

PSYCHIATRIC MORBIDITY AMONG PARENTS OF SCHIZOPHRENIC PATIENTS¹

B. B. SETHI², M.B.B.S., D.Sc., Psych. (Penn.), F.R.C. Psych. (Eng.)
Dip. Am. B. Psych., F.A.P.A.

S. C. GUPTA³, M.A., Ph.D., D.M. & S.P.

J. K. TRIVEDI⁴, M.B.B.S., M.D. (Psych.)

Parents of schizophrenic patients have frequently been thought of contributing pathogenic influences towards causation, occurrence, recurrence or progression of the disease. Lidz and his colleagues (1957) conducted an extensive enquiry about the parental characteristics of schizophrenics and observed 9 out of 15 families having a schizophrenic parent. Fleck, Lidz and Cornelison (1963) concluded that male schizophrenics came from skewed families and females from schismatic families. They were of the view that schizophrenics in these families learnt inappropriate behaviour, achieved distorted sexual identification and became bound up in parental conflict. Double bind communication observed among the parents of the schizophrenics was another important contribution in this area (Bateson, 1956). Morris and Wynne (1965) made higher level of predictions by using extracts of recorded interview with parents of schizophrenics and non-schizophrenic psychiatric patients. Similarly several other investigators (Fischer *et al.*, 1959; Singer and Wynne, 1966; Wynne, 1967; 1971) reported certain abnormal personality characteristics in the parents of schizophrenics.

Hirsch and Leff (1975) made an extensive review of studies and conclusions mainly support the following hypotheses:

- (1) More parents of schizophrenics are

psychiatrically disturbed than parents of normal children, and more of the mothers are schizoid.

- (2) There appears to be a link between allusive thinking in schizophrenics and their parents.
- (3) The parents of schizophrenics show more conflict and disharmony than the parents of other psychiatric patients.
- (4) The parents of schizophrenics show more abnormalities in their communications.

In view of above observations and conflicting reports about the psychiatric abnormalities observed among the parents of schizophrenic patients, especially the presence of overinclusion among them, the present enquiry was undertaken with the following aims:—

- (1) To evaluate psychiatric abnormalities in the parents of schizophrenic patients.
- (2) To investigate intellectual level and neuroticism in these parents.
- (3) To find out evidence of overinclusion in the thought process of these parents.

MATERIAL AND METHOD

Index cases were drawn from a series of hospitalized patients of schizophrenia

¹Presented at the thirty-second annual conference of Indian Psychiatric Society held at Bangalore in December, 1979.

²Professor and Head

³Lecturer

⁴Lecturer

} Department of Psychiatry, King George's Medical College, Lucknow.

in the G. M. & Associated Hospitals, Lucknow. The following criteria were adopted in the selection of sample.

1. Undisputed diagnosis of schizophrenia according to DSM-II and clinical evidence of thought disorder. Any case showing features of M.D.P., mental retardation, organicity, drug addiction or any drug toxicity was excluded from the series. As such most of the cases of first acute psychotic episode were also excluded.

2. Both parents should be alive, be residents of Lucknow City, and should speak Hindi. A thorough clinical and psychological evaluation would then be possible. The restriction of urban residence was mandatory in view of the observation that administration of certain psychometric tests upon rural subjects often created problems as standardization of these tests is usually based upon urban population.

3. Parents should not have any remarkable deficit in hearing, vision or general comprehension. Parents obtaining an I.Q. of 70 or less were also excluded from the series. The following techniques were utilized for investigating the parents of 50 index cases.

Techniques of investigation employed in the present enquiry consisted of the following :—

1. *Interview Schedule* : It included items relating to demographic and social variables, family history of mental illness, personal history, health status, nature and duration of the illness of the index cases and a short mental examination.

2. *Wing's Psychiatric Status Examination Schedule* : PSE was administered upon both parents by a psychiatrist who was fairly trained in using the tool.

