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GLOBAL ASSESSMENT OF FUNCTIONING OF PATIENTS WITH SCHIZOPHRENIA A CROSS-SECTIONAL STUDY

Muhammad Sheraz Malik, Ataullah*, Salim Jehangir**

Pakistan Navalship Hafeez Islamabad, *Pakistan Navalship Punjab Lahore, **Armed Forces Institute of Mental Health Rawalpindi

ABSTRACT

Objective: To assess psychological, social and occupational functioning of patients after seven years of diagnosis of schizophrenia using Global Assessment of Functioning (GAF) scale (DSM-IV Axis-V).

Study Design: A cross sectional study.

Place and duration of study: Department of Psychiatry, Military Hospital Rawalpindi from October 2007 to October 2008.

Patients and Methods: This study included 30 patients who were retired military personnel invalided out of service with diagnosis of Schizophrenia between 1st Jan 2000 to 31st Dec 2001. After recording demographic data, patients underwent psychometric evaluation seven years after the diagnosis in 2007 and 2008 respectively for assessment of their psychological, social and occupational functioning using Global Assessment of Functioning (GAF) Scale (DSM - IV Axis V).

Results: All subjects were male. Majority of the patients i.e. 14 (46.7%) patients had mild to moderate symptoms of the disease (GAF score 41 - 80). Those having high income, employed and living in cities were associated with better global functioning.

Conclusion: Schizophrenia continues to be a chronic disabling severe mental illness with deterioration in all aspects of functioning of patients.

Keywords: Global assessment of functioning, Psycho active substance, Schizophrenia, Treatment adherence.

INTRODUCTION

Schizophrenia is a severe mental disorder characterized by two kinds of symptoms; positive psychotic symptoms (thought disorder, hallucinations, delusions, and paranoia) and negative symptoms (impairment in emotional range, energy, and enjoyment of activities). For a formal diagnosis, these symptoms must persist for at least one month and usually result in severe impairment in job and/or social functioning. Schizophrenia has a chronic debilitating course of illness. Expectations of substantial improvement in a larger proportion of individuals with schizophrenia are emerging in contemporary psychiatry, especially in terms of symptom control and psychosocial functioning.

A recent study has revealed that initial level of function, symptoms, sex, education and duration of illness are all important predictors for functional outcome in patients with schizophrenia[1]. Long-term studies of schizophrenia spectrum psychosis with onset in childhood or adolescence largely confirm a poor outcome on a number of social and occupational spheres[2]. Instruments assessing social functioning capture the capacity of a person to function in different societal roles and their actual social performance.

There are only few long-term follow-up studies from the developing world which reveal a pattern of course and functioning distinctly better than that found in many such studies from the developed nations[3].

A peculiarity of medical services in Armed Forces of Pakistan is that a permanent record of all individuals invalided out of service on medical grounds, is maintained. Schizophrenia being incompatible with military service is always invalided out of service. The patients however remain entitled for free treatment life long, which helps in maintaining an almost regular follow up of these patients at various

Correspondence: Dr Muhammad Sheraz Malik, House No. 11-8/2 Afzal villa, Raja Lane No.4, Caltex Road, New Lalazar, Rawalpindi
Email: sherazz_malik@hotmail.com
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military hospitals. This provides a sound opportunity to carry out a follow up research on outcome in patients of Schizophrenia-spectrum disorders.

This is one of the few long-term follow-up studies from the developing world. It aims at determining the long term outcome of patients of Schizophrenia invalided out of service 7 years ago as regards their general functioning, through the use of psychometric tool to establish the course of Schizophrenia in this part of the world.

PATIENTS AND METHODS

All retired military personnel including officers, lady doctors of army medical corps, nurses of armed forces nursing services and other ranks who were invalided out of service with diagnosis of Schizophrenia between 1st Jan 2000 to 31st Dec 2001 were included. This period of study from 2007 to 2008 was chosen because it marked the start of 7 years for the follow up. To collect data about the patients, record wings of the respective regimental centres of the Pakistan Armed Forces were visited. Case registers of these patients were approached and case notes / formulations were reviewed. There were total of 30 patients who were invalided out of service with the ICD-10 diagnosis of schizophrenia between 1st Jan 2000 and 31st Dec 2001. Residential / employment addresses of the patients were gathered from the respective regimental centres.

Among the 30 patients, 23 were already following up at Dept of Psychiatry, Military Hospital Rawalpindi. Rest 7 patients were contacted through telephone, 6 patients were brought to the hospital by their family members and 1 patient reported himself. Patients were inducted into the study after obtaining a written informed consent from the patient or the next of kin in case patient was not able to do so. Twelve patients who were diagnosed and invalided out in year 2000 were assessed in 2007 and rest of the 18 patients who were diagnosed and invalided out in 2001 were seen in 2008. Detailed clinical assessment was carried out by clinical interview and application of psychometric instrument i.e Global Assessment of Functioning (GAF) scale. Demographic information and clinical assessment findings were recorded for each patient on specified form. Physical co-morbidity was not assessed in this study.

