Original Article:

A retrospective study of the functional outcome of schizophrenia depending on premorbid personality at the time of diagnosis

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ABSTRACT

Background: Schizophrenia constitutes a serious public health problem all over the world. It is one of the leading causes of disability among young adults and prevents them from leading normal productive lives.

Methods: We retrospectively studied new cases diagnosed to have schizophrenia (n=211) seen during the period, March 1999 - February 2001. Their premorbid personality traits, socio-demographic parameters were recorded from the case records. Psychopathology was assessed by using positive and negative symptom scale for schizophrenia (PANSS); functional outcome was assessed by using Global Assessment Scale (GAS).

Results: Socio-demographic variables did not have influence on outcome. Among patients with well adjusted personality 50% showed good to fair outcome. Patients with schizoid premorbid personality had a fair outcome.

Conclusions: Our observations suggest that premorbid personality has a definite impact on outcome of schizophrenia.

Key words: *Schizophrenia, Premorbid Personality, Outcome*

Aruna D, Sudhakar TP. A retrospective study of the functional outcome of schizophrenia depending on premorbid personality at the time of diagnosis. J Clin Sci Res 2014;3:166-73.

INTRODUCTION

Schizophrenia constitutes a serious public health problem globally. It is one of the leading causes of disability among young adults. Schizophrenia creates a huge economic burden for the society. Globally it is estimated that 25 million people have schizophrenia.[1] Schizophrenia is a multifactorial disorder of unknown actiology.

It has been found that poor premorbid adjustment, early age of onset, poor performance on cognitive tests and those with negative symptoms syndrome will have poor response to treatment.[2,3] In this study an attempt has been made to clarify certain issues related to outcome of schizophrenia in those patients who have approached the existing health infrastructure for an intervention.

MATERIAL AND METHODS

The study subjects consisted of all the new cases diagnosed to have schizophrenia at the Department of Psychiatry, Sri Venkateswara Medical College, Tirupati, Andhra Pradesh, India, between March 1999 - February 2001. The study was cleared by the Institutional Ethical Committee. Informed consent was obtained from all patients and relatives participating in the study.

Socio-demographic factors like age, gender, education, employment, domicile, socio-economic status, and marriage, details regarding clinical profile, such as, duration of illness, presence of precipitating stress at the time of onset, family history of mental illness, type of onset were noted. The description of premorbid personality was noted based on the

Received: 19 May, 2014.

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Online access
http://svimstpt.ap.nic.in/jcsr/jul-sep14_files/2oa314.pdf
DOI: http://dx.doi.org/10.15380/2277-5706.JCSR.14.030

clinical records. Four categories could be made out from the records, well adjusted, schizoid, histrionic, and obsessive personality.

After noting down all the addresses of these patients they were contacted after a period of two years of registration in the Department of Psychiatry by writing letters to them.

There were a total of 269 patients with a diagnosis of schizophrenia during this period. Out of this 225 patients could be contacted. Forty four patients could not be contacted due to various reasons; three had died by committing suicide. All the 225 patients were reassessed; 14 cases turned out to have mood disorder. The remaining 211 schizophrenia cases were included in the study.

The subjects were assessed for their present psychopathology and functional status. The psychopathology was assessed by using Positive and Negative Symptoms Scale for Schizophrenia (PANSS)[4] and functional status by using Global Assessment Scale (GAS).[5]

The PANSS consists of semi-structured clinical interview information given by family members and the patient himself regarding the psychopathology relating to the last week. The PANSS evaluates the clinical profile of a patient with schizophrenia and also provides assessment of treatment response.

Alpha co-efficient analysis has indicated high internal reliability and homogeneity among the PANSS item with the coefficients ranging from 0.73 to 0.83 ($p<0.001$) for each of the scales. The split-half reliability of the general psychopathology scale was demonstrated to the 0.80 ($p<0.001$) by authors. The discriminated and convergent validity of the PANSS dimensional assessment in relation to independent clinical, geneological, psychometric and historic measures. Because of these reasons it is used to assess the psychopathology of the patient.

The GAS is a 100 point scale used to evaluate psychological health and illness. The assessment is done by information obtained from the family. The reliability coefficient of GAS ranges from 0.62 to 0.82.

