

## Research Article

# A Bright Side Analysis of Subclinical Schizoid Personality Disorder: A NEO-PI-R Domain and Facet Analysis of the HDS Reserved Scale

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## Abstract

**Background:** This study looks at the “bright-side” (normal), personality trait correlates of the “dark-side” subclinical Schizoid Personality Disorder.

**Methods:** Over 5000 British adults completed the NEO-PI-R which measures the Big Five Personality factors at the Domain and the Facet level, as well as the Hogan Development Survey which has a measure of Schizoid Personality Disorder (SPD) called Reserved.

**Results:** Correlation and regression results confirmed many of the associations between these “bright” and “dark” side individual difference variables. Reserved people tended to be Disagreeable Introverts who tended to be Neurotic and low on Conscientiousness.

**Conclusions:** The study confirmed work on SPD using different population groups and different measures, showing that it is possible to describe personality disorders in terms of extreme scores on personality traits.

## INTRODUCTION

This study looks at “bright side”, normal personality trait correlates of the “dark side” trait, subclinical Schizoid Personality Disorder (SPD). It examines the relationship between “normal” personality traits measured at the Domain (Super Factor) and Facet (Factor) level, and subclinical SPD called in the Hogan Developmental Survey [1], *Reserved*. It examined the association between sub-clinical SPD and Domains and Facets of the Big Five personality traits, currently the most well used and conception of “normal”, “bright-side” personality in psychological research on personality and individual differences (NEO-PI-R) [2].

For many years there was little rapprochement between psychologists working on personality traits and psychiatrists working on the personality disorders. Some psychologists like Eysenck proposed what is now called *the spectrum hypothesis*, namely that one could understand many mental illnesses in terms of extreme scores on “normal” personality functioning [3], though this has been challenged [4]. However a recent study supported the dimensional as opposed to the categorical conception of SPD [5].

## Personality Traits and Personality Disorders

There have been various attempts to integrate ‘normal’ and ‘abnormal’ personality structure and numerous important papers

which attempt to link together these systems [6,7]. Reviews have attempted to set out the possible relationship between the Facets scores from the Five Factor Model and the personality disorders. An important early review of this relationship was done by Samuel and Widiger [8], who combined the data from 16 studies with a total N of 3207. Most of the participants were students (12 groups) and some outpatients. Further, they had completed very different personality disorder instruments, yet nearly always the same personality instrument (NEO-PI-R) which was used in this study. They analysed the results at both the Domain and Facet level and compared their results to an earlier and similar review by Saulsman and Page [9]. They showed that Schizoid was correlated positively with two Neuroticism Facets (Depressive; Self-Conscious) and correlated negatively with all six Extraversion facets particularly E2 (Gregariousness). The only other significant facet correlation was with A1 (Trust). In this sense those with SPD could be called Melancholic as opposed to Phlegmatic.

Bastiaansen, Rossi, Schotte and De Fruyt [10], noted that compared to the other PDs there were fewest Big Five Facet correlations with SPD except those with Introversion. Bastiaansen, Rossi and De Fruyt [11], examined five data sets in psychiatric patients and showed there was complete agreement about the following Facets being linked to SPD: E1 (Warmth), E2, (Gregariousness), E6 (Positive Emotions) and O3 (Feelings).

This study attempted to investigate the Domain and Facet correlates of SPD on a large adult sample completing a standard measure of “normal” “bright-side” personality: the NEO-PI-R [12], and the now extensively used Hogan Development Survey (Hogan & Hogan, 2009), which is a measure based on the Personality Disorders categories but used with normal populations and has an SPD scale [13]. There are at least seven specific SPD measures with varying degrees of psychometric evidence of their validity [14]. This is part of a systematic programme examining facets of the dark-side, subclinical personality disorders [15-22].

### Schizoid Personality Disorder

The DSM manuals all note that SPD is characterised by a pattern of indifference to social relationships as well as a restricted range of emotional experience and expression. SPD is sometimes thought of as very low Emotional Intelligence. The SPD person neither desires nor enjoys close relationships, including being part of a family. They have few close friends or confidants and displays constricted affect, e.g. is aloof, cold, rarely reciprocates gestures or facial expressions, such as smiles or nods.

