

FACTORS ASSOCIATED WITH THE COURSE AND OUTCOME OF SCHIZOPHRENIA A MULTICENTRED FOLLOW-UP STUDY : RESULT OF FIVE YEAR FOLLOW-UP

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SUMMARY

This paper describes the results of a five year follow up study on factors associated with the course and outcome of schizophrenia conducted in 3 centres (Lucknow, Madras and Vellore) under the auspices of the Indian Council of Medical Research. 386 patients who satisfied well defined criteria of diagnosis and inclusion and exclusion criteria were studied. All patients were regularly followed up. 287 patients had complete follow up after 5 years. After 2 years, most of the active symptoms had subsided. At 5 year follow up, about 67% of the patients showed good outcome. Regular drug compliance, short duration of illness, absence of economic difficulties, absence of dangerous behaviour and delusions of persecution at intake; presence of agitation at intake; acute onset, absence of schizoid traits in personality, low level of education, rural background and lower age of onset were significantly related to good outcome. A combination of 8 factors could correctly predict the outcome in 80% of patients.

The implications of the above findings are discussed.

A multicentred investigation to examine the factors associated with the course and outcome of schizophrenia (SOFACOS) was carried out under the auspices of the Indian Council of Medical Research. The main objectives of the study were : (1) to assess the common clinical characteristics of schizophrenia in three centres in India; (2) to find out whether the course and outcome of schizophrenia in a developing country such as India is good as suggested by the International Pilot Study of Schizophrenia (I. P. S. S.); and (3) to identify the sociocultural and clinical variable associated with the course and outcome of

schizophrenia. The three centres selected for the study were King George's Medical College, Lucknow; Madras Medical College, Madras; and Christian Medical College, Vellore. The various aspects of this study have been published elsewhere (SOFACOS, Final Report, ICMR; Verghese et al., 1985; Raj Kumar et al., 1986; Sethi et al., 1987; Verghese et al., 1989).

This paper describes the results of the final year follow up.

Material and Method

All patients who attended the psychiatry clinics of the three participating

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centre from 15th October 1981 to 15th October 1982 and also satisfied the inclusion and exclusion criteria were included in the study. These criteria were adopted from Feighner's criteria of diagnosis (Feighner *et al.*, 1972), with two modifications. Duration of illness was taken as 3 months since it was felt that we might otherwise lose some acute schizophrenic patients for the study. Marriage as a criterion of diagnosis was left out since it is not applicable in our country. Patients who were ill for more than 2 years and those who were less than 15 years old or more than 45 years old were excluded.

After a detailed initial assessment using the WHO Psychiatric and Personal History Schedule (PPHS) and Present State Examination (PSE), the patients were followed up regularly atleast once in 3 months using the Interim Follow-up Schedule (IFS). A detailed reassessment was done once a year, using the PPHS and PSE. A method of quantifying course and outcome was evolved, very similar to the one used in IPSS (WHO, 1979). Parameters such as time spent in psychotic state, pattern of course, occupational adjustment and social interaction were assessed from the data collected from PPHS, PSE and IFS. Using the above parameters, an over all outcome was calculated as was done in the IPSS (WHO, 1979). The influence of several sociocultural and clinical variables on the course and outcome was determined using statistical techniques such as Chi square test, multiple regression analysis and discriminant analysis. The details of methodology are described elsewhere (SOFACOS, Final report, 1989; Verghese *et al.*, 1985).

Results

The details of the intake data, first year follow up result and two year follow

up result are published elsewhere (Raj Kumar *et al.*, 1986; Sethi *et al.*, 1987; Verghese *et al.*, 1989). Only the 5 year follow up results are given here.

Follow up rate :

Three hundred and eighty six patients were studied : 207 in Lucknow, 96 in Madras and 83 in Vellore. 287 patients (74.4) were completely followed up at the end of 5 years. 32 patients had died, and including them, a follow up rate of 82.6% achieved. Among the 32 patients who died, 12 had committed suicide. Thus the suicide rate was 3.1% over five years in this group of patients.

Psychiatric evaluation :

At five year follow up, it was found that 64% of patients were in remission; about 6% in the episode of inclusion; and about 29% in a relapse episode.

