-IV criteria.

The aim of our study was to test competing models of OCPD by performing a confirmatory factor analysis on DSM-IV OCPD criteria obtained using a reliably administered semi-structured diagnostic interview given to a consecutive series of patients with BED. A confirmatory factor analysis allowed for a more definitive test of the proposed factors and comparison of model fit. We followed the recruitment and assessment methods applied in Grilo's⁶ exploratory study to obtain a homogeneous patient study group with current BED, given the high prevalence of cooccurring OCPD⁴ and previous research highlighting aspects of OCPD as a potential vulnerability factor in eating disorders.^{3,11,13} Identifying the underlying structure of DSM-IV personality disorders may assist researchers in understanding the maladaptive personality constructs that contribute to personality pathology and offers a potential avenue for integrating current models of personality disorders with dimensional approaches. This is particularly relevant given recent debate over dimensional models of personality disorder¹⁴ and the proposition that additional, undetermined, maladaptive traits may better define the personality disorder constructs.^{15,16}

Method

Subjects

Participants were 263 consecutive adult outpatients recruited from the Yale Eating Disorder and Obesity Research Program, a university medical school-based program, who met DSM-IV criteria for BED. Participants had a mean age of 45 years (SD 9.3). Among the 263 participants, 191 were female (70%), 202 were Caucasian (74%), 169 were married (62%), and 206 (75%) had attended or graduated from college.

Procedures and Assessments

The Human Investigation Committee at the Yale University School of Medicine reviewed and approved this protocol. After complete explanation of the study procedures, written informed consent was obtained from all participants. BED diagnosis (DSM-IV Appendix category) was determined with the Structured Clinical Interview for DSM-IV Axis I Disorders—Patient Version.¹⁷ OCPD was assessed using the DIPD-IV.¹⁸ The DIPD-IV, a semi-structured diagnostic interview, assesses all recognized DSM-IV personality disorders and criteria. The DIPD-IV requires that criteria must be present and pervasive for at least 2 years, and that they must be characteristic of the person during his or her adult life. A score of 2 is given if the criterion is present and clinically significant; 1 if present but of uncertain clinical significance; and 0 if not present. The DIPD-IV has demonstrated good interrater and test-retest reliability.¹⁹ The DIPD-IV was administered by experienced doctoral-level research clinicians who received training from the developer of the instrument and ongoing supervision by one of the authors. Interrater reliability was assessed using pairs of independent ratings; the kappa coefficient was 0.71 for OCPD. Forty-seven (18%) of the participants met criteria for OCPD or features (1 criteria short of diagnosis) on OCPD.

Statistical Analysis

Confirmatory factor analyses were performed using Mplus Version 4.2,²⁰ which was chosen for its ability to analyze ordinal-level data. One-, 2- and 3-factor models were submitted for analysis based on previously identified models (Table 1). Weighted least squares with mean and variance adjustment model estimation were performed. Fit indices, along with theoretical considerations, were used to determine the best model. Nested models (1-factor, compared with 2-factor then with 3-factor) were tested for significant differences in model fit at an alpha level of $P < 0.05$.

Results

Table 2 contains fit statistics for the 1-, 2-, and 3-factor models. Recommended cut-offs for fit indices include: Comparative Fit Index and Tucker-Lewis Index above 0.95, weighted root-mean-square residual less than 0.90, and root-mean-square error of approximation less than 0.06.^{21, 22} A chi-square differences test for nested 1-factor, compared with 2-factor models, was significant ($\chi^2 = 4.05$, $df = 1$, $P = 0.04$) as well as for 1-factor, compared with 3-factor models ($\chi^2 = 11.09$, $df = 3$, $P = 0.01$). Based on these findings, standardized factor loading estimates for the 2- and 3-factor models are presented in Table 3. Factor loadings for the criteria miserly and packrat increased in the 3-factor model although other loadings remained similar. However, the third factor is underspecified with only 2 indicators. Perfectionism and attention to detail had the highest loadings on the perfectionism factor, and reluctance to delegate and adherence to moral standards had the highest loading on the rigidity factor. Pending further development of the third factor, it appears that perfectionism and rigidity offer theoretically meaningful factors with acceptable fit that reflect underlying maladaptive dimensions within OCPD.