Hogan and Hogan [23], call these types self-absorbed, self-focused, indifferent to the feelings or opinions of others. They suggest that they are introverted, misanthropic, imperceptive, and lacking in social insight with very low emotional intelligence. They also appear thick skinned and indifferent to rejection or criticism. They prefer to work alone, and are more interested in data and things than in people. They are often uncommunicative and insensitive, which makes them unpredictable and unrewarding, and they have trouble building or maintaining a team.

Oldham and Morris [24], note five traits and behaviours that are clues to the presence of the SPD: They have little need for companionship and are most comfortable alone. They are self-contained and do not require interaction with others in order to enjoy their experiences. They tend to be even-tempered, calm, dispassionate, unsentimental, and unflappable. Few are driven by sexual needs. They also seem unmoved and unswayed by either praise or criticism and can confidently come to terms with their own behaviour.

Whilst there is a relatively limited literature on SPD there are many critiques of the concept. Some researchers have argued that SPD people split into two groups: the *affect constricted* and the *seclusive* and that “comparatively little evidence exists for the validity and reliability of the SPD as a separate, multifaceted personality disorder” [25]. Another recent study found three factors associated with SPD namely *social detachment*, *withdrawal*, and *restricted affectivity/anhedonia* and recommended that SPD “should be deleted as a diagnostic category of DSM-5” [26]. There seems comparatively little research on SPD and various calls for it to be deleted from the DSM categorisation. This paper attempts, in part, to redress this neglect.

### The Hogan Development Survey

The Hogan ‘dark side’ measure is now extensively used in organisational research and practice to measure personality disorders in the ‘normal population’ [27-30]. Its aim is partly

to help selectors and individuals themselves diagnose how they typically react under work stress. The HDS focuses only on the core construct of each disorder from a dimensional perspective [23]. These dysfunctional dispositions reflect one’s distorted beliefs about others that emerge when people encounter stress or stop considering how their actions affect others. Over time, these dispositions may become associated with a person’s reputation and can impede job performance and career success. The HDS is not a medical or clinical assessment instrument. It does not measure PDs, which are manifestations of mental disorder. Instead, the HDS assesses self-defeating expressions of normal personality. The DSM-5 [31], makes this same distinction between behavioral traits and disorders – self-defeating behaviours, such as those predicted by the HDS, come and go depending on the context. In contrast, PDs are enduring and pervasive across contexts.

The HDS has been cross-validated with the MMPI personality disorder scales. 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. Various relatively small scale studies have used the HDS and have shown it to be a robust, reliable and valid instrument [27-29, 32]. Indeed it has been shown that, as predicted, Reserved scores are significant correlated with various aspects of work success like stress tolerance ( $r = -.19$ ), reliability ( $r = -.18$ ) as well as sales ( $r = .39$ ) and managerial ( $r = -.28$ ) potential ( $N = 4943$ ) [33].

This study was concerned with the Reserved measure derived from the HDS. The HDS gives scores that are labelled “no risk, low risk, moderate risk and high risk” and may be considered as a measure of sub-clinical SPD. The idea is that high scores can be an indicator of business derailment, because reserved people show a tendency to be self-sufficient and indifferent to social feedback or the moods and feelings of others. The manual [30], provides correlations between the Reserved scale and the 16PF ( $N = 145$ ). The highest correlations were for Warmth ( $-.42$ ), Liveliness ( $-.44$ ), Social Boldness ( $-.42$ ), Privatness ( $.44$ ) and Self-Reliance ( $.46$ ). It also provides correlations for the IPIP Big 5, 20-item scales ( $N = 128$ ): Extraversion ( $-.54$ ); Agreeableness, ( $-.48$ ); Conscientiousness ( $-.09$ ); Emotional Stability ( $.04$ ); and Intellect/Imagination ( $-.12$ ).

