

Short-term treatment outcome of Schizophrenia in a tertiary hospital of Bangladesh

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Summary

Schizophrenia may have a better outcome in low- and middle-income countries. It is required to see outcome of schizophrenia in Bangladesh. Specific objective of this study is to assess the outcome of short-term follow-up of patients with schizophrenia. Patients with a SCID-1/P diagnosis of schizophrenia (n=42) were assessed prospectively at baseline, at 6-week and at 6-month follow-up. Socio-demographic and relevant variables and questionnaire for family support and previous work record for the study were read in front of the patients and guardians and were filled up by the researchers. Psychopathological measurements was applied at base line by researchers and at 6-week and at 6-month by research assistant for the study population Follow-up data were available for 38 patients at 6-month and among them 86.85% achieved partial remission, 7.89% had not responded and 5.26% had relapsed. Drug treatment outcome of schizophrenia in Bangladesh is better in short-term follow-up. Increased family support and early management by drugs should be a target for intervention.

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Introduction

Schizophrenia is a chronic relapsing psychotic disorder that primarily affects thought and behaviour¹. The world wide prevalence of schizophrenia is about 1%². In Bangladesh, a recent study was done in collaboration with WHO, the prevalence rate of schizophrenia was to be found 0.6 %³. Schizophrenia is often a chronically disabling condition; it is therefore responsible for a great deal of population's morbidity. In social terms chronic illness generally consume much of the total health budget. The outcome of a case of schizophrenia is remarkably heterogeneous and unpredictable^{4, 6}. For example, in the International Pilot Study of Schizophrenia^{5, 6}, tests were made of the predictive value of several sets of criteria based on symptoms. All proved largely unsuccessful at predicting outcome at 2 years or 5 years⁶.

Poor outcome in schizophrenia is associated with younger age of onset, male sex, poor pre-morbid functioning and persistence of negative symptoms. There is also evidence that the duration of psychotic symptoms prior to treatment correlates with time to remission and level of remission^{7, 6}. Whilst reluctance to seek treatment could be associated with other predictor of poor outcome, it is also possible that early treatment either with drugs or psychological therapies, may improve prognosis. There is growing interest in the idea that early treatment of schizophrenia may improve the long-term prognosis, particularly from the work of McGorry in Australia⁸. Kraepelin initially believed that dementia praecox had an invariably poor outcome, although he later

reported that in the long-term, 17 percent of his patients were socially well-adjusted. Although it remains generally agreed that the outcome of schizophrenia is worse than that of most psychiatric disorders, it is difficult to draw clear conclusions³. An important long-term study was carried out by Manfred Bleuler (1974), son of Eugen Bleuler, who personally followed up 208 patients who had been admitted to hospital in Switzerland between 1942 and 1943, Twenty years after admission, 20% had a complete remission of symptoms, 35% had a good outcome in terms of social adjustment and 24% were severely disturbed. When full recovery had occurred, it was usually in the first 2 years. Nevertheless, 10% of his patients suffered an illness of such severity that they required long-term sheltered care⁶. Bleuler's conclusions are broadly supported by Ciompi's larger but less detailed study of long-term outcome in Lausanne⁹. The study was based on the well-kept records of 1642 patients diagnosed as having schizophrenia from the beginning of the century to 1962. The average follow up was 37 years. A third of the patients were found to have a good or fair social outcome. Symptoms often became less severe in the later years of life⁶. Schizophrenia in western world societies as a "chronic debilitating illness" with a poor prognosis and a poor functional outcome. This statement is not true in worldwide. At least two major international studies, the International Pilot Study of Schizophrenia¹⁰ and the Determinants of Outcome of Severe Mental Disorders¹¹ have provided convincing evidence for a better outcome in India and other "less developed" countries

than in the west. The multi-site study of factors affecting the course and outcomes of schizophrenia in India found that 64% of the participants were in remission at a 2-year follow-up and only 11% continued to be ill¹². Such numbers are likely to be reversed in United States. Outcome of schizophrenia appears to be better in low- and middle-income countries. A host of sociocultural factors have been cited as contributing to this but future research should aim to understand this better outcome. Established factors apparently contributing to good prognosis of schizophrenia in low- and middle-income countries are low expressed emotion, good social support, tolerance of odd behaviour by society and family, marriage. Doubtful factors apparently contributing to good prognosis of schizophrenia in low- and middle-income countries are less industrialization and urbanization, early death of those with bad outcome, increased prevalence of acute psychosis¹². Patients with schizophrenic illness had the most severe and disruptive psychopathology. The families with schizophrenic patients were most distressed and socially isolated. They had difficulties in the areas of household functioning, financial and community problems. The distress felt by the family and the burden and problems due to the patient's illness were significantly correlated with the severity of the patient's psychopathology. Psychopathology in children was influenced by the subjective distress of family members and the social isolation of the family. High scored rater judgments reflected both subjective distress and objective burden of the family¹³. A

