

**Using a measure of the DSM-5 Alternative Model of Personality Disorder Traits to Define
Personality Types**

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Supplemental materials

Full Measures Descriptions

Self-Report Measures

In line with Step 1 of Lynch's protocol, participants completed two measures designed to assess features consistent with OC and UC personality type. First, the Assessing Styles of Coping Word-Pair Checklist (ASC-WP; Lynch, 2018) is designed to be indicative of OC or UC "caseness," and asks participants to select the word that best describes them out of 47 word pairs (e.g., "compulsive" vs "Deliberate;" "Vulnerable" vs "Aloof"). The measure is scored by summing the frequency that the participant selects words associated with OC or UC. Higher frequency of OC word selection compared to UC word selection is indicative of probable OC. In contrast, the selection of UC-related words more frequently than OC words suggests a UC type profile (Lynch, 2018). The ASC-WP demonstrated good internal consistency in our sample (Cronbach's $\alpha = .87$). It is important to note that the ASC-WP is not a measure of psychopathology, and high scores on either OC or UC traits are not necessarily indicative of high levels of dysfunction (Lynch, 2018). However, it was used in our study to be consistent with recommended assessment procedures for OC, to act as a guide for the assessor to gauge if an individual presents with more features of OC or UC, to increase certainty of classification alongside other measures (Lynch, 2018).

The second measure of personality type was the Overcontrol Trait Rating Scale (OC-TRS; Seretis, Hempel, & Lynch, 2015) which is a 24-item scale that is designed to measure OC traits (e.g., "I often feel compelled to correct mistakes made by others;" "There is always a right and a wrong way to do things). The scale is scored on a six-point Likert scale ranging from 1 (Disagree Completely) to 6 (Agree Completely). Preliminary data suggests that scores of 79.5 or higher may indicate social anxiety, and scores of 86.5 or higher may be indicative of autism, however further testing is needed to confirm the most appropriate use in clinical settings (Seretis et al., 2015). For our study, we have classed scores below 79.5 as "low," scores between 79.5 and 86.5 as "moderate" and scores above 86.5 as "high." The OC-TRS demonstrated acceptable internal consistency in our sample (Cronbach's $\alpha = .76$). The scale was selected as a measure of specific OC traits, to assist in distinguishing OC from UC personality features.

The Depression Anxiety Stress Scale-21 item version (DASS-21; Henry & Crawford, 2005) was used to measure clinical presentation in our study. The Depression subscale measures low positive affect (e.g., "I couldn't seem to experience any positive feeling at all"), Anxiety measures physical hyperarousal (e.g., "I felt I was close to panic") and Stress measures tension or irritability (eg. "I found it difficult to relax"; Antony, Bieling, Cox, Enns, & Swinson, 1998) over the previous week. The DASS-21 is scored on a 4-point Likert scale ranging from 0 (Did not apply to me at all/Never) to 4 (Applied to me very much or most of the time/Almost Always), with the item scores for each subscale summed to obtain total scores, and then multiplied by two to obtain scores consistent with the original 42-item version (Henry & Crawford, 2005). Research has replicated the three-factor structure of the DASS and DASS-21 (Antony et al., 1998; Henry & Crawford, 2005). The DASS-21 demonstrated excellent internal consistency for the Depression (Cronbach's $\alpha = 0.93$), Anxiety (Cronbach's $\alpha = 0.80$) and Stress (Cronbach's $\alpha = 0.83$) subscales in our sample. Although not outlined by Lynch (2018), we added a fourth step to determine the clinical impairment. This decision was made due to the differing nature of our study compared to the purpose of the OC assessment procedure. Namely, Lynch (2018) developed his assessment procedure to determine OC "caseness" among individuals seeking treatment for treatment-resistant depression or personality pathology, which implies high levels of clinical impairment. In contrast, our participants were seeking treatment for an eating disorder, where it has been well-established that resilient subgroups are present (Goldner et al., 1999; Kim et al., 2016; Thompson-Brenner & Westen, 2005; Wildes et al., 2011).

