Brit. J. Psychiat. (1979), **134**, 602–8

Relationship Between Cognitive Defect, Affect Response and Community Adjustment in Chronic Schizophrenics

By GEORGE SERBAN and CHRISTINA B. GIDYNSKI

SUMMARY The relationship between mental status and community adjustment has been examined in 100 outpatient chronic schizophrenics. Sixty-six per cent presented at least one of the signs of Schneiderian First Rank Symptoms, which, however, failed to discriminate the diagnostic subgroups. Total adjustment correlated with total mental status and appeared to differentiate the diagnostic subclassifications of schizophrenia. From the major components of mental status, anxiety and depression appear to be significantly correlated with the functioning and stress of the individual in community adjustment while primary symptoms are only peripherally correlated with adjustment.

Introduction

The concept of schizophrenia and the criteria for its diagnosis underwent continuous modification since its description by Kraepelin (1919) and by Bleuler (1911). Because schizophrenia has always been considered to have a poor prognosis attempts have been made to establish the specific symptomatology which differentiates it from other psychoses. Langfeldt's (1937) separation of true schizophrenia from reactive psychosis fell short of identifying the proper position of the schizo-affective psychoses in the schizophrenia spectrum (Serban, 1975a). On the other hand, K. Schneider (1959) defined schizophrenia as based on a strict set of symptoms called First Rank Symptoms free of any theoretical assumptions. However, the difficulty in diagnosis persists as attested to by the differences between American and British psychiatrists in differentiating schizophrenia from manic-depressive illness (Kuriansky *et al*, 1974). Even in the U.K. Hay and Forrest (1972) indicated that other psychoses are often included under the term schizophrenia. There is no question that Schneiderian first rank symptoms define schizophrenia in more precise terms than other classifications, yet in the post-hospitalization period it appears that it is the greater variability of symptomatology which calls into question the validity of the Schneiderian criteria for diagnosis.

The first question to be posed is to what extent is there a permanent residual psychological deficit in schizophrenic patients after the period of hospitalization, particularly since thought disorder can also occur in non-schizophrenics (Harrow and Quinlan, 1977)? Various studies, *inter alia* Harrow *et al* (1973); Astrachan *et al* (1974) and Huber *et al* (1975), found that after discharge from hospital patients continue to suffer from mental symptoms in spite of continued treatment. However, these workers did not specifically examine their patients for Schneiderian first rank symptoms. It has been observed that schizophrenic patients, in addition to thought disorder, may suffer from a depressive state which may last for a period of 3 to 16 months after the acute phase has subsided (Kayton, 1973; Roth, 1970; McGlashan and Carpenter, 1976a).

With these considerations in mind it should be established which symptoms are most characteristic in schizophrenic patients after their discharge from hospital and to determine which elements of mental status of schizophrenic patients become more prominent during their community adjustment.

If the residual mental deficit affects the

https://doi.org/10.1192/bjp.134.6.602 Published online by Cambridge University Press

patients' community integration, then it would be of interest to find out whether the diagnostic subclassifications play an additional part in it. For instance, Zigler and Levine (1973) indicated that paranoid schizophrenics have a more favourable prognosis than other schizophrenic patients, owing to their more integrated ego functioning, while episodic schizo-affective patients have the most favourable prognosis of all (Angst, 1966; Astrup *et al*, 1962; Hay and Forrest, 1972).

In view of these controversial data about the contribution of specific aspects of the symptomatology to the adjustment of schizophrenic patients in the community, a study was undertaken at the New York University Bellevue Medical Center to clarify the following issues: (1) The significance of Schneider's first rank symptoms in the diagnosis of ambulant schizophrenic patients; (2) The relationship between measures of major components of mental status and functioning and stress of schizophrenic patients residing in the community; (3) The significance of diagnostic subclassifications for the level of functioning, reaction to stress and total adjustment of patients and (4) The contribution of specific cognitive, affective and behavioural impairments for the community adjustment of the patients.

