

Subjective experience of personality dimensions in 1st degree relatives of schizophrenics

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Abstract. An increasing number of studies suggest the usefulness of both personality features and neurocognitive vulnerability as tools for isolating phenotypes associated with susceptibility to schizophrenia, however the clinical and heuristic topicality of self-experienced vulnerability has yet to be properly recognized. Biological relatives of schizophrenic patients (because of the familial/genetic load) constitute a promising and suggestive paradigm for addressing the psychopathological relationship between personality features and subjective experience of vulnerability. The current study found that 1st degree unaffected relatives of schizophrenics exceeded normal controls in schizotypal, paranoid, and borderline dimensions, and showed an overlap in the schizoid dimension of clinical Schizotypals (i.e. Schizotypal Personality Disorder Patients). Subsequent correlation analysis showed that schizotypal and schizoid traits are linked to specific domains of self-experienced vulnerability. Clinical heuristics is discussed.

Key words: Subjective experience, basic symptoms, schizotaxia, schizotypal, vulnerability, relatives

Introduction

A prominent empirically-substantiated theoretical perspective in contemporary research is that schizotypal personality disorder, and probably certain other personality disorders, occur at lower thresholds on a dimension of liability than schizophrenia itself (1-6). Moreover, a series of studies have shown that some personality features and certain neurocognitive deficits aggregate in the biological relatives of schizophrenic patients as compared to the relatives of controls, supporting the view that both are likely to reflect genetic contributions to liability to schizophrenia (7-11). However, the interrelationship between personality features and subjective experience of vulnerability (including the neurocognitive one) have yet to be systematically explored in this population. According to current heuristics (12-14), the manifold self-experience of vulnerability is likely to parallel subtle self-

experiential abnormalities that have been characterized in schizophrenic, psychotic prodromes, and high-risk subjects.

Among those subtle self-experiential abnormalities, Basic Symptoms constitute a rather refined *phenomenological approach*, carefully mapping qualitative changes of the 1st-personal givenness of allo-, auto- and somato-psychic experience, which have been defined as the subjective side of perceived vulnerability to schizophrenia (12, 15, 16). According to the Basic Symptoms Model such disturbances of subjective experience constitute the first phenomenic correlate of neuropsychological and neurobiological impairments belonging to the trans- and pre- phenomenic descriptive layers of schizophrenic psychopathology (12, 15-17).

Thus, the Basic Symptoms (BS) seem appropriate and inspiring as a clinical and research framework. Moreover, the Basic Symptoms Model (BSM) offers the theoretical constraint to the mere quantitative

comparison of personality dimensions among different populations supposed to be on a climaxing gradient of schizophrenic liability (i.e. Normal Controls, 1st degree relatives of schizophrenics, and Schizotypal Personality Disorder Patients). According to BSM – indeed – it is expected that BS selectively correlate with the personality dimensions expressive of schizophrenic liability, excluding the “background noise” due to the coexistence of many enhanced personality traits in the relatives (4, 7, 8).

Operatively, the goal of the present report is to examine personality traits in nonpsychotic relatives of schizophrenics (SchREL), in comparison with normal controls (CTR) and schizotypal personality disorder patients (SPDPts), and to explore their interrelationship with basic symptoms.

Given the preliminary aim of the study, personality traits have been explored as dimensions.

Methods

Participants

Two groups were selected through adult probands (adult-onset schizophrenia and community controls), whereas a clinical sample of Schizotypal Personality Disorder Patients was recruited among the outpatients attending the Psychiatry Section of Parma University Neuroscience Department (PSPUND).

The adult-onset schizophrenia probands were recruited from a study of schizophrenic patients held in PSPUND (18), which drew its sample from consecutive admissions to the outpatient service.

To be eligible for the study, relatives and controls had to be between 18 and 65 years of age, have Italian as their first language, and be free of psychosis during their lifetime. The exclusion criteria for both controls and relatives also required absence of 1) substance abuse during their lifetime; 2) history of head injury with any documented cognitive sequelae or with loss of consciousness greater than 5 min; 3) neurologic disease or damage; 4) mental retardation; and 5) medical illnesses that may significantly impair neurocognitive function.

