2009

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Abstract

Objective Although several exploratory and confirmatory factor analyses have supported the initially proposed factor structure of the Schizotypal Personality Questionnaire (SPQ) in which its nine subscales are grouped into *cognitive-perceptual*, *interpersonal*, and *disorganized* domains, others have revealed different latent structures. This study determined the best-fitting factor structure from among five models that have been proposed in the literature, as well as five additional hierarchically related models.

Method Undergraduate college students (n=825) completed the SPQ as well as the Perceptual Aberration Scale (PAS) and the Revised Social Anhedonia Scale (SAS). Confirmatory factor analyses involving the nine SPQ subscales were conducted using the Linear Structural Relations Program (*LISREL 8.72*).

Results The best fitting model was a previously described 4-factor model including *cognitive-perceptual*, *paranoid*, *negative*, and *disorganized* domains. Correlations between the derived SPQ domains and the PAS score ranged r=.26–.39, and correlations between the SPQ domains and the SAS ranged r=.07–.41.

Conclusions The present findings support a 4-factor model over the standard 3-factor model that is typically used to derive SPQ subscale scores. The four derived domains are minimally to moderately correlated with other measures of psychosis-proneness.

Key Words: Confirmatory factor analysis; Perceptual Aberration Scale; Psychometric properties; Revised Social Anhedonia Scale; Schizotypal Personality Questionnaire; Schizotypy

1. Introduction

The study of schizotypy is of increasing interest to schizophrenia researchers given evidence that schizotypy and schizotypal personality disorder (SPD) relate phenotypically (Catts et al., 2000; Kendler et al., 1994; Siever et al., 1993) and genetically (Clementz et al., 1991; Kendler et al., 1995, Silverman et al., 1993) to schizophrenia. Ongoing research on schizotypy in non-clinical samples will deepen the field's understanding of this complex personality construct as a vulnerability marker, as an aspect of some cases of the schizophrenia prodrome, and as an indicator that can enhance genetic studies. Schizotypy, like the related constructs of psychosis-proneness and psychoticism, is multidimensional, comprising multiple complex behavioral phenotypes. Some research has sought to determine differential correlates of schizotypy dimensions, which generally reflect the major groups of schizophrenia symptoms (i.e., positive, negative, and disorganized; Andreasen et al., 1995; Liddle, 1987). Ongoing attention to the psychometric properties and factorial structure of instruments designed to measure various facets of schizotypy is crucial.

Numerous well established, self-administered scales have been developed to measure the multidimensional schizotypy construct. These include the Schizophrenism Scale (Nielsen and Petersen, 1976; Venables et al., 1990), the Schizotypal Personality Scale (Claridge and Broks, 1984), the Rust Inventory of Schizotypal Cognitions (Rust, 1987; 1988), the Oxford–Liverpool Inventory of Feelings and Experiences (Mason et al., 1995), and the Schizophrenia Proneness Scale of the Minnesota Multiphasic Personality Inventory-2 (Bolinskey et al., 2003), among others. Studies have suggested that the Psychosis Proneness Scales (PPS), developed by Loren and Jean Chapman and colleagues, may offer the most reliable and valid means of identifying individuals with elevated levels of schizotypy (Grove, 1982; Lenzenweger, 1994), despite not

mapping directly onto the nine SPD criteria of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (DSM-IV-TR; American Psychiatric Association, 2000). These scales include: (1) the Physical Anhedonia Scale (Chapman et al., 1976), assessing deficits in sensory pleasures; (2) the Perceptual Aberration Scale (Chapman et al., 1978), tapping gross body-image distortions; (3) the Magical Ideation Scale (Eckblad and Chapman, 1983), investigating causal beliefs that the dominant culture considers invalid and magical; (4) the Impulsive Nonconformity Scale (Chapman et al., 1984), measuring inability to comply with societal norms, empathize, and restrain impulsivity and self-gratification; and (5) the Revised Social Anhedonia Scale (Chapman et al., 1976; Eckblad et al., 1982), examining indifference to others.

