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The prevalence and structure of obsessive-compulsive personality disorder in Hispanic psychiatric outpatients

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Abstract

This study sought to confirm a multi-factor model of Obsessive-compulsive personality disorder (OCPD) in a Hispanic outpatient sample and to explore associations of the OCPD factors with aggression, depression, and suicidal thoughts. One hundred and thirty monolingual, Spanish-speaking participants were recruited from a community mental health center and were assessed by bilingual doctoral level clinicians. OCPD was highly prevalent (26%) in this sample. Multi-factor models of OCPD were tested and the two factors - perfectionism and interpersonal rigidity - provided the best model fit. Interpersonal rigidity was associated with aggression and anger while perfectionism was associated with depression and suicidal thoughts.

Keywords

Obsessive-compulsive personality disorder; Hispanic; perfectionism; rigidity

Obsessive-compulsive personality disorder is one of the most prevalent personality disorders (PDs) in community and outpatient samples. Some studies suggest it has the highest prevalence rate (7.9%) of all PDs in community samples and one of the highest rates (8.7%) in outpatient groups (Grant, et al., 2004; Zimmerman, Rothschild, & Chelminski, 2005). 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 (Pollak, 1995). 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

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better understanding of the construct (Ansell, Pinto, Edelen, & Grilo, 2008; Pinto, Ansell, Grilo, & Shea, 2007; Pinto, Mancebo, Eisen, Pagano, & Rasmussen, 2006).

Theoretical underpinnings of OCPD highlight the multifactorial nature of the diagnosis. Descriptions of OCPD have emphasized deliberateness and effortfulness (Shapiro, 1965) control over self and environment (Salzman, 1973), and the interpersonal rigidity associated with a demanding and uncompromising standards (Millon, 1981) that frequently results in interpersonal conflict (Pollak, 1987) - particularly with a spouse or partner (Costa, Samuels, Bagby, Daffin, & Norton, 2005) - and aggressive or violent behavior (Pulay, et al., 2008; Villemarette-Pittman, Stanford, Greve, Houston, & Mathias, 2004).

Exploratory and confirmatory examinations of factor structure in OCPD to date have suggested two- and three- factor solutions (see Table 1). Grilo (2004), in an exploratory factor-analytic study of DSM-IV OCPD criteria, identified a three-factor structure of OCPD in a homogeneous binge eating disorder (BED) patient group. Examinations of factor loadings suggested that perfectionism, rigidity, and miserliness factors underlie the OCPD construct. However, Grilo (2004) noted that the poor reliability of the third factor was problematic and that further research was needed to determine its appropriateness for OCPD.

Pinto and colleagues (Pinto, et al., 2007) performed exploratory and confirmatory analyses of OCPD structure in a large multi-site personality disorder study. Exploratory analyses on a subset of individuals suggested a two-factor solution, consisting of perfectionism and rigidity factors, which was similar in content to a previously proposed two-factor model by Baer (1994) using DSM-III OCPD criteria in an obsessive-compulsive disorder (OCD) patient group. Confirmatory analyses were performed on a separate group from the research sample comparing the two-factor model with the three-factor model proposed by Grilo (2004). Findings supported assertions that a multifactorial model of OCPD offers a better fit than the unidimensional DSM-IV model and that a two-factor model offered the best balance of parsimony and fit. Follow-up analyses demonstrated that the rigidity factor was associated with significantly poorer functioning over the ensuing 7 years.

Two confirmatory studies replicate findings that a multi-factorial structure is more appropriate for OCPD. However, the number of factors and the content of the factors remain unclear. Hummelen, Wilbery, Pedersen, and Karterud (2008) examined exploratory and confirmatory analyses of OCPD criteria in a large day treatment sample. They performed an exploratory analysis using all PD criteria and determined that OCPD criteria fell on two factors. The first factor closely matched the perfectionism factor from previously mentioned studies. However, the second factor consisted of rigidity criteria that also loaded with criteria from borderline (inappropriate or excessive anger), paranoid (counterattacks) and antisocial (physical aggression) PD diagnoses. They concluded that these loadings reflect a latent factor that is more appropriately described as aggression. They also performed a confirmatory analysis of OCPD criteria in which they tested the fit of Grilo's (2004) three-factor model. Fit and loadings of this model were mixed to poor.