In order to assess AMPD pathological personality dimensions we used the PID-5 Short-Form (PID-5-SF; Maples et al., 2015) as a measure of AMPD domains. The PID-5-SF is a 100-item version of the original measure that measures the five domains (negative affectivity, detachment, antagonism, disinhibition, and psychoticism), and 25 facets featured within the PID-5. The scale asks participants if items reflect how they may describe themselves (e.g., "I am easily angered," "I'm always worrying about something") and are scored on a four-point Likert scale ranging from 0 (very false or often false) to 3 (very true or often true). For each subscale the item scores are summed and the Mean

computed to achieve facet scores. Higher scores indicate higher pathology. The 100-item version has been found to be highly correlated with the original scale (Maples et al., 2015). PD composites comprising of PID-5 subscales have been developed for six DSM-5 PDs, which have been found to be indicative of possible diagnosis (Miller, Bagby, Hopwood, Simms, & Lynam, 2022). Within our sample, the majority of the PID-5-SF subscales demonstrated adequate to excellent internal consistency (Cronbach's $\alpha = 0.70 - 0.96$), with the exception of Irresponsibility ($\alpha = 0.50$) and Restrictive Affectivity ($\alpha = 0.50$). Previous research has also found sub-optimal internal consistency with the Irresponsibility subscale (Gilmartin, Gurvich, Dipnall, & Sharp, 2023), however, this has not been the case with restrictive affectivity. Due to the inadequate internal consistency, the results pertaining to the Irresponsibility and Restrictive Affectivity subscales have been moved to the supplemental material alongside a full description of the internal consistency data for our sample.

Eating pathology was measured in our study using the Eating Disorder Examination Questionnaire-Short version (EDE-Q; Gideon et al., 2016) which represents a 12-item version of the original Eating Disorder Examination Questionnaire. The EDE-QS asks participants to select on how many days over the previous 7 days they engaged in particular behaviours (e.g., "Have you had a strong desire to lose weight?" "Have you had a sense of having lost control over your eating?"). The items are scored on a 4-point Likert scale ranging from 0 (0 days) to 3 (6-7 days). The scores obtained on each item are added together to achieve a total score that represents eating pathology, ranging from 0 to 36 (Gideon et al., 2016). Scores of 15 and above have been found to be indicative of the presence of an eating disorder. The original version of the EDE-Q has been found to be appropriate for use with males and females (Rand-Giovannetti, Cicero, Mond, Prnjak et al., 2020) & Latner, 2020) as well as transgender and non-binary population (Duffy et al., 2021). The EDE-QS demonstrated good internal consistency in our sample (Cronbach's $\alpha = .86$).

Clinical Interview

The *Structured Clinical Interview for DSM-5 Personality Disorders* (SCID-5-PD) is a semi-structured diagnostic interview designed to assess the ten DSM-5 PD categories (Avoidant Dependent, OCPD, Paranoid, Schizotypal, Schizoid, Histrionic, Narcissistic, Borderline, and Antisocial PD), in addition to dimensional scores for each PD (First, Williams, Benjamin, & Spitzer, 2015). The SCID-5-PD is a widely used measure of personality pathology in both research and clinical contexts. Previous studies have demonstrated excellent inter-rater reliability (Lobbestael, Leurgans, & Arntz, 2011).

Based on conceptualisation of OC tendencies as defined by Lynch (2018) and the tendency for misdiagnosis (Hempel et al., 2018), additional questions were asked to ascertain if behaviours were private (i.e., only displayed when alone or with immediate family) or public (ie. displayed more broadly). More specifically, interviewers asked "what would I see you do?" if the participant endorsed frantic efforts to avoid abandonment, anger outbursts, or intense emotional changes. The follow-up questions were based on recommendations by Hempel et al. (2018) for identifying OC personality types using the SCID-PD, and a more detailed description of the differences between OC and UC behaviours can be found within Hempel's (2018) paper. In line with recommendations by Lynch (2018), participants were asked 11 supplemental questions, to identify the presence of OC traits, which are included in supplemental materials. The clinical interview was included as Step 2 of Lynch's protocol, and in line with previous research (Hempel et al., 2018).

Clinical Impression and Clinician Rating Scales

Based on the recommendations outlined by Lynch (2018), for the assessment of OC, participants were rated on the degree to which they met features of OC on two clinician rating scales. First, the Clinician-Rated OC Trait Rating Scale (OC-TS) asks assessors to rate participants on a 7-point Likert scale from 1 (low) to 7 (high) based on eight different OC characteristics (e.g., "Openness to Experience," "Trait Negative Emotionality;" For a full description see Lynch, 2018). The ratings are summed together to achieve an overall score ranging from 24 to 144, with higher scores indicating OC personality. In our study, we classified participants with scores 34 and below as "low," Scores between 35 and 39 (inclusive) as "moderate," and scores 40 and above as "high." The Overcontrolled Global Prototype Rating Scale (OC-PRS) consists of eight ratings across four categories (e.g., Deficits in receptivity and openness," "Deficits in flexible responding") to assess the presence of OC deficits following a clinical interview. Participants were rated on a 5-point Likert scale ranging from 0 (little

