LONG TERM OUTCOME OF SCHIZOPHRENIA – A CROSS-SECTIONAL STUDY

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ABSTRACT

Objective: To assess the Positive and Negative Symptoms Scale pattern and World Health Organization Quality of Life-BREF scale scores of patients with schizophrenia after seven years of the initial diagnosis.

Study Design: A cross sectional observational study.

Place and Duration of Study: Department of Psychiatry, Military Hospital Rawalpindi from Jan 2007 to Dec 2008.

Material and Methods: Thirty patients who were invalided out of military service with the diagnosis of schizophrenia in 2000 and 2001 were subjected to psychometric evaluation seven years after the initial diagnosis in 2007 and 2008. They were assessed for their current symptoms and Quality of life using Positive and Negative Symptoms Scale (PANSS) and World Health Organization Quality of Life (WHOQoL-BREF) scale respectively. Both are established psychometric tools to assess the entire spectrum of schizophrenia and quality of life.

Result: All patients were males. Forty three percent of the subjects had Positive and Negative Symptoms Scale (PANSS) score i.e. below cut off value of 65. Mean PANSS score of the group was 72. A score of more than 12 on World Health Organization Quality of Life-BREF (WHOQoL-BREF) scale indicating better quality of life was seen in 43 % of the patients. Factors linked with PANSS score > 65 and poor Quality of life (Qol score 4-12) were being single, unemployed, living in cities, using psychoactive substances and in initial years of military service.

Conclusion: More than half of the patients with diagnosis of schizophrenia continue to show high Positive and Negative Symptoms Scale (PANSS) score and poor quality of life after seven years of initial diagnosis of schizophrenia.

Keywords: Positive and negative symptoms scale, Quality of Life, Schizophrenia, World Health Organization.

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INTRODUCTION

Schizophrenia is a heartland of psychiatry. The illness is 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[1]. It has been with us as an identified illness for over a century. Kraepelin named it as' dementia praecox' in 1896[2] and Bleuler renamed it as schizophrenia in 1908[3].

Kraepelin's identification of what we now call schizophrenia rested almost exclusively on course and outcome. He formed a pessimistic view of the outcome in schizophrenia, and was convinced that recovery was very rare, or even impossible, and deterioration almost inevitable. A consequence of his view of the long-term outcome in schizophrenia has been the persistence in psychiatric textbooks of an excessively gloomy estimate of the outcome[4]. His perspective was shaped by his institutional experience. He spent the bulk of his professional life working with the patients who did not recover, or those who only partly recovered.

Outcome in diseases is a multidimensional construct consisting of several independent domains, including clinical symptoms, their

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improvement, cognitive function, family burden, quality of life and social functioning, especially the ability to relate to people and performance at work (including employment, housework and tasks). A recent long term study from Singapore[5] described outcome measures in similar domains and used treatment, employment and hospitalization as indicators of severity of clinical symptoms for patients with schizophrenia. Over two-thirds of patients had a good/fair outcome.

Schizophrenia is known to have a variable outcome[6]. In a 20-year longitudinal study from India[7], all syndromes registered decline, although slowness, loss of interest, concentration and simple depression registered an increase over the second 10 years whereas positive symptoms showed little difference. In this cohort only 5 out of 61 patients (8%) were continuously ill. In another study, a 10- year clinical outcome was reported as favourable in three-quarters of the sample[8]. Outcome was classified into broad categories in a cross-cultural study[9] where outcome criteria used were either good, remitting course with full remission or poor, continuous/incomplete remission.

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[10].

In a study done in India, patients with an established illness for less than five years have shown a good clinical outcome after 1 year of treatment in an outpatient setting with antipsychotics[11]. An encouraging observation was the notable treatment response despite many years of untreated illness. Short-term studies using score on the Positive and Negative Syndrome Scale (PANSS) as an outcome measure corroborated these findings[12].