Ansell and colleagues (2008) demonstrated that multifactorial models in an outpatient BED population offered significantly better fit than a unidimensional model of OCPD. Results were similar to the Grilo (2004) findings that the third factor of miserliness was problematic in fit and underidentified in the analysis. Based on these findings, Ansell and colleagues suggested that the miserly and hoarding criteria should be reworked or eliminated and that a two-factor solution may best represent the core pathology of OCPD.

Hummelen and colleagues' (2008) exploratory finding that the second factor loaded with aggression criteria has not been replicated and further research on this association is necessary to clarify the nature of the rigidity/aggression factor. Associations of OCPD with a maladaptive

behavioral outcome such as aggression are supported by theory and may help explain prior findings of relatively poorer functioning associated with the rigidity factor (Pinto, et al., 2007). The construct of perfectionism has consistently been strongly associated with depression and suicide related outcomes (Dunkley, Sanislow, Grilo, McGlashan, 2006 (Dunkley, Sanislow, Grilo, & McGlashan, 2006; Hawley, Ho, Zuroff, & Blatt, 2006; P. Hewitt, Flett, & Ediger, 1996; P. Hewitt, J. Newton, G. Flett, & L. Callander, 1997; P. L. Hewitt, Flett, & Weber, 1994). However, it is unclear if the OCPD perfectionism factor is similarly associated with depression and suicidal thoughts and behaviors. In our review of the literature, no research to date has examined whether the OCPD perfectionism factor demonstrates similar associations with depression and suicide. Explorations of both factors' associations would validate prior interpretations of these factors and increase understanding of the heterogeneity in OCPD symptom presentation.

The present study seeks to extend prior research on multifactorial models of OCPD by testing competing models and examining correlates of OCPD factor structure in a sample of monolingual Spanish speaking participants at an outpatient clinic. In addition to testing the factor structure of OCPD we will examine the associations between the best fitting factor model and a) the three PD criteria identified in Hummelen et al (2008), b) a measure of depressive affect, and c) scores on items associated with suicidal thoughts and behaviors. It is hypothesized that only the rigidity factor will be significantly associated with aggression and anger PD items while only the perfectionism factor will be significantly associated with depressive affect and suicidal thoughts.

Research on personality disorder diagnoses is surprisingly limited for individuals of Hispanic origin (Chavira, et al., 2003; C M Grilo, Becker, Anez, & McGlashan, 2004), but is particularly necessary in ethnic minority samples given potential cross- cultural differences in emotions and interpersonal behaviors (Chiao, et al., 2008; Matsumoto, Yoo, Nakagawa, & 2008). An important step in validating proposed multifactorial models of OCPD is to determine the generalizability of the findings to other ethnic groups.

Despite similar prevalence rates of OCPD cross-culturally in one epidemiological study (Karno, Golding, Sorenson, & Burnam, 1988), a recent study found that OCPD was significantly less common in Asians and Hispanics relative to Caucasians and African-Americans (Grant, et al., 2004). In a clinical sample, Chavira et al.(2003) reported equal representation of ethnic minorities across the four personality disorders studied, including OCPD. No prior research has examined the factor structure of OCPD in a hispanic monolingual sample. A recent study (Selby & Joiner, 2008) on ethnicity and BPD factor structure demonstrated similar factors were extracted across ethnic groups. However, the criteria loadings and associations between factors varied significantly between Hispanic and other samples. This highlights the importance of validating proposed factor structures of PD diagnoses in ethnically diverse samples. Differences in structure of PD diagnoses may shed light onto previously identified differences in treatment utilization, particularly for Hispanic samples (Bender, et al., 2007). Prior research on personality traits and eating disorders suggests that ethnicity may moderate OCPD diagnosis in predicting the onset of eating disorder diagnoses in college students (Lilenfeld, Jacobs, Woods, & Picot, 2008) emphasizing the importance of further research on PD diagnosis structure in ethnic minorities. Prevalence rates of PDs in a monolingual, Hispanic outpatient sample may shed light on which PDs should be primary targets in future research on PD diagnoses in ethnic minorities.