Method

Sample

The subjects were 100 out-patient chronic schizophrenic patients attending at Bellevue Hospital and Fountain House. All the patients had received aftercare treatment for a minimum of one year prior to the study. The mean duration of in-patient treatment was 8.6 months; the mean number of admissions to hospital was 3.9. All the patients had been diagnosed as schizophrenic according to DSM II criteria (American Psychiatric Association, 1961) and the diagnoses were independently confirmed by the project psychiatrist. Alcoholic, drug addicted and mentally retarded patients with a secondary diagnosis of schizophrenia were not included in the sample.

Of the 100 subjects, 50 were diagnosed as undifferentiated, 26 paranoid, 22 schizo-affective and 2 latent schizophrenia. The average age was 38.7 years and the mean educational level was 11.3 years. Fifty-one patients were male and 49 female; 67 were white, 23 Black and 10 Puerto Rican; 59 were single, 34 separated or divorced, 8 married and 9 widowed. By occupation 44 were blue collar workers, 21 white collar employees, 10 held semi-professional or administrative positions, 18 were housewives or students and 7 had never been employed. At the time of the study 69 of the subjects received welfare assistance, 4 were never employed, 4 each were housewives and students on family support. Only 3 were employed full-time, 12 had part-time supplemental work and 4 regular part-time positions. All the patients were receiving psychoactive drugs during the study, but none were treated with long-acting injections of fluphenazine.

Technique of measurement

The mental status of the patients was evaluated by means of the Psychiatric Assessment Interview (PAI) derived by Carpenter *et al* (1976) from the eighth edition of the Present State Examination (World Health Organization, 1973). This structured interview consists of three scales: (1) Signs and symptoms based on 117 questions covering 39 symptom areas; (2) psychiatrist's evaluation of aberrant perceptual and bizarre ideational experiences of the patient, and (3) ratings based on 83 items of behaviour observed during the interview period. A fourth scale, developed for the present study, was that of total mental status representing average ratings across the three sections of the above instrument. The PAI evaluations were made over a one-month period.

The patients' current community adjustment was assessed by means of two instruments: The Structured and Scaled Interview to Assess Maladjustment (SSIAM) (Gurland *et al*, 1972a, 1972b) and the Social Stress and Functioning Inventory for Psychotic Disorders (SSFIPD) (Serban, 1975b, 1978). The SSIAM measures maladjustment in terms of deviant behaviour, distress and friction with others. The test evaluates five major fields of life adjustment: work, social life/leisure, family, marriage and sex. Each of the subtests of the interview is scored on an 11-point scale with higher scores

https://doi.org/10.1192/bjp.134.6.602 Published online by Cambridge University Press

indicating greater maladjustment. The behaviour assessed by the SSIAM is restricted to the past four months.

The SSFIPD is a structured interview providing a comprehensive measure of psychosocial functioning and associated stress in four major areas (covering 21 dimensions) fully described elsewhere (Serban, 1975b, 1978). The major areas covered by the instrument are: instrumental performance, family interaction, social-interpersonal interaction, and social maladaptive activities. The stress scale measures the degree of upset, distress and worry about the inability to meet social and self-imposed demands. The functioning and stress sections of the SSFIPD are scored on a three-point scale with higher scores indicating higher functioning but lower stress.

Each subject in the study was given the three measures in the same order and on the same day. The PAI was administered to each patient by the project psychiatrist; the project psychologist administered the SSIAM and a social worker evaluated the patient by means of the SSFIPD. No interviewer was aware of any other information collected by the others in order to reduce bias.

The raw ratings obtained for the three instruments were converted into mean scores which were then used in all subsequent statistical analyses. The PAI yielded four scores: Signs and symptoms, evaluation of perceptual and ideational aberrations, observed behaviour and total score. Two types of scores were derived from the SSIAM: the first was based on type of item (deviant behaviour, friction and distress) computed across five fields of maladjustment; the second, representing five areas of maladjustment across the three types of items as suggested by Gurland *et al* (1972a). Two scores were derived from the SSFIPD: total social functioning score, representing a mean score based on ratings across 21 dimensions of psychosocial functioning and total stress score, a mean score obtained for 21 stress dimensions.