This study is concerned with which of the 30 Facets (six for each of the Big Five Personality scores) is related to Reserved. This allows for a better understanding of ‘normal’ SPD or the Reserved dark-side trait. Following previous research, it was predicted that Reserved would be positively correlated with Neuroticism (H1) and negatively correlated with Extraversion (H2), Next that all Facets of Neuroticism (H3) would be positively and all Facets of Extraversion (H4) negatively correlated with Reserved.

## METHOD

### Participants

In total 6957 British working adults took part in this study of which 1493 were females and 5464 males. Their mean age was 44.16 years ( $SD = 7.82$  years) with the range being between 23 and 65 years. They were nearly all (over 95%) graduates and

in middle class occupations with English as their mother tongue. None, as far as could be established, was diagnosed as SPD.

## Measures

1. NEO-PI-R. The NEO-PI-R [12], is a 240-item inventory, assessing the FFM Domains of Neuroticism (N), Extraversion (E), Openness to experience (O), Agreeableness (A) and Conscientiousness (C), with 6 Facets (8 items each) structured under the 5 Domains. Its psychometric properties and validity have been well-documented cross-culturally (McCrae & Terracciano, 2005). No item-level information was available for the current sample, but Cronbach Alpha coefficients for the Domains with the Facets as the indicators were .84, .79, .74, .72 and .82 for N, E, O, A, and C respectively.
2. Hogan Development Survey [30], includes 154 items, scored for 11 scales, each grouping 14 items. Respondents are requested to 'agree' or 'disagree' with the items. The test also has a measure of social desirability. The HDS has been cross-validated with the MMPI personality disorder scales as well as normal trait [28-30]. This study focused on the Reserved scale of this measure.

## Procedure

Participants were tested by a British based psychological consultancy over a 10 year period. Each participant was given personal feedback on their score and consented to their anonymous data being published. 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

## RESULTS

Correlations and regressions were performed. Reserved correlated with Neuroticism (.37), Extraversion (-.19), Openness (-.02), Agreeableness (-.16) and Conscientiousness (-.19). Whilst these correlations were all significant the effect sizes for each were low. A regression (Table 1) shows that a sixth of the variance could be accounted for primarily through Big Five Extraversion.

Thereafter a regression was performed with the Reserved score as the criterion score and the 30 facet scores as the predictor variables (Table 2). This also shows correlations with each of the 30 Facets. Most of the Beta weights were significant because of the size of the N. The overall pattern shows that all six Facets of Neuroticism were positively associated with Excitable. This confirms the third hypothesis.

The six facet correlations with Extraversion suggested that Reserved people tended to be Introverted. The highest correlations were with E1, E2 and E6. Five of the six Neuroticism factors were positively correlated with Reserved, particularly N3 and N4. Few other correlations were greater than  $r > .20$  except O3 (Feelings), O4 (Actions), A1 (Trust) and A3 (Altruism).

Because of potential problems associated with multicollinearity in the analysis shown in Table 2, five further regressions, one for each of the six Facets of the Big Five traits were then done. In each, Reserved was the criterion variable. First, sex, and age were entered, then the six Facets of each of the five factors. The question was which of the six Facets, per Domain were the strongest predictors of being Reserved.

**Table 1:** Regressions with the *Excitable* scale as the criterion scale and demographics and the Bright Side Variables as the predictor scales.

	Correlations	Beta	t
Gender	.01	-.06	5.09***
Age	-.02	-.04	3.19**
Neuroticism	.37***	-.03	2.03*
Extraversion	-.19***	-.59	42.19***
Openness	-.02	.02	1.47
Agreeableness	-.16***	-.17	14.34***
Conscientiousness	-.19***	.04	2.82**
F(7, 4933)= 393.14 p<.001, Adj R <sup>2</sup> =.36			
***p<.001 **p<.01 *p<.05			