3. *Bhatia Performance Battery of Intelligence*

4. *Eysenck's Personality Inventory*

5. *Tests of overinclusion* : The measurement of overinclusion has been a waxing problem and a large number of tests have been utilized for this purpose. For in-

stances, Payne & Hewlett (1960) gave a battery of 9 tests whereas Payne and Friedlander (1962) utilized a shorter battery of tests for the measurement of overinclusion and were of the opinion that Benjamin's proverb test, Goldstein-Scheerer object-sorting test and object classification test were the best measures for this purpose. Of the three measures, proverb test and Goldstein Scheerer object sorting test were chosen for the present study mainly because of their applicability and availability. A brief description of these tests is given below :

(a) *Proverb Test* :

It was originally devised by Benjamin (1944) and had a set of fourteen proverbs. Overinclusion can be mainly detected in two ways :—

- (1) By finding out the average number of words used by the subject to explain the proverbs.
- (2) Unusual abstract generalisation due to inclusion of non-essential details in explaining test proverbs.

In view of the subjective bias involved in the second criterion, the most objective way of finding out overinclusion has been the counting of number of words used. 10 Hindi proverbs with which the local population was found to be well conversant were used in the present enquiry. These proverbs (Appendix) were employed in an earlier study of overinclusion conducted in this department (Sitholey, 1975).

(b) *Object Sorting Test* :

Goldstein & Scheerer (1941) originally developed this test to measure concreteness and abstractness of cognitive functioning. However, there are several studies pointing out the scientific utility of this test in measuring overinclusion (Payne *et al.*, 1959 ; Payne and Hewlett, 1960 ; Payne and Friedlander, 1962, Hawks and Payne, 1971 ; Tucker *et al.* 1975 ; Andreasen and Powers, 1974). The measurement of overinclusion

in this test may be of two types. One is based upon the number of unusual sortings of the objects presented before him in different groupings. Another measure relates to the number of objects picked up in relation to certain stimulus objects. The second procedure may have some variation, but most of the investigators have used one choice object and three standard objects i.e. plate, match box and ball (Payne, Matussek, and George, 1959; Payne and Hewlett, 1960; Payne *et al.*, 1972).

In this test the subject picks up one object from the group and after looking at it for some time hands it back to the examiner, who places it away from his sight. He is then asked to pick up those objects that can go with the choice object (any object picked up by the subject himself). All the objects picked up subsequently are kept away from his sight at that moment. Here the subject is required to form an abstract concept around the stimulus object. Overinclusion will manifest in the number of objects picked up. More the overinclusion, greater the number of objects picked up. The test employed in this enquiry contains 39 subjects as compared to 27 objects in the original battery of Goldstein & Scheerer (1941). Since many objects in this original battery are found to be unfamiliar for the people in our culture, the test items of the originally constructed set were replaced by the familiar ones of similar nature. Some extra items were also added to make it suitable for the measurement of overinclusion. The test has been modified by different investigators to suit its applicability in different cultures (Tucker *et al.*, 1975, Andreasen and Powers, 1974). Some attempt was also made in this direction by Kasturi (1959) to make it applicable in Indian culture but since no reliable information is available about it the present investigators utilized the modified form of this test being used in the department (Sitholey & Gupta, 1978).

RESULTS

Table-1 shows that majority of the index cases were in their twenties since availability of both parents was much less in the older subjects with the inclusion criteria adopted in this enquiry. Overwhelming majority belonged to the lower middle or very low social strata which is quite in harmony with patient population seeking treatment in a general hospital. Duration of illness was less than 3 years in about two-third of these cases.

TABLE 1—*Characteristics of Index Cases*
(N=50)

Sex	36 Males, 14 Females	
Age	Mean=22.8, S.D. 4.7	
<i>Social Status</i>		
Middle & Upper Class	6	(12%)
Lower Middle Class	29	(58%)
Very Low Class	15	(30%)
<i>Duration of Illness</i>		
<6 months	7	(14%)
6—12 months	9	(18%)
1—3 years	18	(36%)
>3 years	16	(32%)

Table-2 shows certain demographic characteristics of the studied sample. Mothers were somewhat younger as compared to fathers (Mean was 49.2 years and 54.7 years, respectively). 58% mothers

TABLE 2—*Demographic Characteristics of the Sample*

	Fathers (50)	Mothers (50)
<i>Age :</i>		
Mean	54.7	49.2
S.D.	6.9	6.3
<i>Education</i>		
Illit—Upto V	17	29
VI—VIII	10	13
H.S. and above	23	8
<i>Occupation</i>		
Skilled and Sem-skilled	6	3
Service	29	1
Business	12	—
H.W.	—	46
Retd./Non-working	3	—

and 34% fathers were either illiterate or educated up to primary classes. Fathers had relatively higher education as 46% had educational level of H. S. and above. Further, there were only a few working mothers whereas majority of fathers were engaged in business or service.