Results

The first step in data analysis was to determine the presence of Schneiderian first rank symptoms (FRS). We found the symptoms to be present in 66 of the 100 patients. In 34 patients FRS were not present, although in 32 of these we found thought disorder identified as idiosyncratic speech, and/or second rank symptoms. At the other end of the spectrum 10 patients had the highest FRS scores. The scores for FRS derived from the PAI range from 1 to 3 points and in our sample the scores ranged from 1.10 to 2.02 points. To test the distribution of FRS within the diagnostic subclassifications of schizophrenia we divided the FRS scores at the median into high and low scores and tested the arrays in the diagnostic subclassifications of undifferentiated, paranoid and schizo-affective patients. A chi-square test on these data yielded a non-significant value.

To answer the second question we correlated mental status variables with the various adjustment indicators as shown in Table I. Reported mental status correlated significantly with all adjustment measures used except the SSIAM deviant behaviour score. Thus, reported mental status correlated significantly with the SSIAM friction score and with the distress score. The SSFIPD measure of functioning correlated significantly with current signs and symptoms and with total stress. The negative correlations are due to the fact that the mental status functioning and stress scores measure severity in inverse relationship. The reported mental status has also been found to correlate significantly with total adjustment of SSIAM and with social life/leisure and family interaction areas.

The relationship between the psychiatrists' evaluation of the patients' symptoms, perceptual and ideational aberration, and the various indices of adjustment is less impressive. Both functioning and stress scores derived from the SSFIPD correlated significantly with the psychiatrist's ratings as did the SSIAM distress score.

It is of interest to note that the behaviour observed during the interview did not correlate significantly with any of the adjustment measures. The correlations obtained for the total mental status score are relatively high since this measure encompasses all sections of the PAI.

To determine whether adjustment levels differ among the various subtypes of schizophrenia a one-way analysis of variance was

https://doi.org/10.1192/bjp.134.6.602 Published online by Cambridge University Press

done using the various SSIAM adjustment indicators as shown in Table II. Results indicate that undifferentiated schizophrenics obtained consistently higher scores on Deviant Behaviour, Friction, and Total Maladjustment as compared with the intermediate scores obtained by paranoid schizophrenics and the lowest scores were manifested by the schizo-affective patients.

To determine the unique contribution of the specific clusters of signs and symptoms to the patients' level of functioning and reported stress, stepwise regression analyses were performed using mental status symptom clusters as independent variables. Total functioning and stress scores derived from the SSFIPD were used as dependent variables since they represent a more comprehensive measure of adjustment

TABLE I

Correlations of PAI mental status scores with the SSIAM and the SSFIPD adjustment scores

	Signs and symptoms (Mental status reported)	Psychiatrist's evaluation	Observed behaviour	Total score
SSIAM:				
Deviant behaviour	+.19	+.10	+.16	+.21*
Friction	+.24*	+.20	+.16	+.28**
Distress	+.47**	+.31**	−.01	+.41***
SSFIPD:				
Total functioning	−.43***	−.29**	−.13	−.42***
Total stress	−.48***	−.24*	+.02	−.41***

Correlations of PAI mental status scores with the SSIAM area maladjustment and total maladjustment scores

	Signs and symptoms (Mental status) reported)	Psychiatrist's evaluation	Observed behaviour	Total score
Social life/leisure	+.44***	+.29**	+.20	+.45***
Family	+.32**	+.20	+.07	+.30**
Sex	+.22	+.19	−.10	+.15
Total maladjustment	+.30**	+.18	+.14	+.30**

* P < .05 ** P < .01 *** P < .001

TABLE II

Means, standard deviations and analyses of variance of deviant behaviour, friction and distress scores for diagnostic subgroups

Diagnostic type	Deviant behaviour				Friction			Distress			Total adjustment		
	N	Mean	SD	F	Mean	SD	F	Mean	SD	F	Mean	SD	F
Undifferentiated	50	7.28	1.48		6.04	1.20		4.48	1.09		6.37	1.08	
Schizoaffective	22	6.11	1.70	3.23*	4.21	1.49	10.13***	4.14	1.25	0.56	5.39	1.37	3.62**
Paranoid	25	6.61	1.53		5.86	1.35		4.28	0.97		5.90	1.17	

* P < .05 ** P < .02 *** P < .001

https://doi.org/10.1192/bjp.134.6.602 Published online by Cambridge University Press