or no match – description does not apply) to 4 (very good match – exemplifies features). The ratings are summed together to achieve an overall score ranging from 0 to 32, with higher scores indicating OC personality. In accordance with the recommended assessment protocol, scores between 0 and 7 were classified as “unlikely OC”, 8 to 16 was classified as “low to moderate”, 17 to 24 was classified as “Good match for OC”, and scores between 25 and 32 were classified as “exemplifies OC” (Lynch, 2018). The scores for the rating scales were included as Step 3 of Lynch’s (2018) protocol and were used to assist the research team in classifying individuals as OC or UC.

Internal Consistency Calculations

Table 1

Internal consistency data and for the PID-5-SF, DASS-21, EDE-QS and recommended clinical OC measures

Scale/Subscale	Chronbach’s Alpha	Notes
PID-5-SF		
Anhedonia	0.93	
Anxiousness	0.90	
Attention Seeking	0.75	
Callousness	0.76	
Deceitfulness	0.85	
Depressivity	0.96	
Distractability	0.94	
Eccentricity	0.87	
Emotional Lability	0.89	
Grandiosity	0.66	- Removal of item 85 contributed to an increase in Chronbach’s alpha to 0.675. The additional removal of item 90 contributed to an increase in Chronbach’s alpha to 0.738. - Both items 85 and 90 were removed from the final subscale for analyses in the study.
Hostility	0.88	
Impulsivity	0.87	
Intimacy Avoidance	0.94	
Irresponsibility	0.44	- Removal of item 76 contributed to an increase in Chronbach’s alpha to 0.507. The removal of additional items did not contribute to any further improvement in Chronbach’s alpha. - Item 76 was removed from the final subscale for analyses in the study.
Manipulativeness	0.76	
Perceptual Dysregulation	0.83	
Perseveration	0.87	
Restricted Affectivity	0.44	- Removal of item 73 contributed to an increase in Chronbach’s alpha to 0.495. The removal of additional items did not contribute to any further improvement in Chronbach’s alpha. - Item 73 was removed from the final subscale for analyses in the study.

Rigid Perfectionism	0.70
Risk Taking	0.77
Separation Insecurity	0.90
Submissiveness	0.74
Suspiciousness	0.79
Unusual Beliefs	0.83
Withdrawal	0.77
PID-5-SF Composites	
Antisocial	0.78
Schizotypal	0.76
Borderline	0.82
Narcissistic	0.73
Avoidant	0.72
Obsessive-Compulsive	0.77
DASS-21	
Depression	0.93
Anxiety	0.80
Stress	0.83
EDE-QS	0.86
Word Pairs Checklist	0.87
Overcontrol Trait Rating Scale	0.76

Data storage:

Study data was collected and managed using Research Electronic Data Capture (REDCap) electronic data capture tools hosted and managed by Helix. REDCap is a secure, web-based application designed to support data capture for research studies, providing 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources (Harris et al., 2009).

Interclass Correlation Coefficients

Of the interview recordings, six (30%) were watched by a research assistant and coded independently to the initial assessor. The consistency between the dimensional ratings for each personality disorder and the overall item consistency was assessed using Interclass Correlation Coefficients (ICCs). ICC values lower than 0.40 can be interpreted as poor, between 0.41 and 0.75 as fair, and above 0.75 as excellent agreement (Fleis, 1981). As demonstrated in Table 2, the ICC scores achieved in our study indicate excellent interrater reliability, with the exception of Schizoid PD, demonstrating consistency with past research (Lobbestael et al., 2011). There were too few participants who met the diagnostic criteria for any PD to statistically calculate interrater reliability of whether diagnostic criteria were met, however, the raters agreed on diagnosis 93.33% of the time. Recordings were then transcribed using zoom transcription software and the recordings destroyed.

