Personality and Individual Differences 50 (2011) 517–522

Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid

Sex differences in the dark side traits

Adrian Furnham [a,*], Geoff Trickey [b]

[a] Research Department of Clinical, Educational and Health Psychology, University College London, UK
[b] Psychological Consultancy Ltd, 8 Mount Ephraim, Tunbridge Wells, TN4 8AS, UK

ARTICLE INFO

Article history:
Received 8 June 2010
Received in revised form 17 November 2010
Accepted 19 November 2010
Available online 14 December 2010

Keywords:
Sex differences
Personality disorders
Derailment
Axis II

ABSTRACT

Over 18,366 British adults completed the Hogan Development Survey, which is a measure derived from the personality disorders framework and designed to identify personality-based performance risks and derailers of interpersonal behaviour. Overall the highest scores were for Obsessive–Compulsive (Diligent/Perfectionist), Histrionic (Vivacious/Dramatic) and Dependent (Dutiful) and lowest for Borderline (Enthusiastic/Excitable), Avoidant (Careful/Cautious) and Schizoid (Independent/Detached). DSM-IV-TR (American Psychiatric Association, 2000) suggests that there would be sex differences in many disorders particularly Narcissistic, Anti-Social, Schizotypal and Obsessive–Compulsive. Results revealed sex differences on most disorders particularly Avoidant, Schizoid and Anti-Social with males scoring higher on the latter two. Females scored higher on Borderline, Avoidant, Passive–Aggressive, Obsessive Compulsive and Dependent. The smallest sex differences were found for Paranoid, Obsessive–Compulsive, Schizotypal, Passive–Aggressive and Histrionic disorders. Implications of the research are considered.

1. Introduction

This paper concerns sex differences in the "dark-side" (personality disorder) traits which it has been argued can have a direct impact on diagnoses (Jane, Oltmanns, South, & Turkheimer, 2007; Lynam & Widiger, 2007; Morey, Alexander, & Boggs, 2005; Widiger, 1998). Over the past 20 years there has been a great deal of work trying to reconcile and integrate the overlapping work of psychologists and psychiatrists working on personality traits and disorders (Costa & Widiger, 2005). Differential and clinical psychologists have attempted to introduce the personality disorders concepts and categorisation to a wider audience changing the terms to make them more accessible. This study uses the Hogan Developmental Survey to assess the personality disorders in a normal population (Hogan & Hogan, 1997).

The DSM manuals (DSM-III-R; DSM-IV-TR; American Psychiatric Association, 1994, 2000) note that personality disorders all have a long history and have an onset no later than early adulthood. There is also evidence of gender differences: The Anti-Social disorder is more likely to be diagnosed in men whereas the Borderline, Histrionic and Dependent personality is more likely to be found in women. Some personality disorders have symptoms similar to other disorders – anxiety, mood, psychotic, substance related and so on – but they have unique features. The essence of the difference between normal traits and disorders is: "Personality Disorders must be distinguished from personality traits that do not reach the threshold for a personality disorder. Personality traits are diagnosed as a personality disorder only when they are inflexible, maladaptive, persisting, and cause significant functional impairment or subjective distress (American Psychiatric Association, 1994, p. 633).

Studies on the prevalence of the personality disorders have shown big differences between the disorders (Adel, Grimm, Mogge, & Sharp, 2006). Whilst there are many studies and reviews on sex differences in mental health (Afifi, 2007; Bekker & van Mens-Verhulst, 2007) there are various studies specifically looking at sex differences in individual disorders like Anti-Social personality disorder (Cale & Lilienfiel, 2002), Borderline personality disorder (Johnson et al., 2003) and Dependent personality disorder (Loranger, 1996). Studies have looked at gender differences in the personality disorders among specific groups like depressed patients (Carter, Joyce, Mulder, Sullivan, & Luty, 1999), addicts (Chiang et al., 2007; Landheim, Bakken, & Vaglum, 2003) and hospitalised adolescents.