Identifying the underlying structure of DSM-IV PDs may assist researchers in understanding the maladaptive personality constructs that contribute to personality pathology and offers a potential avenue for integrating current models of PDs with dimensional approaches. This is particularly relevant given recent debate over dimensional models of PDs (Krueger, Skodol,

Livesley, Shrout, & Huang, 2007; Skodol, et al., 2005) and the proposition that additional, undetermined, maladaptive traits may better define the PD constructs (Ansell, et al., 2008; Morey, et al., 2007; G Nestadt, et al., 2008). Identifying the underlying factors, as well as the maladaptive behavior and affect correlates of these factors, would enhance understanding of the OCPD construct. Thus, this study offers a unique opportunity to validate and extend prior findings on OCPD factors.

Method

Participants

Participants were 130 monolingual (Spanish-speaking only) Hispanic adults evaluated at a community-based outpatient psychiatric program in an urban setting in a northeastern city in the United States. This specific program, which exists within a larger community mental health center, provides services only to monolingual (Spanish-speaking only) Hispanic adults and has a specialty focus on aftercare treatment for dually diagnosed individuals. The clinic provides an intensive aftercare program and requires abstinence from substance use.

Participants comprised a nearly consecutive series of patients assigned to a particular treatment team within the program for a one-year period, during which this study was funded and performed. Assignment of patients to this specific team was not determined by clinical, demographic, or financial considerations—but rather by case flow. All participants had clinically derived diagnoses of lifetime alcohol use disorders, and roughly three fourths also had additional lifetime substance use disorders. The participants had all been abstinent from substance use for more than 60 days based on medical records (treating clinicians) and corroborated with participants during the research interviews. Participants were excluded from the study if they had mental status impairments that could preclude valid assessment (e.g., cognitive deficits or acute psychotic symptoms).

Of the 130 participants, 90 (69%) were men and 40 (31%) were women; mean age was 37.4 years ($SD = 10.5$), and 76 (58%) were married. The majority (66%) were originally from Puerto Rico. Their mean period of residence in the United States was 12.2 years ($SD = 9.3$). Men and women did not differ significantly in these demographic variables.

Procedures and Assessments

Written informed consent was obtained, in Spanish, from all participants after complete explanation of the study procedures and before performing the interviews. The Spanish-Language Version of the Diagnostic Interview for DSM-IV Personality Disorders (S-DIPD-IV) was administered to all participants by experienced, bilingual Hispanic, doctoral-level research clinicians. The research clinicians received intensive training in PD assessment and the specific use of the DIPD-IV by one of the investigators (Dr. Carlos Grilo). The S-DIPD-IV, like the original version (Zanarini, Frankenburg, Sickel, & Yong, 1996), is a semi-structured diagnostic interview that assesses for all DSM-IV personality disorders and criteria. The development of the S-DIPD-IV occurred through a process of translation and back-translation, and initial analysis of its reliability are described elsewhere (C. M. Grilo, Anez, & McGlashan, 2003). The S-DIPD-IV requires that criteria must be present and pervasive for at least 2 years and be characteristic of the person during adulthood. 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. Inter-rater reliability of S-DIPD-IV diagnoses was evaluated using pairs of independent ratings for 27 randomly selected taped assessments. Kappa coefficients for the personality disorders averaged .83 ($SD = .16$) and were acceptable for all PDs except for paranoid PD (.38); from .70 to 1.0. Kappa coefficients for OCPD diagnosis was .87. Final personality disorder diagnoses were based primarily on the S-DIPD-IV determined by one of

the co-authors (Dr. Luis Anez) in conjunction with clinical input from a multidisciplinary clinical team and medical record information following the LEAD (longitudinal, expert, all data) standard (Pilkonis, Heape, Ruddy, & Serrao, 1991). Clinical information was used to corroborate or augment the interview data; for example, documented criminal behavior or suicidality could be considered when making judgments about participants' reports of those behaviors.