Table 2
Inter-rater reliability for dimensional personality disorder scores and item scores

Diagnosis	N	Number of Diagnoses		Trait Scores	
		Rater 1	Rater 2	ICC	95% CI
Avoidant PD	6	3	2	0.93	0.48 – 0.99
Dependent PD	6	1	1	0.97	0.77 – 1.00
Obsessive-Compulsive PD	6	3	3	0.99	0.96 – 1.00
Paranoid PD	6	0	0	0.94	0.59 – 0.99
Schizotypal PD	6	0	0	0.93	0.52 – 0.99
Schizoid PD	6	0	0	0.61	-1.79 – 0.95
Histrionic PD	6	0	0	0.86	-.01 – 0.98
Narcissistic PD	6	0	0	0.90	0.30 – 0.99
Borderline PD	6	3	3	0.95	0.65 – 0.99
Antisocial PD	6	0	0	1.00	1.00
Item scores	6	NA	NA	0.91	0.89 – 0.92

ICC = Interclass Correlation Coefficient. CI = Confidence Interval. PD = Personality Disorder

Examples of OC and UC responses to SCID-PD questions for Borderline Personality Disorder

Table 3
Examples of observable compared to non-observable themes that emerged in the content analysis

Theme	Response Examples	Theme Description
SCID-PD Question 77: Frantic efforts to avoid real or imagined abandonment		
Hidden/covert expression of emotion (OC response)	“I would fix the relationship” “I would assume they were better without me” “I would be really nice” or “buy gifts” “...push down emotions” “I would over-react, but all in my head, no one would know.”	Participants tended to remark that although they would feel frantic, they would not let others know that they felt this way. Examples of observable behaviours tended to involve planning ways of “fixing” the relationship or doing nice things, which would not typically involve showing their uncomfortable emotions.
Observable/overt expression of emotion (UC response)	“I would call them, contact them on social media, message their friends, beg them” “I would over-analyse and avoid them”	Participant responses tended to demonstrate emotion-driven reactions like contacting excessively or avoiding the other person
SCID-PD Questions 88-90: Inappropriate, intense anger, or difficulties controlling anger		
Hidden/covert expression of emotion (OC response)	“I might get snappy [irritated] or isolate” “...no-one else would see” “I might cry or throw things, but I am always alone” “My emotions don’t come out that way”	Responses indicated that although participants might experience anger, their outward responses were limited, and anger was generally well hidden from others.

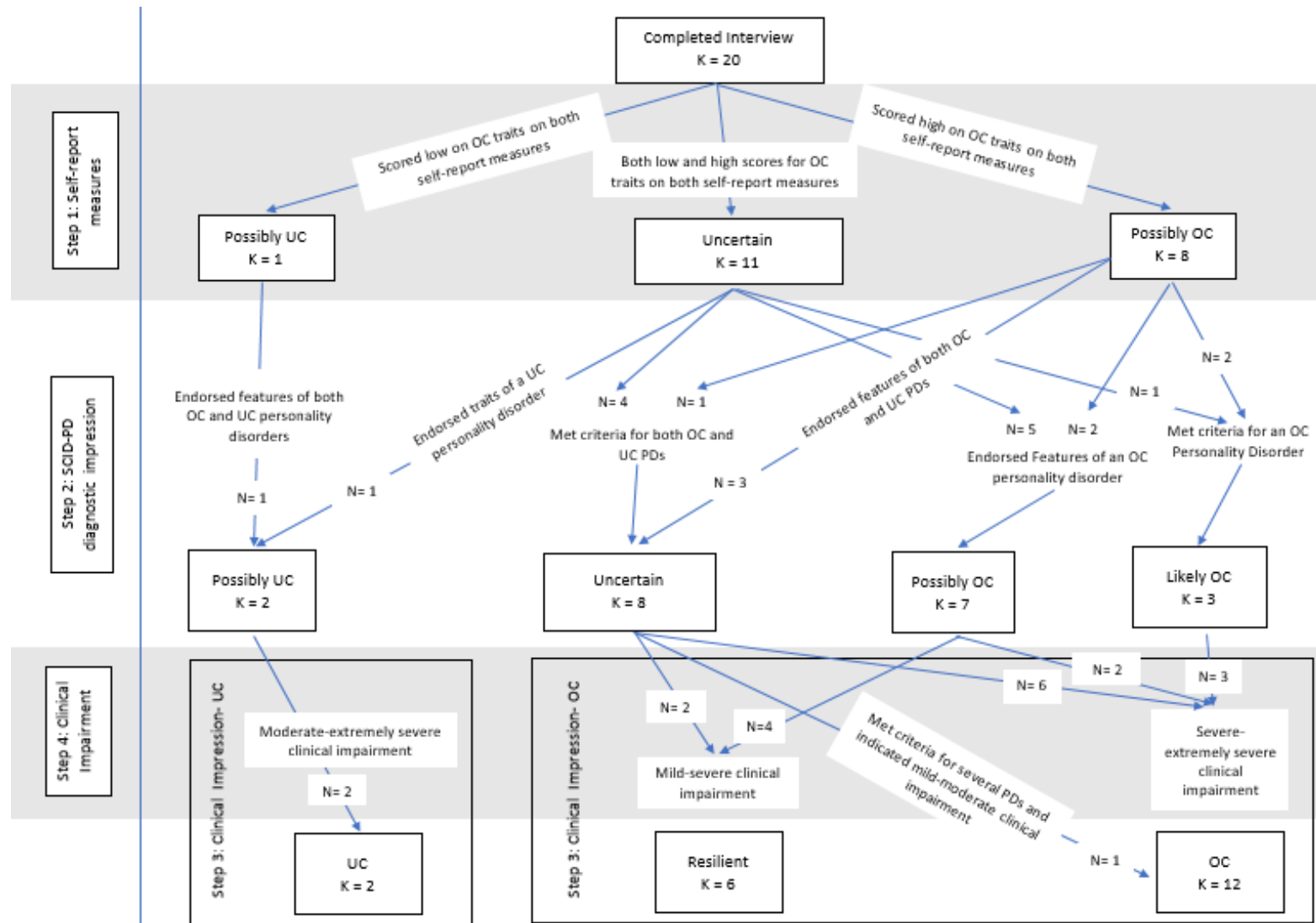
	• “I might make a comment, or I might look angry”	
Observable/overt expression of emotion (UC response)	• “I might throw things at others”	Anger more likely to be expressed outwardly