study on 'Effect of Clozapine on Drug Resistant Schizophrenia' was found that improvement of resistant schizophrenia in terms of both positive and negative symptoms is indicated by the fact that the mean BPRS score at baseline was 28.33 (SD ± 8.31) decline to 13.87 (SD ± 6.22) at 6-week and 9.2 (SD ± 5.79) at 12-week of starting treatment with clozapine which was found statistically significant at 5% level¹⁴. A study was carried out on 102 cases of schizophrenic patients at National Institute of Mental Health (NIMH), Dhaka and was found that 66 were male and 36 were female. Mean age of the patients was 29.20 (SD ± 8.30) years. Most of them were unmarried (59.80%) and unemployed (60.80%). They were least satisfied in the domains psychological health and social relationship. Women reported less satisfaction in most of the domains than male except social relationship which was better among females. Unemployed were less satisfied in all domains QOL scale than employed. The overall QOL was positively and significantly correlated with good physical and psychological health²¹. So from the clinical observation and previous study findings, researcher intended to look at this area and decided to conduct a research in this field in Bangladesh. From the above finding, like non-western countries, it can be assumed that similar scenario will be found in Bangladesh regarding outcome of schizophrenia. Hopefully this study will help the psychiatrists to treat their schizophrenic patients confidently and give valuable information to the family of the schizophrenic patients about prognosis in our

perspective, encourage them to treat their patients regularly and thus help to reduce the disease burden to the family and also to the state and improve the mental health of the country. The general objective of this study was to assess the short-term pharmacological treatment outcome of schizophrenia in a tertiary level hospital. The specific objective of this study was to assess the 6-month follow-up outcome of drugs treatment in schizophrenia in a tertiary level hospital.

Materials and Methods

This was a follow-up study patients who had been attended in out-patient department and had been hospitalization in in-patient department of Psychiatry, BSMMU, with no prior psychiatric treatment between September 2009 to December 2009 and whose diagnosis met SCID-1/P research criteria for schizophrenia and who met the inclusion and exclusion criteria of the sample. Socio-demographic and relevant variables and questionnaire for the family support and previous work record were applied at baseline and Brief Psychiatric Rating Scale(BPRS) was applied at baseline, at 6-week and at 6-month.

BSMMU is the only Medical University in Bangladesh. It is a post-graduate teaching and research hospital situated in the centre of Dhaka City. The patients came from all areas of Bangladesh, high quality consultations (NICE guideline protocol) were available and standard diagnostic protocol was used here. Department of Psychiatry of this university has 40 beds (20 beds in adult psychiatry unit, 10 beds in psychotherapy unit and 10 beds in child and adolescent

psychiatry unit) in-patient department provides short-term care for the psychiatric patients with liaison psychiatric services. The Department of Psychiatry has a daily out-patient clinic serving 50-60 patients. Researcher used NICE guideline protocol to treat the schizophrenic patients who were collected as sample.

Untreated (no psychiatric treatment) cases of schizophrenia irrespective of age and sex were included in this study. Patients of schizophrenia with co-morbid psychiatric disorders and co-occurring general medical condition and with cognitive impairments where the interview was difficult were excluded from the study. The researcher was duly careful about ethical issues related to this study. In this study the following criteria were set to ensure maintaining the ethical values: This study was not involved with one's body organ, body fluids or tissues. In this study precaution was taken to protect confidentiality of the participants. Informed written consent was obtained from the subject or guardian where appropriate. The contents of informed written consent included explanation of the nature and purpose of the study, explanation of the procedure and duration of the study, explanation that they have right to refuse or accept to participate in the study, information that there was no financial involvement of the patient and the study did not cause any environmental hazard. This study did not hamper the usual treatment of disease process. The clearance of the ethical committee of the Department of Psychiatry, BSMMU was taken. In this study the following research instruments were used:

1. A pre-designed semi-structured questionnaire for the study 'Short-term Treatment Outcome of Schizophrenia in a Tertiary Hospital of Bangladesh' which include data on gender, age, education level, employment status, marital status, monthly family income and relevant information about outcome of schizophrenia. This questionnaire is also available in Bengali version for face to face interview. During interview, researcher used Bengali version of questionnaire.

