

SCHIZOTYPAL ESTIMATORS IN ADOLESCENCE: THE CONCURRENT VALIDITY OF THE RISC.

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The validation of questionnaires intended to identify the position of a subject along a normal/schizotypal/schizophrenic continuum has always been problematic. Schizophrenic patients are not good at completing questionnaire, and validation has to depend on the identification of "at risk" groups. Watt Grubb & Elenmeyer-Kimling (1982) found that the adolescent offspring of schizophrenics show the negative schizophrenic symptomology of interpersonal disharmony and emotional instability. The study reported here, using a sample of 174 adolescents of both sexes, considers the validity of the Rust Inventory of Schizotypal Cognitions (RISC), a psychometric questionnaire for the positive cognitive symptoms of the schizotypal personality. It is shown that the negative schizophrenic symptoms of social dysfunction and emotional instability as measured by the Minnesota Counselling Inventory are positively and significantly correlated with positive schizotypal symptomology as measured by the RISC.

It has long been argued that the bizarre idea systems of the schizophrenic, the odd ideas of the schizotypal personality, and normal cognition lie on a continuum (Kraepelin 1919; Chapman, 1966; Heston, 1970; Spitzer, Endicott & Gibbon, 1979; Chapman & Jean, 1980). If this is the case then the position of an individual on this continuum should be psychometrically measurable, and scales or diagnostic interviews have been designed for this purpose (Baron, Asnis & Gruen, 1981; Chapman, Chapman & Raulin, 1976 & 1978; Claridge & Broks, 1984; Eysenck et al. 1985; Golden and Meehl, 1979; Rust, 1987, 1988). The validation of these scales has generally depended on either discrimination between schizophrenic and schizotypal patients and other patients or normals, or family studies which takes as their base the well established genetic risk in the relations of schizophrenics (Gottesman & Shields, 1982, Medenick, Schulsinger & Schulsinger, 1975).

But other methods are also available for obtaining estimates of schizophrenic risk. In particular clinical observation (Kraepelin, 1919) and studies (Chapman, 1966; Golden & Meehl, 1979) have demonstrated the existence of a premorbid personality with characteristics of bizarre thinking, cognitive slippage, social aversiveness, anhedonia

and ambivalence. To the extent that these characteristics lie along a continuum between normal functioning and schizotypal symptoms, the position of an individual along this continuum must include an element of probabilistic risk for those symptoms. Recently, interest in the schizotypal precursors of schizophrenia has centred on the distinction between positive symptoms (delusions, hallucinations etc) and negative symptoms (deadening of affect, cognitive deficit etc.) (Crow, 1980; Stone, 1980; McGuffin, Farmer & Gottesman, 1986), and the link between this form of risk estimator and genetic risk has now been fairly well established for the negative symptoms (Gunderson & Siever, 1985).

However, the role of the positive symptoms remains a matter of some interest, as it is these positive characteristics of the schizotypal personality which have provoked most interest at the theoretical level. The positive symptoms are associated with idiosyncratic idea systems, and many of the idea systems of the adult have their basis in adolescence. Fromm (1946) and Rogers (1957) are among many who have emphasized the role of adolescence in the development of personal identity, while Laing (1959), Erikson (1968) and Aaronson (1977) have further postulated processes of existential growth of awareness which can sometimes develop atypically and lead to mental illness in the adult. These theories all predict that that, prior to breakdown, schizophrenic and schizotypal personality disordered patients will have exhibited an atypical personality in adolescence, this taking the form of a tendency towards the schizotypal end of any continuum associated with schizophrenic symptomology.

Watt et al. (1982) have demonstrated a higher score on various measures of the negative symptoms of interpersonal disharmony and emotional instability in the adolescent offspring of schizophrenic parents. The present study looks at the relationship between the tendencies towards positive and negative symptomology in adolescents.

METHOD

SUBJECTS

Subjects were 174 Hong Kong English speaking pre- University students from four English medium schools in Hong Kong. There were 86 boys and 88 girls. The mean age of the sample was 18.20 years (s.d. = .91).