TABLE 3—*Diagnosis of sick parents as evaluated through P.S.E.*

	Fathers (50)	Mothers (50)	Total (100)
Anxiety	3	4	7
N. Depression	2	7	9
M. D. P.	—	1	1
Schizophrenia	3	2	5
Total	8 (16%)	14 (28%)	22 (22%)

In addition, 5 parents had h/o psychosis (Schizo.).

It is evident from Table-3 that 5% parents (3 fathers and 2 mothers) were suffering from schizophrenia. Furthermore, H/o psychiatric illness of schizophrenic nature was recorded in five parents. Be as it may, the incidence of schizophrenia is observed in nearly 10% of the studied parents. M.D.P. was observed in only one case. 10% fathers and 22% mothers had shown obvious manifestations of anxiety and depression.

TABLE 4—*Intellectual level and E.P.I. score of the parents*

	Fathers (50)	Mothers (50)
<i>I. Q.</i>		
Mean	89.30	84.65
S. D.	9.56	11.05
<i>Neuroticism</i>		
Mean	10.64	11.96
S. D.	5.18	4.65
<i>Extraversion</i>		
Mean	11.01	9.62
S. D.	2.98	2.66

The findings of Bhatia Performance Battery of Intelligence indicate a slightly higher intellectual level of fathers as compared to mothers (I. Q. 89.30 and 84.64, respectively). Their I. Q. would have been still lower had the subjects attaining I.Q. of 70 or less not excluded from the series. A general observation is that the intellectual capacity of the majority of these parents is at the lower end of the average range. E. P. I. scores do not provide any appreciable evidence of neuroticism whereas their extraversion score is appreciably below the norms. This would suggest a lesser degree of sociability in the studied group.

TABLE 5—*Analysis of object sorting test*

	Number of objects picked up for the three test stimuli	
	Mean	S.D.
Fathers (50)	14.38	3.12
Normal		
Males (40)	15.70	3.68
Mothers (50)	13.42	2.94
Normal		
Females (40)	14.20	3.22

The above Table shows no significant difference in the number of objects picked up in O.S.T. by the experimental group as compared to the available norms*. In spite of the fact that the norms of this test are based upon a small group of normal individuals not exactly matching with the experimental group on various sociodemographic variables, the observations provide a reliable frame of reference for testing the hypothesis of overinclusion. A relatively low mean score of both the parents on this test indicates little possibility of overinclusion in these subjects.

*Norms for object sorting Test and Proverb Test were obtained on 80 normals, 40 males and 40 females. The subjects consisted of hospital employees, friends and relatives of neurotic patients. Majority of these subjects were in the age range of 30-50 yrs., had educational level of H. S. and above and had no H/o of any psychiatric illness. These norms were collected for purpose of another project of similar nature conducted in this department by Sittholey (1975).

TABLE 6—Analysis of proverbs test

	Total number of words used in the interpretation of 12 Hindi Proverbs		
	Mean	S.D.	
Fathers (50)	229.32	87.60	} t=0.72 d.f.=88 N.S.
Normal Males (40)	241.55	67.17	
Mothers (50)	152.96	84.98	} t=3.03 d.f.=88 p < 0.01
Normal Females (40)	202.40	63.25	

Similar to the findings of O.S.T. the observations of proverbs test provide no clue for confirming the hypothesis of over-inclusion in the studied group. Mean score of the number of words employed for explaining the proverbs by fathers is slightly low as compared to the norms whereas those of mothers is significantly low in comparison to the norms of females. (Table-6).