Discussion

Despite the prevalence of OCPD, particularly in eating disordered populations, there has been a dearth of research examining the structure of the DSM-IV diagnosis. Contemporary clinical descriptions of patients with obsessive-compulsive personality have emphasized the exaggerated attempts at interpersonal and intrapersonal control.⁵ The current findings support previous assertions that a multifactorial model offers a better understanding of the latent dimensions comprising OCPD. Chi-square tests suggest 2- or 3-factor models offer better fit than a unidimensional model. Except for criteria associated with the third factor,

standardized loadings on the perfectionism and rigidity factors were largely consistent across 2- and 3-factor models. The perfectionism factor fits with prior associations of cognitive rigidity and perfection striving found within OCPD.^{7,9} The rigidity factor in this sample reflects unwillingness to delegate and stubbornness, representing the interpersonal difficulties in relinquishing control that are theoretically ascribed to OCPD.^{9,10} The miserliness factor in the 3-factor model is underspecified and previously demonstrated problematic internal reliability in a study of BED.⁶ It may be that the third factor, which reflects a hoarding tendency as seen in the packrat criterion, represents variance uniquely relevant to the BED population. Until additional indicators of miserliness are incorporated that more adequately assess its content and fit, the 2-factor model, incorporating perfectionism and rigidity, appears most appropriate for further exploration of the maladaptive impact of OCPD. The perfectionism and rigidity factors conform to theoretical assertions regarding the overlap of OCPD and eating disorders.¹¹ The perfectionism factor represents a cognitive or intrapersonal control, while the rigidity factor represents an interpersonal control theoretically proposed to underlie the OCPD construct. Further research may find that the 2 miserliness items are less indicative of OCPD and enhance the model when their variance is removed from the primary perfectionism and rigidity factors. The value of these 2 criteria may need to be considered within the 2-factor structure and within any revisions to the diagnostic features of OCPD. The construct of OCPD may be broader than the existing diagnostic definitions allow and additional factors may exist that were not identified in our study.

Potential limitations to our study include the use of a relatively small number of items for each factor, patients with primary BED diagnoses who were treatment seeking, and the absence of dimensional measures of personality. Future research is needed to replicate a multifactorial structure with additional measures of OCPD, including dimensional models of obsessive-compulsive personality, in combination with multidimensional measures of rigidity and perfectionism in diagnostically diverse groups.²³ Future examinations will need to validate the content of these latent variables and extend their examination to state effects in Axis I disorders. This may clarify whether a 2- or 3-factor model more appropriately describes the latent dimensions of OCPD and whether this third dimension is specific to BED populations.

Conclusions

A multifactorial model incorporating perfectionism and rigidity factors offers the best compromise of model fit and theoretical relevance when examining structure of OCPD in a BED patient population. The identification of a multifactorial model within OCPD has potential implications beyond nosological refinement. Consideration of these factors may help to identify processes by which OCPD impacts psychosocial functioning and the course of psychiatric disorders, and may provide clinicians with specific targets for therapeutic interventions.²⁴

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Abbreviations used in this article

BED	binge eating disorder
DIPD-IV	Diagnostic Interview for DSM-IV Personality Disorder

DSM-IV Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition
OCPD obsessive-compulsive personality disorder

References

1. Grant BF, Hasin DS, Stinson FS, et al. Prevalence, correlates, and disability of personality disorders in the United States: results from the national epidemiologic survey on alcohol and related conditions. *J Clin Psychiatry*. 2004; 65:948–958. [PubMed: 15291684]
2. Zimmerman M, Rothschild L, Chelminski I. The prevalence of DSM-IV personality disorders in psychiatric outpatients. *Am J Psychiatry*. 2005; 162:1911–1918. [PubMed: 16199838]
3. Grilo C. Recent research on relationships among eating disorders and personality disorders. *Curr Psychiatry Rep*. 2002; 4:18–24. [PubMed: 11814391]
4. Wilfley D, Friedman M, Douchis J, et al. Comorbid psychopathology in binge eating disorder: relation to eating disorder severity at baseline and following treatment. *J Consult Clin Psychol*. 2000; 68:641–649. [PubMed: 10965639]
5. Pollak, JM. Commentary on obsessive-compulsive personality disorder. In: Livesley, W., editor. *The DSM-IV personality disorders*. New York (NY): Guilford Press; 1995.
6. Grilo C. Factor structure of DSM-IV criteria for obsessive compulsive personality disorder in patients with binge eating disorder. *Acta Psychiatr Scand*. 2004; 109:64–69. [PubMed: 14674960]
7. Shapiro, D. *Neurotic styles*. New York (NY): Basic Books; 1965.
8. Salzman, L. *The obsessive personality*. New York (NY): Jason Aronson; 1973.
9. Millon, T. *Disorders of personality: DSM-III, Axis II*. New York (NY): Wiley and Sons; 1981.
10. Pollack J. Obsessive-compulsive personality: theoretical and clinical perspectives and recent research findings. *J Personal Disord*. 1987; 1:248–262.
11. Halmi K, Tozzi F, Thornton L, et al. The relation among perfectionism, obsessive-compulsive personality disorder and obsessive-compulsive disorder in individuals with eating disorders. *Int J Eat Disord*. 2005; 38:371–374. [PubMed: 16231356]
12. Baer L. Factor analysis of symptom subtypes of obsessive-compulsive disorder and their relation to personality and tic disorders. *J Clin Psychiatry*. 1994; 55:18–23. [PubMed: 8077163]
13. Anderlueh M, Tchanturia K, Rabe-Hesketh S, et al. Childhood obsessive-compulsive personality traits in adult women with eating disorders: defining a broader eating disorder phenotype. *Am J Psychiatry*. 2003; 160:242–247. [PubMed: 12562569]
14. Skodol A, Oldham J, Bender D, et al. Dimensional representations of DSM-IV personality disorders: relationships to functional impairment. *Am J Psychiatry*. 2005; 162:1919–1925. [PubMed: 16199839]
15. Nestadt G, Costa PT, Hsu F-C, et al. The relationship between the five-factor model and latent Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition personality disorder dimensions. *Compr Psychiatry*. 2008; 49:98–105. [PubMed: 18063048]
16. Morey L, Hopwood C, Gunderson J, et al. Comparison of alternative models for personality disorders. *Psychol Med*. 2007; 37:983–994. [PubMed: 17121690]
17. First, MB.; Spitzer, RL.; Gibbon, M., et al. *Structured clinical interview for DSM-IV Axis I disorders—patient edition (SCIP-I/P, Version 2.0)*. New York (NY): New York State Psychiatric Institute; 1996.
18. Zanarini, M.; Frankenburg, F.; Sickel, A., et al. *The Diagnostic Interview for DSM-IV Personality Disorders*. Belmont (MA): McLean Hospital and Harvard Medical School; 1996.
19. Zanarini M, Skodol A, Bender D, et al. The Collaborative Longitudinal Personality Disorders Study: reliability of axis I and II diagnoses. *J Personal Disord*. 2000; 14:291–299.
20. Muthen, LK.; Muthen, BO. *Mplus Users Guide*. 3. Los Angeles (CA): Muthen and Muthen; 1998–2004.
21. Hu L, Bentler PM. Cut off criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct Equation Model*. 1999; 6:1–55.