The Schizotypal Personality Questionnaire (SPQ; Raine, 1991) was developed to reflect the nine DSM criteria for SPD (ideas of reference, odd beliefs or magical thinking, unusual perceptual experiences, paranoid ideation/suspiciousness, excessive social anxiety, no close friends, constricted affect, odd or eccentric behavior, and odd speech). Several exploratory (i.e., not requiring *a priori* hypotheses about how indicators are related to underlying factors or even the number of factors; Kline, 2005) and confirmatory (i.e., based on *a priori* measurement models in which both the number of factors and their correspondence to the indicators is explicitly specified; Kline, 2005) factor analytic studies have supported the initially proposed SPQ factor structure, wherein its nine subscales group into three domains: *cognitive-perceptual*, *interpersonal*, and *disorganized* (Calkins et al., 2004; Chen et al., 1997; Claridge et al., 1996; Gruzelier et al., 1996; Raine et al., 1994; Reynolds et al., 2000; Rossi and Daneluzzo, 2002). However, more recent confirmatory factor studies have suggested that other models of the latent

structure (i.e., the underlying, hidden groupings of items that are intrinsic to the measure, but not necessarily obvious), of the SPQ may fit better (Stefanis et al., 2004; Wuthrich and Bates, 2006).

In an effort to provide more information about the factorial validity of SPQ scores, the present study used confirmatory factor analysis to determine whether or not the initially described factorial structure of the nine SPQ subscales is supported in a relatively large sample of undergraduate students in the southeastern United States. Examination of this measurement model is crucial, given that numerous studies derive *cognitive-perceptual*, *interpersonal*, and *disorganized* subscale scores based on this factorial structure. Further, the present study aimed to select the best-fitting factor structure from among five models proposed in the literature (Kendler et al., 1991; Raine et al., 1994; Seiver and Gunderson, 1983; Stefanis et al., 2004; Wuthrich and Bates, 2006), as well as five additional hierarchically related, or nested models (i.e., one is a subset of the other after trimming or modifying the initial model based on theoretical or empirical considerations; Kline, 2005). It should be noted that these 10 models do not represent an exhaustive offering of potential models; for example, Boyle and Baxter performed a series of factor analyses on the SPQ and found a 2-factor solution that separated positive and negative schizotypal traits, as well as 3- and 4-factor models that further subdivided the positive traits (Green et al., 2008). Ongoing research on the factor structure of the SPQ and other measures of schizotypy is crucial given the importance of the schizotypy construct for both personality and behavioral research, as well as psychosis-proneness and schizophrenia research.

2. Methods

2.1. Participants

Study participants included 825 undergraduate college students. The mean (± standard deviation) age of participants was 20.1±1.7 years. Over three-quarters (637, 77.2%) were

female, and nearly half (376, 45.6%) were single and not dating anyone regularly. Almost half (371, 45.0%) self-identified as White/Caucasian, 251 (30.4%) as Black/African American, 84 (10.2%) as Asian American, and 119 (14.4%) as of one or more other racial/ethnic groups. Nearly half (391, 47.4%) reported being in their freshman year and 118 (14.3%) identified psychology as their undergraduate major. More than one-fourth of the students (234, 28.5%) endorsed a history of mental health treatment. Among these 234 students, many reported a history of mental health treatment related to depression, anxiety, behavioral problems, or family issues; specifically, 41 (17.5%) reported having sought treatment for a depression-related problem (e.g., depression, grief counseling, post-partum depression); 35 (15.0%) had sought treatment for an anxiety-related problem (e.g., anxiety, posttraumatic stress disorder); 20 (8.6%) had sought treatment for a behavioral disorder or problem (e.g., attention-deficit/hyperactivity disorder, anger management, addiction); and 12 (5.1%) had sought treatment for family-related problems (e.g., parental divorce, relationship counseling, family counseling). Others reported treatment for various other problems, or did not provide a reason for treatment.