TABLE III

Stepwise regression statistics for predicting total stress

Variable	Multiple R	Multiple R^2	Increases in R^2
Anxiety (A)	−.597***	.357	
Somatic symptoms (SS) + (A)	−.624***	.390	.033
Ideas of reference (IR) + (SS) + (A)	−.629***	.395	.005
Auditory/Visual hallucinations (AVH) + (IR) + (SS) + (A)	−.633***	.401	.006
Other hallucinations (OH) + (AVH) + (IR) + (SS) + (A)	−.635***	.403	.002
Derealization (D) + (OH) + (AVH) + (IR) + (SS) + (A)	−.636***	.405	.002

Note: N = 100 *** P < .001

TABLE IV

Stepwise regression statistics for predicting total functioning

Variable	Multiple R	Multiple R^2	Increase in R^2
Depression (D)	−.413***	.171	
Behaviour (B) + (D)	−.470***	.221	.050
Anxiety (A) + (B) + (D)	−.501***	.251	.030
Derealization (DE) + (A) + (B) + (D)	−.514***	.264	.013
Delusions (DS) + (DE) + (A) + (B) + (D)	−.524***	.275	.011
Insight (I) + (DS) + (DE) + (A) + (B) + (D)	−.533***	.284	.009
Mania (M) + (I) + (DS) + (DE) + (A) + (B) + (D)	−.539***	.290	.006
Auditory/Visual hallucinations (AVH) + (M) + (I) + (DS) + (DE) + (A) + (B) + (D)	−.543***	.295	.005

Note: N = 100 *** P < .001

than that provided by the SSIAM. Results are shown in Tables III and IV. Examination of Table III reveals that in our sample anxiety served as a most significant predictor of measured stress, accounting for 35.7 per cent of the total variance. Addition of somatic symptoms to the prediction equation resulted in the increment of 3.3 per cent of the explained variance. The remaining variables accounted for minimal fraction of the total variance. Use of all 13 clusters of signs and symptoms accounted for 40.8 per cent of the total variance in this analysis.

In the prediction of total functioning (see Table IV) depression assumed the most significant position, accounting for 17.1 per cent of the total variance. Addition of the observed behaviour variable and anxiety explained 25.1 per cent of the variance. Lack of insight, manic symptoms and hallucinations contributed minimally to the prediction of functioning. Inclusion of all 13 clusters of mental status accounted for 30 per cent of the total functioning variance which is well within acceptable levels for this type of data.

Discussion

Our stringent diagnosis, based on Schneiderian first rank symptoms indicates that 66 per cent of the subjects manifested thought disorder during the period of observation and only 14 per cent appear to be free of gross perceptual and ideational aberrations. However, only two of the 34 patients were free of idiosyncratic speech defined as thought disorder by C. Schneider (1942) and Fish (1962). This supports the findings of Harrow *et al* (1973) and lends further support to the association of FRS with chronic schizophrenia. Although Robins and Guze (1970) found a correlation between FRS and poor prognostic signs, other investigators (Abrams and Taylor, 1973) were unable to

https://doi.org/10.1192/bjp.134.6.602 Published online by Cambridge University Press

validate these findings. Mellor (1970) also questions the importance of FRS in identifying poor prognosis.

The second part of the results points to a close relationship between mental status of the patient and his ability to function socially. This is reflected in the strong association found between mental status and most of the measures of psychosocial functioning, stress and total adjustment. The non-significant correlation obtained for the deviant behaviour measure may well be due to the fact that this variable was tested in only three of the five maladjustment areas. The failure of observed behaviour to correlate with social adjustment is probably due to the impressionistic nature of these items as reflected in their low reliability (Carpenter *et al*, 1976). Furthermore, total adjustment not only correlated with total mental status but also appeared to differentiate diagnostic subclassifications of schizophrenia whereas FRS failed to discriminate the diagnostic subgroups.

Our data were unable to support the contention of Zigler and Levine (1973) that chronic paranoid schizophrenics have higher adjustment than other subtypes. We have found that paranoid schizophrenics respond more poorly to stress and appear less well adjusted than the schizo-affective patients.