Among the Schizotypal Personality Disorder Pa-

tients, individuals with neurological or medical comorbidity, substance abuse within the previous 12 months, or current psychotic symptoms, were excluded.

The entire data collection occurred at the PSPUND, and was done by resident clinicians. Written, informed consent was obtained from all adult participants after the research procedures were explained. All the participants underwent DSM IV structured interviews for Axis II Disorders (SIDP-IV) (19) and a contextual assessment of Basic Symptoms (BS) (20). Relatives and controls underwent a preliminary session where the Structured Clinical Interview for DSM-IV (SCID) for Axis I disorders (21) was administered.

This report includes 68 nonpsychotic biological relatives of probands diagnosed with DSM-IV schizophrenia (SchREL), 83 controls (CTR) and 33 SPD patients (SPDPts). The male/female ratio was approximately 1/1 in every sample (CTR: 41/42, SchREL: 33/35, SPDPts: 16/17).

The mean ages (in years) were CTR 43,7 (14,7), SchREL 45,6 (14,4) and SPDPts 33,3 (9,5) respectively. The years of education resulted: CTR 11,4 (4,7), SchREL 9,5 (4,4), and SPDPts 11,3 (3,3).

Of the relatives' specimen, 41 were parents, 18 were siblings and 9 were offspring.

Assessment

Personality dimensions were derived from the scores of the Structured Clinical Interview for DSM-IV Personality Disorders (SIDP-IV) (19). This instrument, based on DSM IV classification of personality disorders, allows a dimensional scoring of personality traits (and depending on specific thresholds allows categorical diagnosis to be performed as well). All the eligible SchREL and CTR participants were assessed ex novo, whereas SPDPts were reassessed if a SCID-IV had not been performed in the previous 12 months.

Disturbances of subjective experience were investigated through the Bonn Scale for the Assessment of Basic Symptoms (BSABS) (20) to achieve a reasonable degree of reliability. The BSABS is a 98 item se-

mistructured interview measuring subjective uncharacteristic experiences with disturbing quality (i.e. Basic Symptoms), elicited by the descriptive phenomenological method of Jaspers and Schneider.

These symptoms have been empirically clustered into five subsyndromes (17, 22):

1. Thought, language, perception and motor disturbances (include BS involving autopsychic dissonance in cognition, naturalness of agency, perception and linguistic interaction);
2. Impaired bodily sensations (encompass a cluster of cenesthetic BS, mainly affecting bodily proprioceptive reflexive and pre-reflexive sensory awareness);
3. Impaired tolerance to normal stress (gathers some BS characterized by abnormal intolerance to social, working and attentional demands stemming from daily environmental events);
4. Disorders of emotion and affect (include so called “adynamic” BS, associated with a lack of dynamic-affective empowerment of emotional and attentional goal-directedness);
5. Increased emotional reactivity (formerly named “Interpersonal irritation”, is defined by BS expressive of hyper-reactivity and enhanced impressionability).

Data analysis

All statistical computations were performed using the Statistical Package for Social Sciences SPSS

10.0. Evaluation of group differences on the personality measures were obtained through the one-way analysis of variance (ANOVA), followed by Dunnett's post-hoc test.

Spearman's rho was used to explore correlations between personality traits and basic symptoms in the 1st degree relatives.

Results

Inter-group Personality Dimensions comparison (table 1)

SchREL showed higher degrees of cluster A and Borderline personality traits than CTR. Schizotypal, Paranoid and Borderline traits were all less pronounced than in the clinical population sample (i.e. SPDPts), whereas Schizoid traits resulted not statistically different between SchREL and SPDPts.

Correlational Analysis (table 2)

Significative positive correlations were found between SIDP-IV schizotypal score and two BS subsyndromes: Thought, language, perception and motor disturbances, and Impaired bodily sensations.

SIDP-IV schizoid score was positively correlated with Increased emotional reactivity and Impaired bodily sensations.

Neither Paranoid nor Borderline SIDP-IV scores correlated with any of the BS domains.

