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FOCAL ARTICLE

Personality testing and the Americans With Disabilities Act: Cause for concern as normal and abnormal personality models are integrated

Arturia Melson-Silimon[1,*], Alexandra M. Harris[1], Elizabeth L. Shoenfelt[2], Joshua D. Miller[1], and Nathan T. Carter[1]

[1]Department of Psychology, University of Georgia, Athens, Georgia, USA and [2]Department of Psychological Sciences, Western Kentucky University, Bowling Green, Kentucky, USA
*Corresponding author. Email: atm36555@uga.edu

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Abstract

Applied psychologists commonly use personality tests in employee selection systems because of their advantages regarding incremental criterion-related validity and less adverse impact relative to cognitive ability tests. Although personality tests have seen limited legal challenges in the past, we posit that the use of personality tests might see increased challenges under the Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) due to emerging evidence that normative personality and personality disorders belong to common continua. This article aims to begin a discussion and offer initial insight regarding the possible implications of this research for personality testing under the ADA. We review past case law, scholarship in employment law, Equal Employment Opportunity Commission (EEOC) guidance regarding "medical examinations," and recent literature from various psychology disciplines—including clinical, neuropsychology, and applied personality psychology—regarding the relationship between normative personality and personality disorders. More importantly, we review suggestions proposing the five-factor model (FFM) be used to diagnose personality disorders (PDs) and recent changes in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM). Our review suggests that as scientific understanding of personality progresses, practitioners will need to exercise evermore caution when choosing personality measures for use in selection systems. We conclude with six recommendations for applied psychologists when developing or choosing personality measures.

Keywords: personality testing; selection; disabilities; Americans with Disabilities Act (ADA)

Industrial and organizational (I-O) psychologists commonly use personality tests in employee selection systems. By some estimates, personality testing has become a $500 million per year business that has grown approximately 10%–12% annually (Weber & Dwoskin, 2014). In part, this growth is due to advantages in hiring, including incremental validity for predicting job performance over other commonly used psychological tests (Schmidt & Hunter, 1999) and less adverse impact relative to general mental ability tests (Ryan, Ployhart, & Friedel, 1998). Most personality tests utilized by I-O psychologists are based on major, normal, or general theories of personality structure, such as the five-factor model (FFM; McCrae & John, 1992) and do not account for psychiatric disorders such as those previously known as Axis I and Axis II disorders, at least

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not explicitly. The distinction between normal or general personality and psychiatric disorders (including personality disorders) and the corresponding distinction between tests used to assess them is crucial to the use of personality measures in employment decisions. Legal restrictions prohibit collecting medical information, such as psychiatric disorder diagnoses, about an applicant prior to a conditional job offer. Namely, the use of a psychiatric personality diagnostic tool would violate the Americans with Disabilities Act (ADA, 1990) if administered before a conditional job offer and/or without demonstrated job relatedness. Nonclinical assessments of normal personality traits thus far have been permitted under the ADA because of the belief that they do not provide medical information.

Although normal and more pathological personality models historically have been separated in both applied psychology and personality research, evidence from a variety of psychological disciplines has begun to converge on the same conclusion: the "line in the sand" between normal and abnormal personality models may be nonexistent. In fact, the most recent version of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) highlights the substantial implications of this research. The Alternative Model of Personality Disorders (AMPD) included in Section III of the Fifth Edition of the DSM (DSM-5; American Psychiatric Association, 2013) now uses personality dimensions with clear ties to basic personality structure from the FFM (e.g., Gore & Widiger, 2013) to make personality disorder diagnoses, blurring the line between normal/general personality and pathological, disordered personality. Similar changes are forthcoming to the next version of the *International Classification of Diseases* (e.g., Tyrer et al., 2011). In this article, we illustrate how the growing support for merging normal and clinical personality dimensions in diagnosis may lead to increased challenges to personality testing under the ADA. Although we focus here primarily on the link between normal/general personality and pathological traits that comprise the personality disorders found in psychiatric taxonomies, it is important to note that these basic personality dimensions align with fundamental dimensions of psychopathology more generally, including mood, anxiety, eating, and substance disorders (e.g., Kotov et al., 2017). In fact, many trait psychologists believe that these basic personality dimensions provide the foundation from which many other forms of psychopathology arise. First, we review Equal Employment Opportunity Commission (EEOC) Guidance on the "mental impairment and clinical measures" concept in the ADA to explicate the connection between disability and personality. We then review past case law and employment law scholarship relevant to personality testing. Finally, we present recent literature in various psychology disciplines on the relationship between normal personality and personality disorders (PDs). Together, we believe that these literatures reveal a seemingly inevitable collision between the practice of personality testing for employment purposes and the scientific understanding of personality models. With our review, we hope to begin a much-needed conversation in I-O psychology about these looming legal issues as models of personality and PDs are integrated.

The Americans with Disabilities Act and personality testing

The ADA was passed by Congress in 1990 to protect persons with disabilities from discrimination. Title I of the ADA addresses discrimination in the workplace specifically (ADA, 1990). For standing to file an ADA claim, a plaintiff must establish protected class membership, an important and sometimes overlooked prerequisite. For example, in *Varnagis v. City of Chicago* (1997), the court ruled the plaintiff Varnagis sufficiently demonstrated that the administration of preemployment clinical personality tests was in violation of the ADA but failed to show class membership; the court found for the defendant.

According to the ADA, there are two hurdles to disability class membership. The first requires (a) "a physical or mental impairment that substantially limits one or more major life activities," (b) "a record of such impairment," or (c) "being regarded as having such impairment" (ADA, 1990).

The EEOC further defines major life activities to include physical acts such as "sitting, standing, lifting, and reaching" and, of primary importance to the current discussion, mental and emotional processes such as "thinking, concentrating, and interacting with others" (ADA, 1990). The second hurdle requires that the individual has the ability to perform all essential job functions with or without reasonable accommodation. In 2008, the ADA Amendments Act (ADAA) further defined a disability as "an impairment that is episodic or in remission, if the impairment substantially limits a major life activity" (2008, p. 4). However, the ADAAA excluded transitory impairments of 6 months or less duration. The ADAAA definition of disability specifically included impairments mitigated by treatment (e.g., drugs, therapy) and stipulated that the impairment is to be assessed in its nonmitigated state. Thus, individuals with a PD likely meet the first hurdle for establishing ADA protected class membership.