The association between depressive symptomatology and social functioning level is of interest. This finding suggests that chronic schizophrenics in the community tend to be depressed and not, as usually thought, indifferent to their social condition. Their depression differs somewhat from depression identified in the literature as post-psychotic depression (McGlashan and Carpenter, 1976b). In our patients depression was characterized more by a sense of helplessness and bleak future outlook and less by feelings of emptiness and apathy. It appears that schizophrenic patients in the community are aware of their marginal functioning though they are not always able to link it to their mental condition. Observed behaviour during the interview added little information regarding social functioning of the patients, apparently because it tapped only a brief sample of their behaviour under the conditions of the interview.

A different picture emerges when we look at the items associated with stress. Anxiety is the most prominent feature of the residual psychiatric disorder. This finding suggests that the reported stress incurred in the patients' daily activities finds its counterpart in anxiety. Although this association between stress and anxiety has been frequently observed and taken for granted in explaining or describing stress, it was not experimentally demonstrated owing to the lack, until recently, of a direct measurement of stress. Anxiety which is responsible for disrupting behaviour and functioning, is attributed by the patient to stress. This is due to the fact that stress itself is seen by the patient as a result of the cognitive appraisal of a threatening situation and as such is anxiety producing. It therefore appears that schizophrenic patients have difficulty in identifying the factors responsible for their distorted appraisal of reality. They experience anxiety in response to coping with daily events of their lives and they become depressed when they perceive the results as unsatisfactory.

The somatic symptoms variable of mental status was also strongly related to stress and has always been associated with the response to stressful situations as a form of internalization of anxiety.

These findings shed a new light on the controversy regarding the prognostic value of mental status which has been discussed elsewhere (Serban, 1975c). It appears that after discharge from hospital the residual cognitive deficit will interfere with the ability of patients to cope with stress, resulting in either mental decompensation or the appearance of other mental disturbances. In this context, anxiety and depression could be considered to be exacerbated affective responses to the patients' cognitive mental deficit.

The significance of these data have not only practical value for the treatment of the schizophrenic patients in the community but also for the broadening of our understanding of some aetiological aspects of the disease.

References

ABRAMS, R. & TAYLOR, M. (1973) First rank symptoms, severity of illness and treatment response in schizophrenia. *Comprehensive Psychiatry*, **14**, 353–5.

https://doi.org/10.1192/bjp.134.6.602 Published online by Cambridge University Press

AMERICAN PSYCHIATRIC ASSOCIATION (1968) *Diagnostic and Statistical Manual of Mental Disorders*. 3rd Ed., DSM II. Washington D.C.

ANGST, J. (1966) *Zur Atiologie und Nosologie Endogener Depressiven Psychosen*. Berlin-Heidelberg: Springer-Verlag.

ASTRACHAN, B. M., BRAUER, L., HARROW, M. & SWARTZ, C. (1974) Symptomatic outcome in schizophrenia. *Archives of General Psychiatry*, **31,** 155–60.

ASTRUP, C., FOSSUM, A. & HOLMBEE, R. (1962) *Prognosis in Functional Psychosis*. Springfield, Ill.: Charles C. Thomas.

BLEULER, E. (1911) *Dementia Praecox or the Group of Schizophrenias*. New York: International Universities Press, 1950.

CARPENTER, W. T., STRAUSS, J. S. & BARTKO, J. J. (1974) The diagnosis and understanding of schizophrenia. Part I. Use of signs and symptoms for the identification of schizophrenic patients. *Schizophrenia Bulletin*, Issue No. II, Winter.

—— SACKS, M. H., STRAUSS, J. S., BARTKO, J. J. & RAYNER, J. (1976) Evaluating signs and symptoms: comparison of structured interview and clinical approaches. *British Journal of Psychiatry*, **128,** 397–403.

FISH, F. (1962) *Schizophrenia*. Bristol: John Wright.

GURLAND, B. J., YORKSTON, N. J., STONE, A. R., FRANK J. D. & FLEISS, J. L. (1972a) The Structured and Scaled Interview to Assess Maladjustment (SSIAM). I. Description, rationale and development. *Archives of General Psychiatry*, **27,** 259–63.