Statistical analysis

Statistical analysis of functional outcome of schizophrenia depending on premorbid personality was done by using Chi-square test. Patient outcome measures were correlated with socio-demographic factors namely age, sex, education, employment, socio-economic status, domicile, and marital status.

Outcome was also correlated with various clinical factors like type of onset, duration of illness, precipitating stress at the time of onset, presence of family history of mental illness and presence of premorbid personality traits identified at the time of diagnosis.

The outcome measures were also correlated with PANSS (total score, positive symptoms score, negative symptom score and general psychopathology score).

RESULTS

The socio-demographic and disease profile of these patients, in shown in Table 1. The PANSS Scale was administered at the end of the second year follow-up to find out to which level patients were symptomatic (Table 2).

Table 3 shows main observations and different types of outcome based on the GAS score at the time of interview. Based on this interview the patients were divided into the following categories for the study purposes defined as

Table 1: Socio-demographic and disease profile

Variable		No.	%
Age (years)	20	36	17.1
	21-40	159	75.4
	>40	16	7.6
Gender	Male	133	63.0
	Female	78	37
Education	Illiterate	55	26.2
	Primary	47	22.2
	Junior college	82	41.2
	Higher	22	10.4
Employment	Employed	98	46.4
	Unemployed	108	51.7
	Frequent change	4	1.9
Socio-economic status	Low	96	45.5
	Middle	102	48.3
	Medium	12	5.7
	High	1	0.5
Domicile	Rural	129	61
	Urban	82	39
Marriage	Unmarried	73	34.5
	Married	130	62.0
	Divorced	7	3.0
	Widow	1	0.5
Duration of illness	6 months	103	48.8
	6 months -2 years	61	28.9
	> 2years	47	22.3
Type of onset	Abrupt	21	9.9
	Acute	58	27.5
	Sub-acute	74	35.1
	Insidious	58	27.5
Presence of stress	Present	33	15.6
	Absent	178	84.4
Diagnostic category	Paranoid	153	72.5
	Catatonic	21	10
	Hebephrenic	1	0.50
	Undifferentiated	22	10.4
	Residual	14	6.6
Family history	Present	20	12.8
	Absent	184	87.2
Premorbid personality	Schizoid	43	20.4
	Well adjusted	144	68.3
	Histrionic	12	5.7
	Obsessional	12	5.7

Table 2: Cross sectional positive and negative symptom scale

PANSS	Observations*
Positive score	12.3 ± 5.2
Negative score	14.6 ± 5.6
General psychopathology score	27.6 ± 6.6
Total score	54.5 ± 14.6

*Data are expressed as mean ± standard deviation
PANSS = Positive and Negative Symptoms Scale

A. Good outcome (score = 81-100): satisfactory functioning both to self-report as well as observer's perspective; B. fair outcome (score = 61-80): fair-functioning, that is somewhat unsatisfactory; C. bad outcome (score = 41-60): clearly dysfunctional and unsatisfactory with occasional times of satisfying and competent function together; D. worse outcome (score = 21-40): obviously and seriously dysfunctional; and E. The worst outcome (score = 1-20): too dysfunctional to retain continuity of contact and attachment.

Table 4a shows distribution of premorbid personality traits and their functional outcome. Outcome was also measured by taking gender as an important variable depending upon their premorbid personality traits as shown in Table 4b. The socio-demographic factors like age, education, sex, status of employment, socio economic status, domicile, marital status did not correlate with the outcome. However, the disease variables like type of onset, duration of illness, the presence of precipitating factors, subtypes of schizophrenia, the presence of family history and the premorbid personality was found to have strong correlation with the outcome. Patients with the abrupt or acute onset with short history had better outcome. The presence of family history, hebephrenic or residual schizophrenia and premorbid obsessive, histrionic or schizoid traits usually point toward poorer outcome.

Though no relationship could be established with that of positive, negative or general psychopathology score; if the total score was less the outcome turned out to be better. When the premorbid personality and outcome are viewed in the back ground of the third variable like sex, education, employment, it was found schizoid males were likely to be severely affected compared to females. The other personality traits did not influence on the outcome between males and females either on education, marriage, or employment status.