The Depression Screening Questionnaire (DSQ) is a 21-item self-report measure based on the Inventory to Diagnose Depression (Zimmerman, Coryell, Corenthal, & Wilson, 1986). Response format is a dichotomous “yes” or “no” for each item. The DSQ effectively screens for the DSM-IV criteria for major depression (Gunderson, et al., 2000). Six of the items assess suicidal thoughts such as “Have you wished you were dead?”, “Seriously considered taking your life?”, and “Thought of a plan to take your life?”. The reliability of the DSQ in this sample was excellent (Cronbach's alpha = .93) as was the reliability of the total score for suicidal items (Cronbach's alpha = .92).

Analyses

Frequencies and percentages of PD diagnoses were computed using SPSS. Confirmatory factor analyses were performed using Mplus Version 5 (Muthén & Muthén, 2007), which was chosen for its ability to analyze ordinal level data. One-, two- and three-factor models were submitted for analysis based on previously identified models (see Table 1). Weighted least-squares with mean and variance adjustment (WLSMV) model estimation was performed. Fit indices, along with theoretical considerations, were used to determine the best model. Recommended cut offs for fit indices include: comparative fit index (CFI) and Tucker-Lewis index (TLI) above 0.95, weighted root mean square residual (WRMR) less than 0.90, and root mean square error of approximation (RMSEA) 0.08 or less for a moderate fit (Hu & Bentler, 1999; Steiger, 1990; Yu, 2002).

Once the best fit factor model was identified, factor scores were computed by summing the criteria scores. Given that the factors were expected to correlate with one another, partial correlations were computed between the factor score and *a priori* PD criteria (those criteria previously associated with the OCPD construct: excessive anger, counterattacks and physical aggression), DSQ total, the OCPD construct: excessive anger, counterattacks and physical aggression), DSQ total, and DSQ suicide item total, while controlling for variance associated with the other factor(s).

Results

Frequencies of all PD diagnosis are reported in Table 2. The most frequent PD diagnosis in this sample was borderline PD, followed by avoidant and obsessive-compulsive PDs. Thirty-three (26%) participants in the sample met criteria for OCPD. An additional thirteen (10%) met criteria for OCPD features (one criterion short of diagnosis). Frequencies of OCPD criteria met and clinically significant are presented in Table 3. The most prevalent criteria was stubbornness and the least prevalent was miserliness in the overall sample.

Table 4 contains fit indices for the three models: the unidimensional DSM-IV model, the two-factor model, and the three-factor model. Fit indices for CFI, TLI, and WRMR were acceptable across all three models. However, relative to the other two models which both evidenced poor fit on the RMSEA index, the RMSEA for the two factor model was adequate confirming that the two factor model demonstrates the best fit of the proposed models (Browne & Cudeck, 1993; Chen, Curran, Bollen, Kirby, & Paxton, 2008). Standardized factor loadings for the two factors are presented in Table 5. Perfectionism and detail-oriented criteria loaded strongly on the perfectionism factor, the workaholic criterion loaded moderately and packrat loaded

weakly. Morality and reluctance to delegate loaded strongly on the interpersonal rigidity factor, stubbornness loaded moderately, and miserly loaded weakly. Mean rigidity scores for the perfectionism and rigidity factors for individuals without an OCPD diagnosis, those with OCPD features (one short of diagnosis), and those with OCPD diagnosis are presented in Table 6.

Factor scores for perfectionism and rigidity were correlated 0.60. Based on these findings, partial correlations were computed between factor scores and *a priori* PD criteria and DSQ scores while controlling for the other factor. Zero-order bivariate and partial correlation results are displayed in Table 7. Intense anger, counter-attacks, and physical aggression criteria were all significantly associated with the rigidity factor. There were no significant associations between these criteria and the perfectionism factor, although the negative correlation between perfectionism and physical aggression approached significance ($p=.06$). The DSQ total score, and a summed total of the DSQ suicide items were significantly correlated with the perfectionism factor. There were no significant associations in the partial correlations between the DSQ scores and the rigidity factor.

Discussion

This study sought to extend the limited prior research on PDs in ethnic minority groups and to evaluate the generalizability and fit of proposed multidimensional models of OCPD in a Hispanic psychiatric sample. The prevalence of OCPD (26%) in this outpatient sample is striking. Prior research has been mixed on whether OCPD is similarly or less prevalent in Hispanic samples than in Caucasian samples (Chavira et al, 2003; Grant et al, 2004). The present results support assertions that OCPD may actually be more prevalent when examining Hispanic or substance use outpatient samples than when examining general outpatient samples. However, the prevalence of OCPD may be moderated by both demographic and psychiatric characteristics associated with the sample. For example, negative affect associated with the rigidity or perfectionism may increase vulnerability for substance use, particularly in samples experiencing greater levels of chronic stress such as a monolingual Hispanic group.