TABLE 7—Proper explanation of proverbs in the experimental group

No. of proverbs correctly explained	Father (50)	Mother (50)	Total (100)
8-10	7	1	8
5-7	17	14	31
1-4	26	35	61

$\chi^2=6.12$, d.f.=2, $p < 0.05$

Attempt has also been made to categorise the parents in terms of number of proverbs correctly explained. Any explanation which conveys at least the basic theme of the various proverbs presented was adjudged as correct. Only 8% parents could give proper explanation of most of the proverbs (8-10). 31% parents offered correct explanation of half or two-third proverbs (5-7) and 61% could explain less than half of the proverbs correctly (1-4). Statistical analysis reveals that fathers tend to give the correct explanation of a signi-

ficantly larger number of proverbs as compared to mothers. This implies a remarkably low capacity of mothers in comprehending the proverbs. The fact that mothers use much smaller number of words as compared to fathers (average number of words used 152.3 and 229.3, respectively) also seems to substantiate this impression.

DISCUSSION

The hypothesis of overinclusion is mainly based upon information processing theory (Broadbent, 1958). Payne and Hewlett (1960) and McGhie (1969) maintain that the defect lies in the filter that screens the information inputs. Hawks and Marshall (1971) argue for a slow information processing rate due to inappropriately filtered input. Broen (1968), on the contrary, suggests that the defect is not in the inadequate filtering but relates to the subject's inability to select relevant from the competing responses, and as such schizophrenics may have these cognitive difficulties mainly due to their inadequate attention.

There have been a number of family studies of schizophrenia that have thrown light on the relationship between the patient and other family members, especially the characteristics of parents and family interaction. McConaghy (1959) found that the parents of thought disordered schizophrenics while assessed on a sorting test obtained scores that were different from those of control normals but were considerably similar to the scores obtained by schizophrenic patients. Similarly, Phillips, Jacobson and Turner (1965) found a substantial degree of thought disorder in the parents of schizophrenic patients. Romney (1969) on the other hand, failed to substantiate these observations in the parents of schizophrenic patients. Ollershaw (1973) have opined that formal thought disorder is not exclusive of schizophrenia and can be seen in mania as well. Andreasen and Powers (1974) have observed that schizophrenics are underinclusive whereas maniacs

are overinclusive in comparison to normal controls. Most plausible explanation for such kind of variation appears to be on account of diagnostic inadequacy in the selection of index cases, techniques employed for detection of thought disorder including overinclusion and smaller number of subjects investigated. In general, there is a consistent observation that schizophrenics having clinically observable thought disorder depict on overinclusion on psychometric tests (Payne, Mattussek and George, 1959; Payne and Hewlett, 1960; and Hawks and Payne, 1971).

In view of the above controversy the present study was designed to find out overinclusion in the parents of schizophrenic subjects who had shown thought disorder clinically and had no diagnostic problem. The observations obtained on object sorting test and proverb test were compared against the available norms of 40 males and 40 females. It is obvious that the present enquiry suffers from the lacunae of not having a suitable control as the various socio-demographic variables of the two groups are not strictly comparable. The norms however provided a frame of reference to detect, although in a limited manner, overinclusion in the studied parents. Since low intellectual functioning is reported to create an experimental bias in the studies of overinclusion (Payne and Hewlett, 1960; Payne and Friedlander, 1962), the subjects obtaining an I. Q. of 70 and less were excluded from the sample. A lower limit of I. Q. was kept in view of the majority obtaining I. Q. of less than 90. The subjects showing clinical evidence of low intelligence were administered test of intelligence at the very beginning and were retained in the sample only when the I. Q. of both parents was above 70. About 10% of the parents were rejected on this basis.

The findings of object sorting test as well as proverb test provide no evidence of

overinclusion in the studied group of parents. Average number of words employed by both parents in explaining the proverbs is considerably lower (significantly in case of mother) than the norms and a similar tendency was observed in the O.S.T. The possibility of lack of involvement in the majority of cases does not seem to be tenable as the sample relates to the parents of currently hospitalized schizophrenic patients. Subjects were adequately motivated prior to their investigation.

The fact that only 39% parents could correctly explain half or more proverbs indicates lack of abstract thinking in the studied sample and the observation is statistically significant when comparison was done between fathers and mothers. The latter obtained a relatively lower I. Q. and more often failed to comprehend the proverbs.