Although there is no clause in the ADA specifically referring to personality tests, EEOC *Guidance* (2000) offers clarification regarding how a personality test might be prohibited under the ADA. Prior to a conditional job offer, an employer cannot use a *medical examination* as a test to screen applicants. According to the EEOC, a test may constitute a medical examination if one or more of the following conditions are met: the test (a) was administered by a healthcare/medical professional; (b) was interpreted by a healthcare or medical professional; (c) was originally designed to reveal an impairment or an applicant's current mental or physical health; (d) was invasive; (e) measured a physiological response (e.g., heart rate) to a (job-related) physical task; (f) is typically used in a medical setting; or (g) involved the use of medical equipment (EEOC, 2000). EEOC *Guidance* further indicates that a "medical examination" may include but is not limited to "psychological tests that are designed to identify a mental disorder or impairment." Thus, any personality test used explicitly to screen an applicant for a mental disorder prior to a conditional job offer would violate the ADA.

However, the EEOC also specifies that personality tests for employment purposes are not categorically prohibited under the ADA (EEOC, 2000). EEOC *Guidance* specifies that personality tests that are considered medical examinations may be permitted after a conditional job offer if job relevant (e.g., for safety sensitive positions). Further, EEOC *Guidance* provides examples of psychological tests that employers may require that are *not* considered medical examinations. Such tests are permitted for screening applicants prior to a job offer and include measures of honesty, preferences, and habits. Thus, only certain personality tests used in certain circumstances are prohibited.

Relevant case law regarding the use of personality tests for selection

Reviewing relevant case law offers some additional clarification regarding the current use of personality tests under the ADA. A somewhat notorious early legal case involving personality testing and ADA compliance is *Soroka v. Dayton Hudson Corporation* (1991; Camara & Merenda, 2000). To screen store security officers (SSOs), Dayton Hudson used a combination of the California Personality Inventory (CPI; Gough, 1987) and the Minnesota Multiphasic Personality Inventory (MMPI; Dahlstrom, Dahlstrom, & Welsh, 1972) in an instrument they termed "Psychscreen." The plaintiffs filed a constitutional claim against Dayton Hudson under California privacy laws claiming that some items on Psychscreen invaded their privacy and were not job related, including items about sexual orientation, religious beliefs, and political views. Although the lower state court found for the defendant, the appellate court found for the plaintiffs. Ultimately, the case settled out of court before a review by the California Supreme Court. Using strict scrutiny, the appeals court ruled that Psychscreen must "narrowly relate to the performance of the employee's important job duties." Dayton Hudson had failed to conduct a job analysis linking Psychscreen items to performance. Further, although Dayton Hudson cited a validity generalization argument that SSO and police officer positions were in the same job family in the Dictionary of Occupational Titles, they failed to conduct a study to support the notion that criterion validity was invariant between the two. The fallout from this case created a chilling effect on the use of clinical personality tests by employers because of the high risk of potential litigation (Camara & Merenda, 2000).

Table 1. Summary of court cases, the favored party in judgment, and the court's rationale

Case	Year	Personality test in question	Favored party	Court's rationale
Thompson v. Borg-Warner	1996	Personnel Assessment Selection Survey III	Defendant	"[evidence] that the test is designed to reveal 'behavioral problems' and 'emotional instability' is insufficient."
Barnes v. Cochran	1997	Minnesota Multiphasic Personality Inventory[a]	Defendant	Although ADA was violated by use of medical examination, "[the] defendant has put forth sufficient non-discriminatory reasons for not hiring."
Karraker v. Rent-A-Center	2005	Minnesota Multiphasic Personality Inventory[a]	Plaintiff	"The MMPI is a medical examination under the ADA."

Note: [a]The Minnesota Multiphasic Personality Inventory was embedded with items from other measures.

Gutman, Koppes, and Vodanovitch (2011) identified four important lessons from *Soroka* for the use of personality testing in employment practice for both safety-sensitive and non-safety-sensitive jobs. First, job analysis is a critical first step in identifying tests for selection purposes. Second, although personality tests rarely have adverse impact (Barrick & Mount, 1991; Berry, Sackett, & Weiman, 2007), reliance on personality tests without a job analysis can result in failing to identify other important requisite knowledge, skills, and abilities (KSAs) for the job. Even a valid personality test that fails to capture relevant criterion space could be problematic if an alternative test with broader coverage or an additional test captured that space. For example, failure to assess decision-making ability under stress for safety-sensitive jobs could put the public at risk. Particularly with jobs involving public safety, not appropriately identifying other critical KSAs could lead to negligent hiring charges. Third, conducting a job analysis in itself is insufficient; it is prudent for employers to have validity evidence for all components of a selection program. Fourth, Gutman et al. (2011) highlighted the distinction between clinical and nonclinical personality tests and recommended that, for safety-sensitive jobs, the former be administered and interpreted by clinical psychologists subsequent to a conditional job offer. However, for non-safety-sensitive jobs, Gutman et al. recommended assessing personality traits such as integrity using "overt" tests that directly assess attitudes toward counterproductive work behaviors rather than "personality-oriented" tests that assess personality with the aim of predicting counterproductive behaviors (Berry et al., 2007; Sackett, Burris, & Callahan, 1989). Because overt tests tend to be less intrusive and to have higher face validity, they are less likely to lead to litigation. Yet in a meta-analysis of integrity tests with absenteeism criteria, Ones, Viswesvaran, and Schmidt (1993) found personality-based tests were better predictors than were overt tests. Thus, selection practitioners need to strike a careful balance between minimizing test invasiveness while maximizing face and predictive validity.

There have been very few court cases addressing preemployment personality testing under the ADA. Table 1 summarizes three such cases: *Thompson v. Borg-Warner Protective Services Corp*. (1996), *Barnes v. Cochran* (1997), and *Karaker v. Rent-A-Center* (2005). In *Thompson v. Borg-Warner*, the plaintiff challenged Borg Warner's use of a personality test, the Personnel Assessment Selection Survey III (PASS-III), under the ADA. The PASS-III was administered to applicants for security guard positions. Although the plaintiff claimed the PASS-III inquired about mental impairment, the defendant argued the measure elicited information about "work-related subjects." To support this claim, the defendant noted that when they ordered materials for the PASS-III, it was never mentioned that the measure could identify those with disabilities. The court first looked to the EEOC's definition of clinical measurement to determine if ADA

violations were present. The court determined that no clinical professionals administered the exam, the PASS-III usually is not used for diagnoses or within a clinical setting, the measure was not physically invasive, nor was any medical equipment used. The court decided the use of PASS-III by the defendant did not violate the ADA. Instead, the court suggested the test was merely a measure eliciting information surrounding an applicant's character or personality traits, and their fit for the job, indicating that personality tests are not inherently prohibited by the ADA. Although a brief report in *TIP* (Toner & Arnold, 1998) indicated *Thompson v. Borg Warner* settled, the court's opinion remains informative.