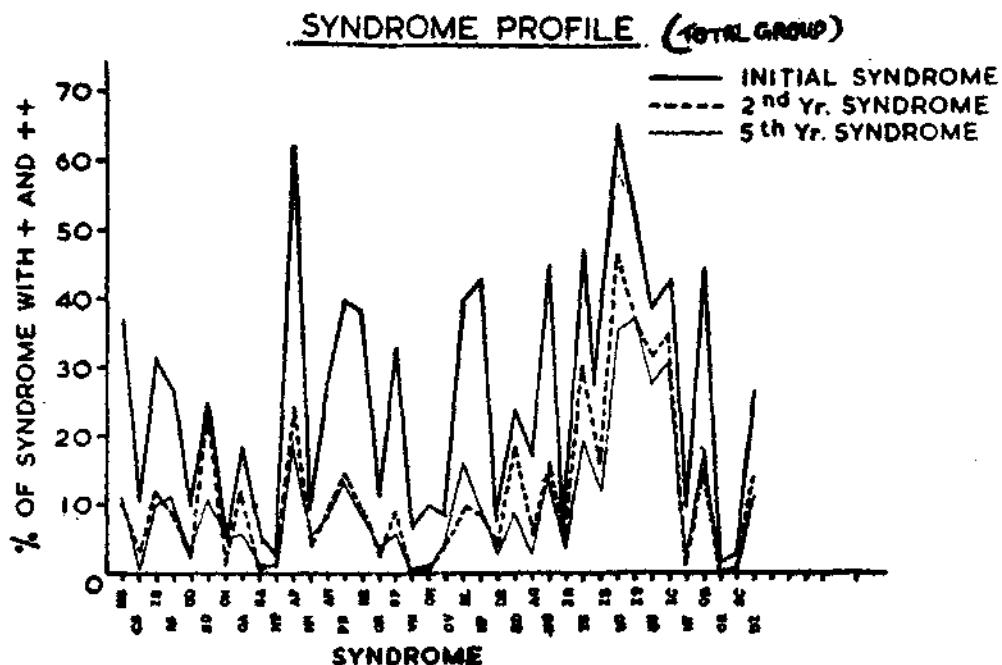
About 28% of the patients did not have any relapse, during the follow up period; 23% had only one relapse; 25% had 2 relapses and 18% had 3 or more relapse. These are very similar to the 2 year follow up findings.

The PSE at 5 year follow up showed a syndrome profile which is similar to the one at 2 year follow up. Most of the active psychotic symptoms subsided when compared to the initial evaluation (Figure). Most of the residual symptoms were negative :

12.5% of patients complained of lack of concentration; 25% showed loss of interest. Social withdrawal was seen in 23% of patients; delayed sleep in 21% of patients; subjective anergia and retardation in 12%; irritability in 34%. About 17% showed self neglect. Blunted affect was seen in 20% of patients and incongruity of affect in 9%.

Course and outcome :

67% of the patients were in psychotic



state only for less than 15% of the follow up period : 24% were in psychotic state for 16-45% of the follow up period; 8% were in psychotic state for 46-75% of the follow up period and 1.5% of the patients were in psychotic state for more than 75% of the follow up period.

The pattern of course showed that 20% of the patients recovered without any personality changes. There was no impairment of occupational adjustment in 39% of the patients and social interaction was not impaired in 96%.

The overall outcome was very favourable in 27% of patients; favourable in 40%; intermediate in 31% and unfavourable in 2%. Combining very favourable and favourable groups, 67% of patients showed a good outcome at 5 year follow up. These figure are very similar to those at 2 year follow up.

Significant associations of course and outcome :

Multiple regression analysis showed that a number of sociocultural and clinical

variables explained the course and outcome of schizophrenia at 5 year follow up (Table 1).

Percentage of time spent in psychotic state :

Absence of dangerous behaviour at intake; acute onset of illness and rise in socioeconomic level were related to a decrease in the time spent in psychotic state. These variables explain only 9.5% of the variation.

Pattern of course :

Absence of dangerous behaviour at intake, rise in socioeconomic level, regular drug compliance, low level of education, early age of onset, short duration of illness, presence of depressive features and agitation and absence of delusions of persecution at intake were related to a better pattern of course. These variables explain 30.2% of the variation.

Occupational adjustment :

A rise in socioeconomic level, absence

TABLE 1—*Multiple regression analysis variables significantly related to better course and outcome and their partial regression coefficients*

Variable	% time in psychotic state	Pattern of course	Occupational adjustment	Social interaction	Overall outcome
1. Low age of onset	0.1089*	0.1089*	-	-	0.1281*
2. Low level of education	-	0.1459**	-	-	0.1717**
3. Absence of schizoid personality traits	-	-	-	0.1515**	-
4. Acute onset	0.1188*	-	-	-	-
5. Short duration	-	0.1143*	-	-	0.1427**
6. Good drug compliance	-	0.1695**	-	0.1322*	0.1375**
7. Absence of economic difficulty	-	-	0.1817**	0.1474**	0.1224*
8. Rise in socioeconomic level	0.1818*	0.2322***	0.2332***	-	0.1922**
9. Life events	-	-	0.1550**	-	-
10. Absence of dangerous behaviour	0.1943***	0.2666***	0.2483***	-	0.2491***
11. Presence of simple depression	-	0.1358**	-	-	-
12. Absence of residual syndrome	-	-	-	0.1382**	-
13. Absence of delusions of persecution	-	0.1198*	-	-	0.1348**
14. Absence of delusions of reference	-	-	-	0.1890**	-
15. Sexual & fantastic delusions present	-	-	-	0.1314*	-
16. Presence of agitation	-	0.1980**	-	-	0.1738**
17. Absence of tension	-	-	0.1175*	-	-
R Square	9.5%	30.2%	20.1%	11.5%	28.6%

*p<0.05; **p<0.01; ***p<0.001

of economic difficulties, and absence of dangerous behaviour and tension at intake were related to a better occupational adjustment. These explain 20.1% of the variation.