2. **SCID** -The Structured Clinical Interview for Diagnosis of DSM-IV Axis-I Disorder (SCID-I) is a structured interview for making the major DSM-IV Axis-I diagnosis¹⁹. Structured interviewing have been developed to increase diagnostic reliability through standardization of the assessment process and to increase diagnostic validity by facilitating the application of the DSM-IV diagnostic criteria and by systematically probing for symptoms that might otherwise be overlooked¹⁵. SCID is available in two versions: Clinician Version and Research Version. Research Version again divided into two editions: Patient edition and Non-patient edition. In this study researcher used SCID-1/P edition, research version, module B and C to diagnose the schizophrenia.

3. **BPRS** (Brief Psychiatric Rating Scale) From Ventura, Green, Shaner and Liberman¹⁶, Training and quality assurance with the brief psychiatric rating scale. This scale consists of 24 symptom constructs, each to be rated in a 7-point scale of severity ranging from 'not present' to 'extremely severe'. It was used to estimate the clinical

response or course of the illness. This instrument was applied by researcher at baseline to see the symptoms severity of the disease and was applied by research assistant at 6-week and at 6-month to see the clinical response.

Trained researcher applied SCID-1/P edition for the diagnosis of schizophrenia after the clinical diagnosis by consultant psychiatrist and collected as sample who met the inclusion and exclusion criteria. Informed written consent was taken from the patient, parents or guardian where appropriate and ethical issue was strictly maintained. After taking consent, questionnaire for socio-demographic and relevant variables and questionnaire for family support and previous work record for the study were read in front of the patients and guardians and were filled up by the researcher. Trained researcher then applied BPRS to the patient to estimate the severity of symptoms at baseline. The researcher was blind to the clinical assessment at 6-week and at 6-month follow-up, which was done by research assistant. The patients or guardians were advised to visit every three weeks initially for four and then monthly for three visits for follow-up up to 6 month. BPRS was applied by trained research assistant at 6-week and at 6-month. Besides these follow-up, researcher ensured drug compliance of the patients through cell phone communication with the parents or guardians and also by follow-up visits.

After collecting the data, it was checked and rechecked for omission, inconsistencies and improbabilities. Inter-rater reliability test was done between researcher and research

assistant at baseline. It was done by BPRS score of the first five patients (applied by the researcher and research assistant at the same day at baseline by two separate interviews) with Pearson's correlation co-efficient test or r test. Data analysis was performed by Statistical Package for Social Science (SPSS), version 15 for Windows. After cleaning the data it was edited and coded. Tests of significance were applied with the student's t -tests, F -test at 95% confidence interval level. Results were presented as text, tables and figures.

Results

A total number of 38 patients were included in this study. In order to include 38 patients researcher had diagnosed 47 consecutive cases of schizophrenia in in-patient and out-patient Department of Psychiatry by using SCID-1/P edition of research version after clinical diagnosis by consultant psychiatrist. Out of 47 cases 44 were matched with the sample criteria. Among the 44 patients 2 were refused to participate in this study, so participation rate was found 95.45%. 42 patients collected as sample and BPRS was applied by researcher at baseline, 3 patients were dropped out at 6-week and 1 patient was at 6-month, so 38 patients came for follow-up at 6-month and BPRS was applied by the trained research assistant at 6-week and at 6-month. Among the 42 patients 4 were dropped out from this study, so drop-out rate was found 9.52%.

The vast majority of patients ($n=27$) were treated with risperidone (4-10 mg), 7 patients ($n=7$) with long acting injection Fluphenazine (25 mg) fortnightly and 4

patients with olanzapine (10 - 20 mg) daily. Two patients relapsed, one treated with risperidone and another treated with injection Fluphenazine Decanoate and possible causes of relapse were poor family support and non adherence with the treatment. Three patients were not responding, two of them were treated with long acting injection Fluphenazine Decanoate and one was treated with risperidone initially. Maximum effective dose of these two drugs were given for 8 weeks but patient did not respond, then another drug in maximum dose according to NICE guide line protocol was given for 8 weeks. These treatments also failed to produce response, so after the appropriate measure for clozapine therapy, it was started and treatment on going but no follow-up was recorded as 6 month finished from the start of treatment.

A total 38 patients were followed-up using BPRS. Among the respondents, 86.85% patients were in partial remission, 5.26% patients relapsed and 7.29% patients were not responding 6-month after treatment. After 6 months of appropriate drug intervention a significant improvement on the total BPRS score ($p<0.001$) was achieved. Inter-rater reliability test was done between researcher and research assistant. It was done by Pearson's correlation coefficient test (r test) and found that $r=0.959$ which was strong positive degree correlation.