There have been various reviews of sex differences in personality disorders (Corbitt & Widiger, 1995; Dohrenwend & Dohrenwend, 1976; Paris, 2004) as well as specific studies comparing many disorders. Golomb, Fava, Abraham, and Rosenbaum (1995) used both a self-rating measure and clinical assessments which found on both measures men were likely to be higher on Anti-Social and Narcissistic Disorder. Ekselius, Bodlund, von Knorring, Lindstrom, and Kullgren (1996) tested 176 healthy volunteers and 355 psychiatric patients using a Swedish questionnaire and found males higher on Anti-Social and Narcissistic and females higher on

* Corresponding author. Address: Department of Psychology, University College London, 26 Bedford Way, London WC1H 0AP, UK.
E-mail address: a.furnham@ucl.ac.uk (A. Furnham).

0191-8869/$ - see front matter © 2010 Elsevier Ltd. All rights reserved.
doi:10.1016/j.paid.2010.11.021

Borderline. Grilo (2002) using a structured diagnostic questionnaire on 145 outpatients found no evidence of sex differences.

Over the past 10 years, various popular books have been written that describe the disorders in lay-terms. Many are self-help books written by psychologists and psychiatrists in attempting to educate the public about them. Writers have changed the names to make them more "understandable" (Dotlich & Cairo, 2003; Miller, 2008; Oldham & Morris, 1991). These are shown in Table 1 along with DSM-IV-TR estimates of sex ratios for each condition (American Psychiatric Association, 2000).

It should be noted that these personality disorders are grouped along different axes or different clusters. When clustering three are usually made: A: Odd/Eccentric (Paranoid, Schizoid, Schizotypal); B: Dramatic/Emotional/Erratic (Anti-Social, Borderline, Histrionic, Narcissistic) and C: Anxious/Fearful (Avoidant, Dependent and Obsessive–Compulsive). These three clusters have also been described as moving against, toward, and away from others (Hogan & Hogan, 1997).

There are various self-report measures available to assess personality disorders (Kaye & Shea, 2000; Morey, Waugh, & Blashfield, 1985; Moscoso & Salgado, 2004; Widiger & Coker, 2001). This study used the Hogan 'dark side' measure now extensively used in organisational research and practice to measure personality disorders in the 'normal population' (De Fruyt et al., 2009; Furnham, 2006; Furnham, 2008; Furnham & Crump, 2005; Hogan & Hogan, 1997). Its aim is partly to help selectors and individuals themselves diagnose how they typically react under work stress. It has the advantage of being psychometrically valid; of measuring all the personality disorders and being appropriate for a "normal" population.

The Hogan Development Survey (HDS) was explicitly based on the DSM-IV-TR Axis II Personality Disorder descriptions, but it was not developed for the assessment of all DSM-IV-TR disorders (American Psychiatric Association, 1994, 2000). The HDS focuses only on the core construct of each disorder from a dimensional perspective (Hogan & Hogan, 2001, p. 41). An overview of the item

Table 1
Different labels for similar disorders.