**Table 2:** Correlations and Regression results of Reserved (SPD) onto the 30 Facets.

Model	Correlations	Beta	t
N1 Anxiety	.16	-.05	3.82***
N2 Angry Hostility	.15	-.04	2.77**
N3 Depression	.24	.10	6.38***
N4 Self-Consciousness	.24	.02	1.12
N5 Impulsiveness	.02	.03	2.53**
N6 Vulnerability	.19	.06	3.61**
E1 Warmth	-.57	-.25	16.26***
E2 Gregariousness	-.59	-.37	28.51***
E3 Assertiveness	-.30	-.07	5.28***
E4 Activity	-.27	-.02	1.30
E5 Excitement-Seeking	-.26	-.00	0.19
E6 Positive Emotions	-.41	-.04	3.13**
O1 Fantasy	-.09	.02	2.04*
O2 Aesthetics	-.16	-.04	3.46**
O3 Feelings	-.28	.00	0.09
O4 Actions	-.25	-.04	3.05**
O5 Ideas	-.09	-.00	0.19
O6 Values	-.10	.04	3.32***
A1 Trust	-.25	-.01	1.49
A2 Straightforwardness	.00	.00	0.89
A3 Altruism	-.33	-.07	5.50***
A4 Compliance	-.06	-.00	0.43
A5 Modesty	.04	-.04	3.64***
A6 Tender-Mindedness	-.19	-.05	4.80***
C1 Competence	-.14	.06	4.26***
C2 Order	-.04	.00	0.53
C3 Dutifulness	-.09	-.04	2.71**
C4 Achievement Striving	-.18	.00	0.80
C5 Self-Discipline	-.16	-.03	1.89
C6 Deliberation	-.01	-.00	0.36
F(10,6742)=172.10, Adj R <sup>2</sup> =.43, p<.001			
***P<.001 **P<.01 *P<.05			

The regression for the six *Neuroticism* Facets was significant ((F8, 4925) = 64.94, p<.001; Adj R<sup>2</sup>= .09). All of the six Facets were significant, the biggest of which were: N4 *Self-Consciousness* (Beta .16, t=8.99, p<.001), and N3 *Depression* (Beta .12, t=5.65, P<.001); but two had negative Beta's: N1 *Anxiety* (Beta -.08, t=4.04, p<.001) and N5 *Impulsiveness* (Beta -.08, t=5.11, p<.001).

The regression for the six *Extraversion* Facets was significant ((F(8, 4925) = 471.43 Adj. R<sup>2</sup> = .43). Four of the six Facets were significant, the biggest of which were E1: *Warmth* (Beta -.31, t = 19.34, p<.001); E2: *Gregariousness* (Beta -.38, t=25.69, p<.01) and E6: *Positive Emotions* (Beta -.05, t= 3.15, p<.01).

The regression for the six *Openness* Facets was significant ((F(8, 4925) = 90.84, p<.001; Adj. R<sup>2</sup> = .13). Five of the six Facets were significant, the biggest of which were O3: *Feelings* (Beta -.24, t = 15.57 p<.001) O4: *Actions* (Beta -.21, t = 13.36, p<.001) and O1: *Fantasy* (Beta .05, t = 3.41, p<.001).

The regression for the six *Agreeableness* Facets was significant ((F(8, 4925) = 125.47, p<.001; Adj. R<sup>2</sup> = .17). All of the six Facets were significant, three negative and three positive, the biggest of which were A3: *Altruism* (Beta -.30, t= 19.57, p<.001), A1: *Trust* (Beta -.17, t=11.75, p<.001) and A6 *Tender-Minded* (Beta -.08, t=5.55, p<.01).

The regression for the six *Conscientious* Facets was significant ((F(8, 4924) = 41.58, p<.001; Adj. R<sup>2</sup> = .06). Five of the six Facets were significant, the biggest of which were C4 *Achievement Striving* (Beta -.12, t=6.79, p<.05), C5: *Achievement Striving* (Beta -.11, t=5.32, p<.001) and C6 *Deliberation* (Beta .09, t=5.87, p<.01).