In *Barnes v. Cochran* (1997), the plaintiff claimed a violation of the ADA when the potential employer, the county sheriff, did not offer the plaintiff a corrections deputy position due to a preemployment psychological evaluation. The plaintiff asserted that the evaluation served as a medical examination in violation of the ADA. The evaluation was required of all applicants and involved a clinical evaluation, review of medical records, and several personality tests including the MMPI (Dahlstrom et al., 1972) and the CPI (Gough, 1987). The court determined that information resulting from the evaluation would have given the defendant ample information to determine if an applicant had a mental disability. Thus, the court determined the evaluation was medical in nature and that its use was a direct violation of the ADA. Despite this finding, the court granted the defendant summary judgment after concluding that the plaintiff failed to provide evidence proving employment was denied for discriminatory reasons. Consequently, the court determined no damage was caused by the defendant's violation of the ADA. This decision highlights the burden plaintiffs face when suing on the grounds of disability-based discrimination; specifically, any legitimate justification articulated by the defendant for an adverse employment decision must be proven by the plaintiff to be a pretext for discrimination.

As with *Barnes v. Cochran* (1997), *Karraker v. Rent-A-Center* (2005) involved the use of the MMPI, but summary judgment was ultimately granted to plaintiffs. In *Karraker*, three plaintiffs claimed violation of the ADA by Rent-A-Center (RAC) retail stores throughout Illinois for close to a decade. The plaintiffs had applied for promotion within the franchise and claimed they were denied after taking the Associated Personnel Technicians Management Trainee-Executive Profile (APT Test), a self-report measure that included items from the MMPI. The lower court ruled that, although the MMPI has been used in clinical settings, RAC used the measure as any other nonmedical measure. Thus, the court decided the use of the MMPI was not medical in nature and did not violate the ADA. On appeal, the Seventh Circuit Court granted summary judgment in favor of the plaintiffs. The appellate court posed the question, "Why would the defendant use the MMPI, a test that has been historically known to reveal a respondent's mental impairment or condition, for their promotional decisions?" (Gonzales-Frisbie, 2006). The court concluded that whether or not the test's results were used for medical purposes, they were nonetheless available for medical *interpretation*. RAC's argument that the company inquired only about "normal feelings of depression" as opposed to *clinical* depression was unconvincing. The court posed the questions: "Why would RAC care if an applicant lost their keys in the morning of the MMPI or took the test after another Cubs loss? Would RAC really want to exclude an employee because he happened to feel sad on the wrong day?" (*Karraker*, 2005). The court decided that (a) if the MMPI was indeed used by RAC to measure current state of mood, or "normal feelings of depression on any given day," then the MMPI was a poor predictor of the applicants' future performance in management; or (b) the measure was designed to measure *more* than an applicant's mood on a given day. To reach a decision, scenarios using EEOC classification for medical examinations were discussed. The court ultimately concluded that although applicant responses were not interpreted by a medical professional, the use of the MMPI would still be likely to identify and "weed out" individuals with PDs who are protected under the ADA (*Karraker*, 2005). Therefore, the court decided that RAC's use of the MMPI in preemployment decisions was indeed a violation of the ADA.

Overall, the case law reviewed above points to several key legal implications for personality testing in employee selection. First and foremost, a thorough job analysis must provide the

Table 2. Summary of FFM traits, corresponding PD classification, PID-5 trait, and associated brain region

FFM trait	DSM categorical PDs	PID-5 pathological trait	Brain region
Neuroticism (+)	Borderline, avoidant	Negative affectivity	Posterior hippocampus
Agreeableness (–)	Narcissistic, antisocial	Antagonism	Superior temporal sulcus
Extraversion (–)	Avoidant, schizoid	Detachment	Medial orbitofrontal cortex
Conscientiousness (–)	Antisocial	Disinhibition	Prefrontal lateral cortex
Openness (+)	N/a	Psychoticism	N/a

foundation for any justified use of a personality test. Second, the plaintiff cannot claim discrimination based on the use of a medical examination alone. Instead, the plaintiff must demonstrate that the defendant's legitimate justification for adverse employment decisions is in fact pretext for discrimination. Finally, and perhaps most important for the current discussion, measures of normal personality traits are permitted under the ADA, but any measure that might yield insight to medical disorder or impairment is expressly prohibited prior to a conditional job offer. Therefore, practitioners must remain vigilant to avoid "bad practice" through use of clinical measures during the screening process (*Barnes*, 1997; *Soroka*, 1991) and should refer to guidance provided by the EEOC and previous court decisions regarding the "line in the sand" that currently distinguishes measurements of normal personality and abnormal personality (i.e., clinical diagnosis; *Karraker*, 2005; *Thompson*, 1996). Considering EEOC guidance and legal precedent, restrictions are clear for the use of clinical tests in selection given a long history of relative clarity in the distinction between "normal" and abnormal" personality. However, an emerging literature from different psychological disciplines stands to make this "line in the sand" between clinical and nonclinical personality measures ambiguous, and along with it the EEOC's current guidance and past court decisions.

Integration of normal and abnormal models

Thus far, the legal community has addressed the status of personality tests in pre-employment contexts by carefully distinguishing normal personality from psychiatric diagnoses. Meanwhile, psychological scientists have increasingly questioned the appropriateness of that distinction. The emerging consensus is that what once were qualitatively designated as "normal" and "abnormal" models of personality structure likely have common structure *and* neurophysiological origin (Hopwood et al., 2018). Further, recent studies suggest that even high levels of "desirable" traits like high conscientiousness can be maladaptive at extreme levels. These findings have important implications for personality tests in the preemployment stage. Below, we detail recent findings in the clinical, neurophysiological, and applied personality psychology domains. These findings are also summarized in Table 2. Because I-O psychologists generally utilize a "bottom-up" approach with personality tests, such that low standing on desirable traits and high standing on undesirable traits are used to "select out" applicants (Carrigan, 2007), we assume this type of selection here.