Being an easy and swift instrument, the Global Assessment of Functioning (GAF) scale is often used to evaluate psychosocial functioning. It has a good-to-excellent reliability and a good predictive validity.[4]

Code	Description of Functioning
91 - 100	Person has **no problems** OR has superior functioning in several areas OR is admired and sought after by others due to positive qualities
81 - 90	Person has **few or no symptoms**. Good functioning in several areas. No more than "everyday" problems or concerns
71 - 80	Person has symptoms/problems, but they are **temporary, expectable reactions to stressors**. There is no more than slight impairment in any area of psychological functioning.
61 - 70	**Mild symptoms in one area** OR difficulty in one of the following: social, occupational, or school functioning. But, the person is generally functioning pretty well and has some meaningful interpersonal relationships.
51 - 60	**Moderate symptoms** OR moderate difficulty in one of the following: social, occupational, or school functioning.
41 - 50	**Serious symptoms** OR serious impairment in one of the following: social, occupational, or school functioning.
31 - 40	**Some impairment in reality testing** OR impairment in speech and communication OR serious impairment in several of the following: occupational or school functioning, interpersonal relationships, judgment, thinking, or mood.
21 - 30	**Presence of hallucinations or delusions which influence behavior** OR serious impairment in ability to communicate with others

	OR serious impairment in judgment OR inability to function in almost all areas.
11 - 20	There is **some danger of harm to self or others** OR occasional failure to maintain personal hygiene OR the person is virtually unable to communicate with others due to being incoherent or mute.
1 - 10	**Persistent danger of harming self or others** OR persistent inability to maintain personal hygiene OR person has made a serious attempt at suicide.

Data was analyzed using SPSS version 15. Descriptive statistics were used to describe the data i.e. mean and standard deviation (SD) for quantitative variables while frequency and percentages for qualitative variables. Chi-square test was used to study the association of GAF score with different demographic variable. p-value<0.05 was considered as significant.

RESULTS

Total 30 patients were included in the study. All participants were male with mean age of 32.43±5.14 years. Mean age at the time of diagnosis was 25.43±5.14 years. Monthly income ranged from 1500 to 9000 PKR with median income of 3000 PKR (Interquantile range: 1500-5500). At the time of diagnosis, 66.7% were single and 33.3% were married. Out of these 20 unmarried patients, 11 were still single. Amongst married individuals, 4 had been divorced and 2 were separated. Sixteen (53.3%) patients were living in cities. Sixteen (53.3%) were unemployed. Ten (33.3%) patients were using some or the other psychoactive substance. A total of 76.7% subjects were adherent to the treatment and were maintaining follow-up. (Table-1)

Majority of the patients i.e. 14 (46.7%) had significant symptoms of the disease with GAF scores ranging from 41 - 80 (Figure).

GAF score was significantly lower in low income group (p=0.005), patients living in urban areas (p=0.036) and those who were unemployed (p<0.001). Although GAF score was lower in unmarried patients (p = 0.154), with positive history of substance abuse (p=0.432) and treatment non-adherent patients (p=0.111) but this association did not achieve the significance level. (Table-2)

DISCUSSION

The elucidation of the prognosis of a disorder has implications far beyond the important one of being able to inform patients and their relatives about how their illness may evolve over time. The more we know about the natural course of a disorder, the more we are

Table-1: Demographic description of the patients (n = 30)

Demographic Variables	Frequency (%)
SES Status	
≤ 5,000	22 (73.3)
> 5,000	8 (26.7)
Marital Status	
Single	11 (36.7)
Married	13 (43.3)
Divorced	4 (13.3)
Separated	2 (6.7)
Residence	
Urban	16 (53.3)
Rural	14 (46.7)
Employment Status	
Employed	14 (46.7)
Unemployed	16 (53.3)
Substance Use	
Yes	10 (33.3)
No	20 (66.7)
Treatment Adherence	
Yes	23 (76.7)
No	7 (23.3)