2.2. Procedures

Individuals aged ≥18 years were invited to participate via a recruitment statement on an online program used to manage the undergraduate research pool. Interested students reviewed an online informed consent form before proceeding to the survey, and then completed a set of confidential web-based questionnaires. Participating students received extra course credit, though student participation was not required in this or any other study. Automated data entry produced computerized survey data files for data cleaning and analysis. Data from surveys completed in less than 20 minutes were excluded given that completion of the survey was expected to require longer than this. Additionally, only data from respondents aged 18–26 years

were included in the analysis because the few older patients may not be typical of an undergraduate population.

2.3. Measures

The 74-item Schizotypal Personality Questionnaire (SPQ, Raine, 1991; Raine et al., 1994) was designed to address all nine DSM diagnostic criteria for SPD. Each "yes" response counts one point, with total scores ranging 0–74. Items are grouped into nine subscales reflecting the DSM SPD criteria. As shown in **Table 1**, Cronbach's (α) internal consistency reliability coefficients for these subscales ranged .70–.83 (mean=.75) in the present sample, exceeding the means of .65 and .69 reported by Chen et al. (1997) for adults and adolescents, respectively. Scores to measure three domains of schizotypy are typically derived by simple summation of subscale scores: the *cognitive-perceptual* domain (ideas of reference, odd beliefs or magical thinking, unusual perceptual experiences, and paranoid ideation/suspiciousness subscales); the *interpersonal* domain (excessive social anxiety, no close friends, constricted affect, and paranoid ideation/suspiciousness subscales); and the *disorganized* domain (odd or eccentric behavior and odd speech subscales). Both exploratory (Calkins et al., 2004; Gruzelier et al., 1996) and confirmatory (Chen et al., 1997; Raine et al., 1994; Reynolds et al., 2000) factor analyses have suggested that the SPQ comprises these three factors. However, recent studies have demonstrated other factor structures (Stefanis et al., 2004; Wuthrich and Bates, 2006).

Two other traditional schizotypy scales were administered so that their correlations with the derived SPQ domains could be examined. The 35-item Perceptual Aberration Scale (PAS; Chapman et al., 1978) is a true/false, self-report measure designed to operationalize body-image distortions and perceptual anomalies (Chapman et al., 1978; Meehl, 1964; Meehl, 1990; Rado, 1960). Extensive past research demonstrates that the PAS is a well validated indicator of traits

associated with schizotypy in both clinical and non-clinical populations (Champan et al., 1995; Lenzenweger, 1998). The α coefficient for the PAS was .87 in the present sample, similar to the .88 reported by Kwapil et al. (2008) in 6,137 undergraduate students.

The 40-item Revised Social Anhedonia Scale (SAS; Chapman et al., 1976; Eckblad et al., 1982) is a true/false, self-report measure that assesses deficits in the ability to experience pleasure from interpersonal interactions. The SAS has been used extensively in clinical and non-clinical populations, has shown good reliability, appears to be relatively independent of other measures of psychosis-proneness (including the PAS), and identifies individuals exhibiting significant social maladjustment (Chapman and Chapman, 1985; Merritt et al., 1993). In the present sample, the α coefficient for the SAS was .86, similar to the .84 reported by Kwapil et al. (2008) in their large sample of undergraduates.

2.4. Data Analysis

Confirmatory factor analyses were conducted using the Linear Structural Relations Program (*LISREL 8.72*) to examine the factorial structure of the SPQ. Specifically, five models proposed in the literature (Kendler et al., 1991; Raine et al., 1994; Seiver and Gunderson, 1983; Stefanis et al., 2004; Wuthrich and Bates, 2006), depicted in **Figure 1**, as well as five models hierarchically related to several of these, were examined. Several indices were selected *a priori* to assess the fit of measurement models to the data. First, based on the normal theory weighted least squares chi-square, the normed model chi-square is reported (χ^2_M/df_M). Smaller values of the overall model chi-square (χ^2_M) indicate goodness-of-fit (with $p>.05$ suggesting that the null hypothesis that the model fits the data cannot be rejected). The normed χ^2_M partly reduces the sensitivity of χ^2_M to sample size. Generally, values <3.0 indicate good fit. Second, the Steiger-Lind root mean square error of approximation (RMSEA) and its 90% confidence interval (CI)