Clinical psychology research

Within the field of clinical psychology, researchers suggest a relationship exists between the FFM and PDs (Widiger, Gore, Crego, Rojas, & Oltmanns, 2017). Indeed, multiple studies have shown that FFM traits account for features and symptoms of PDs included in the DMS-5 (e.g., Bagby, Costa, Widiger, Ryder, & Marshall, 2005; Miller, Reynolds, & Pilkonis, 2004). Perhaps the most obvious link is the FFM trait of neuroticism, which is thought to encompass several narrower facets, including depression and anxiety (Judge, Rodell, Klinger, Simon, & Crawford, 2013). Indeed, meta-analytic estimates show neuroticism is particularly highly associated with borderline

($\rho = .54$), avoidant ($\rho = .52$), dependent ($\rho = .44$), paranoid ($\rho = .40$), and schizotypal ($\rho = .40$) PDs. Connections also have been made between the other FFM traits and PDs: low levels of extraversion with avoidant ($\rho = .49$) and schizoid ($\rho = .46$) PDs; low levels of agreeableness with narcissistic ($\rho = .37$) and antisocial ($\rho = .36$) PDs; and low conscientiousness with antisocial PD ($\rho = .33$; Saulsman & Page, 2004). Although less commonly used in I-O settings, HEXACO (Lee & Ashton, 2004) dimensions also demonstrate robust links to certain personality disorders. More specifically, the HEXACO Honesty-Humility domain may be nearly isomorphic with psychopathy/antisocial personality disorder (e.g., Lee & Ashton, 2005, 2014), such that scores on this basic dimension can largely be interpreted as scorings on psychopathy and other "dark triad" constructs.

Additionally, recent work has shown that the structure of these pathological traits instantiated in the DSM-5 AMPD and as measured by the Personality Inventory for DSM-5 (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012) converges with the structure of the FFM such that five factors account for the shared variance between the PID-5 and the FFM (Few et al., 2013; Gore and Widiger, 2013; Thomas et al., 2013), a measure of normal personality traits. Shared factors include high neuroticism and negative affectivity; low agreeableness and antagonism; low extraversion and detachment; low conscientiousness and disinhibition; and high openness and psychoticism (although this link is smaller and more inconsistent). Taken together, these findings generally are suggestive of shared continua for this dimensional personality disorder model and the normal FFM.

Proposed application for clinical diagnosis

A move to adopt a more parsimonious and empirically supported approach to personality disorder diagnosis has arrived and is predicated on the use of pathological traits with clear links to normal personality dimensions. For instance, the current version of the DSM-5 includes an Alternative Model of PD (AMPD) in Section III that proposes that clinicians make PD diagnoses based primarily on evidence of personality dysfunction (Criterion A) and the presence of one or more pathological personality traits (Criterion B) from a set of 25 narrow pathological trait dimensions that can be organized under the factors of negative affectivity, detachment, antagonism, disinhibition, and psychoticism. Ultimately, it was decided that the diagnostic model for PDs should remain the same as in the DSM-IV due to concerns that this new model required further empirical testing before it could replace the more traditional categorical approach. Similarly, the upcoming 11th edition of the *International Classification of Disease* (ICD; World Health Organization, 2018) will similarly make PD diagnoses on the basis of severity of personality impairment as well as description of the patient along five dimensions that also align closely with four of the five FFM domains.

Given the potential integration of a dimensional model into PD diagnosis, researchers in clinical psychology have begun studying the effectiveness of the model introduced in Section III of the DSM-5 (Morey, Skodol, & Oldham, 2014; Samuel & Widiger, 2006). In a recent study conducted by Morey et al. (2014), clinicians rated the AMPD high in utility and viewed it as equal or more useful in comprehensiveness, patient communication, and treatment formulation when compared to diagnostic criteria found in the DSM-IV-TR and section II of the DSM-5 (Morey et al., 2014). Other work has demonstrated that the AMPD approach to PD diagnosis yields nomological networks that are nearly identical to the more traditional approach (Miller, Few, Lynam, & MacKillop, 2015). This work follows multiple demonstrations that configurations of normal traits could successfully recreate the external correlates of personality disorders such as borderline (Trull, Widiger, Lynam, & Costa, 2005; Miller, Morse, Nolf, Stepp, & Pilkonis, 2012) and psychopathy (Miller, Lynam, Widiger, & Leukefeld, 2001).

As stated by Trull and Widiger (2013), "It is evident that the classification of personality disorders is shifting toward a dimensional trait model and, more specifically, the [FFM]" (p. 135).

Similar to proposals made by the DSM-5 Personality and Personality Disorder Work Group, Widiger, Costa, and McCrae (2002) have also proposed a four-step process that utilizes the FFM to diagnose PDs effectively. This process involves assessments that explicitly capture the FFM traits and their facets. Using scores on such an assessment, clinicians then identify maladaptive traits that are correlated with "elevations on any respective facet of the FFM" (Widiger et al., 2002). If impairment and distress experienced by the individual reach a clinical level, Widiger et al. suggested a PD diagnosis could be made by matching the patient's FFM profile to the FFM for a prototypic case of a respective disorder or syndrome. As evidenced by Widiger et al. (2002)'s work and new additions made within the DSM-5, the line between medical and nonmedical measures is rapidly blurring as psychologists push for the incorporation of a dimensional model of PD diagnosis. Thus, although clinical psychologists continue to use current diagnostic procedures for personality disorder that utilize multidimensional, categorical constructs (e.g., borderline, narcissistic), research trends suggest an inevitable convergence between the two conflicting models (Hopwood et al., 2018). In fact, there are already multiple scoring approaches available that allow individuals to take general personality data from normal personality measures like the Revised NEO Personality Inventory (NEO PI-R) and score individuals on traditional (e.g., borderline; see Miller, 2012, for a review) and nontraditional PDs (e.g., psychopathy; Miller, 2002). Ultimately, the horse is already out of the barn in terms of how basic personality data can be used to provide information on psychiatric disorders. As such, it is important for I-O psychologists to understand potential legal implications associated with a switch to the dimensional, trait-based models for PD diagnosis. If the proposed model of diagnosis becomes widely accepted and adopted, classification of personality testing based on the ADA would change, specifically through EEOC classifications of medical examination. With inclusion of the dimensional model within the DSM comes considerable reason to prepare for a possible switch in how personality is viewed medically and legally.

Personality neuroscience

In addition to being on common continua, personality traits and PDs also appear to have common physiological origins. A growing body of work—summarized below—suggests personality traits are associated with brain volume in specific functional areas of the brain and that these functional areas are associated with specific personality disorders. Below, we outline these connections. Neuroticism is associated with lower volume in the posterior hippocampus, a region shown to be related to depression and anxiety (Bremner et al., 2000), likely due to the posterior hippocampus's regulation of sensitivity to threat and findings that higher hippocampal volume is associated with lower evaluations of the self. These findings support the association between neuroticism and negative affectivity. Low agreeableness is associated with higher volume in the superior temporal sulcus. The temporal sulcus is associated with interpreting the intentions of others (Pelphrey & Morris, 2006); increased volume may lead to antagonistic tendencies that are associated with borderline personality disorder. Low extraversion is associated with decreased volume in the medial orbitofrontal cortex (Omura, Constable, & Canli, 2005; Rauch et al., 2005), which encodes subjective values for reward. Thus, low reward sensitivity may connect low extraversion and detachment. Low conscientiousness is related to lower volume in the middle frontal gyrus in the left lateral prefrontal cortex, an area associated with ability to maintain and select complex rules for behavior. This reduced capacity for rule maintenance supports a connection between low conscientiousness and disinhibition. Notably, no conclusive region has been found for openness (DeYoung et al., 2010).