In 1982, a measurement approach was introduced, which assesses personal characteristics, objective indicators in different domains of life and subjective quality of life in the same life domains[13]. Subjective quality of life represents the person's appraisal of their objective life conditions, mostly captured by rating scales of satisfaction with life domains and life as a whole. The life domains covered usually include work, accommodation, family, social relations, leisure, safety, finances, and physical and mental health. The mean score of the satisfaction ratings – or similar subjective ratings – is taken as the level of subjective quality of life[14]. Patients' appraisal of their life is influenced by three major processes: a comparison with original expectations and aspirations; a comparison with the life situation and achievements of others; and an adaptation over time. The latter two may be particularly relevant for people with chronic schizophrenia, whose peer group is often people with similar impairments, and who may adapt to circumstances that they might have found unsatisfactory many years earlier. Resultantly, people with persistent disorders who often live in conditions that seem adverse and unpleasant to clinicians and observers, nevertheless express relative satisfaction with their life[14-16]. A range of scales, checklists and structured and semi-structured interviews have been developed to assess quality of life in people with schizophrenia[17].

A peculiarity of medical services in Armed Forces of Pakistan is that a patient of schizophrenia is considered incompatible with military service is always invalided out of service. The details of each individual, invalided out of military service are maintained in the records wings of the Armed Forces. The patients remain entitled for free treatment lifelong, which helps in maintaining an almost regular follow up of these patients at various military hospitals. This provides a sound opportunity to carry out a follow up research on outcome in patients of Schizophrenia-spectrum disorders.

This study aims at determining the seven year outcome of patients with schizophrenia as regards their current clinical state and quality of life. This would help establish the course of

Schizophrenia in a peculiar section of the society i.e the military personnel.

MATRIAL AND METHODS

It was a cross sectional, observational study, which was carried out at Department of Psychiatry, Military Hospital Rawalpindi.

All military personnel who were invalided out of service with the diagnosis of Schizophrenia between Jan 2000 to Dec 2001 were included in the study. This period of study from 2007 to 2008 was chosen because it marked the start of 7 years for the follow up. Relevant data to approach the patients was collected from the record wings of the Armed Forces. There were total of 30 patients who were invalided out of service with the diagnosis of schizophrenia in 2000 and 2001.

Among the total of 30 patients, 23 were already being followed up at the 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 2000 were assessed in 2007 and rest of the 18 patients who were diagnosed and invalided out in 2001 were seen in 2008.

Detailed assessment was carried out by using clinical interview and two psychometric instruments, namely Positive and Negative

Table-1: Demographic features, Frequencies and scores of PANSS and QoL of study population.

Demographic features	Frequency	Percent	PANSS>65 QoL 4-12	PANSS>65 QoL 13-20
Marital status				
Married	13	43.3	6	7
Divorced	4	13.3	2	2
Separated	2	6.7	0	2
Single	11	36.7	9	2
Residence				
Urban	17	56.7	11	6
Rural	13	43.3	6	7
Employment status				
Employed	14	46.7	1	13
Unemployed	16	53.3	16	0
Substance abuse	10	33.3	8	2
Age at Time of Diagnosis				
15-20	3	10.0	3	0
21-25	16	53.3	11	5
26-30	4	13.3	0	4
31-35	5	16.7	2	3
36-40	2	6.7	1	1
Service at The Time of Diagnosis				
1-5	15	50.0	12	3
6-10	6	20.0	2	4
11-15	6	20.0	2	4
16-20	3	10.0	1	2
PANSS >65, QoL 4-12	17	56.7		
PANSS <65, QoL 13-20	13	43.3		

Symptoms Scale (PANSS) and World Health Organization Quality of Life (WHOQoL)-BREF scale.

Positive and Negative Symptoms Scale (PANSS)

It is a standardized psychometric tool used for assessing the positive and negative symptoms of Schizophrenia, resultantly measuring the current clinical and mental state of the individual. PANSS is a 30-item rating instrument evaluating the presence/absence and severity of positive, negative and general psychopathology of schizophrenia. The scale was developed from the BPRS and the Psychopathology Rating Scale. All 30 items are rated on a 7-point scale (1=absent; 7=extreme). The cut off score is 65. Regarding the reliability it's a widely recognized and utilized assessment tool, particularly in clinical studies[18].