provide a correction for model complexity. Small values are desired, with values ≥.10 indicating poor fit. The 90% CI of the RMSEA generally should not include .10. Third, the standardized root mean square residual (SRMR) assesses the mean absolute correlation residual. SRMR values <.10 are considered acceptable. Fourth, Bentler's comparative fit index (CFI), ranging 0–1, depends on the average size of the correlations in the data. The CFI is recommended to be >.90.

To compare hierarchical (nested) models, the chi-square difference (χ^2_D) test was used, in which the χ^2_M for the trimmed model is subtracted from that of the initial model, and the resulting value is divided by the difference in degrees of freedom (*df*). A non-significant value indicates approximately equal fit when comparing the two models (suggesting that the simpler model has not been over-simplified), and the more parsimonious model is preferred. To compare alternative factor solutions that are not hierarchically related, the Akaike information criterion (AIC), which favors more parsimonious models, is reported. When comparing two competing models, the one with the lowest AIC value is preferred.

Inter-correlations among the derived SPQ domains and PAS and SAS scores were examined using *SPSS 15.0*, as were internal consistency reliability coefficients.

3. Results

Fit indices for the ten measurement models are given in **Table 2**. The first model is the 4-factor "paranoid" model of Stefanis et al. (2004). As depicted in **Figure 1A**, this is a multidimensional model (i.e., one or more indicators load on more than one factor) in that the paranoid ideation/suspiciousness and excessive social anxiety subscales load on both the *paranoid* and *negative* factors. This model fit the data well (**Table 2)**. Two modifications of this well-fitting model were examined, one in which the paranoid ideation/suspiciousness subscale,

but not the excessive social anxiety subscale, loads on both the *paranoid* and *negative* factors; and the other in which the excessive social anxiety, but not the paranoid ideation/suspiciousness subscale, loads on both the *paranoid* and *negative* factors. Neither of these models fit as well as the first. A unidimensional modification of the first model also was examined, in which the *paranoid* factor includes the ideas of reference and paranoid ideation/suspiciousness subscales, and the *negative* factor includes the excessive social anxiety, no close friends, and constricted affect subscales. Again, this model did not fit as well as the first model put forth by Stefanis et al. (2004). Thus, of the 4-factor models examined, the best fit (all indices, including the normed chi-square, falling within acceptable ranges) occurred when the paranoid ideation/suspiciousness subscale and the excessive social anxiety subscale load on both *paranoid* and *negative* factors. The 4-factor model with the paranoid ideation/suspiciousness subscale loading on both the *paranoid* and *negative* factors fit next best, but significantly worse (e.g., the normed chi-square was 4.4, which is greater than the conventional standard of 3.0).

Three 3-factor models were assessed. As shown in **Figure 1B**, the modified 3-factor model of Wuthrich and Bates (2006) is multidimensional in that three subscales (odd beliefs or magical thinking, paranoid ideation/suspiciousness, and excessive social anxiety) load on both the *cognitive-perceptual* and *interpersonal* factors. Neither this model nor the standard 3-factor model of Raine et al. (1994) (see **Figure 1C)**—used by many researchers to derive subscale scores for *cognitive-perceptual*, *interpersonal*, and *disorganized* domains—fit the data adequately (**Table 2)**. A unidimensional modification of the Raine et al. (1994) model, in which the *cognitive-perceptual* factor includes the odd beliefs or magical thinking subscale and the unusual perceptual experiences subscale, and the *interpersonal* factor includes the ideas of reference, paranoid ideation/suspiciousness, excessive social anxiety, no close friends, and

constricted affect subscales, also did not fit the data (**Table 2**). Thus, this latter unidimensional 3-factor model clearly does not fit well; the other 3-factor models fit better, but none have values of RMSEA or the normed chi-square that were within acceptable ranges.