Extended examples of classification as OC and UC

Table 4
Extended examples of classification as OC and UC

Example	Steps
Example 1 (31 years old, non-binary, Classified OC)	Step 1: Demonstrated OC on both self-report measures Step 2: Met criteria for an OC personality disorder Step 3: Interview responses demonstrated covert emotional responses, and interview behaviour demonstrated controlled and restrained behaviour Step 4: Scored in the severe and extremely severe range on the Depression, Anxiety and Stress DASS-21 subscales.
Example 2 (24 years old, transgender, Classified OC)	Step 1: Demonstrated OC on the OC-TRS, but UC on the ASC-WP Step 2: Met criteria for both OC and UC PDs Step 3: Interview responses demonstrated covert emotional responses, and interview behaviour demonstrated controlled and restrained behaviour Step 4: Scored in the severe and extremely severe range on the Depression and Anxiety DASS-21 subscales.
Example 3 (19 years old, Woman, Classified UC)	Step 1: Demonstrated OC on the OC-TRS, but UC on the ASC-WP Step 2: Endorsed several features of borderline personality disorder but no OC personality disorders Step 3: Interview responses were descriptive and did not indicate a tendency to hide her emotions Step 4: Scored in the extremely severe range on the Depression and Anxiety DASS-21 subscales.

Figure 1
Step-by-step classification as OC, UC or Resilient



Results Pertaining to Excluded Scales (Irresponsibility and Restricted Affectivity)

Table 6

Means and Standard Deviations for age and scores on the PID-5, DASS-21, and EDE-QS for each of the personality types and the total number of participants as t-test results for statistically significant differences between Maladaptive OC and Adaptive OC

Variable	Total		Overcontrol (OC)		Resilient (R)		Undercontrol (UC)		t (df)	p	Cohen's d	95% Confidence Interval	
	N = 20		n = 12		n = 6		n = 2		OC vs R				
	M	SD	M	SD	M	SD	M	SD				Lower	Upper
Irresponsibility	0.56	0.53	0.73	0.58	0.33	0.38	0.25	0.35	1.51 (16)	0.15	0.76	-0.16	0.95
Restricted Affectivity	0.43	0.41	0.38	0.36	0.54	0.51	0.38	0.53	-0.81 (16)	0.432	-0.40	-0.61	0.27

Note. Normative mean for PID-5 subscale scores and composite scores from Miller et al. (2022), Normative Mean for Dass-21 scores from Crawford et al. (2020). PID-5-SF = Personality Inventory for DSM-5-Short Form. DASS-21 = Depression Anxiety Stress Scale-21 item version. EDE-QS = Eating Disorder Examination Questionnaire-Short version.

† Above 1 SD of normative Mean, †† Above 1.5 SD of normative Mean, ††† Above 2 SD of normative mean.

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