World Health Organization Quality of Life (WHOQOL)-BREF scale

This 26 items scale assesses individual's perception of quality of life in each of the following four domains: physical health, psychological, social relationships and environment. The four domain scores denote an individual's perception of quality of life in each particular domain. Domain scores are scaled in a positive direction (i.e. higher scores denote higher quality of life). The mean score of items within each domain is used to calculate the domain score. Mean scores are then multiplied by 4 in order to make domain scores comparable with the scores used in the WHOQOL-100. Raw scores are converted into transformed scores through a specified table given in the scoring manual. Transformed scores range from 4 – 20 with scores 4-12 denoting lesser quality of life and scores 13 – 20 better quality of life. WHOQOL-BREF has been shown to display good discriminant validity, content validity and test-retest reliability[19]. Domain score produced by the WHOQOL-BREF has been shown to correlate at around 0.9.

Data Analysis

Demographic data was analyzed for frequencies and means. PANSS and WHOQOL-BREF for the entire sample were scored individually and overall means of scores were also determined to obtain overview of the whole sample. The results are shown using tables and are compared with results of studies done in other parts of the world.

RESULTS

All participants were males and mean age at the time of diagnosis was 25.43 years (SD ± 5.144). Mean PANSS score at the follow up was 72.83 (SD ± 23.873). More than fifty percent (n=17) subjects had positive PANSS score while 43.3% had PANSS score below cut off limit. Mean transformed QOL score was 12.23 (SD ± 4.17). Fifty six percent (n=17) had transformed score below 12. A total of 43.3% (n=13) scored more than 12 indicating better quality of life. At the time of diagnosis 10% (n=3) were below 20 years of age, 53.3% (n=16) were 21-25years old, 13.3% (n=4) were between 26-30 years while remaining 23.4% (n=7) were 31-40 years old. Military service seemed to have precipitating effect on the illness as 50.0% (n=15) patients developed the illness within first five years of service, another 20% (n=6) developed illness during next five years and further 20% in next five years while only 10% (n=3) developed illness after 15 years of service. Average monthly income at the time of study was 3683 PKR including military pension.

Among 13 subjects who had PANSS score below cutoff and QOL transformed score of > 12, 53.8% (n=7) were married, 15.4% (n=2) were single, 15.4% (n=2) were divorced and 15.4% (n=2) were separated. A total of 46.2% (n=6) of them were living in urban area and 53.8% (n=7) were rural inhabitants. All of them were employed. Only 15.4% (n=2) were using psychoactive substance. 92.3% (n=12) were adherent to treatment whereas 7.7% (n=1) were in remission since first episode and was on no treatment.

Among 17 patients with PANSS score more than cutoff and QOL transformed score 4-12, 35.3% (n=6) were married, 11.8% (n=2) were divorced and 52.9% (n=9) were single. Around 64.7% (n=11) were living in cities and only 5.9% (n=1) of these were employed. Forty seven point one percent (n=8) were using psychoactive substances. A total of 64.7% (n=11) were adherent and 35.3% (n=6) were non adherent to the treatment. Apart from employment none of the other feature had a statistically significant difference between the two groups.

DISCUSSION

Our study sample has provided an opportunity to look into the course of illness and assess clinical, social and occupational parameters after 7 years of illness.

In our study, 76.7% of patients were maintaining follow-up. This is slightly more than International Study on Schizophrenia[20] (ISOS), developed-nation studies[21] and Madras longitudinal study from india[7] 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 everybody was getting free treatment, disability/ service pension for sustenance. This highlights the need for role of sustenance.

The mean age of the sample in our study was 25.4 years, with age ranging from 19 to 36 years and among them 16 patients were between 21 to 25 years of age. This is comparable to other studies[7].

All the participants in our study turned out to be males which in itself narrates bad prognosis as compared to females. This is substantiated by a recent work in rural China in which the long-term outcomes of men with schizophrenia is worse than those of women with this disorder[22].

Marital status can be considered an outcome measure, as its maintenance depends on stability and functioning of both partners. In our study, 10 patients (33.3%) were married at the time of diagnosis. Out of them, 4 (13.3) had divorced and 2 (6.7%) had separated. Amongst the other 20 (66.7%), 9 (30%) had been married afterwards and were still living a married life, however 11 (36.7%) were still single. In total 63.3% of patients in our study had married at some point in time, currently 43.3% were married and 36.7% were single. This is comparable to couple of studies from subcontinent where marital rate of around 70% was observed, with more men remaining single and more women facing broken marriages[7,23].