DSM-IV Personality Disorder		Hogan and Hogan (1997) HDS Themes		Oldham and Morris (1991)	Miller (2008)	Dotlich and Cairo (2003)
Borderline -Diagnosed more frequently in females (~ 75%)	Inappropriate anger; unstable and intense relationships alternating between idealisation and devaluation.	Excitable	Moody and hard to please; intense but short-lived enthusiasm for people, projects or things.	Mercurial	Reactors	Volatility
Paranoid -Diagnosed more frequently in males	Distrustful and suspicious of others; motives are interpreted as malevolent.	Sceptical	Cynical, distrustful and doubting others' true intensions.	Vigilant	Vigilantes	Habitual
Avoidant -Diagnosed equally frequently in both sexes	Social inhibition; feelings of inadequacy and hypersensitivity to criticism or rejection.	Cautious	Reluctant to take risks for fear of being rejected or negatively evaluated.	Sensitive	Shrinkers	Excessive Caution
Schizoid -Diagnosed more frequently in males	Emotional coldness and detachment from social relationships; indifferent to praise and criticism.	Reserved	Aloof, detached and uncommunicative; lacking interest in or awareness of the feelings of others.	Solitary	Oddballs	Aloof
Passive- Aggressive	Passive resistance to adequate social and occupational performance; irritated when asked to do something he/she does not want to.	Leisurely	Independent; ignoring people's requests and becoming irritated or argumentative if they persist.	Leisurely	Spoilers	Passive resistance
Narcissistic -Diagnosed more frequently in males (50%-75%)	Arrogant and haughty behaviours or attitudes, grandiose sense of self-importance and entitlement.	Bold	Unusually self-confident; feelings of grandiosity and entitlement; over valuation of one's capabilities.	Self-Confident	Preeners	Arrogance
Anti-Social -Diagnosed more frequently in males (3% in males & 1% in females)	Disregard for the truth; impulsivity and failure to plan ahead; failure to conform	Mischievous	Enjoying risk taking and testing the limits; needing excitement; manipulative, deceitful, cunning and exploitative.	Adventurous	Predators	Mischievous
Histrionic -Diagnosed more frequently in females	Excessive emotionality and attention seeking; self dramatising, theatrical and exaggerated emotional expression.	Colourful	Expressive, animated and dramatic; wanting to be noticed and needing to be the centre of attention.	Dramatic	Emoters	Melodramatic
Schizotypal -Diagnosed more frequently in males	Odd beliefs or magical thinking; behaviour or speech that is odd, eccentric or peculiar.	Imaginative	Acting and thinking in creative and sometimes odd or unusual ways.	Idiosyncratic	Creativity and vision	Eccentric
Obsessive–Compulsive -Diagnosed more frequently in males (twice as often)	Preoccupations with orderliness; rules, perfectionism and control; over-Conscientiousness and inflexible.	Diligent	Meticulous, precise and perfectionistic, inflexible about rules and procedures; critical of others' performance.	Conscientious	Detailers	Perfectionistic
Dependent -Diagnosed more frequently in females	Difficulty making everyday decisions without excessive advice and reassurance; difficulty expressing disagreement out of fear of loss of support of approval.	Dutiful	Eager to please and reliant on others' for support and guidance; reluctant to take independent action or to go against popular opinion.	Devoted	Clingers	Eager to please

selection guidelines can be found in Hogan and Hogan (2001). The HDS has been cross-validated with the MMPI personality disorder scales. Correlations ($n = 140$) range from 0.45 for Anti-Social to 0.67 for Borderline (Hogan & Hogan, 2001). Fico, Hogan, and Hogan (2000) report coefficient alphas between 0.50 and 0.70 with an average of 0.64 and test–retest reliabilities ($n = 60$) over a three-month interval ranging from 0.50 to 0.80, with an average of 0.68. There were no mean-level differences between sexes, racial/ethnic groups, or younger versus older persons (Hogan & Hogan, 2001). Various relatively small scale studies have used the HDS and have shown it to be a robust, reliable and valid instrument (De Fruyt et al., 2009; Furnham, 2006; Furnham & Crump, 2005; Khoo & Burch, 2008; Rolland & De Fruyt, 2003). Not all studies have examined sex differences but one recent paper on business leaders found significant sex differences on three scales all with Cohen's (1988) *d* over 0.50 (Khoo & Burch, 2008). Results indicated that males were significantly higher on Mischievous (Anti-Social) and Reserved (Schizoid) but lower on Dutiful (Dependent) than females.

Whilst the DSM-IV-TR (American Psychiatric Association, 2000) has a section entitled "Specific culture, age and gender features" it is not consistent in how the sex difference data is described. Thus, it is noted "Avoidant Personality Disorder appears to be equally frequent in males and females" (p. 663); "Schizoid Personality disorder is diagnosed slightly more often in males and may cause more impairment in them" (p. 639); "Anti-Social Personality Disorder is much more common in males than in females" (p. 641). It is not clear what the evidence base for these assertions is or the magnitude of these differences.

Two review papers are important to understand sex differences in the personality disorders. Corbitt and Widiger (1995) reviewed 14 studies and argued that all the personality disorders could best be conceived as extreme, maladaptive variants of normal personality traits which they believe helps explain sex differences in the manifestations of these disorders. Thus more females are likely to be diagnosed as Borderline, Dependent or Obsessive–Compulsive because of their higher Neuroticism scores while males' lower scores on Agreeableness make them more likely to be diagnosed as Anti-Social, Narcissistic or Paranoid.

