Brit. J. Psychiat. (1981), **139**, 523–525

Anhedonia and Schizophrenia

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Summary: Data from Chapman's anhedonia and perceptual aberration scales are presented for groups of schizophrenics and hospital staff control subjects. Differences between the two groups are found for both anhedonia scales and for the perceptual aberration scale, but the difference for physical anhedonia is only marginally significant. The anhedonia scales do not differentiate between the two groups sufficiently well to be useful diagnostically.

Rado (1956) proposed that 'anhedonia', the loss or absence of the ability to experience pleasure, might be a central feature of schizophrenia. Meehl (1962) subsequently adopted this suggestion, and listed anhedonia as one of the four 'cardinal' symptoms of schizophrenia. Because the schizophrenic fails to find relationships with others at all enjoyable, he withdraws from social contacts, and tends instead to inhabit a private irrational world of his own. Other researchers have suggested biochemical bases for anhedonia (Wise and Stein, 1973).

The first experiment on anhedonia was reported by Chapman *et al* (1976), who designed questionnaires of social and physical anhedonia and administered them to 121 schizophrenics and 241 normal controls. Physical anhedonia covered a wide variety of pleasures —e.g. admiring the beauty of sunsets, eating, drinking, singing, being massaged. 'Social anhedonia' covered all pleasures derived from having friends and being with other people.

Using these questionnaires Chapman *et al* were able to show that schizophrenics had significantly higher social and physical anhedonia scores, confirming the opinion of Rado and Meehl that they enjoy themselves less. Meehl (1975) put it more picturesquely, "Some men are just born three drinks behind". There was however considerable overlap between the range of normal and schizophrenic anhedonia scores, indicating that the anhedonia scales would have little diagnostic value used alone.

Subsequent research with the scales has shown that normal college students with high anhedonia scores are less socially skilled (Haberman *et al*, 1979) and produce significantly more schizophrenic-like Rorschach responses (Edell and Chapman, 1979). Penk *et al* (1979) found that the anhedonia scales correlate with the Social Introversion scales of the MMPI and with the DSM II diagnostic category 'schizophrenia, latent type'.

The aim of the present research was to apply the anhedonia scales to a sample of British schizophrenic patients and to try to relate anhedonia scores to symptom patterns. It was predicted that anhedonic patients would be most likely to exhibit symptoms of apathy and withdrawal.

In addition, Chapman *et al's* (1978) perceptual aberration scale was used. This consists of 35 items: 16 somatic delusional symptoms such as, "Parts of my body occasionally seem dead or unreal", 11 feelings of unreality such as "I sometimes have to touch myself to make sure I'm still there", and eight other perceptual changes such as, "For several days at a time I have such a heightened awareness of sights and sounds that I cannot shut them out". The modal score obtained by undergraduate subjects completing this scale is zero. It is included to demonstrate that the schizophrenic sample do manifest some obvious schizophrenic behaviour and that the control group do not.

Method

Subjects

Fifty-two schizophrenic patients at a large psychiatric hospital, 26 male and 26 female, were tested. Twenty-nine were acute admissions or readmissions within the previous six months; twenty-three had been discharged more than three years previously but were presently attending industrial therapy within the hospital. The ages ranged from 21 to 83 years. The criterion for inclusion in the schizophrenic group was the diagnosis of a consultant psychiatrist, as recorded in the case notes.

There were 102 control subjects—nursing and other staff at the hospital.

Measures

The 66 item version of the physical anhedonia scale, the 47 item social anhedonia scale and the 35 item

perceptual aberration scale were administered. Two control scales were also used. The first was a 17 item infrequency scale, adapted by Chapman *et al* from Jackson's (1974) Personality Research Form; the items, such as, 'I have never combed my hair' or, 'I visited Easter Island last year', are intended to pick out subjects who are not paying attention or not taking the test seriously. The second control scale was the 21 item social desirability scale of the Eysenck Personality Questionnaire, rephrased for 'true/false' answers to match Chapman *et al's* scales.

The control subjects completed copies of the questionnaire anonymously and returned them to a box in the nursing office. For the schizophrenic subjects, a card format was adopted, in which the experimenter (F.S.) tested each subject individually, presented each item in turn, asked the subject to read it aloud, and then place it in a 'true' or 'false' box.

Results

Controls

Fifteen male and three female control subjects scored more than 3 on the infrequency scale, and their results were discarded. From the remainder 26 male and 26 females were selected to match as closely as possible the age and education levels of the 52 schizophrenic subjects. Mean scores for the three scales are given in Table I. Two way analyses of variance were calculated for each scale, in which the factors were sex and diagnostic category (schizophrenic or normal).