Table.1. Comparisons of personality dimensions among controls (CTR), 1st degree relatives of schizophrenics (SchREL) and SPD patients (SPDPts). One-way analysis of variance (ANOVA), followed by Dunnett's post-hoc test was performed (means, standard deviations, F-ratio, P and post-hocs are reported).

Personality dimensions	CTR (n=83)		SchREL (n=68)		SPDPts (n=33)		One-way ANOVA		
	M	SD	M	SD	M	SD	F	P	Post-Hoc
Schizotypal	0,76	1,54	5,25	5,05	14,65	4,62	111,25	<0,0001	NC<REL<SPD
Schizoid	0,49	0,94	2,99	3,03	4,29	3,19	36,79	<0,0001	NC<REL, SPD
Paranoid	1,25	2,04	5,21	4,07	9,45	3,91	68,40	<0,0001	NC<REL<SPD
Borderline	0,27	0,76	1,96	2,34	9,26	5,90	95,03	<0,0001	NC<REL<SPD
Narcisistic	4,36	4,72	3,25	3,47	6,60	5,28	5,38	0,006	NC, REL<SPD
Histrionic	3,05	2,80	2,42	3,14	6,45	5,98	8,13	<0,0001	NC, REL<SPD
Antisocial	0,13	0,43	0,16	0,87	1,35	3,19	8,93	<0,0001	NC, REL<SPD
Avoidant	2,98	3,25	2,19	3,09	6,45	4,55	12,70	<0,0001	NC, REL<SPD
Dependent	2,51	6,10	1,28	1,50	6,06	4,77	20,45	<0,0001	NC, REL<SPD
Obsessive-compulsive	3,65	3,28	4,96	4,20	6,29	4,24	3,24	0,042	NC, REL<SPD

Table 2. Correlation analysis performed among 1st degree relatives of schizophrenics (SchREL, n=68). Spearman's rho are reported.

BSABS subsyndromes	Personality dimensions			
	Schizotypal	Schizoid	Paranoid	Borderline
1. Thought, language, perception and motor disturbances	0,280*	0,177	0,223	0,171
2. Impaired bodily sensations	0,273*	0,253*	0,165	0,198
3. Impaired tolerance to normal stress	0,111	0,189	0,039	0,086
4. Disorders of emotion and affect	0,079	0,179	-0,131	-0,006
5. Increased emotional reactivity	0,145	0,299*	0,145	0,010

*P (two-tailed) < 0.05 ; ** p (two-tailed) < 0.01; *** p (two-tailed) < 0.001

Discussion

The first finding of this study regards the Personality dimensional pattern of SchREL. This pattern reveals that 1st degree relatives occupy an intermediate position between normal controls and the schizophrenia-spectrum clinical population closest to Axis II disorders. Indeed, clinical schizotypals were preferred to other spectrum-phenotypes in order to minimize the structural deformation (12, 16) due to the major psychopathology, thus avoiding the potentially unreliable comparison with schizophrenic subjects in the retrospective analysis of premorbid personality.

In the present study, neither the Cluster C personality traits, nor the Narcissistic, Antisocial, Histrionic traits differed between CTR and SchREL; in fact they were not supposed to share the same genetic background with schizophrenia.

On the contrary, Cluster A and Borderline traits, showed a spectrum of coherent distribution, suggesting that these (mainly subclinical) familial traits may be important for the understanding of the development of the disease. Indeed, it has been known for a long time that schizophrenia and several related psychopathological traits (especially Cluster A personality (4, 7, 8)) aggregate in families on a common genetic basis. However, these traits may be subject to modulation by non-genetic influences. Indeed, as explicated in Meehl's concepts of schizotaxia-schizotypia (23, 24), the personality organization reflects the imposition of a social learning history upon individuals with a genetic liability for schizophrenia.

Thus, the BSM may be thought of as a psychopathologic Occam's razor, allowing the estimation of the degree to which individual spectrum conditions share the same experiential background with schi-

zophrenia. Indeed, the disturbances of subjective experience have been suggested as the core component of schizophrenia spectrum disorders (13). Moreover, BS provide a fine-grained map of the first accessible phenomenonic correlate of the neurobiological disorder underlying schizophrenia (12, 14).