Lynam and Widiger (2007) proposed a theoretical model for sex differences as well as doing a Meta analysis of 32 different studies (with outpatient, inpatient, non-patient and community samples usually of a few hundred). They divided the studies into those based on self report and interview studies. Their conclusion was that the incidence of sex differences was rather different depending on the type of study. Those disorders which showed the greatest male over female difference were Narcissistic, Anti-Social and Paranoid. Females scored highest on the Dependent personality disorder. The weighted effect sizes showed modest differences and they concluded that the data provided "little evidence for sex bias in eight of the ten personality disorders" (p. 596).

This study looks at evidence of sex differences in a very large community sample using a self-report measure based on the personality disorders which is used widely in business circles to detect "potential derailment" in managers. It also investigates some of the psychometric properties of the instrument used.

2. Method

2.1. Participants

In total 18,366 British working adults took part in this study of which 6333 were females and 12,033 males. Their mean age was 37.34 years ($SD = 14.15$ years) with the range being between 17 and 71 years. In all 60% were between 30 and 50 years. They were nearly all (over 95%) graduates and in middle class occupations with English as their mother tongue.

2.2. Measure

Hogan Development Survey (Hogan & Hogan, 1997) is used in this study. The survey includes 154 items, scored for 11 scales, each grouping 14 items. Respondents are requested to 'agree' or 'disagree' with the items. The HDS has been cross-validated with the MMPI personality disorder scales as well as "normal traits" (Furnham & Crump, 2005).

2.3. Procedure

Participants were tested by a British based psychological consultancy over a 10 year period. Each participant was given personal feedback on their score. They were nearly all employed as middle to senior managers in British companies. They took this test as part of an assessment exercise, run by an external psychological consultancy. Inevitably this could have affected their results because of issues such as impression management and dissimulation. However there are two reasons to suspect this did not affect the results. First the HDS has a "lie scale" which can be used to control for this problem. Second, if indeed some dissimilation did occur there is no reason to believe the process would occur differently in males as opposed to females.

3. Results

Table 2 shows the results of a one-way ANOVA across all 11 dimensions. All were significant with the exception of one, and most at the $p < 0.001$ level. Three had Cohen's (1988) *d* of over 0.20 (Schizoid, Avoidant, and Anti-Social) and two between 0.10 and 0.20 (Dutiful and Narcissistic). Those disorders with the highest overall score were Obsessive–Compulsive, Histrionic, Dutiful and Narcissistic, while those with the lowest scores were Borderline, Avoidant and Paranoid.

For each of the 12 measures the maximum score was 14 and the minimum 0. Those who scored over 11 maybe considered to be not only high scorers but potentially "diagnosable" as having the personality disorder. This is the cut-off score recommended in the manual to consider the individual "at risk". It is based on considerable psychometric evidence. Thus the percentage of males and females in this sample with scores over 11 was calculated. These are shown in the last column of Table 2. Two things are noticeable from this: overall the percentages are very low for most disorders with four exceptions: Obsessive–Compulsive, Histrionic, Dependent and Anti-Social Personality Disorder. Second, the biggest sex differences were on Dependent and Anti-Social Personality Disorder.

The 11 personality disorders were then subjected to a Varimax rotated factor analysis (see Table 3). Three factors emerged similar to those reported in the Hogan Development Survey manual (p. 1), and Furnham and Crump (2005) though not the same as found in the analysis by Schroeder, Wormworth, and Livesley (1992). Using the terminology of the Hogan manual, the first factor in this study was labelled *moving against people* (Cluster B), the second *moving away from people* (Cluster A) the third *diligent* (Cluster C).

Interestingly, on all the disorders in the first factor, males scored significantly higher than females, while for three of the five disorders on the second factor, females scored higher. As Table 3 shows males scored significantly higher on factors 1 and 3 and females on factor 2.

Finally a discriminant analysis was performed (see Table 4). This was significant and showed the disorders that most discrimi-

Table 2
Sex differences on each of the 11 dimension.