Wender and colleagues (1971) compared three groups of parents on clinical and psychometric tests. The groups comprised 10 couples who had adopted a child who later became schizophrenic, 10 couples who had reared their own child who developed schizophrenia, and 10 couples who had reared an adopted child who had no psychiatric illness. Using TAT, O.S.T. and Proverb Interpretation Test they found no significant difference between any of the groups of parents.

Another important observation relates to a low degree of correlation between the scores of two tests. A similar observations has also been reported by certain other investigators. Foulds *et al.* (1967) found low correlation between the tests of overinclusion specially in chronic schizophrenics. Payne *et al.* (1972) pointed out that these tests measured other things along with overinclusion. One of these aspects may be responsiveness. This appears to be especially true for proverb test. Similarly in another study, Hart and Payne (1973)

observed poor intercorrelation between the three tests, (proverb test, object sorting test and object classification test).

A high incidence of psychiatric illness in the studied group of parents is of special significance. Many studies of the genetics of schizophrenia have been reported in the literature and the rates of illness considerably vary (Hirsch and Leff, 1975). The adoption studies suggest that the parent of schizophrenics are more disturbed than the parents of normal children but to some extent their disturbance may be ascribed to the stress and strain associated with psychotic illness in their children. Muntz and Power (1970) investigated the parents of thought disordered and non-thought disordered schizophrenics and found that the parents of first group were significantly thought disordered on Lovibond's object sorting test and Bannister Repertory Grid Test. It may therefore be concluded that the parents of schizophrenics are in some way involved in the genesis of thought disorder. Whether, it occurs because of a 'psychological contagion' or is dependent on genes or both is difficult to comment upon.

The observations of present investigations have however certain limitations in view of lacking a suitable control group. The availability of ideal controls matching in terms of various socio-demographics factors in the elderly population is a considerably difficult task. Quite often they lack sufficient motivation for undertaking a battery of psychological tests. Nevertheless, further confirmation of these observations on a large sample should be done to arrive at more definitive conclusions.

REFERENCES

- ANDREASEN, N. J. C. AND POWERS, P. S. (1974). Overinclusive thinking in Mania and Schizophrenia. *Brit. J. Psychiat.* 125, 452.
- BATESON, G.; JACKSON, D. D.; HALEY, J.; AND WEAKLAND, J. H. (1956). Towards a theory of schizophrenia. *Behav. Sci.*, 1, 251.

- BENJAMIN, J. D. (1944). A method for distinguishing and evaluating formal thinking disorders in Schizophrenia. *Language and Thought in Schizophrenia*. Ed. J. S. Kasanin. Berk and Los Angeles, University of California Press.
- BROEN, W. E. (1968). *Schizophrenia, Research and Theory*. New York. Academic Press. Quoted from: Marshall, W. L. (1973) Cognitive functioning in Schizophrenia. *Brit. J. Psychiat.*, 123, 413.
- BROADBENT, D. E. (1958). *Perception and Communication*. London: Pergamon Press.
- FISHER, S., BOYD, I., WALKER, D. AND SHEER, D. (1959). Parents of schizophrenics, neurotics and normals. *A.N.A., Arch. Gen. Psychiat.*, 1, 149.
- FLECK, S., LIDZ, T. AND CORNELISON (1963). Comparison of parent child relationships of male and female schizophrenic patients. *Arch. Gen. Psychiat.*, 8, 1.
- FOULDS, G. A., HOPE, K., MEPHERSON, F. AND MAYO, P. (1967). Cognitive disorder among schizophrenics I. The validity of some tests of thought process disorder. *Brit. J. Psychiat.*, 113, 1361.
- GOLDSTEIN, K. AND SCHEERER, M. (1941). Abstract and concrete behaviour, an experimental study with special tests. *Psychol. Monogr.*, 53, 2.
- HART, D. S. AND PAYNE, R. W. (1973). Language structure and predictability in overinclusive patients. *Brit. J. Psychiat.*, 123, 643.
- HAWES, D. V. AND MARSHALL, W. L. (1971). A parsimonious theory of overinclusive thinking and retardation in Schizophrenia. *Brit. J. Med. Psychol.*, 44, 75.
- HAWES, D. V. AND PAYNE, R. W. (1971). Overinclusive thoughts disorder and symptomatology. *Brit. J. Psychiat.*, 118, 663.
- HIRSCH, S. R. AND LEFF, J. P. (1975). *Abnormalities in parents of schizophrenics*. London: Oxford University Press.
- KASTURI, H. V. (1959). A study of disorders of dissociation in schizophrenics. Dissertation submitted to the University of Mysore in part fulfilment of D. M. & S. P. examination.
- LIDZ, T., CORNELISON, A. R., FLECK, S. AND TERRY, D. (1957). The intrafamilial environment of the schizophrenic patient II. Marital schism and marital skew. *Amer. J. Psychiat.*, 114, 241.
- MCGHIE, A. (1969). *Pathology of Attention*. Harmondsworth Middlesex. Penguin Books.
- MCCONAGHY, N. (1950). The use of an object-sorting test in elucidating hereditary factor in schizophrenia. *J. Neur. Neurosurg. Psychiat.*, 22, 243.