Employment is an important factor for perceived recovery from illness in countries where families are reliant on the members for support. A total of 46.7 % patients in our study were employed. This high employment rate is certainly comparable to a 15-year follow-up study of Chinese schizophrenia patients[24] and to a 20-year follow-up study from Singapore[5]. Although it is higher than that reported from the west[25,26]. In low and middle-income countries, workplace colleagues are found to be generally supportive[27], in contrast to the good income countries where a `hostile social climate' may confront persons with schizophrenia, whose diagnosis denies them access to employment[28]. After treatment for an episode of illness their return to work is often accompanied by criticism and a denial of their skills[29].

Comorbid substance misuse in schizophrenia has been described as a high-risk factor for poor outcomes, including treatment

Table-2: Mean PANSS Score and its components of patients.

Scale	Min	Max	Mean	SD
PANSS	34	112	72.83	23.88
Positive symptom score	8	44	20.33	8.99
Negative symptom Score	7	38	22.50	7.88
General symptom score	11	54	30.00	10.53

non-adherence, relapse, rehospitalisation, violence, victimisation, criminal justice involvement, HIV and hepatitis C[30]. In our study 33.3% patients abused drugs as compared to 3.2% in a study from India[7]. Whereas comorbid substance misuse has been reported in about half of people with schizophrenia in a study from America[31]. A total of 76.7% of subjects were treatment adherent in our study similar to 76% in another study[32].

Complete remission was observed in 3.3% of subjects in our study as compared to 8.2% in a study from subcontinent[7] after 20 years follow-up and 17% in another study at the end of 13 years[32] This suggests that the findings of better outcome in developing countries needs re-evaluation for five reasons: methodological limitations of the World Health Organization studies; the lack of evidence on the specific socio-cultural factors which apparently contribute to the better outcomes; increasing evidence describing the abuse of basic human rights of people with schizophrenia in developing countries; new evidence from cohorts in developing countries depicting a much gloomier picture than originally believed; and rapid social and economic changes undermining family care systems for people with schizophrenia in developing countries[33].

Around 56.7% had Positive and Negative Symptoms Scale (PANSS) score above cutoff in our study. Mean PANSS positive, negative and general psychopathology symptom scores were 20.33, 22.50 and 30.00 respectively. These figures are certainly comparable to a European study[34] in which mean PANSS positive, negative and general psychopathology symptom scores were 14.06, 17.52 and 35.33 respectively.

In our study, 56.7% of patients had World Health Organization Quality of Life (WHOQoL-BREF) transformed score of 4-12 implying low quality of life.

Positive and Negative Symptoms Scale (PANSS) score significantly correlated with the World Health Organization Quality of Life (WHOQoL-BREF) scale score in our study implying that more symptomatic subjects have a worse perception of quality of life. The results are certainly comparable to a recent study which also shows that worse quality of life in schizophrenia is more so related to negative and general psychopathology symptoms of PANSS rather than positive symptoms[35].

Limitation

1. Gender bias as all the patients invalided out in 2000 and 2001 turned out to be males.
2. Military personnel limiting the generalizability of the results.

CONCLUSION

High risk factors for poor long term outcome, as established through the index study are: a) being single, b) unemployed, c) treatment non-adherence, d) living in cities, e) using psychoactive substances and f) developing illness in initial years of military service. These factors are strongly associated with poor quality of life, persistence of psychopathology and compromised functioning in social and occupational spheres.

Military service is a hard employment and is known to add insult to the injury of an already serious disease i.e. Schizophrenia.

Long term prognosis of these patients remains very poor as only 3% of patients in our study achieved complete remission, whereas majority (43.3%) has only moderate improvement.

Recommentdation

These patients should be given max disability when being invalided out of military service so they are able to sustain themselves.

The role of "social and rehabilitative measures" have been proven to be single most effective non-pharmacological intervention (NPI) for the long term sustenance of these patients. Pakistan Army should be able to develop and provide these services to these patients as "Day-Care facility" in, at least, the major cities of the country

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CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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