		Mean	Std. Deviation	F	Sig.	Age	Cohen's *d*	%>11
Enthusiastic_volatile/excitable BORDERLINE	Female	3.26	2.80	38.13	0.000	−0.04^{+2}	0.09	2.12%
	Male	3.01	2.60					1.44%
	Total	3.09	2.67					
Shrewd_mistrustful/sceptical PARANOID	Female	4.51	2.35	5.26	0.022	−0.05^{+2}	−0.03	1.46%
	Male	4.59	2.49					2.19%
	Total	4.56	2.44					
Careful_cautious/cautious AVOIDANT	Female	3.92	2.85	383.58	0.000	−0.02	0.30	2.39%
	Male	3.11	2.55					1.11%
	Total	3.39	2.69					
Independent_detached/reserved SCHIZOID	Female	3.79	1.97	376.33	0.000	0.03	−0.31	0.27%
	Male	4.44	2.25					1.02%
	Total	4.21	2.18					
Focussed_passive_aggressive/leisurely PASSIVE AGGRESSIVE	Female	5.01	2.24	10.92	0.001	0.00	0.05	1.48%
	Male	4.89	2.33					1.61%
	Total	4.93	2.31					
Confident_arrogant/bold NARCISSISTIC	Female	7.02	2.68	75.22	0.000	0.03	−0.14	10.08
	Male	7.38	2.30					12.95
	Total	7.26	2.53					
Charming_manipulative/mischievous ANTI-SOCIAL	Female	6.33	2.43	202.88	0.000	−0.04	−0.22	3.91%
	Male	6.88	2.51					7.29%
	Total	6.69	2.49					
Vivacious_dramatic/ colourful HISTRIONIC	Female	7.67	2.93	17.59	0.000	0.00	−0.06	18.07
	Male	7.86	2.97					20.75
	Total	7.79	2.96					
Imaginative_eccentric/imaginative SCHIZOTYPAL	Female	5.47	2.43	7.11	0.008	0.00	−0.04	2.45%
	Male	5.56	2.33					2.21%
	Total	5.53	2.37					
Diligent_perfectionistic/diligent OBSESSIVE–COMPULSIVE	Female	9.12	2.54	2.67	0.103	0.00	0.03	34.22
	Male	9.06	2.24					31.66
	Total	9.08	2.39					
Dutiful_dependent/dutiful DEPENDENT	Female	7.51	2.24	87.24	0.000	−0.05	0.15	9.15%
	Male	7.19	2.13					6.04%
	Total	7.30	2.17					

Scores range between 0 and 14.

Table 3
Factor Analysis of the 11 scale.

	Component		
	1	2	3
Enthusiastic BORDERLINE	−0.057	**0.749**	0.071
Mistrustful/sceptical PARANOID	0.391	**0.616**	0.195
Careful_cautious AVOIDANT	−0.400	**0.732**	0.324
Detached/reserved SCHIZOID	−0.162	**0.657**	−0.177
Passive_aggressive/leisurely PASSIVE AGGRESSIVE	0.164	**0.619**	0.350
Arrogant/bold NARCISSISTIC	**0.764**	−0.060	0.130
Manipulative/mischievous ANTISOCIAL	**0.756**	−.008	−0.179
Dramatic/colourful HISTRIONIC	**0.734**	−0.340	−0.168
Eccentric/imaginative SCHIZOTYPAL	**0.672**	0.126	−0.074
Perfectionistic/diligent OBSESSIVE–COMPULSIVE	0.007	0.120	**0.742**
Dependent/dutiful DEPENDENT	−0.204	0.114	**0.707**

Component	Extraction Sums of Squared Loadings		
	Total	% of variance	Cumulative %
1	2.71	24.64	24.64
2	2.33	21.14	45.79
3	1.23	11.21	57.00

Factor		Mean	SD	F level
1	Female	26.48	7.91	96.29***
	Male	27.66	7.83	
2	Female	20.48	8.35	11.67***
	Male	20.03	8.40	
3	Female	16.63	3.73	43.40***
	Male	16.25	3.55	

*** $p < 0.001$.

Table 4
Discriminant Analysis Results.