Two 2-factor models were examined: the 2-factor model suggested by conceptualizations of Kendler et al. (1991) (**Figure 1D**), and the simple 2-factor model suggested by descriptions of schizotypy by Siever and Gunderson (1983) (**Figure 1E**). Neither of these models fit the data, as indicated by the fit statistics (**Table 2)**. Finally, a very simple model in which all nine subscales load onto one factor was assessed. Again, this model did not fit the data.

Although the SRMR was <.10 for all models, the upper 90% CI of the RMSEA was <.10 and the normed chi-square was <3.0 only for the Stefanis et al. (2004) 4-factor model. In particular, the standard 3-factor model of Raine et al. (1994) fit significantly worse than this 4-factor model, to which it relates hierarchically (χ^2_D (4, N=825)=247, p<.001).

Internal consistency reliability coefficients for domain scores derived using the best fitting 4-factor model ranged .81–.89 (**Table 3**). As documented in a prior report on schizotypy and substance use in this sample (Esterberg et al., 2009), mean (± standard deviation) scores for the c*ognitive-perceptual, paranoid, negative,* and *disorganized* subscales were 3.9±3.4, 9.8±5.6, 9.9±6.8, and 5.3±4.1, respectively. Correlations between the SPQ total score and the PAS and SAS were r=.38 and r=.30, respectively, and the correlation between PAS and SAS scores was r=.21. Inter-correlations between the SPQ domain scores, PAS score, and SAS score are shown in **Table 3**. Also, as previously reported (Esterberg et al., 2009), correlations between the four SPQ domains were quite high (r=.43–.84), though it should be noted that the highest correlation is largely driven by overlap among two subscales (paranoid ideation/suspiciousness and excessive social anxiety) in the *paranoid* and *negative* domains (the only overlapping domains).

Correlations between the derived SPQ domains and the PAS ranged *r*=.26–.39, and correlations between the SPQ domains and the SAS ranged *r*=.07–.41.

4. Discussion

Several key findings emerged from this analysis. First, of the 10 models tested, the 4-factor model introduced by Stefanis et al. (2004) in a study of 1,355 young male conscripts in the Greek Air Force provided the best fit to the data. This suggests that in the present sample, and perhaps others, subscale scores derived from this structural model may have greater factorial validity than those more commonly used in schizotypy research in recent years (i.e., the *cognitive-perceptual*, *interpersonal*, and *disorganized* domains based on the initial conceptualization and factor analyses of Raine and colleagues (Raine, 1991; Raine et al., 1994)). Although Raine et al. (1994) found support for the 3-factor model among 822 undergraduate students and other studies have confirmed this latent structure (Chen et al., 1997; Claridge et al., 1996; Reynolds et al., 2000; Rossi and Daneluzzo, 2002), the 4-factor model that included a *paranoid* factor evidently was not tested. At their initial demonstration of the 3-factor model, the authors recommended further testing to assess the model's factorial validity (Raine et al., 1994). Other studies have confirmed that simpler 1-factor and 2-factor models do not provide good fit to the data (Chen et al., 1997; Raine et al., 1994; Reynolds et al., 2000; Stefanis et al., 2004; Wuthrich and Bates, 2006). Although it could be suggested that the present findings supporting the 4-factor model of Stefanis et al. (2004) are due to close similarities between the current sample and theirs, this is an unlikely sole explanation given that other factor analytic studies (e.g., Raine et al., 1994; Wuthrich and Bates, 2006) were conducted with English-speaking undergraduate samples similar to the one used in this study. Future large-sample studies of schizotypy and its correlates should conduct similar confirmatory factor analyses before

necessarily relying on the standard *cognitive-perceptual*, *interpersonal*, and *disorganized* subscales.