QUESTIONNAIRES

The Minnesota Counselling Inventory (MCI) (Berdie & Layton, 1957) was used to identify the characteristics of interpersonal disharmony and emotional instability identified by the Watt et al. study. The MCI has been derived from the MMPI to provide a method for teachers, counsellors and others working with high school age

youth and college freshmen to acquire information about the personality dynamics, structure and problems of young people. The inventory is designed to identify students in need of therapeutic attention and to sensitize counsellors to students' problems. The validity of the MCI has been demonstrated in a number of situations (Frederisken, 1965). The subscales of conformity, social relations, mood and emotional instability were used in the present study. The test-retest reliabilities of these four scales have been shown to be about .75, .85, .80 and .72 respectively.

The Rust Inventory of Schizotypal Cognitions (RISC) (Rust, 1987, 1988a, 1988b; Rust, et al, 1988) is a short psychometrically constructed questionnaire for tapping the positive cognitive symptomology of the schizotypal dimension in the normal population. It takes as its source the idiosyncratic ideas of those who are seen to be schizotypal or eccentric; DSM-III category A of schizophrenia and DSM-III(R) categories I to 9 (excluding 2,6 & 8) of schizotypal personality disorder (American Psychiatric Association, 1987). These schizotypal ideas form the extremes of the cognitive schemata of suspicion, magical ideation, ritual, subjectivity, thought isolation, and self delusion which are not uncommon in the normal population. The RISC is 26 items long (13 positive and 13 negative) and is normally distributed in the general population. It has a test-retest reliability of .88, and has shown a high level of discrimination between a group of acute schizophrenic presenters at psychiatric hospitals and clinics, and normal controls. Indeed, about two out of every three acute schizophrenic presenters score more than one standard deviation above the general population mean. The RISC has been standardized on a normal population to eliminate extreme items associated in the public mind with "mad" behavior, and no items in the RISC are rejected or accepted by less than 20% of the normal population. It thus overcomes the major problem found in most scales of its type, where items are often too obviously "mad" to be taken seriously by the normal population. The RISC for example has the item "Sometimes my thoughts seem so loud I can almost hear them", rather than "I sometimes hear imaginary voices".

PROCEDURE

The subjects were given the two questionnaires to complete within the school setting and were asked to answer every question. Testing took place in classes of about thirty. A 120 item intermediate version of the RISC was administered, but only scored for the 26 items of the final version. All scales and subscales were scored in such a direction that a higher score represented a problem.

RESULTS

The mean RISC for the group was 39.24 (s.d. = 5.39). This is slightly above the population mean for the sample on which the RISC was constructed (mean = 35.67, s.d.

= 7.67), although very considerably below that for the validation group of acute schizophrenic presents (mean = 47.80, s.d. = 9.87) (Rust, 1987). The higher mean score may be due to the lower age of our group, as the RISC has been shown generally to correlate negatively with age, although there was no significant correlation with age within the narrow age range of sample ($r = .03$, n.s.). The smaller standard deviation may be due to the high homogeneity of the sample. There were no sex differences for the RISC ($r = -.01$, n.s.). The means for the versions of the MCI subscales used were: conformity, mean = 14.63, s.d. = 3.53; social relations, mean = 27.79, s.d. = 10.12; mood, mean = 20.57, s.d. = 5.51; and emotional instability, mean = 20.15, s.d. = 6.95. For the MCI, there were no sex differences for any of the subscales, and only emotional instability correlated with age ($r = .20$, $p < .01$).

The correlations between the RISC and the four MCI subscales appear in table 1. It can be seen that the RISC correlates significantly with all of the MCI subscales. The size of the correlations shows that high RISC scorers are particularly high on emotional instability and non-conformity, but correlations with low mood and poor social relations are also significant at the .001 level.

DISCUSSION

It thus seems that those adolescents who exhibit evidence of a predisposition towards the negative symptomology of schizophrenia as measured by the MCI also exhibit evidence of predisposition towards positive schizotypal symptomology as measured by the RISC. Those with a higher degree of positive schizotypal symptomology are found during late adolescence to have poor social relations and poor emotional stability.