Test of Function (s)	Wilks' Lambda	Chi-square	df	Sig.
1	0.931	1319.142	11	0.000

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	0.074[a]	100.0	100.0	0.263

	Function 1
Careful_cautious AVOIDANT	−0.53
Independent_detached SCHIZOID	0.52
Charming_manipulative ANTISOCIAL	0.38
Dutiful_dependent DEPENDENT	−0.25
Confident_arrogant NARCISSISTIC	0.23
Enthusiastic_volatile BORDERLINE	−0.16
Vivacious_dramatic HISTRIONIC	0.11
Focussed_passive_aggressive PASSIVE AGGRESSIVE	−0.08
Imaginative_eccentric SCHIZOTYPAL	0.07
Shrewd_mistrustful PARANOID	−0.06
Diligent_perfectionistic OBSESSIVE–COMPULSIVE	−0.04

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions.
Variables ordered by absolute size of correlation within function.

nated between the sexes. They were in order Paranoid, Schizoid, Anti-Social, Dependent, Narcissistic, Borderline and Histrionic.

4. Discussion

There are various disputes with respect to the evidence of sex differences in any, indeed all, mental illnesses. First, there are

issues around the nature of the evidence and second, measurement and diagnostic issues relating to the validity of the tools/measures used (Lynam & Widiger, 2007). That is, do observed differences indicate a gender bias in the diagnosis or a true difference in the personality psychopathology? Even more difficult is the issue of attempting a good explanation for those differences, once they have been reliably established. Are they primarily due to nature or nurture or some complex interaction of the two?

This study indicated relatively high scores on few disorders: Obsessive–Compulsive, Histrionic, Dependent and Narcissistic. This is in line with the review of Lynam and Widiger (2007) at least for Narcissistic (the most male dominated) and Dependent (the most female dominated) disorder. Inevitably in a population this size there would be those who, under any reliable clinical assessment would actually be diagnosed with one or more personality disorders.

These may accurately reflect the distribution of those disorders in the general population but are probably more characteristic of middle class, working adults. Furthermore, it is possible that social desirability and impression management pressures meant that some participants may have been tempted to over-report (and under-report) various disorders. That is, all these assessments were done in a business and assessment centre context and it may be that candidates felt it wise to over-emphasise some behaviours they thought desirable in that context: i.e. the self-confidence of a Narcissist; the enthusiasm of the Histrionic and the careful orderliness of the Obsessive–Compulsive individual. However the HDS does have a social desirability/dissimulation measure (called validity) and there did not seem in this sample systematic evidence of faking or impression management. There were no major changes in these results once the social desirability scores were controlled for.

Various researchers have pointed out potential 'bright-side' consequences of 'dark-side' traits. Thus, Obsessive–Compulsive may be particularly good at certain types of work involving quality control, auditing, checking etc. Equally the flamboyance and theatricality of Histrionic types may make them excellent public speakers, 'creatives' or marketing specialists. Dependent individuals can be very supportive and the self-confidence of Narcissists makes them very attractive as leaders (Furnham, 2010).

The focus of the paper however was on sex differences. There are relatively few papers looking at sex differences in the personality disorders in a large population. This paper was also able to provide good British norms on this test which so far do not seem available. The study showed that there were sex differences on all but one of the disorders as measured by HDS. On roughly half of the scales, males scored higher than females and vice versa; however the Cohen's (1988) *d* was always small echoing the conclusion of Lynam and Widiger (2007), that sex differences in the personality disorders tend to be small but still reliably observable in large population samples using different instruments.

The factor analysis helped clarify the issues. The DSM classification has three clusters: A which are Odd or Eccentric disorders; B which are Dramatic, Emotional or Erratic disorders; and C which are Anxious or Fearful disorders. The factor analysis in Table 3 shows a similar, if not identical classification. Thus, factor 1 was similar to cluster B, factor 2 to cluster A, and factor 3 to cluster C. The three factors may also be labelled *moving against, away from* and *toward* individuals. The results indicated that males are more likely to score highly on the erratic and emotional disorders while females scored higher on the anxious and fearful disorders.