A second key finding was that correlations among derived SPQ domains (based on the best-fitting 4-factor model) were generally moderate (.43–.58), except for the high correlation between the *paranoid* and *negative* domains (.84), which is expected given that two subscales overlap in these domains. Correlations between the derived SPQ domains and the PAS and SAS were generally low (.07–41), which could indicate that the three instruments measure different aspects of schizotypy or that one or more of the measures do not validly measure the schizotypy construct. Of note, although anhedonia is central to some conceptualizations of schizotypy, this trait is largely absent from the SPQ because DSM criteria for SPD do not include this feature (Mason et al., 1997). This could account for the low correlations between scores on the derived SPQ domains and the SAS. The PAS and SAS were mildly correlated (.21), which is consistent with the correlation observed by Pope and Kwapil (2000) in 523 undergraduates (.32) and by Kwapil et al. (2008) in a combined sample of 6,137 undergraduates (.29). A third finding, as expected based on the confirmatory factor analysis, is that internal consistency reliabilities were acceptable for the four derived SPQ domains. It should be noted, however, that in addition to indicating internal consistency/item homogeneity, internal consistency reliability coefficients may also suggest a high level of item redundancy or the rephrasing of items in several different ways (Boyle, 1991).

Several methodological limitations of this study should be recognized. First, generalizability may be limited given that generally healthy, high-functioning, predominantly female undergraduates constituted the sample. Schizotypy scores have consistently been found to be higher in adolescents and young adults than in older adults (Raine, 2009). It is possible that

the factorial structure of the SPQ varies by sample-specific characteristics, which could account for differences across past studies. However, total SPQ scores showed good variability and 28% of participants had a history of mental health treatment, indicating that the sample was not exceptionally or unusually healthy. That being said, it is likely that more than 28% of the sample may have had a history of a mental illness given the under-recognition and under-treatment of mental illnesses in the general population. Although it is assumed that the present sample is typical of a random undergraduate sample, this cannot be confirmed. Other sample-specific characteristics could have potentially influenced the findings. For example, the level of motivation to participate, and honesty or accuracy in reporting, could have been affected by the fact that respondents received extra credit and they were not interacting directly with a researcher (but rather completing an online survey). In an attempt to mitigate effects of low motivation or inaccuracy, data from surveys completed in less than 20 minutes were excluded given that completion of the survey was expected to require longer than this.

A second methodological limitation is that correlations between the derived SPQ domains and other measures of schizotypy were limited to PAS and SAS scores, and all three measures were self-report. Other domains of schizotypy, such as impulsive nonconformity, have been suggested as missing from the SPQ subscales (Gruzelier, 1996). Along these lines, the present study focused on the latent factorial structure of a measurement instrument and the identification of best-fitting models therefore reflects the nature of the measure administered (Kwapil et al., 2008), rather than the complex schizotypy construct itself. Third, other measurement models could have been tested (e.g., the 2-, 3-, and 4-factor models studied by Boyle and Baxter; Green et al., 2008). Furthermore, only select psychometric properties were

examined, given that the focus was on factorial validity; data on test-retest reliability would have been beneficial in addition to internal consistency reliability.

In summary, the findings of the present study support the 4-factor model described by Stefanis et al. (2004) over those of Raine et al. (1994) and Wuthrich and Bates (2006). Furthermore, simpler 2-factor models based on earlier conceptualizations of the latent structure of schizotypy (Kendler et al., 1991; Siever and Gunderson, 1983), which also have been disconfirmed in prior studies (Chen et al., 1997; Raine et al., 1994; Reynolds et al., 2000; Stefanis et al., 2004; Wuthrich and Bates, 2006), did not fit the data from the present sample. Five other models that are hierarchically related to several of these also were not supported in the present sample. Research on schizotypy may benefit from using domain scores derived from the 4-factor model of the SPQ, though additional confirmatory factor analyses in other large samples is warranted to further clarify ideal derivations of SPQ domains. The reliable and valid measurement of the multi-dimensional schizotypy construct is critical to advancing understandings of psychological functioning in both general population groups and clinical samples.