As all measures in the present study were self report it could be argued that correlations between subscales might be artifactual for a number of reasons. In

TABLE 1: CORRELATIONS BETWEEN THE RUST INVENTORY OF SCHIZOID COGNITIONS (RISC) AND THE FOUR SUB-SCALES OF THE MINNESOTA COUNSELLING INVENTORY (MCI)

		<i>SR</i>	<i>M</i>	<i>EI</i>	<i>RISC</i>
<i>(NC)</i>	<i>Non-Conformity</i>	.06ns	.25***	.40***	.40***
<i>(SR)</i>	<i>Poor Social Relations</i>		.57***	.38***	.26***
<i>(M)</i>	<i>Low Mood</i>			.53***	.27***
<i>(EI)</i>	<i>Emotional Instability</i>				.45***

*** $p < .001$

some studies using correlations between self report data, artifacts can be produced from common effects of acquiescence or response bias. However the RISC was specially

constructed to eliminate such effects, having the same number of affirmative as negative responses associated with a high RISC score, so this cannot be responsible for any relation here. Another reason for possible artifacts can be item contamination across the scales. For example a statement "I am anxious that people may be following me" contains the key concepts of both neuroticism ("I am anxious") and paranoia ("people are following me"), and any correlations between neuroticism and paranoia when a paranoia scale contained such an item would be an item level artifact. However; this form of random artifact in the items should cancel out as scale length increases. In the present study the size of the effects found is sufficiently large to discount any artifact of this type. Further evidence about such bias comes from a comparison of the content validities of the two scales. The RISC, having been constructed on the basis of positive symptomatology, has no obvious overlap with the items of the MCI, which examines the negative characteristics. Inspection of the items from correlated scales and sub-scales shows that there is no evidence of an item bias artifact.

It could further be argued that schizoid and paranoid scales already exist in the MMPI, and the relations between these scales and other MMPI scales are well known. However the RISC differs considerably from any MMPI scale in its conception, construction and validation. As a scale dealing with cognitive content and style, it has no items dealing with deficit aspects, and in particular the negative symptoms, of schizoid behavior. These negative symptoms form a common pool across MMPI subscales in any patient sample, giving each scale therein a "healthy" and a "sick" pole. The RISC on the other hand has been standardized on a normal population in such a way as to minimize bias towards the "right" answer, the "good" answer and the "sane" answer. It should be remembered that no items in the RISC are rejected or accepted by less than 20% of the normal population. There are no items which are obviously right or wrong, healthy or sick.

It could be argued that estimation of risk for schizophrenia can only be based on biological or genetic studies, as with the Watt et al. study, and not from questionnaires. However this is by no means as self evident as it may seem. The diagnostic process itself is conceptually related to risk estimation, the specific symptoms increasing the probability of a positive diagnosis being made. Therefore, to the extent that questionnaire items are projections of continua based on the presence of absence of symptoms, they too are estimators of risk. The ultimate test of the power of a risk estimator will be based on the extent to which it is able to make successful prediction and not on any a priori assumptions about the etiology of schizophrenia.

There is no clear reason why individuals with idiosyncratic ideas systems (i.e., with high RISC scores), should be poor on social relationships or be emotionally unstable, although the relationship between schizophrenia itself and these latter variables is known. While there is no necessary connection between prediction of the positive symptoms of schizophrenia and prediction of the negative symptoms, the present study

does find such a relationship. Causal extrapolation is not possible without further data, but there is no obvious reason why negative symptoms should cause positive ones, while several theorists (e.g. Erikson, 1968) have ascribed an important role in adult mental health to the development of complex cognitive systems such as personal identity during adolescence. Beck et al. (1979) has suggested that in the related illness of depression, complex cognitions may have a causative role in the behavioral, motivational and mood aspects of that condition. Clearly much more work is required in the investigation of the role of premorbid schizotypal cognitions in the development of schizophrenia, and, in particular, further examination within a longer term study of possible causative links between premorbid positive and negative symptoms would be of considerable interest.

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