In addition to the above findings, researchers have argued that the integration of normal and abnormal dimensions of personality is the key to studying personality disorders neuroscientifically. For example, researchers have suggested that hypotheses regarding the neurological basis of borderline personality disorder should focus on brain regions associated with high neuroticism, low conscientiousness, and low agreeableness (Abram & DeYoung, 2017). Additionally, other

work suggests the genetic variation of personality disorders such as borderline PD can be fully explained by variability in FFM traits (Distel et al., 2009). In sum, research findings increasingly point to similar neurological and genetic origins for normal traits and PDs (and for traits and psychiatric disorders, more broadly; e.g., Hyatt et al., 2019).

Normal extremes

Evidence within applied personality psychology literature also underscores the misleading simplicity of the normal–abnormal personality distinction. In particular, researchers now posit that many traits show curvilinear relationships with desired outcomes such that extremely high levels of an otherwise adaptive trait can be detrimental (Grant & Schwartz, 2011; Pierce & Aguinis, 2013). For example, conscientiousness is widely known to benefit a variety of personal and job outcomes (e.g., Barrick & Mount, 1991; Judge, Heller, & Mount, 2002; Kotov, Gamez, Schmidt, & Watson, 2010). However, at its extremes, conscientiousness reflects obsessive-compulsive tendencies (Carter, Guan, Maples, Williamson, & Miller, 2016; Samuel, Riddell, Lynam, Miller, & Widiger, 2012; Widiger et al., 2002) that reduce the likelihood of these positive outcomes, including multiple dimensions of job performance (Carter et al., 2014; Le et al., 2011).

Findings that suggest extreme trait levels are maladaptive even within normal personality models have important implications for personality testing in employment contexts. If extreme standings on normal personality traits produce impairment or distress in life, then arguably extreme levels on normal traits have similar functional implications to those of PDs. Thus, these findings lend further credence to the notion that PDs may represent extreme poles of normal personality types. At the same time, the obvious employment application of evidence for curvilinear personality–performance relationships is to use personality tests to screen for individuals with ideal, nonextreme trait levels. However, screening out individuals with extreme trait levels may produce disparate treatment against individuals with PDs. Plaintiffs could argue that, although a nonclinical measure of personality was used, by screening for extreme scores on the measure, an organization could effectively identify and eliminate those individuals most at risk of PDs (e.g., Miller et al., 2008). Thus, evidence for maladaptive extremes of normal personality traits further highlights potential overlap of normal and clinical personality models, and, in turn, the importance of carefully considering how advances in personality measurement may change how the ADA applies to personality testing.

Conclusions and recommendations

Current EEOC guidance and case law provide relatively clear boundaries for using pre-employment personality testing under ADA, as evidenced by the few court cases addressing this issue. However, as psychological science progresses in exploring the relationship between normal personality taxonomies and PDs, the implications of the ADA for normal personality tests may change. Imagine that an I-O psychologist without clinical licensure is hired to aid an organization in employee selection. She or he advises the use of a nonclinical personality test, the NEO-PI-R (Costa & McCrae, 1992). Rejected applicants sue under the ADA. Although the test was not administered or reviewed by a medical professional, plaintiffs argue that items measuring neuroticism target individuals with anxiety and depressive disorders. Currently, it is unclear how this scenario would fare if brought to court. If courts decide that the correlation between the FFM and DSM-5 symptomology along with neurological evidence of their common basis is sufficient to classify personality tests as clinical measures, the EEOC may have to classify the majority of personality tests as prohibited.

Based on prior guidance from courts, general principles in employment law, and mounting evidence for the connection between normal and clinical personality models, we offer proactive recommendations to help I-O psychologists avoid legal challenges based on ADA violation

Table 3. Recommendations for avoiding ADA challenges and rationale

Suggestion	Rationale
1. Establish job relatedness through a proper job analysis and apply the strict scrutiny standard. Whenever possible, utilize alternative selection methods that are less invasive but with equivalent validity. Do not use personality as a proxy for another variable if that variable feasibly could be assessed directly.	If the general employment law principle of job relatedness can be clearly established, then courts are less likely to find that the test violates the ADA based on EEOC guidance. Ensure the assessment is narrowly tailored to the purpose; i.e., that it measures the target attribute directly, rather than using a proxy, and measures it as precisely as possible.
2. Avoid personality tests that assess constructs closely related to PDs and PID-5 dimensions, including "off-the-shelf" tests developed with the ADA in mind, tests known to assess PDs, "dark side" traits, and normal personality traits that are highly correlated with PDs.	Such constructs could become more associated with clinical diagnoses, and thus medical examinations, over time. If so, plaintiffs could argue that an employer could gain information about disorders or impairment even if the assessment was not explicitly designed or used to do so. By avoiding such constructs, defendants can argue minimal or no relation to PDs and, thereby, an inability to glean information about disorders or impairment. Additionally, tests that are already known to assess PDs are more likely to be considered a medical examination under EEOC guidance.
3. Conduct more research involving development and validation of personality tests to be used in preselection.	Emerging evidence within personality literature suggests extreme trait-levels are maladaptive even within "normal personality" models. Therefore, it can be argued that screening out individuals with extreme trait levels through normal personality tests could create a likelihood of screening out individuals with PDs. Plaintiffs could argue that, although a nonclinical measure of personality was used, by screening for extreme scores on the measure, an organization could effectively identify and eliminate those individuals most at risk of PDs. Over time, current "nonclinical" measures of personality may face increased scrutiny by the courts.
4. Ensure items ask about behavior *in the workplace*.	If the general employment law principle of job relatedness can be clearly established, then courts are less likely to find that the test violates ADA based on EEOC guidance.
5. Do not involve persons with clinical or medical licensure in administration or interpretation unless clinical personality diagnosis is job related and, if so, administer the test after a conditional job offer.	EEOC guidance states that whether a test is administered or interpreted by a medical or health professional is considered when determining whether the test is a medical examination. Given medical examinations are only permitted if job related and administered post conditional job offer.
6. Advocate for direct conversation with various disciplines in psychology and the EEOC through research and discussion on implications of an anticipated change in PD diagnosis.	Discussion can further inform the EEOC to provide more clarity and guidance regarding acceptable personality measures. By taking a proactive approach, practitioners can avoid unwanted litigation.