DISCUSSION

The basic purpose of the study was to look at the predictive value of the premorbid personality of the patient on the two year functional outcome. As other socio demographic variables are also available various correlations with them were worked out.

Table 3: Two year outcome of patients based on GAS

Category*	GAS score	No. (%)
A	81 - 100	6 (2.8)
B	61 - 80	75 (35)
C	41 - 60	92 (44)
D	21 - 40	38 (18)
E	1 - 20	0 (0)

* See text for details
GAS = Global assessment score
Source: reference 4

Table 4a: Distribution of premorbid personality traits and functional outcome

Outcome	Premorbid personality						
	Schizoid	Well-adjusted	Histrionic	Obsessive	Total	Chi-square	p-value
Good	1	5	0	0	6		
Fair	4	61	5	5	75		
Bad	25	59	4	4	92		
Worse	13	19	3	3	38		
Total	43	144	12	12	211	20.355	0.002

In this study, most of the patients were in the age group of 21 to 40 years with a predominant male representation. Probably the general hospital psychiatry department serves to this type of clientele which is being reflected in this study. The educational status did not have any impact on the two year outcome. The socio-economic status and domicile did not influence the outcome and again in a hospital based population the particular pattern of service variation is being reflected.

Even in the Determinants of Outcome of Severe Mental Disorders (DOSMED) study the two year follow-up showed that the Indian site Chandigarh had better outcome among the twelve centers spread across ten countries.[6,7] Indian Council of Medical Research (ICMR) sponsored multicentric study also showed about 66% favorable outcome.[8,9]

In this study, findings showed similar tendencies nearly 38% of the patients were functioning at a satisfactory level and another 44% though clearly dysfunctional and unsatisfactory had occasional times of competent function. Only 18% could be labelled as seriously dysfunctional though there was not a single person among the study subjects who could be termed as having the worst outcome. This extreme could be explained as the study was conducted in a general hospital psychiatry department, where the chronic deteriorated and burnt out schizophrenics were not usually brought. Most of the relatives would prefer to hand them over for a long-term institutional treatment.

The other variables like employment and marital status apparently did not alter the outcome. In fact the persons who scored, either bad or worse on Global assessment scale were uniformly distributed among both the employed and unemployed categories. The female gender ultimately along with various socio-demographic factors had a better outcome compared with male gender.[10] In this study an attempt was also made to look at the influence of female gender in combination with age,

Table 4b: Premorbid personality as per gender

Male	**Total**	**A**	**B**	**C**	**D**
Schizoid	30	0	1	19	10
Well Adjusted	90	3	42	38	7
Histrionic	5	0	2	2	1
Obsessive	8	0	3	3	2
Female	**Total**	**A**	**B**	**C**	**D**
Schizoid	13	1	3	6	3
Well Adjusted	54	2	19	21	12
Histrionic	7	0	5	2	0
Obsessive	4	0	0	1	3

education and employment. It was found except for employment, the female sex had no correlation with on other variables like marital status, age and education. But when it came to the employment, more number of females in the study population were unemployed when compared to males at the onset of the illness. Naturally this would put less external demand on them compared to the male sex. This would probably explain the slightly better outcome described for females by most of the studies published from the developing countries.

In Chennai, in a after five-year follow-up study, women were observed to have a better outcome than men.[11] The same was not reflected in the present study. In another study[12] 53% of male schizophrenia patients had a very good occupational outcome. The same was not observed in this study.

The socio-economic status and the marital status did not influence the outcome in this study. Even though, the study population was small, nearly 4% individuals were divorced. This appears to be a very significant proportion compared to general population and this would probably call for further elucidation. Even among the married, there appears to be a small percentage of patients who though not legally divorced were not staying with their spouses. These findings had to be viewed, more as the effect of the bad outcome rather than a cause for the bad outcome. These findings are similar to other observations[12] where more men remained single whereas more women faced broken marriages.

In this study the type of onset, the duration of illness and the presence of precipitating stresses at the time of onset, were all significantly influenced the outcome measures. These findings were in agreement with the classical text book teaching. However, as again this population was drawn from general hospital, the mean duration of the illness in more than 50% of patients was less than 6 months and about 38% had either abrupt or acute onset.