- MORRIS, G. O. AND WYNNE, L. C. (1965). Schizophrenic offspring and parental styles of communication. *Psychiatry*, 28, 19.
- MUNTZ, R. AND POWER, R. P. (1970). Thought disorder in the parents of thought disordered schizophrenics. *Brit. J. Psychiat.*, 117, 707.
- OLLERENSHOW, D. P. (1973). The classification of the functional psychosis. *Brit. J. Psychiat.*, 122, 517.
- PAYNE, R. W., MATUSSEK, P. AND GEORGE, E. (1959). An experimental study of schizophrenic thought disorder. *J. Ment. Sci.*, 105, 627.
- PAYNE, R. W. AND HEWLETT, J. H. B., (1960). Thought disorder in psychotic patients. In: *Experiments in Personality*. Vol. II. London: Routledge and Kegan Paul.
- PAYNE, R. W. AND FRIEDLANDER, D. (1962). A short battery of simple tests for measuring overinclusive thinking. *J. Ment. Sci.*, 108, 362.
- PAYNE, R. W., HAWKS, D. V., FRIEDLANDER, D. AND HART, D. S. (1972). The diagnostic significance of overinclusive thinking in an inselected psychiatric population. *Brit. J. Psychiat.*, 120, 173.
- PHILLIPS, J. E., JACOBSON, N. AND TURNER, W. J. (1965). Conceptual Thinking in Schizophrenics and their relatives. *Brit. J. Psychiat.*, 111, 823.
- ROMNEY, D. (1969). Psychiatrically assessed thought disorder in schizophrenics and control patients and in their parents and siblings. *Brit. J. Psychiat.*, 115, 900.
- SINGER, M. T. AND WYNNE, L. C. (1966). Communication styles in parents of normals, neurotics and schizophrenics. *Psychiat. Res. Rep.*, 20, 25.
- SITHOLEY, P. (1975). A study of overinclusive thought disorder in the parents of schizophrenics. M. D. Thesis, Lucknow University.
- SITHOLEY, P. AND GUPTA, S. C. (1978). Tests of overinclusion—some preliminary observations (submitted for publication).
- TUCKER, G. J. *et al.* (1975). Sensorimotor functions and cognitive disturbance in psychiatric patients. *Amer. J. Psychiat.*, 132, 17.
- WEDER, P., ROSENTHAL, D., ZAHN, T. AND KETY, S. (1971). The psychiatric adjustment of the adopting parents of schizophrenics. *Amer. J. Psychiat.*, 127, 1013.
- WYNNE, L. C. (1967). Family transactions and schizophrenia II. Conceptual considerations for a research strategy in the origins of Schizophrenia, *Excerpta Medical International Congress Series No. 151*.
- WYNNE, L. C. (1971). Family research on the pathogenesis of schizophrenia, in *Problems of Psychosis, International colloquium on Psychosis*. Ed. Doucet, P., and Laurin, C., *Excerpta Medica International Congress Series, No. 194*.