## DISCUSSION

The idea of the spectrum hypothesis is that extreme scores on normal personality are an indication of abnormal personality and mental illness. The HDS concept is that most people have a profile of “dark side”, similar to sub-clinical personality traits, which at times may well help or more likely hinder them in the workplace [1]. Thus a score on the Reserved scale indicates the probability of various sub-clinical SPD behaviours, particularly in the work place.

This study showed that Reserved people, who may be thought of as sub-clinically SPD, are essentially Neurotic Introverts or Melancholic in Galen’s terms. Further, the Facet analysis suggested that Reserved people exhibit, Self-Consciousness and Depression but little Warmth, Gregariousness or Altruism. In this sense they may be thought of as “difficult” colleagues and reports in the work-place. Indeed, various studies have been done suggesting that SPD is strongly negatively correlated with emotional intelligence [34].

Most studies using the HDS excitable measure has shown, as predicted, that it is associated with work failure rather than success. Thus Furnham, Trickey and Hyde [33], showed that scores in the Reserved dimension were strongly negatively correlated with measures like Managerial Potential (-.28), Reliability (-.18), Stress Tolerance (-.19) and Service Orientation (-.29) (N=4942). Similarly, Harms, Spain and Hannah (2011) studying military cadets over time showed nearly all correlations between peer and superior ratings and the score of Reserved were negative.

The Samuel and Widiger study of students and outpatients (N=3207), can be compared to the results of this study with “normal adults” (N=4926) using different SPD measures. The correlations are surprisingly similar given the differences: Neuroticism .54, .37; Extraversion -.12, -.19; Openness .10, -.02; Agreeableness -.24, -.16 and Conscientiousness -.29, -.19. In this

sense the study provides concurrent evidence for the fact that the Excitable scale is measuring sub-clinical SPD. SPD individuals are thus, what Galen the Greek Philosopher, would call Melancholic and characterised as pessimistic, reserved, rigid and sober.

Samuel and Widiger (2008) showed five Neuroticism Facets (N1 to N4, N6), three Extraversion Facets (E1, E2, E6), no Openness Facets, one Agreeable Facets (A1) and no Conscientiousness factors were correlated r>.20 with SPD. The correlation analyses shown in Table 2 show many similarities, particularly in the highest and lowest correlations of NEO Facets with the Excitable measure. This is interesting given the differences in the samples and the measure of SPD.

Hogan and Hogan [23], devised the HDS to help selection and counselling in the workplace. They note that Reserved types can be very tough in the face of political adversity; they have a hard surface, and they can take criticism and rejection, and where others would tremble. They can also stay focused and on task, and not be distracted by tumult, emotional upheavals, and stressful meetings; through it all, they will continue to do their jobs. However because they are indifferent to others’ needs, moods, or feelings, and can be rude, tactless, insensitive, and gauche, and are therefore very poor managers. They are unperturbed by daily stress and heavy workloads; at the same time, they are insensitive or indifferent to the stress levels of their staff.

It is clear from this analysis why Reserved types, at all levels, have difficulty with social relationships and why it is negatively associated with work success. Indeed the personality profile of the Reserved type is almost the exact opposite of what the data suggest is the ideal emotionally intelligent work profile [1]. Thus the successful leader and worker is Stable, Extraverted, Agreeable and Conscientious while the Reserved person is Unstable and Introverted.

This study had various limitations. This sample was a large but not heterogenous. Next the SPD measure, while reliable and valid was uni-dimensional and a sub-clinical measure of SPD. It would have been desirable to investigate other individual differences (values, morality, life-style, self-assessed intelligence and attractiveness) to see to what extent personality factors have incremental validity over and above these measures. More importantly longitudinal studies would help to understand the role of personality traits in the genesis and development of SPD. There are also problems of multicollinearity in the facet analysis (Table 2), which may mean individual facets results may be unreliable. Further the associations may depict shared variance due to the fact that Reservedness and Neuroticism are negatively valenced. Thus, the shared variance may partly display valence confounds rather than being construct-relevant. Despite these limitations this study hopefully provides an impetus for researchers to continue to explore the SPD concept and its place in personality space.

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