The primary purpose of this study was to confirm a multifactorial model of OCPD in a sample of 130 Hispanic (Spanish-speaking only) participants. When compared to one- and three-factor alternatives, a two-factor model appears to offer the best fit among monolingual Hispanic outpatients. Replicating prior findings, perfectionistic and detail-oriented criteria loaded on the perfectionism factor. Factor loadings for reluctance to delegate and morality were the highest for the “interpersonal rigidity” factor which suggests that the true nature of the factor is not simply stubbornness. The factor reflects rigidity within the individual's interpersonal world through rigid judgment of others and the reluctance to trust others with tasks.

Hummelen and colleagues' (2008) had difficulty replicating the rigidity factor and proposed alternatively that this factor represented aggression. The loadings of other PD criteria with this factor may explain comorbidity of OCPD with other PD diagnoses. Consistent with prior findings (Ansell et al, 2008, Grilo, 2004, Hummelen et al, 2008) miserly and packrat were the two poorest performing criteria. As Hummelen and colleagues aptly note, hoarding behaviors are multifactorial (Frost & Hartl, 1996) and not specific to OCPD (G. Nestadt, et al., 2006; Samuels, et al., 2007) which may account for its poor performance across factor analyses. Miserly behaviors also appear to not be specific to OCPD and recent research suggests miserliness may be mediated by other affective and self-regulation factors (Cryder, Lerner, Gross, & Dahl, 2008).

Examination of the two factors' associations with aggression and depression highlight the divergent characteristics of the OCPD factors and clarify the underlying content. Replicating

Hummelen's (2008) findings, partial correlations indicate that only the rigidity factor was significantly correlated with the anger, counter attacks, and physical aggression criteria. Consistent with the literature on perfectionism, depression and suicide risk (Dunkley, et al., 2006; Hawley, et al., 2006; P. Hewitt, et al., 1996; P. L. Hewitt, et al., 1994; P. L. Hewitt, J. Newton, G. L. Flett, & L. Callander, 1997), only the perfectionism factor was significantly correlated with the DSQ depression scores and the suicide items on the DSQ when examining partial correlations. These findings support both the clinical utility of the two factors and their interpretation. These differential relationships between the two factors and depression versus aggression provides further evidence for the multidimensionality of the OCPD construct. The finding that the two factors diverge in associations with examined variables supports the importance of considering the 'type' of OCPD presented by an individual. These findings also highlight the potential utility in examining neurobiological markers in association with the two factors (subphenotypes) instead of the overall OCPD construct.

Using current polythetic diagnostic standards of DSM-IV, an individual may be diagnosed with OCPD while only meeting criteria on one of the two factors (4 out of 8 criteria needed for diagnosis). Based on these preliminary findings, the perfectionistic OCPD individual may be more at risk for depressive affect and suicidal thoughts while the rigid OCPD individual may be more at risk for anger or aggressive behaviors. The rigid OCPD individual may be congruent with descriptions of a 'compulsive' personality disorder associated with impulsive aggression (Stein, et al., 1996). The multidimensionality of OCPD may map on to differences in the internalizing/externalizing spectra identified in other PDs (James & Taylor, 2008). Perfectionism may represent the internalizing spectrum of OCPD, thereby moderating associations between OCPD and anxiety disorders, while interpersonal rigidity may represent the externalizing spectrum of OCPD, thereby explaining prior associations between rigidity and aggression. In addition, these findings may help explain why prior research on OCPD associations with suicide risk has been inconsistent (Chioqueta & Stiles, 2004; Haliburn, 2000; Raja & Azzoni, 2007; Yen, et al., 2003). The association between OCPD and suicide risk may be better explained by examining the extent of perfectionism in the sample being examined rather than the categorical OCPD diagnosis. Individuals that are largely perfectionistic in their OCPD diagnosis may demonstrate significant associations with suicide risk, while individuals that are largely rigid in their OCPD diagnosis may show no association with or perhaps protective effects in suicide risk. Future research will want to examine whether perfectionism moderates the association of OCPD diagnosis with suicide related outcomes, particularly in longitudinal studies. A multidimensional, rather than a unidimensional, approach may prove more fruitful in understanding the associations between OCPD and other psychological phenomena.