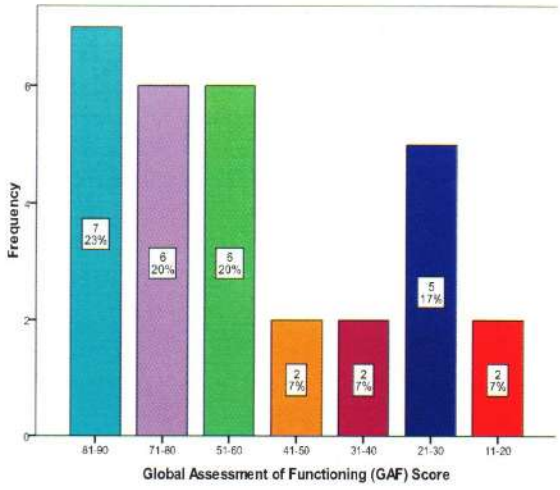


Figure: Description of Global Assessment of Functioning (GAF) score

Table-2: Relationship of GAF score with demographic variables

Demographic variables	GAF score			*p*-value
	> 80	41 - 80	< 41	
SES Status				
≤ 5,000	2 (28.6%)	11 (78.6%)	9 (100%)	0.005
> 5,000	5 (71.4%)	3 (21.4%)	0 (0%)	
Marital Status				
Single	5 (71.4%)	6 (42.9%)	2 (22.2%)	0.154
Married	0 (0%)	3 (21.4%)	1 (11.1%)	
Divorced	0 (0%)	2 (14.3%)	0 (0%)	
Separated	2 (28.6%)	3 (21.4%)	6 (66.7%)	
Residence				
Urban	3 (42.9%)	5 (35.7%)	8 (88.9%)	0.036
Rural	4 (57.1%)	9 (64.3%)	1 (11.1%)	
Employment Status				
Employed	7 (100%)	7 (50%)	0 (0%)	< 0.001
Unemployed	0 (0%)	7 (50%)	9 (100%)	
Substance Use				
Yes	1 (14.3%)	5 (35.7%)	4 (44.4%)	0.432
No	6 (85.7%)	9 (64.3%)	5 (55.6%)	
Treatment Adherence				
Yes	7 (100%)	11 (78.6%)	5 (55.6%)	0.111
No	0 (0%)	3 (21.4%)	4 (44.4%)	

able to determine the effectiveness of any treatment we offer to alleviate it. Our study sample has provided an opportunity to look into the course of illness and assess clinical, social and occupational parameters after 07 years of illness.

The follow-up rate, being an important variable when considering the level of insight in a patient with schizophrenia was 76.7% in our study, more than ISOS, developed-nation studies[5] and Madras longitudinal study from india[3] where follow-up rates were 67%. This follow-up rate in our study was probably because of the military background of the whole sample and the fact that they get free medical treatment even after invalidment out of service.

The age of the sample in our study was comparable to other studies[3]. The association of unmarried patients with low GAF scores did not achieve the significance level in our study, it may be because of the ample availability of social support to the patients in subcontinent. A total of 63.3% of subjects had been married at some point in time, currently 43.3% were married and 36.7% were single, as compared to a few studies[3] from subcontinent where marital rate of around 70% was observed, with more men remaining single and more women facing broken marriages[6]. This can be due to similarity in social environment in subcontinent.

An important finding of our study is a statistically significant relationship between employment and GAF score. Our 46.7% patients were employed, figures certainly comparable with a 15-year follow-up study of Chinese schizophrenia patients[7] and same as a 20-year follow-up study from Singapore[8]. Although it is slightly higher than that reported from the West[9,10]. Comparatively low employment rates in West can be due to the fact that they are paid from social security system which relieve them from job requirement.

The association between GAF score of patients and socioeconomic status also turned out to be statistically significant. A better GAF score is related with higher socioeconomic status. Substance abuse (33%) was comparable to 33.2% in a study from India[3]. However in our study the association between substance abuse and GAF score was insignificant. This can be due to the fact that patient keep using psychoactive substances even when they have recovered from illness.

GAF score of over 60 was seen in 43.3% (Figure 1) of the subjects in our study which is comparable to 49% in Nottingham cohorts establishing characteristics of outcome at 13 years[11,12]. However it is lower than 73.8% reported in Madras longitudinal study which also ascertains that men had lower scores[3], making it significant to us, as all of our subjects turned out to be males. Majority (76.7%) of subjects were treatment adherent in our study similar to 76% from other long term studies conducted in Europe[11,12]. High rate is more likely to be due to free medical facilities available to these patients.

Remission was observed in 3.3% of subjects in our study as compared to 8.2% in a study from subcontinent[3] after 20 years follow-up and 17% in another study at the end of 13 years[12]. This low remission rate can be due to small sample size and shorter duration from start of illness as compared to those studies.

The results of this study are somewhat consistent with the large body of research[12] in finding a considerable number of sociodemographic and clinical variables to be associated with better or worse functional outcome in schizophrenia spectrum psychosis. Although considering the limitations of our study, further research is recommended in our culture on a larger sample.

Limitations

- The whole sample comprised males, as patients who were invalided out of Army in 2000 and 2001, turned out to be only male ex-Army individuals.
- The fact that all assessments were made by the same assesser could be a study limitation.
- The results have limited generalizability because of small number of sample and cross-sectional nature of the study.
- Physical co-morbidity was not assessed in our study which can have impact on GAF scores of patients

CONCLUSION

Long term outcome in our study show that being married, employed, treatment adherent, living in cities and having high socioeconomic status are associated with better functioning on social and occupational spheres.

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