Social interaction :

Absence of schizoid traits in the personality; absence of economic difficulties; absence of residual syndrome, delusions of reference and sexual and fantastic delusions at intake; and regular drug compliance were related to a better social interaction. These variables explain 20.1% of the variation.

Overall outcome :

Rise in socioeconomic level; absence of economic difficulties; low level of

education, short duration of illness, early age of onset, regular drug compliance, presence of agitation at intake; and absence of dangerous behaviour and delusion of persecution at intake were related to a better overall outcome. These variables explain about 28% of the variation.

Prediction of outcome :

A discriminant analysis was done between the good outcome (very favourable and favourable) and bad outcome (unfavourable and very unfavourable) groups. A combination of the following factors could correctly predict outcome in 80% of the patients : absence of dangerous behaviour at intake, good drug compliance, rise in socioeconomic level,

low age of onset, lower level of education, rural background, regular occupational history and acute onset of illness.

Discussion

As referred to earlier, this paper describes results of a multicentred 5 year follow up study conducted in 3 centres in India, to evaluate the course and outcome of schizophrenia. The 2 year follow up results have been already published (Verghese et al., 1989). One striking feature is the similarity between the results of the 2 year follow up and those of the 5 year follow up (Table 2). Though the implications of the above findings are discussed in the paper on 2 year follow up, a few points deserve being highlighted in the present paper.

TABLE II—*2 yr. follow-up results compared to 5 yr. follow-up results :*

	2 YR	5 YR
(1) Follow-up rate	84%	74%
(2) Overall outcome good	66%	67%
(3) Significant associations with good outcome :		
Drug compliance regular	+	+
Short duration of illness	+	+
Absence of economic difficulties	+	+
Absence of dangerous behaviour	+	+
Presence of agitation	+	+
Acute onset	+	+
Religious activities present	+	—
Self-neglect absent	+	—
Schizoid traits in personality	—	+
Delusions of persecution absent	—	+
Level of education low	—	+

+ = significantly related — = not related

One aspect which was not taken up in the 2 year follow up paper was the prediction of outcome. One of the main

objectives of this investigation was to identify sociocultural and clinical variables which could predict the outcome of schizophrenia. A discriminant analysis between the good and bad outcome groups shows that a combination of 8 factors could correctly predict the outcome in about 80% of patients. This observation is of much clinical usefulness.

This study has identified some socio-cultural and clinical variables which are associated with the course and outcome of schizophrenia. The nature of association is not definite. They may or may not be etiologically related. But the above information can help us to plan some intervention strategies. Some of the above factors are amenable to intervention, as for example, the variables relating to the treatment seeking patterns and as short duration of illness and drug compliance. Mass awareness programme can help relatives of patients to bring them early for treatment. Proper counselling by therapists can encourage the patients and their relatives to be regular with medication. These intervention strategies can considerably improve the outcome. Since rise in socioeconomic level and absence of economic difficulties are related to better outcome, they also provide scope for intervention by programmes aimed at improving the social and economic level of patients. It will be also important to try to improve the knowledge and attitudes of the community so that they will show more tolerance, acceptance and social support with regard to the schizophrenic patients.

It is also borne out by this study that the course and outcome of schizophrenia in a developing country such as India is quite good. A better course and outcome have been observed among the schizophrenic patients in developing countries both in the 2 year follow up and 5 year follow up in the IPSS

(Sartorius *et al.*, 1987). A better outcome for schizophrenia in developing countries is an interesting and intriguing observation. A tempting hypothesis would be whether this is related to the tolerance, acceptance, and social support which may most probably be more tangible in developing countries. The relationship of rural background and better outcome observed in the present study may be an indicator along this line. In one of the offshoot studies of the present investigation (SOFACOS Final Report, 1989), it is found that there is a strong association between the attitude of key relatives and course and outcome. The above association is very similar to that of Brown *et al.* (1972).

One observation of this study which is difficult to explain is the consistent relationship between early onset of illness and good outcome. It is the established teaching that later onset of schizophrenia is related to better prognosis and early onset to bad prognosis.

Mention must be made of the observation that the age of onset of schizophrenia is very similar in both men and women i. e. 25.9 ± 6.7 years for men and 25.9 ± 7.3 for women. Stromgren (1987) has referred to studies indicating that onset of schizophrenia occurs later in women. The results of the present study does not support this.

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