The replication of these factors across diverse psychiatric samples supports theoretical assertions that OCPD reflects a combination of maladaptive factors. The correlation between factors (.60) suggests that a moderate amount (36%) of overlap between the two factors. In addition, the means of perfectionism and rigidity for the three diagnostic groups (no diagnostic, OCPD features, and OCPD diagnosis) demonstrate that levels of perfectionism and rigidity factor are uniquely associated with the diagnosis, and that the combination of high levels of rigidity and high levels of perfectionism combine in those diagnosed with OCPD. This supports the idea that an overarching construct of OCPD encompasses both factors. Based on the factor loadings and correlations in the current study, it appears that OCPD consists of rigid and unrealistic standards of behavior and performance for self (perfectionism) and others (interpersonal rigidity/aggression). When these standards are not met, it is likely that the individual with OCPD will experience emotional dysregulation. Outcomes of emotional dysregulation resulting from failures by the self to meet rigid and high standards may be associated with suicide risk. Outcomes of emotional dysregulation resulting from failures by others to meet rigid and high standards may be associated with anger expression and aggressive

outbursts. Research should explore the nature of the rigidity factor with aggression and determine whether emotional dysregulation in response to interpersonal failures is the precursor to the aggression identified in OCPD.

It is important that research determine whether these factors have similar influences on functioning or whether one or the other factor is prognostic of poor treatment outcomes. This is particularly true for the perfectionism factor. There is research suggesting that perfectionism makes individuals vulnerable to depression (Dunkley, et al., 2006; Hawley, et al., 2006). Despite its consistency across studies, the perfectionism factor requires two areas of further research: a) does the OCPD perfectionism equate to existing models and constructs of perfectionism?, and b) does OCPD perfectionism negatively impact course or functioning through predisposition for depression or anxiety disorders?

There are several limitations to the present research. In particular, the goodness of fit indices may be affected by the relatively small sample size in this study. In addition, it is difficult to ascertain whether the elevated prevalence of OCPD is due to the psychiatric characteristics of the sample, the demographic characteristics of the sample, or a combination of the two. Further research is required to determine the prevalence of OCPD in Hispanic samples and dual diagnosis samples.

Future research should also determine whether existing trait models accurately describe the latent factors of perfectionism and interpersonal rigidity. This is particularly important given recent movement to integrate trait models into DSM-V (Krueger, et al., 2007) and clinical interest in determining whether extremity on traits captured in existing trait models corresponds to psychopathology found in OCPD. It may be that the OCPD factors, particularly the interpersonal rigidity factor, are not adequately assessed by compulsivity. This is demonstrated in a recent review of a proposed trait model and the overlap with DSM-IV PD criteria (Livesley, 2007). Livesley reported that the criterion for stubbornness was not assessed within the Dimensional Assessment of Personality Pathology (DAPP, Livesley & Jackson, in press). We note that this parallels recent arguments that oddity in schizotypal PD is not completely captured by existing trait models such as the five factor model (Watson, Clark, & Chmielewski, 2008) or that Cluster A PDs require the addition of peculiarity to trait models (Tackett, Silberschmidt, Krueger, & Sponheim, 2008). As revisions to DSM diagnoses are made to incorporate trait models, exploration of these relationships are crucial, not only to the further understanding of the latent content of OCPD, but also in identifying corresponding trait tendencies beyond conscientiousness that are associated with the maladaptiveness that underlies OCPD pathology.

Finally, our findings suggest that OCPD is a prevalent PD in a Hispanic, monolingual, outpatient sample. Little research has been done on OCPD and even less has examined the course of OCPD in ethnic minorities. If these findings generalize to other Hispanic outpatient samples it is important that further research be conducted to examine the causes of this elevated rate and to determine the impact that OCPD factors may have on the treatment of other psychiatric disorders in Hispanic outpatient samples.