However, the discriminant analysis showed quite clearly those disorders that differed most between the sexes. Males were much less likely to be Avoidant but much more likely to be Schizoid and Anti-Social. This result accords modestly well with the analysis of Lynam and Widiger (2007) except for the finding concerning Narcissism, and particularly Paranoia.

The results of these studies suggest there are sex differences in the personality disorders although the effect sizes are small. Furthermore as all estimates maintain that usually only between one and three percent of the population actually have these disorders these estimates would be quite different for specific groups such as incarcerated prisoners, or perhaps people in particular professions like actors, politicians and the military.

The results of the study pose two interesting questions. The first is the reliability and validity of the findings based on the particular instrument (HDS) and the second the explanation for those findings. The HDS has sufficient psychometric validation to be a useful diagnostic instrument. However, it was not devised to be a psychiatric diagnostic instrument: it was devised to look at stress coping and development issues in working people, particularly, senior managers. The question remains as to whether these sex differences would occur in those (reliably) diagnosed with a personality disorder. To obtain that data is however, particularly problematic, which possibly accounts for the rather vague statements in all DSM manuals (American Psychiatric Association, 1994, 2000).

More importantly given that sex differences do occur in the incidence of the personality disorders the more interesting, but difficult question, is why. Various theoretical frameworks may be used to try to explain these results. Thus, an evolutionary and then biological framework has been favoured by Hogan (2007). Equally it is possible to propose a social learning or sociological framework which sees the sexes being socialized into beliefs and behaviours that may manifest them as personality disorders. It is hoped that this research might stimulate more work in this field.

References

Adel, A., Grimm, G., Mogge, N., & Sharp, T. (2006). Prevalence of personality disorders at a rural state psychiatric hospital. *Journal of Rural Community Psychology, 1*, 1–5.

Afifi, M. (2007). Gender differences in mental health. *Singapore Medical Journal, 48*, 385–391.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental Disorders* (3rd ed. (Rev.)). Washington, DC: APA.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental Disorders* (4th ed. Rev.). Washington, DC: APA.

Bekker, M., & van Mens-Verhulst, J. (2007). Anxiety disorders: Sex differences in prevalence, degree, and background, but gender-neutral treatment. *Gender Medicine, 4*, S178–S193.

Cale, E., & Lilienfiel, S. (2002). Sex differences in psychopathy and antisocial personality disorder. *Clinical Psychology Review, 22*, 1179–1207.

Carter, J., Joyce, P., Mulder, R., Sullivan, P., & Luty, S. (1999). Gender differences in the frequency of personality disorders in the depressed outpatients. *Journal of Personality Disorders, 13*, 67–74.

Chiang, S.-C., Chan, Y.-Y., Chang, Y.-Y., Sun, H.-J., Chen, W., & Chen, C.-K. (2007). Psychiatric comorbidity and gender differences among treatment-seeking heroin Abusers in Taiwan. *Psychiatry and Clinical Neurosciences, 61*, 105–111.

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Corbitt, E., & Widiger, T. (1995). Sex differences among the personality data: An exploration of the data. *Clinical Psychology: Science and Practice, 2*, 225–238.

Costa, P., & Widiger, T. (2005). *Personality disorders and the five-factor model of personality* (2nd ed.). Washington, DC: APA.

De Fruyt, F., De Clercq, B., Milley, J., Rolland, J. P., Jung, S. C., Taris, R., et al. (2009). Assessing personality at risk in personnel selection and development. *European Journal of Personality, 23*, 51–69.

Dohrenwend, B., & Dohrenwend, B. (1976). Sex differences and psychiatric disorders. *American Journal of Sociology, 81*, 1447–1461.

Dotlich, D., & Cairo, P. (2003). *Why CEOs fail*. New York: Jossey Bass.

Ekselius, L., Bodlund, O., von Knorring, L., Lindstrom, E., & Kullgren, G. (1996). Sex differences in DSM-III-R, Axis II-Personality Disorders. *Personality and Individual Differences, 20*, 457–461.

Fico, J., Hogan, R., & Hogan, J. (2000). *Interpersonal compass manual and interpretation guide*. Tulsa, OK: Hogan Assessment System.