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Table 1. Internal Consistency Reliabilities (Cronbach's α) of the SPQ Subscales

SPQ Subscale	***Number of Items***	***α***
Ideas of reference	9	.74
Odd beliefs or magical thinking	7	.70
Unusual perceptual experiences	9	.73
Paranoid ideation/suspiciousness	8	.75
Excessive social anxiety	8	.73
No close friends	9	.75
Constricted affect	8	.71
Odd or eccentric behavior	7	.83
Odd speech	9	.77

Table 2. Fit Indices for the 10 Models Studied							
Model	χ^2_M	df_M	χ^2_{normed}[a]	***RMSEA (90% CI)***	***SRMR***	***CFI***	***AIC***
A. the 4-factor "paranoid" model of Stefanis et al. (2004)	50	19	2.6	.044 (.029, .059)	.021	.99	101
a modification of A. above, in which PI, but not ESA, loads on both the *paranoid* and *negative* factors	88	20	4.4	.064 (.052, .078)	.032	.98	128
a modification of A. above, in which ESA, but not PI, loads on both the *paranoid* and *negative* factors	145	20	7.2	.087 (.074, .10)	.037	.95	195
a unidimensional modification of A. above, in which *paranoid* includes IOR and PI, and *negative* includes ESA, NCF, and CA	173	21	8.4	.094 (.081, .11)	.042	.95	221
B. the modified 3-factor model of Wuthrich and Bates (2006)	279	21	13.3	.12 (.11, .14)	.043	.93	327
C. the standard 3-factor model of Raine et al. (1994)	296	23	12.9	.12 (.11, .13)	.051	.92	340
a unidimensional modification of C. above, in which *cognitive-perceptual* includes OBMT and UPE, and *interpersonal* includes IOR, PI, ESA, NCF, and CA	484	24	20.2	.15 (.14, .15)	.073	.87	526
D. the 2-factor model of Kendler et al. (1991)	521	24	21.7	.16 (.15, .17)	.092	.84	526
E. the simple 2-factor model of Siever and Gunderson (1983)	473	26	18.2	.14 (.13, .16)	.070	.87	511
a modification of E. above, in which all nine subscales load onto one single factor	872	27	32.3	.19 (.18, .21)	.088	.77	908

Table 3. Inter-correlations among the Four Derived SPQ Domains and PAS and SAS Scores, and Internal Consistency Reliability Coefficients (in Italics along the Diagonal)

	SPQ-CP	***SPQ-P***	***SPQ-N***	***SPQ-D***	***PAS***	***SAS***
SPQ Cognitive-Perceptual (16 items)	*.81*					
SPQ Paranoid (25 items)	.52**	*.86*				
SPQ Negative (33 items)	.43**	.84**	*.89*			
SPQ Disorganized (16 items)	.55**	.56**	.58**	*.86*		
PAS (35 items)	.35**	.26**	.28**	.39**	*.87*	
SAS (40 items)	.07*	.21**	.41**	.19**	.21**	*.86*