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Table 1

One^a, two and three factor models of OCPD.

DIPD Items	Two Factor Model ^b		Three Factor Model ^c		
	Perfectionism	Rigidity	Perfectionism	Rigidity	Misirliness
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		

^a All items are included in the single factor model of DSM-IV OCPD.

^b The two factor model identified by Pinto et al (2007)

^c The three factor model identified by Grilo (2004)

Table 2

Frequencies of DSM-IV personality disorder (PD) diagnoses (n=130).

	Diagnosis		Features ^a	
	n	%	n	%
Obsessive-compulsive PD	34	26.2	13	10.0
Paranoid PD	16	12.3	33	25.4
Schizotypal PD	6	4.6	18	13.8
Schizoid PD	2	1.5	14	10.8
Borderline PD	39	30.0	23	17.7
Antisocial PD	17	13.1	6	4.6
Narcissistic PD	4	3.1	1	0.8
Histrionic PD	4	3.1	7	5.4
Dependent PD	19	14.6	19	14.6
Avoidant PD	34	26.2	21	16.2

^aOne criterion short of PD diagnosis

Table 3

Frequencies of OCPD criteria present (n=130).

	n	%
Stubborn	59	45.4
Miserly	7	5.4
Pack Rat	22	16.9
Perfectionism	32	24.6
Details	33	25.4
Reluctance to Delegate	43	33.1
Morality	42	32.3
Workaholic	42	32.3

Table 4

Confirmatory factor analysis model fit indices for 1, 2, & 3 factor solutions.

	1 Factor	2 Factors	3 Factors
Chi-Square Value	32.62	21.01	22.85
Degrees of Freedom	11	11	13
P-Value	0.0006	0.03	0.93
CFI	0.97	0.99	0.98
TLI	0.97	0.99	0.97
RMSEA	0.12	0.08	0.11
WRMR	0.88	0.67	0.71

Table 5

OCPD Criteria Standardized Loadings for One, Two and Three Factor Models

OCPD Criteria:	Perfectionism	Details	Workaholic	Stubborn	Reluctant to Delegate	Morality	Miserly	Packrat
One Factor Model	0.73	0.64	0.48	0.45	0.87	0.89	0.33	0.35
Two Factor Model								
Perfectionism	0.86	0.69	0.56					0.39
Rigidity				0.49	0.89	0.93	0.37	
Three Factor Model								
Perfectionism	0.86	0.69	0.56					
Rigidity				0.48	0.89	0.92		
Miserliness							0.25	0.27

Table 6

Means and Standard Deviations of Perfectionism and Rigidity for OCPD diagnostic groups.

OCPD diagnosis	Perfectionism	Rigidity
	Mean (SD)	Mean (SD)
Not present	0.92 (1.23) ^a	1.16 (1.55) ^{b,c}
OCPD Features	2.85 (1.99) ^a	5.46 (1.39) ^b
OCPD Diagnosis	5.62 (2.06) ^a	5.62 (1.61) ^c

^a significant differences between group means $p < .05$ ^b significant differences between group means $p < .05$ ^c significant differences between group means $p < .05$

Table 7

Bivariate and Partial correlations of Perfectionism and Rigidity factor scores with PD criteria and DSQ scores.

	Perfectionism Factor		Rigidity Factor	
	Bivariate	Partial ^a	Bivariate	Partial ^b
Intense anger criterion (BPD)	0.40 ^{**}	0.14	0.54 ^{**}	0.41 ^{**}
Bears grudges/ counter-attacks criterion (PPD)	0.25 [*]	0.03	0.38 ^{**}	0.28 [*]
Physical aggression criterion (ASPD)	-0.03	-0.17	0.17	0.25 [*]
DSQ total	0.40 ^{**}	0.32 ^{**}	0.25 [*]	0.01
DSQ suicide items total	0.31 ^{**}	0.33 ^{**}	0.09	-0.15

^aCorrelations after controlling for score on the rigidity factor.

^bCorrelations after controlling for score on the perfectionism factor BPD = borderline personality disorder item, PPD = paranoid personality disorder item, ASPD = antisocial personality disorder item

*
p < .01;

**
p < .001