The precipitating stress though favorably influence the outcome in about 15.6% of the patients, the stress was not quantified in this study and hence definite conclusions could not be drawn. The presence of some other family members of the subject suffering from mental illness strongly correlated with poor outcome. No attempt was made in this study to diagnose the type of mental illness in the family as the information available was insufficient. But only 12.8% of the patients had some other family member suffering from the mental illness. These findings are strongly in conjunction with the established text book ideas.

The study population had the predominantly the paranoid subtype (72.5%) followed by catatonic subtype (10%). The number of hebephrenic, residual and undifferentiated schizophrenia all together constituted only 17.5%. This pattern of presentation again was because of the fact that the population was drawn from a general hospital psychiatry department. Among them catatonics had the best outcome i.e., 62% followed by paranoid 36.6% and this pattern probably had influenced the overall outcome of this sample.

Though the sub scores in the PANSS could not be correlated with the outcome in this study, the total scores on PANSS had been found to have a negative correlation on the outcome. A high total PANSS score positively correlated with a bad outcome. However, among most of the patients even the total scores did not exceed a score of 100. These observations are similar to those reported in another study,[13] where they showed that the schizophrenic symptoms would reach a plateau after 2-5 years of the disease.

This study sample constituted 133 (67%) male schizophrenia patients and 78 (37%) female schizophrenia patients. Schizoid personality

traits were noted in 30 male schizophrenia patients and 13 female schizophrenia patients. Schizoid males are likely to be severely affected than schizoid females. In a Norwegian schizophrenia study male schizophrenia patients were deteriorating faster than female schizophrenia patients.[14] Schizoid spectrum personality disorders may increase the vulnerability to psychosis.[15]

The sample consisted of majority of patients belonging to well adjusted personality type (69%). Histrionic personality traits were noted in 12 patients (5.7%) and obsessive personality traits were noted in 12 patients (5.7%). Gender wise, among the histrionic personality traits 5 were male schizophrenia patients and 7 female schizophrenia patients. There was no significant difference in outcome among male and female patients with histrionic personality traits. Obsessive personality traits were noted in 8 male and 4 female schizophrenia patients. Female patients with obsessive personality traits did not function well when compared to male patients.

In this study histrionic personality traits were common among female patients compared to males, though it did not necessarily correlated with poor outcome. In Copenhagen high risk study[16] the premorbid histrionic traits had earlier age of onset and were associated with poorer outcome, whereas obsessive traits were observed to have better outcome. In Chestnut Lodge study[17] the presence of obsessive compulsive symptoms which did not necessarily mean an obsessive personality disorder had poorer outcome. The present study observations are different from the earlier mentioned studies.[16,17] In another study[17] males who had better premorbid functioning and a late onset of symptoms turned out to be good outcome patients.[18]

Few studies from India have precisely attempted to study the impact of premorbid functioning on the outcome of schizophrenia or even among the other types of psychoses. Paucity of data from India did not allow any comparison with observations from the present study. We found nearly 60% of the patients who reported at the time of their first contact were found to be well adjusted persons in the past. This would indicate that probably most of the family members have a tendency to describe these patients as "well adjusted" without any second thought or hesitation. Probably a more objective quantifiable scale would be necessary to describe the premorbid level of functioning. The other factors like a regular follow up, good compliance to the medication, the existence of good family and social support, easy accessibility for psychiatric services and the level of expressed emotions are not taken into consideration in this study, though they are contributory to the ultimate outcome of schizophrenia. All these limitations have to be kept in mind before pronouncing the findings obtained from this study.

As it is a retrospective study, the reliability of the information in outpatient records would vary especially in relation to premorbid personality. Higher motivation to attend the follow up itself could be a factor that decides the outcome as the 44 cases who did not report for reassessment were not included, could have had an inbuilt bias in the sample. As it was from a hospital clinical population it may not exactly reflect the trends in general population. cognitive decline and the relationship with pharmacotherapy was not investigated. Despite all these limitations, the present study definitely points out the importance of the impact of premorbid personality on the ultimate outcome of schizophrenia.

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