* p=.05

** p<.001

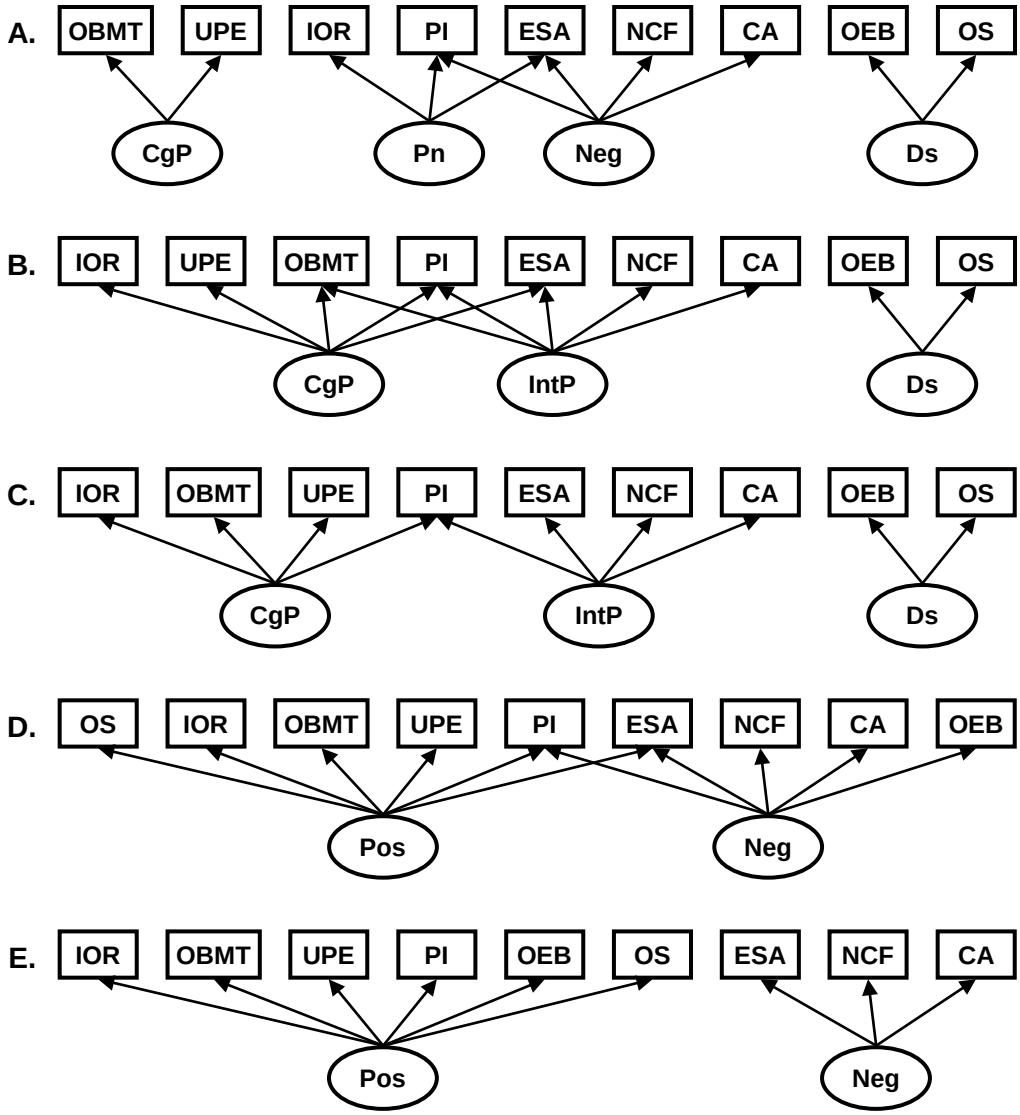

Figure 1. Five Measurement Models for the Nine SPQ Subscales. A. the 4-factor "paranoid" model of Stefanis et al. (2004); B. the modified 3-factor model of Wuthrich and Bates (2006); C. the standard 3-factor model of Raine et al. (2004); D. the 2-factor model based on conceptualizations of Kendler et al. (1991); E. the simple 2-factor model based on conceptualizations of Siever and Gunderson (1983). Factors are represented by ovals: CgP=cognitive-perceptual, Pn=paranoid, Neg=negative, Ds=disorganized, IntP=interpersonal, and Pos=positive. Subscales are represented by rectangles: OBMT=odd beliefs or magical thinking, UPE=unusual perceptual experiences, IOR=ideas of references, PI=paranoid ideation/suspiciousness, ESA=excessive social anxiety, NCF=no close friends, CA=constricted affect, OEB=odd or eccentric beliefs, and OS=odd speech.