(summarized in Table 3). The first recommendation concerns determining if a personality test is the most appropriate assessment to use in an organizational screening process. We recommend always conducting an appropriate job analysis to determine the job relatedness of personality constructs. Sound personnel practice, EEOC guidance, and legal precedent all indicate each component of the selection process should have appropriate validity evidence and that personality items must be clearly related to essential requisite knowledge, skills, abilities, and other characteristics (KSAOs). Although job analysis is an important first step in identifying whether a personality test

is appropriate, solely depending on job analysis is insufficient (Gutman et al., 2011). Practitioners also should apply the strict scrutiny standard to personality tests that may impinge upon privacy rights. The strict scrutiny standard dictates that there must be a compelling business necessity and validity evidence that the test is narrowly tailored to essential job functions. Wherever possible, an effective method that is less restrictive (i.e., less invasive) should be used to obtain applicant information. If personality is a proxy for another job-related variable, measure the target variable directly whenever feasible.

If a personality test has been determined to be the most appropriate measure, there are additional recommendations that practitioners should follow to avoid legal challenges. Our second recommendation is to avoid measuring personality constructs that are closely related to PDs. We recommend avoiding "off-the-shelf" tests and measurements not directly designed with the ADA in mind, particularly those that assess known PDs and "dark-side" traits that are often subclinical measures of PDs (Furnham, Richards, & Paulhus, 2013). It is imperative that practitioners know whether any part of a test is drawn from existing tests that could be classified as assessing mental disorders or impairments. Further, even within normal personality models, practitioners should target personality facets that have low correlations with traditional PDs and as well as AMPD PD trait dimensions.

Third, we recommend I-O psychologists conduct more research surrounding development and validation of personality tests given emerging evidence suggesting extreme trait levels are maladaptive even within "normal personality" models. Given this developing evidence, it can be argued that screening out individuals with extreme trait levels through normal personality tests would likely screen out individuals with PDs. Plaintiffs could argue that, although a nonclinical measure of personality was used, by screening for extreme scores, an organization could effectively identify and eliminate those individuals most at risk of PDs. Over time, current "non-clinical" measures of personality could face increased scrutiny by the courts. Thus, there is an impending need for more research on the development and validation of subclinical personality tests used in personnel selection. This research would be informative and would help to ensure the field is well-equipped to avoid the assessment of "extreme scores" that could identify disorder or dysfunction. Overall, we encourage active discussion between I-O researchers and practitioners regarding the future of personality tests given these recent developments.

Fourth, we recommend ensuring items ask about behavior in the workplace. By clearly establishing job relatedness, the courts are less likely to find that the test violates the ADA. Predictive validity evidence is likely to be the most important evidence for job relatedness, but designing items that directly inquire about the workplace likely will further safeguard against potential legal consequence by maximizing face validity. Similarly, I-O psychologists should further consider the use of personality measures with explicitly work-related test content, in the same spirit of the Workplace Big Five (Howard & Howard, 2001; Schakel, Smid, & Jaganjac, 2007) or that have been clearly linked to job analysis such as in the Personality-Related Position Requirements Form (Highhouse, Zickar, Brooks, Reeve, Sarkar-Barney, & Guion, 2016; Raymark, Schmit, & Guion, 1997). Notably, both of these types of personality measures are highly underrepresented in the empirical literature. Fifth, do not involve individuals with clinical or medical licensure in the administration or interpretation of tests unless clinical personality diagnosis is job-related and, in such situations, administer the assessment following a conditional job offer.

Last, and perhaps most importantly, we urge I-O psychologists to advocate for direct conversation with various disciplines in psychology as well as the EEOC on this growing issue. This dialogue should include continued research and discussion on the implications of expected change in PD diagnosis. We cannot predict if or when the legality of the most commonly used, nonclinical personality tests for selection decisions might face increased challenges under the ADA. Rather than wait for an illuminating decision by the courts, we encourage I-O psychologists to take deliberate, proactive steps in anticipating how personality testing under the ADA may be impacted by scientific developments. I-O psychologists should pressure the EEOC to provide more clarity in

their guidance on the distinction between medical and nonmedical personality measures. Taking such a proactive approach will reduce the gray area between clinical personality tests and those that are appropriate for use in employment decision, and practitioners will be more likely to avoid litigation. Our hope is that this article serves as a first, critical step in these discussions among researchers, practitioners, and law makers.

References

Abram, S. V., & DeYoung, C. G. (2017). Using personality neuroscience to study personality disorder. *Personality Disorders: Theory, Research, and Treatment*, **8**, 2–13.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association.

Americans With Disabilities Act of 1990, Pub. L. No. 101-336, US Code § 12102, 104 Stat. 328 (1990).

Bagby, R. M., Costa, P. T., Widiger, T. A., Ryder, A. G., & Marshall, M. (2005). DSM-IV personality disorders and the five-factor model of personality: A multi-method examination of domain- and facet-level predictions. *European Journal of Personality*, **19**, 307–324.

Barnes v. Cochran, 130 F.3d 443 (Court of Appeals 1997).

Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, **44**, 1–26.

Berry, C. M., Sackett, P. R., & Weiman, S. (2007). A review of recent developments in integrity test research. *Personnel Psychology*, **60**, 271–301.

Bremner, J. D., Narayan, M., Anderson, E. R., Staib, L. H., Miller, H. L., & Charney, D. S. (2000). Hippocampal volume reduction in major depression. *American Journal of Psychiatry*, **157**, 115–118.

Camara, W. J., & Merenda, P. F. (2000). Using personality tests in pre-employment screening: Issues related to *Soroka v. Dayton Hudson Corporation*. *Psychology, Public Policy, and Law*, **6**, 1164–1186.

Carrigan, M. (2007). Pre-employment testing prediction of employee success and legal issues: A revisitation of *Griggs V. Duke Power*. *Journal of Business & Economics Research*, **5**(8), 35–44.

Carter, N. T., Dalal, D. K., Boyce, A. S., O'Connell, M. S., Kung, M.-C., & Delgado, K. M. (2014). Uncovering curvilinear relationships between conscientiousness and job performance: How theoretically appropriate measurement makes an empirical difference. *Journal of Applied Psychology*, **99**, 564–586. doi: 10.1037/a0034688

Carter, N. T., Guan, L., Maples, J. L., Williamson, R. L., & Miller, J. D. (2016). The downsides of extreme conscientiousness for psychological well-being: The role of obsessive compulsive tendencies. *Journal of Personality*, **84**, 510–522. doi: 10.1111/jopy.12177

Costa, P. T., & McCrae, R. R. (1992). *Neo personality inventory-revised (NEO PI-R)*. Odessa, FL: Psychological Assessment Resources.