22. Yu, CY. Evaluating cut off criteria of model fit indices for latent variable models with binary and continuous outcomes. Los Angeles (CA): University of California; 2002.
23. Dunkley D, Blankstein K, Masheb R, et al. Personal standards and evaluative dimensions of “clinical” perfectionism. *Behav Res Ther.* 2006; 44:63–84. [PubMed: 16301015]
24. Shafran R, Cooper Z, Fairburn C. Clinical perfectionism: a cognitive-behavioral analysis. *Behav Res Ther.* 2002; 40:773–791. [PubMed: 12074372]

Clinical Implications

- A multifactorial model offers the best balance of fit and theoretical relevance in describing OCPD.
- Perfectionism and rigidity may reflect the underlying intrapersonal and interpersonal control, respectively, that are frequently conceptualized within OCPD.
- Latent factors may be relevant in identifying maladaptive dimensions underlying OCPD.

Limitations

- Findings are based on one semi-structured diagnostic interview. Replication with additional instruments, particularly dimensional assessments, is necessary.
- The existing criteria for OCPD may not capture the full breadth of the construct.
- The study group consisted of patients with an Axis I diagnosis of BED who were seeking treatment. Replication in which the factor structure is extrapolated to diagnostically diverse groups is needed.

Table 1

The 2- and 3-factor models of OCPD

DIPD items	2-factor model		3-factor model		
	Perfectionism	Rigidity	Perfectionism	Rigidity	Miserliness
Rigid and stubborn		X		X	
Miserly		X			X
Packrat	X				X
Perfectionism	X		X		
Details, rules, lists, order	X		X		
Reluctance to delegate		X		X	
Inflexible about morality		X		X	
Workaholic	X		X		

All items are included in the single-factor model of DSM-IV OCPD. The 2-factor model is derived from Baer's¹² DSM-III-based factor analysis of OCPD items. The 3-factor model is from Grilo's⁶ DSM-IV factor analysis of OCPD items.

Table 2

Confirmatory factor analysis model fit indices for 1-, 2-, and 3-factor model solutions

Indices	1-factor model	2-factor model	3-factor model
χ^2	28.31	24.63	18.47
<i>df</i>	15	14	13
<i>P</i>	0.02	0.04	0.14
CFI	0.97	0.98	0.99
TLI	0.97	0.98	0.99
RMSEA	0.06	0.05	0.04
WRMR	0.75	0.70	0.58

CFI = Comparative Fit Index; RMSEA = root-mean-square error of approximation; TLI = Tucker-Lewis Index; WRMR = weighted root-mean-square residual

Table 3

OCPD criteria standardized loadings for 2- and 3-factor models

OCPD criteria	Perfectionism	Details	Workaholic	Rigid and stubborn	Reluctant to delegate	Morality	Miserliness	Packrat
2-factor model								
Perfectionism	0.81	0.81	0.56					0.55
Rigidity				0.63	0.82	0.81	0.46	
3-factor model								
Perfectionism	0.82	0.82	0.57					
Rigidity				0.64	0.83	0.82		
Miserliness							0.61	0.75