Physical anhedonia

A main effect of diagnostic category was found, showing a significant tendency ($F = 2.87$, $df = 1/100$, $P < .05$, one-tailed) for schizophrenics to have higher physical anhedonia scores. No main effect of sex was found, and no interaction between the two factors. However, inspection of the data revealed that the control female group had a considerably higher variance than the other groups; for this reason, t tests were calculated comparing male and female subjects separately. A significant difference was found between male schizophrenics and male controls ($t = 2.08$, $df = 50$, $P < .05$), but not between female schizophrenics and female controls.

Social anhedonia

A significant effect of diagnostic category was found ($F = 12.75$, $df = 1/100$, $P < .001$); schizophrenics had higher social anhedonia scores than controls. No main effect of sex was found and there was no interaction. The variances of the four groups were approximately equal.

Perceptual aberration

A main effect of diagnostic category was found. As expected the schizophrenic scores were significantly higher ($F = 39.74$, $df = 1/100$, $P < .001$) than the controls. No significant main effect of sex was found, and there was no interaction.

Symptom patterns

The schizophrenic case histories were examined for reports of five types of symptom. Fifteen patients had exhibited paranoid symptoms, 13 were described as apathetic or withdrawn, 26 were hallucinated or deluded, 14 had been aggressive or violent and 14 were thought-disordered or had impaired concentration. Each of these sub-groups was compared with the remaining schizophrenics for anhedonia and perceptual aberration scores using independent t tests; no significant difference was found in any comparison.

Discussion

The results show that Chapman *et al's* anhedonia and perceptual aberration scales can be used with British schizophrenics, who, as predicted, score higher on all three scales. However, the results show that physical anhedonia scores are only slightly higher in schizophrenics, and that for females the difference is not significant. For social anhedonia a larger difference is found. As in Chapman *et al's* (1976) research, the overlap between schizophrenics and

TABLE

Anhedonia and perceptual aberration scores for schizophrenics and controls

	Schizophrenics			Controls		
	All	Male	Female	All	Male	Female
Physical anhedonia	21.9	21.2	22.6	18.6	16.7	20.4
Social anhedonia	17.1	18.2	16.1	12.7	13.0	12.4
Perceptual aberration	12.7	13.4	12.1	4.8	5.0	4.6

controls is so great as to make the scales unhelpful for diagnostic purposes.

Using the data of the controls, it was possible to give a rough estimate of the power of the three scales to detect abnormal patterns in schizophrenics. The mean physical anhedonia score of the controls was 19.1 (SD 13.2); no schizophrenic scored more than 2 SDs above the control mean.

For the social anhedonia scale, the mean for the controls was 12.8 (SD 7.2); four schizophrenics scored more than 2 SDs above the control mean, and 18 scored more than 1 SD above this mean. In other words, only four of the 52 schizophrenics had obviously abnormal social anhedonia scores, while another 18 had scores in the top 13 per cent of the normal range.

The anhedonia scales were not devised as diagnostic aids, but to test the theory of Meehl and others that anhedonia is a 'cardinal symptom' in some schizophrenics; the present results, like those of Chapman *et al* (1976), offer limited support to this hypothesis.

Two limitations must be noted however. In the first place it is disappointing that no link between anhedonia scores and type of schizophrenic symptom was discovered. It is likely that a more systematic study of symptom patterns, using an instrument such as the Present State Examination (Wing *et al*, 1967) would give clearer results; the case histories used in the present research were not collected with research in mind. Secondly the results allow the possibility that the higher anhedonia scores observed in some schizophrenic patients are an effect of the illness, not one of its main causes. It could be argued that being mentally ill, or being known to be mentally ill, deprives the patient of many of the opportunities to meet people or do things listed in the anhedonia scales. However, comparison of the acute admission group with out-patients attending industrial therapy failed to show any significant difference in either social or physical anhedonia scores, although it might be predicted that the discharged group would have more time to develop secondary symptoms. In order to prove that anhedonia precedes and possibly causes schizophrenia, one would need to study subjects at high risk to develop schizophrenia before their first psychotic episode.

Acknowledgements

We would like to thank Professor Loren J. Chapman for supplying copies of his scales, and Dr T. R. Davies and the staff of Cefn Coed Hospital for their help in conducting this research.

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(*Received 1 May; revised 5 June 1981*)