As far as the correlation analysis is concerned, our findings revealed that SchREL scores in schizoid and schizotypal dimensions were significantly associated with specific clusters of BS. These results support the notion that higher levels on certain personality domains are associated with enhanced proneness to subjective experiential anomalies. On the contrary, the lack of correlation between paranoid and borderline scores and BS indicated that the magnitude of these personality dimensions is not related to the self-experience of vulnerability.

Conclusions

Our research confirmed that unaffected relatives of schizophrenics show a comprehensive hypertrophy of cluster A and borderline traits (4, 7, 8). However, only the core dimensions of DSM-IV schizotypy and schizoidy are correlated with the subjective experience of schizotropic vulnerability. That is, in accordance with the BSM framework, the proneness to the disturbances of the 1st-personal givenness of experience (25) (that have been characterized in schizophrenic, psychotic prodromes and high-risk subjects) increases with the magnitude of the schizotypal and schizoid traits.

More specifically, both the degree of schizotypal and schizoid traits parallel the somatopsychic discomfort (subtended by the cenesthetic BS) in the

sense that hyperreactivity, enhanced impressionability and interpersonal irritability (i.e. Increased emotional reactivity subsyndrome) correlate with the schizoid dimension, whereas BS involving autopsychic dissonance in cognition, language, perception and agency/motricity are specific for the schizotypal component.

A speculatively intriguing and potentially important issue concerns *how* and *why* cenesthetic BS (i.e. Impaired bodily sensations) are related to both Schizoid and Schizotypal traits, while “Thought, language, perception and motor disturbances” and “Increased emotional reactivity” correlate rather selectively with Schizotypal and Schizoid scores.

The latter statistical associations are coherent from the clinical viewpoint: the hyper-sensitivity and interpersonal irritation BS and the disturbed autopsychism with subjective impression of anomalous psychic activity are rather characteristic features of schizoid and schizotypal subjects. However the concomitant correlation of schizoid and schizotypal traits with Impaired bodily sensations remains problematic.

A putative, phenomenologically-inspired explanation might be that schizoid-schizotypal traits involve a peculiar “style of bodily awareness”, characterized by the susceptibility to the bracketing of the dynamic ongoingness of somaesthetic sensations (26). This is coherent with the aberrant awareness of the body, which Meehl characterized as the psychological-experiential correlate of the “proprioceptive diathesis” of the schizotype (23, 24).

Indeed, cenesthetic BS (i.e. “disturbances of proprioception that ... appear suddenly and paroxysmally ... [and] are experienced as different and new” (20)) subtend an alteration of the sense of corporeality, permeated by an intermittent experiential distance from the naturalness of the body.

The elucidation of continuities and discontinuities between personological dimensions and schizophrenia is a promising and constantly debated topic in psychiatry.

Yet, a preliminary heuristic step might be to focus on specific personality dimensions and their modes of interaction with BS (i.e. first protopathic reverberations of the neurobiological disorder of schizophrenia). This could lead to the refinement of current schizotypic phenotypes.

Limits

Caution is warranted in the generalization of these results. Given the circumscribed aim of the study, the personality traits have been explored as unitary dimensions (that is, reductionistically assuming that latent constructs constitute the psychopathological basis which accounts for the observed associations of traits in every personality category). Further research is needed to characterize eventual sub-dimensions (i.e. sub-traits), susceptible to the refinement of the current “personological” characterization of high-risk, schizotypic phenotypes.

Additional limitations may arise as a result of methodological constraints inherent to taxonomy. The assumption, a priori, of a DSM-IV Axis II classification, could have important implications and limitations for psychopathologic analyses. Indeed, due to the SIDP-IV (19) schematic descriptive frame, a consistent amount of schizotypal and schizoid psychopathological and phenomenological complexity may be overlooked.

Despite the aforementioned limitations, the identification of subjective experiential correlates of personality dimensions seems worthwhile since they may have an important effect in terms of population at attributable risk. Moreover, the combination of personality assessment with the exploration of self-experienced vulnerability improves the predictive power to identify individuals at risk for schizophrenia for eventual early intervention.

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