Dahlstrom, W. G., Dahlstrom, L. E., & Welsh, G. S. (1972). *An MMPI handbook*. Minneapolis, MN: University of Minnesota Press [1972–75].

DeYoung, C. G., Hirsh, J. B., Shane, M. S., Papademetris, X., Rajeevan, N., & Gray, J. R. (2010). Testing predictions from personality neuroscience: Brain structure and the big five. *Psychological Science*, **21**, 820–828.

Distel, M. A., Trull, T. J., Willemsen, G., Vink, J. M., Derom, C. A., Lynskey, N. G., … **Boomsma, D. I.** (2009). The five-factor model of personality and borderline personality disorder: A genetic analysis of comorbidity. *Biological Psychiatry*, **66**, 1131–1138.

Equal Employment Opportunity Commission. (2000). *Enforcement Guidance: Disability-related inquiries and medical examinations of employees under the Americans with Disabilities Act (ADA)*. Retrieved from https://www.eeoc.gov/policy/docs/guidance-inquiries.html#N_33_

Few, L. R., Miller, J. D., Rothbaum, A. O., Meller, S., Maples, J., Terry, D. P., … **MacKillop, J.** (2013). Examination of the Section III DSM-5 diagnostic system for personality disorders in an outpatient clinical sample. *Journal of Abnormal Psychology*, **122**, 1057–1069.

Furnham, A., Richards, S. C., & Paulhus, D. L. (2013). The dark triad of personality: A 10 year review. *Social and Personality Psychology Compass*, **7**, 199–216. doi: 10.1111/spc3.12018

Gonzales-Frisbie, J. (2006). Personality tests in jeopardy: An evaluation of the Seventh Circuit's decision in *Karraker v. Rent-A-Center* and its impact on the future use of personality tests in pre-employment screening. *University of Pennsylvania Journal of Business Law*, **9**, 185–205.

Gore, W. L., & Widiger, T. A. (2013). The DSM-5 dimensional trait model and five-factor models of general personality. *Journal of Abnormal Psychology*, **122**, 816–821.

Gough, H. G. (1987). *California psychological inventory administrator's guide*. Palo Alto, CA: Consulting Psychologists Press.

Grant, A. M., & Schwartz, B. (2011). Too much of a good thing the challenge and opportunity of the inverted U. *Perspectives on Psychological Science*, **6**, 61–76.

Gutman, A., Koppes, L. L., & Vodanovich, S. J. (2011). *EEO law and personnel practices* (3rd ed.). New York, NY: Psychology Press, Taylor & Francis Group.

Highhouse, S., Zickar, M. J., Brooks, M. E., Reeve, C. L., Sarkar-Barney, S. T., & Guion, R. M. (2016). A public-domain personality item bank for use with the Raymark, Schmit, and Guion (1997) PPRF. *Personnel Assessment and Decisions*, **2**, 48–56.

Hopwood, C. J., Kotov, R., Krueger, R. F., Watson, D., Widiger, T. A., Althoff, R. R., & Zimmermann, J. (2018). The time has come for dimensional personality disorder diagnosis. *Personality and Mental Health*, **12**(1), 82–86. doi: 10.1002/pmh.1408

Howard, P. J., & Howard, M. J. (2001). *Professional manual for the workplace big five (WB5P)*. Charlotte, NC: Centacs.

Hyatt, C. S., Owens, M. M., Gray, J. C., MacKillop, J., Sweet, L. H., & Miller, J. D. (2019). Personality traits share overlapping neuroanatomical correlates with internalizing and externalizing psychopathology. *Journal of Abnormal Psychology*, **128**, 1–13.

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five factor model of personality and job satisfaction: A meta-analysis. *Journal of Applied Psychology*, **87**, 530–541.

Judge, T. A., Rodell, J. B., Klinger, R. L., Simon, L. S., & Crawford, E. R. (2013). Hierarchical representations of the five-factor model of personality in predicting job performance: Integrating three organizing frameworks with two theoretical perspectives. *Journal of Applied Psychology*, **98**, 875–925.

Karraker v. Rent-A-Center, Inc., 411 F.3d 831 (7th Cir. 2005).

Kotov, R., Gamez, W., Schmidt, F., & Watson, D. (2010). Linking "big" personality traits to anxiety, depressive, and substance use disorders: A meta-analysis. *Psychological Bulletin*, **136**, 768–821.

Kotov, R., Krueger, R. F., Watson, D., Achenbach, T. M., Althoff, R. R., Bagby, M., . . . Zimmerman, M. (2017). The hierarchical taxonomy of psychopathology (HiTOP): A dimensional alternative to traditional nosologies. *Journal of Abnormal Psychology*, **126**, 454–477.

Krueger, R. F., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (2012). Initial construction of a maladaptive personality trait model and inventory for DSM-5. *Psychological Medicine*, **42**, 1879–1890.

Le, H., Oh, I.-S., Robbins, S. B., Ilies, R., Holland, E., & Westrick, P. (2011). Too much of a good thing: Curvilinear relationships between personality traits and job performance. *Journal of Applied Psychology*, **96**, 113–133.

Lee, K., & Ashton, M. C. (2004). The HEXACO Personality Inventory: A new measure of the major dimensions of personality. *Multivariate Behavioral Research*, **39**(2), 329–358.

Lee, K., & Ashton, M. C. (2005). Psychopathy, Machiavellianism, and narcissism in the five-factor model and the HEXACO model of personality structure. *Personality and individual differences*, **38**(7), 1571–1582.

Lee, K., & Ashton, M. C. (2014). The dark triad, the big five, and the HEXACO model. *Personality and Individual Differences*, **67**, 2–5.

McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, **60**, 175–215.

Miller, J. D. (2002). Personality and problem behaviors: An exploration of the mechanisms (Doctoral dissertation, Rutgers University, 2002). *Dissertation Abstracts International*, **63**(2–B), 1038.

Miller, J. D. (2012). Five-Factor Model personality disorder prototypes: A review of their development, validity, and comparison with alternative approaches. *Journal of Personality*, **80**, 1565–1591.

Miller, J. D., Few, L. R., Lynam, D. R., & MacKillop, J. (2015). Pathological personality traits can capture DSM–IV personality disorder types. *Personality Disorders: Theory, Research, and Treatment*, **6**, 32–40.

