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A hierarchical model of normal and abnormal personality up to seven factors

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Abstract

Despite general support for dimensional models of personality disorder, it is currently unclear which, and how many, dimensions a taxonomy of this kind should include. In an attempt to obtain an empirically-based, comprehensive, and usable structure of personality, three instruments – The Temperament and Character Inventory-Revised (TCI-R), the Personality Diagnostic Questionnaire-4 + (PDQ-4 +), and the Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ) – were administered to 960 outpatients and their scales factor-analyzed following a bass ackwards approach. The resulting hierarchical structure was interpretable and replicable across gender and methods up to seven factors. This structure highlights coincidences among current dimensional models and clarifies their apparent divergences, and thus helps to delineate the unified taxonomy of normal and abnormal personality that the field requires.

1. Introduction

Though it is widely agreed that personality disorders (PDs) should be assessed dimensionally [1,2], many essential aspects of a dimensional model of this kind remain obscure. Significantly, evidence is equivocal on how many and which are the fundamental dimensions of personality pathology [3,4]. This uncertainty has had non-trivial after-effects, including the inability of the DSM-V and ICD-11 systems to agree even on the most basic dimensions of personality [5,6], the broad rejection, and finally the adjournment, of the DSM-V dimensional system [7], and the revival of the old DSM-IV categories against all the evidence. Ultimately, disagreement on such a key points may restrain advance in the field of personality pathology.

As regards the number of dimensions, the prevailing notion that personality organizes itself around "four or five" universal axes [4,8] is necessarily influenced by subjective decisions that accompany factor analysis [9,10]. For example, most studies factorize a sole instrument [*review in* 11], thus limiting the initial pool of traits and leaving relevant dimensions unrepresented. This is the case of the DAPP-BQ [12] and the SNAP [13] which lack a superordinate dimension of Oddity. At other times, a more or less explicit attempt is made to corroborate a pre-established k-factor structure rather than to force the structure to the limits of replicability or interpretability [14]. Still others, unnecessary constraints are enforced that no theory foresees, such as the orthogonality of factors [15]. These and other arrangements may artifactually limit the final number of interpretable dimensions.

In fact, the very concept that personality *has* a certain number of dimensions is partially misleading. Personality shows a hierarchical structure [16] in which different levels of abstraction have distinct properties and can serve different functions [17–20]. As an illustration, firmly established factor structures can be found that comprise either one [21],

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two [22], three [13,23,24], four [12,25], five [26–28], six [29,30], or seven dimensions [31,32], and even the same personality descriptors can be congruently organized into different numbers of factors forming a hierarchy [16,33–35]. Therefore, the question is not how many factors there are, but whether any one hierarchical level is more reliable, valid, comprehensive, replicable, useful, feasible, or otherwise convenient than the others.

On the other hand, agreement on the number does not guarantee unanimity regarding the basic dimensions that constitute the taxonomy of personality pathology, as the existence of the Five Factor (FFM) [26], the Alternative Five [36], the Pathological Five [37], and the PID-5 models [38] suggests. Even the widespread presumption that pathological traits are overly intense FFM traits [39] is challenged by the fact that only four dimensions have been repeatedly supported which are roughly isomorphic to the FFM: Negative Emotionality (*aka* Neuroticism, Negative Affectivity, Emotional Instability, Emotional Dysregulation), Introversion (low Extraversion, low Positive Affectivity, Inhibitedness, Asociality, Schizoidy, Withdrawal, Detachment), Antagonism (low Agreeableness, Aggressiveness, Aggression-Hostility), and Disinhibition (low Conscientiousness, Impulsivity, [Dis]constraint) [*reviews in* 4,6,11,30,40]. Contrarily, Openness still has a controversial role in PDs [41, *but see* 39,42] and is absent from most pathology models. In turn, most normal models leave out key clinical constructs such as Oddity (Psychoticism, Rarity, Schizotypy, Peculiarity), whose relationship to Openness is unclear [43], and Compulsivity (Obsessivity, Anankastic, Constraint, Persistence), which is not fully extreme Conscientiousness [34,41,44,45].

Disagreement is not restricted to the junction between normal and abnormal traits, as normal personality models also differ from each other to the same extent. Though the 90° rotation of Eysenckian axes by Gray [46] is the most notorious example of this, the FFM [26], the TCI [31] or the HEXACO [29] only partially coincide in the nature and orientation of their dimensions. Pathological personality models diverge considerably from one another as well. For example, a superordinate dimension of Oddity is present in some models [5,37] and absent from others [6,12], whereas Compulsivity-Constraint is either independent of impulsivity [30,33,47], is just its opposite pole [4,37,38], or is not present at all [25,48].

In short, despite notable coincidences between personality models of disparate origins, the uncertainties that remain are not negligible and we are still in need of a comprehensive, hierarchical taxonomy of PDs. Many of these discrepancies may be related to the number of factors. For example, the Dissocial dimension splits apart into Disinhibition and Antagonism at lower levels, producing apparent inconsistencies between models [33]. Moreover, most previous hierarchical analyses are based on students, utilize one sole instrument, or do not reach the bottom end of the hierarchy for theoretical or methodological reasons [16,33–35].

Against this background, using factor analysis in a broad clinical sample, our study seeks an empirically-based structure that integrates the domains of normal and abnormal personality and comprises all hierarchical levels up to the limits of replicability. This will hopefully advance on previous work [4,16] by clarifying pending questions about the number, the nature, and the organization of traits constituting personality pathology.

2. Method

2.1. Participants

The sample was composed of 960 outpatients, 53% female, aged 16 to 67 (mean 34.5, SD 10.7), consecutively referred for personality assessment to the Personality Disorder Unit of a general teaching hospital during a six-year period. Though our focus was on measuring PD traits dimensionally, when the PDQ-4 + Clinical Significance Interview was applied to a subsample of 362 (37.7%) subjects, 38.4% received a categorical PD diagnosis with all disorders being represented. About a quarter of all subjects concurrently presented a mild to moderate affective disorder, 8% an anxiety disorder, 10% mixed anxious-depressive symptoms, and 9% other psychopathology – substance abuse, eating disorders, somatoform disorders – each with a frequency below 3%. Axis I diagnoses were made through clinical interview according to DSM-IV [49] by the referring staff and again by two experienced, doctoral level clinical psychologists (FG, JMP). Patients presenting severe affective disorder, psychosis, or dementia were excluded. The study was approved by the ethical committee of the hospital and all patients gave informed consent prior to participating in the study.

2.2. Instruments

The Personality Diagnostic Questionnaire-4 + (PDQ-4 +) [50], a 99-item, true/false self-report, was chosen because of its easy administration and its close correspondence with the 93 DSM-IV PD criteria. It provides the ten DSM-IV official PD diagnoses, which are organized into three higher-order clusters. Depressive and Negativistic PDs were excluded from this study because of their uncertain position within the cluster hierarchy. The Spanish version of the PDQ-4 + has shown suitable psychometric properties [51].

The Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ) [12] is a 290-item self-report rated on a 5-point Likert scale. It assesses 18 traits of personality pathology that were obtained through the repeated factorization of a wide range of descriptors of disordered personality. These traits are grouped into four higher-order dimensions of Emotional Dysregulation, Dissocial Behavior, Inhibitedness, and Compulsiveness. The DAPP-BQ is among the most comprehensive sets of pathological traits, and its psychometric properties have