Table 1: Socio-demographic characteristics of the patients

Age in years	Frequency	Percent
10-18	7	18.42
19-28	14	36.84
29-38	8	21.05
39-48	7	18.42
>49	2	5.26
Mean (SD)	29.32 (11.407)	
Gender		
Male	17	44.7
Female	21	55.3
Residence		
Urban	12	31.6
Rural	26	68.4
Religion		
Islam	36	94.7
Hindu	2	5.3
Level of education		
Illiterate	3	7.9
Primary	14	36.8
Secondary	7	18.4
SSC	9	23.7
HSC	1	2.6
Graduate	2	5.3
Post graduate	2	5.3
Marital status		
Unmarried	18	47.4
Married	20	52.6
Family type		
Nuclear	13	34.2
Joint	25	65.8
Occupation		
Unemployed	2	5.3
Student	7	18.4
Housewife	13	34.2
Service	3	7.9
Business	1	2.6
Others	12	31.6
Monthly income (TK.)		
< 5000	1	2.6
5000-10000	14	36.8
10000-20000	19	50.0
> 20000	4	10.5

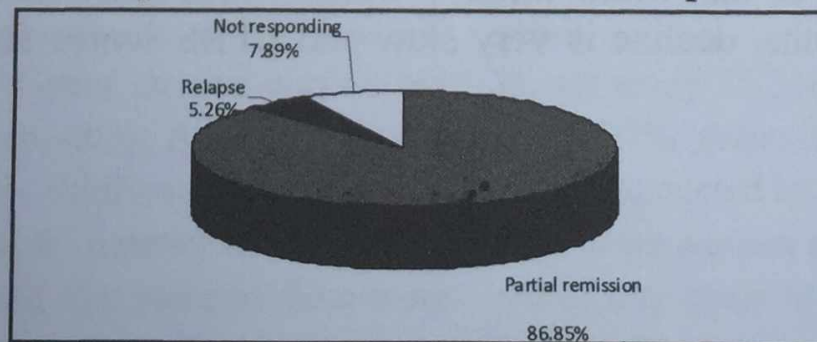
Table 2: Characteristics of relevant variables of the patients

Variables	Frequency	Percent
Family history of mental illness		
Present	14	36.8
Absent	24	63.2
Previous history of illness		
Present	2	5.3
Absent	36	94.7
Family Support		
Good	30	78.9
Bad	8	21.1
Onset of disease		
Suddenly	17	44.7
Gradually	21	55.3
History of work record		
Good	25	65.8
Bad	13	34.2
Duration of illness		
< 1 year	19	50.0
>1 year	19	50.0
Family and society tolerance		
Yes	30	78.9
No	7	18.4
Not Applicable	1	2.6
Treatment started		
< 9 months	8	21.1
> 9 months	30	78.9

Outcome at 6-month follow-up

The mean score on the BPRS of 38 subjects at baseline, at 6-week and at 6-month were 60.47 (SD ±7.59), 41.21 (SD ±7.29) and 34.89 (SD ± 8.72) respectively. These findings were shown in Table 3 and Table 4. Among the respondents, partial remission were in 33 patients (86.85%), not responding patients were 3 (7.89%) and relapses were in 2 patients (5.26 %). These findings were shown in figure 1.