Miller, J. D., Lynam, D. R., Rolland, J. P., De Fruyt, F., Reynolds, S. K., Pham-Scottez, A., . . . Bagby, R. M. (2008). Scoring the DSM-IV personality disorders using the five-factor model: Development and validation of normative scores for North American, French and Dutch-Flemish samples. *Journal of Personality Disorders*, **22**, 433–450.

Miller, J. D., Lyman, D. R., Widiger, T. A., & Leukefeld, C. (2001). Personality disorders as extreme variants of common personality dimensions: Can the five factor model adequately represent psychopathy? *Journal of Personality*, **69**, 253–276.

Miller, J. D., Morse, J. Q., Nolf, K., Stepp, S. D., & Pilkonis, P. A. (2012). Can DSM-IV borderline personality disorder be diagnosed via dimensional personality traits: Implications for the DSM-5 personality disorder proposal. *Journal of Abnormal Psychology*, **121**, 944–950.

Miller, J. D., Reynolds, S. K., & Pilkonis, P. A. (2004). The validity of the five-factor model prototypes for personality disorders in two clinical samples. *Psychological Assessment*, **16**(3), 310–322.

Morey, L., Skodol, A., & Oldham, J. (2014). Clinician judgments of clinical utility: A comparison of DSM-IV-TR personality disorders and the alternative model for DSM-5 personality disorders. *Journal of Abnormal Psychology*, **2**, 398–405.

Omura, K., Constable, R. T., & Canli, T. (2005). Amygdala gray matter concentration is associated with extraversion and neuroticism. *NeuroReport*, **16**, 1905–1908.

Ones, D. S., Viswesvaran, C., & Schmidt, F. L. (1993). Comprehensive meta-analysis of integrity test validities: Findings and implications for personnel selection and theories of job performance. *Journal of Applied Psychology Monograph*, **78**, 679–703.

Pelphrey, K. A., & Morris, J. P. (2006). Brain mechanisms for interpreting the actions of others from biological-motion cues. *Current Directions in Psychological Science*, **15**, 136–140.

Pierce, J. R., & Aguinis, H. (2013). The too-much-of-a-good-thing effect in management. *Journal of Management*, **39**, 313–338. doi: 10.1177/0149206311410060

Rauch, S. L., Milad, M. R., Orr, S. P., Quinn, B. T., Fischl, B., & Pitman, R. K. (2005). Orbitofrontal thickness, retention of fear extinction, and extraversion. *NeuroReport*, **16**, 1909–1912.

Raymark, P. H., Schmit, M. J., & Guion, R. M. (1997). Identifying potentially useful personality constructs for employee selection. *Personnel Psychology*, **50**, 723–736.

Ryan, A. M., Ployhart, R. E., & Friedel, L. A. (1998). Using personality testing to reduce adverse impact: A cautionary note. *Journal of Applied Psychology*, **83**, 298–307.

Sackett, P. R., Burris, L. R., & Callahan, C. (1989). Integrity testing for personnel selection: An update. *Personnel Psychology*, **42**, 491–529.

Samuel, D. B., Riddell, A. D. B., Lynam, D. R., Miller, J. D., & Widiger, T. A. (2012). A five-factor measure of obsessive-compulsive personality traits. *Journal of Personality Assessment*, **94**, 456–465.

Samuel, D. B., & Widiger, T. A. (2006). Clinicians' judgments of clinical utility: A comparison of the DSM-IV and five factor models. *Journal of Abnormal Psychology*, **115**, 298–308. doi: 10.1037/0021-843X.115.2.298

Saulsman, L. M., & Page, A. C. (2004). The five-factor model and personality disorder empirical literature: A meta-analytic review. *Clinical Psychology Review*, **23**, 1055–1085.

Schakel, L., Smid, N. G., & Jaganjac, A. (2007). *Workplace Big Five professional manual*. Utrecht, The Netherlands: PiCompany B.V.

Schmidt, F. L., & Hunter, J. E. (1999). Theory testing and measurement error. *Intelligence*, **27**, 183–198.

Soroka v. Dayton Hudson Corporation, 18 Cal. App. 4th 1200 (1991).

Thomas, K. M., Yalch, M. M., Krueger, R. F., Wright, A. G., Markon, K. E., & Hopwood, C. J. (2013). The convergent structure of DSM-5 personality trait facets and five-factor model trait domains. *Assessment*, **20**, 308–311.

Thompson v. Borg-Warner Protective Servs. *Corp., No. C-94-4015 MHP*, 1996 W.L. 162990 (1996).

Toner, M. P., & Arnold, D. W. (1998). *Thompson v. Borg-Warner* case settled. *The Industrial-Organizational Psychologist*, **36**(2). Retrieved from http://www.siop.org/tip/backissues/tipoct98/16toner.aspx

Trull, T. J., & Widiger, T. A. (2013). Dimensional models of personality: The five-factor model and the DSM-5. *Dialogues in Clinical Neuroscience*, **15**, 135–146.

Trull, T. J., Widiger, T. A., Lynam, D. R., & Costa Jr, P. T. (2015). Borderline personality disorder from the perspective of general personality functioning. *Focus*, **112**, 193–202.

Tyrer, P., Crawford, M., Mulder, R., Blashfield, R., Farnam, A., Fossati, A., . . . **Swales, M.** (2011). The rationale for the reclassification of personality disorder in the 11th revision of the international classification of diseases (ICD-11). *Personality and Mental Health*, **5**(4), 246–259.

Varnagis v. City of Chicago No. 96 C 6304, 1997 U.S. Dist. LEXIS 9031 (N.D. ill. June 20, 1997).

Weber, L., & Dwoskin, E. (2014, Sept. 29). Are workplace personality tests fair? Growing use of tests sparks scrutiny amid questions of effectiveness and workplace discrimination. *Wall Street Journal*. Retrieved from http://www.wsj.com/articles/are-workplace-personality-tests-fair-1412044257

Widiger, T. A., Costa Jr., P. T., & McCrae, R. R. (2002). A proposal for Axis II: Diagnosing personality disorders using the five-factor model. In P. J. Costa, T. A. Widiger, P. J. Costa, & T. A. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (2nd ed., pp. 431–456). Washington, DC: American Psychological Association. doi: 10.1037/10423-025.

Widiger, T. A., Gore, W. L., Crego, C., Rojas, S. L., & Oltmanns, J. R. (2017). Five factor model and personality disorder. In T. A. Widiger (Ed.), *The Oxford handbook of the five factor model* (5th ed., pp. 449–478). Oxford, UK: Oxford University Press.

World Health Organization. (2018). *International classification of diseases* (11th ed.). Geneva, Switzerland: Author.

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