Furnham, A. (2006). Personality disorders and intelligence. *Journal of Individual Differences, 27*, 42–45.

Furnham, A. (2008). *Personality and intelligence at work*. London: Routledge.

Furnham, A. (2010). *The elephant in the board room: The psychology of leadership derailment*. Bracknell: Palgrave MacMillan.

Furnham, A., & Crump, J. (2005). Personality traits, types and disorders. *European Journal of Personality, 19*, 167–184.

Golomb, M., Fava, M., Abraham, M., & Rosenbaum, J. (1995). Gender differences in personality disorders. *American Journal of Psychiatry, 152*, 579–582.

Grilo, C. (2002). Are there gender differences in DSM-IV personality disorders? *Comprehensive Psychiatry, 43*, 427–430.
Hogan, R. (2007). *Personality and the fate of organizations*. Mahwah, NJ: Lawrence Erlbaum.
Hogan, R., & Hogan, J. (1997). *Hogan development survey manual*. Tulsa, OK: HAS.
Hogan, R., & Hogan, J. (2001). Assessing leadership: A view from the dark side. *International Journal of Selection and Assessment, 9*, 40–51.
Jane, J., Oltmanns, T., South, S., & Turkheimer, E. (2007). Gender bias in diagnostic criteria for personality disorders. *Journal of Abnormal Psychology, 116*, 166–175.
Johnson, D., Shea, M., Yen, S., Battle, C., Zlotnick, C., Sanislow, C., et al. (2003). Gender differences in borderline personality disorder. *Comprehensive Psychiatry, 44*, 284–292.
Kaye, A., & Shea, M. (2000). Personality disorders, personality traits, and defence mechanisms measures. In *Handbook of Psychiatric Measures* (pp. 713–749). Washington, DC: APA.
Khoo, H., & Burch, G. (2008). The 'dark side' of leadership personality and transformational leadership. *Personality and Individual Differences, 44*, 86–97.
Landheim, A., Bakken, K., & Vaglum, P. (2003). Gender differences in the prevalence of symptom disorders and personality disorders among ploy-substance abusers and pure alcoholics. *European Addiction Research, 9*, 8–17.
Loranger, A. W. (1996). Dependent personality disorder. Age, sex and axis 1 comorbidity. *Journal of Nervous and Mental Diseases, 194*, 17–21.
Lynam, D., & Widiger, T. (2007). Using a general model of personality to understand sex differences in the personality disorders. *Journal of Personality Disorders, 21*, 583–602.
Miller, L. (2008). *From difficult to disturbed*. New York: Amacom.
Morey, L., Alexander, G., & Boggs, C. (2005). Gender and personality disorder. In J. Oldham, A. Skodol, & D. Bender (Eds.), *Textbook of personality disorders* (pp. 541–554). Washington, DC, America: Psychiatric Press.
Morey, L., Waugh, M., & Blashfield, R. (1985). MMPI Scales for DSM-III, personality disorders: Their derivation and correlates. *Journal of Personality Assessment, 49*, 245–251.
Moscoso, S., & Salgado, J. (2004). "Dark Side" personality scales as predictors of task, contextual, and job performance. *International Journal of Selection and Assessment, 12*, 356–362.
Oldham, J., & Morris, L. (1991). *Personality self-portrait*. New York: Bantam.
Paris, J. (2004). Gender differences in personality traits and disorders. *Current Psychiatry Reports, 6*, 71–74.
Rolland, J. P., & De Fruyt, F. (2003). The validity of FFM personality dimensions and maladaptive traits to predict negative affect at work. *European Journal of Personality, 17*, 101–121.
Schroeder, M. L., Wormworth, J. A., & Livesley, W. J. (1992). Dimensions of personality disorder and their relationships to the Big Five dimensions of personality. *Psychological Assessment, 4*, 47–53.
Widiger, T. (1998). Sex biases in the diagnosis of personality disorders. *Journal of Personality Disorders, 12*, 95–118.
Widiger, T., & Coker, L. (2001). Assessing personality disorders. In J. N. Butcher (Ed.), *Clinical personality assessment: Practical approaches* (2nd ed., pp. 407–434). New York: Oxford University Press.