—— —— GOLDBERG, K., FLEISS, J. L., SLOANE, R. B. & CRISTOL, A. H. (1972b) The Structured and Scaled Interview to Assess Maladjustment (SSIAM). II. Factor analysis, reliability and validity. *Archives of General Psychiatry*, **27,** 264–7.

HAY, A. J. & FORREST, A. D. (1972) The diagnosis of schizophrenia and paranoid psychosis; an attempt at clarification. *British Journal of Medical Psychology*, **45,** 233–41.

HARROW, M., HARKAVY, K., BROMET, E. & TUCKER, G. J. (1973) A longitudinal study of schizophrenic thinking. *Archives of General Psychiatry*, **28,** 179–82.

—— & QUINLAN, D. (1977) Is disordered thinking unique to schizophrenia? *Archives of General Psychiatry*, **34,** 15–21.

HUBER, G., GROSS, G. & SCHUTTLER, R. (1975) A long-term follow-up study of schizophrenia: Psychiatric course of illness and prognosis. *Acta Psychiatrica Scandinavica*, **52,** 49–57.

KAYTON, L. (1973) Good outcome in young adult schizophrenia. *Archives of General Psychiatry*, **29,** 103–10.

KRAEPELIN, E. (1919) *Dementia Praecox and Paraphrenia*. Translated by R. M. Barclay. Edinburgh: Livingstone.

KURIANSKY, J. B., DEMING, W. E. & GURLAND, B. J. (1974) On trends in the diagnosis of schizophrenia. *American Journal of Psychiatry*, **131,** 402–7.

LANGFELDT, G. (1937) The prognosis in schizophrenia and the factors influencing the course of the disease. *Acta Psychiatrica Scandinavica*, Supplement 13.

MCGLASHAN, T. H. & CARPENTER, W. T. (1976a) Post-psychotic depression in schizophrenia. *Archives of General Psychiatry*, **33,** 231–9.

—— —— (1976b) An investigation of the postpsychotic depressive syndrome. *American Journal of Psychiatry*, **133,** 14–18.

MELLOR, S. C. (1970) First rank symptoms of schizophrenia. *British Journal of Psychiatry*, **117,** 15–23.

ROBINS, E. & GUZE, S. B. (1970) Establishment of diagnostic validity in psychiatric illness: its applications to schizophrenia. *American Journal of Psychiatry*, **126,** 983–987.

ROTH, S. (1970) The seemingly ubicuitous depression following acute schizophrenic episodes, a neglected area of clinical discussion. *American Journal of Psychiatry*, **127,** 51–8.

SCHNEIDER, C. (1942) *Die Schizophrenen Symptomverbande*. Berlin: Springer.

SCHNEIDER, K. (1959) *Clinical Psychopathology*. Translated by M. W. Hamilton. New York: Grune & Stratton Inc.

SERBAN, G. (1975a) Functioning ability in schizophrenics and 'normal' subjects: short-term prediction for rehospitalization of schizophrenics. *Comprehensive Psychiatry*, **16,** 447–55.

—— (1975b) Stress in schizophrenics and normals. *British Journal of Psychiatry*, **126,** 397–407.

—— (1975c) Relationship of mental status, functioning and stress to readmission of schizophrenics. *British Journal of Social Clinical Psychology*, **14,** 291–301.

—— (1978) Social Stress and Functioning Inventory for Psychotic Disorders (SSFIPD): measurement and prediction of schizophrenics' community adjustment. *Comprehensive Psychiatry*, **19,** 337–47.

WORLD HEALTH ORGANIZATION (EDS.) (1973) *International Pilot Study of Schizophrenia*. Vol. I. Geneva: World Health Organization.

ZIGLER, E. & LEVINE, J. (1973) Premorbid adjustment and paranoid-nonparanoid status in schizophrenia: a further investigation. *Journal of Abnormal Psychology*, **82,** 189–99.

George Serban, M.D., *Clinical Associate Professor and Director, Community Research Study, New York University Medical Center, School of Medicine, 550 First Avenue, New York, N.Y. 10016,*

Christina B. Gidynski, Ph.D., *Associate Research N.Y.*

(*Received 22 May; revised 12 July 1978*)

https://doi.org/10.1192/bjp.134.6.602 Published online by Cambridge University Press