Fig. 1: Distribution of patients on outcome of Schizophrenia



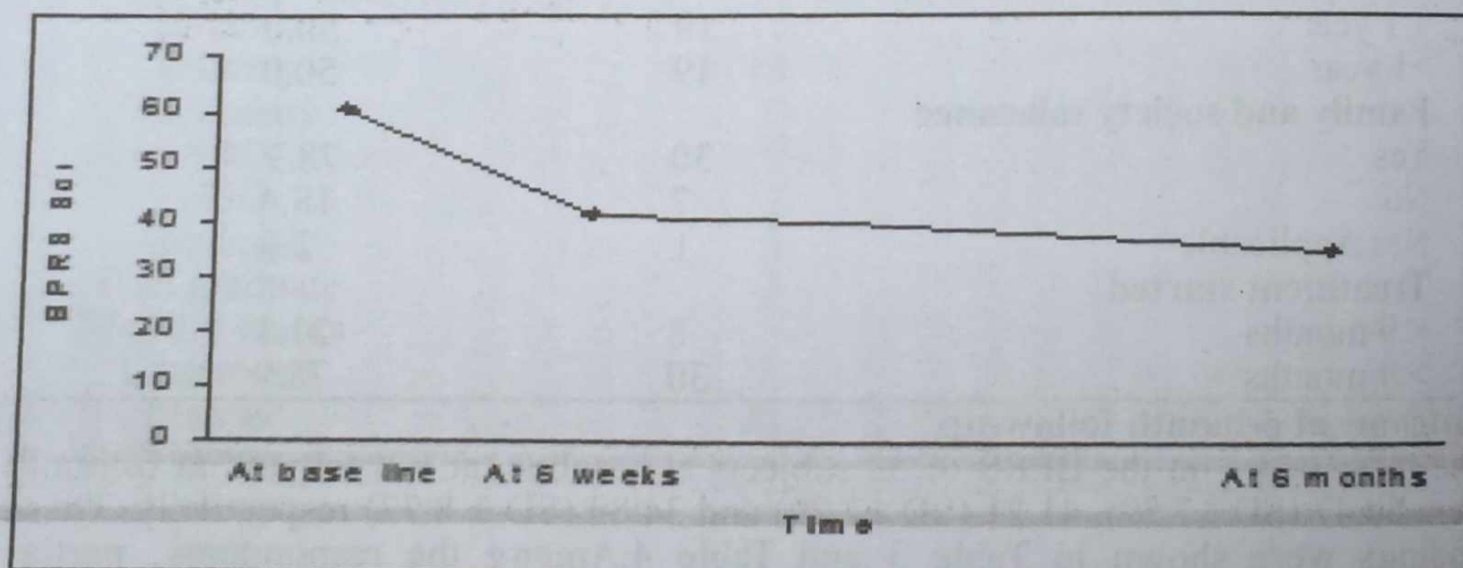
The pie chart (Fig.1) showed that 86.85% patient with schizophrenia had partial remission, 7.89% patient not responding and 5.26% patient had relapsed 6-month after treatment.

Table 4: BPRS score of the patients on clinical measures at the three assessment points

	N	Mean BPRS score	Standard Deviation	P-value
At base line	38	60.47	±7.59	0.001***
At 6 weeks	38	41.21	±7.29	
At 6 weeks	38	41.21	± 7.29	0.001***
At 6 months	38	34.89	±8.72	

The table 4 showed mean BPRS score (60.47 ± 7.59) at baseline is very highly significant improvement to 41.21 ± 7.29 (p value 0.001) at 6-week and very highly significant improvement to 34.89 ± 8.72 (p value 0.001) at 6-month.

Fig.2: Plot of psychopathological symptoms (Brief Psychiatric Rating Scale) score from baseline to 6-month follow-up by clinical outcome



This figure presented graphical presentation of BPRS score and time followed by drug treatment. It showed that within initial 6-weeks BPRS score sharply decline but after 6-week to 6-months, decline is very slow and BPRS scores fall as symptoms improve.

Discussion

Schizophrenia is a major psychiatric disorder which is still now burden to the family and also to the country. Due to repeated relapse of schizophrenia, functional, social and occupational activities gradually deteriorate and ultimately lead to defect state. Thus the schizophrenic patients become burden to the family, society and state as well. The findings of such study will help to determine the disease burden and consequent fiscal requirements. Therefore it will provide feedback to the family, researchers and finally to the policy makers. Outcome of schizophrenia reflected in broadening of treatment goals from prolonging life and symptom alleviation to maximization of the individual's satisfaction with life. The findings of the proposed study however will provide baseline information to stimulate the further research.

In current study 86.85% of patients with schizophrenia had partial remission, 7.89% had not responding and 5.26% had relapse in short-term treatment outcome. Our findings were not close to the study by Saravanan et al.¹⁷ where remission with deficits was 50% (included relapse 10%) and complete remission was 50% because they carried out 1-year but we carried out 6-month follow-up study. A study in India was conducted by Srinivasan and Tirupati,¹⁸ was found that 67 percent of 88 patients were employed and that most of them were in full-time employment in mainstream jobs with minimal or no disability or support in

the workplace. These findings were nearer to our study.

In this study the mean BPRS score at baseline, at 6-week and at 6-month was found 60.47 (SD ± 7.59), 41.21 (SD ± 7.29) and 34.89 (SD ± 8.72) respectively. Our finding was closely related to the study by Saravanan et al.¹⁷ where mean BPRS score at baseline and at 6-month were 56.7 (SD 5.2) and 32.5 (SD 6.9) respectively. Our finding was not consistent with the study by Mullick, et al.¹⁴ where they found mean BPRS score at baseline, at 6-week, at 12-week were 28.33 (± 8.31), 13.87% (± 6.22) and 9.2 (± 5.79) respectively because they used 16 symptoms construct of BPRS but we used 24 symptoms construct of BPRS in this study.

In this study the mean age of the patients was (29.32 \pm 11.40) years ranging from 11 to 60 years. Most of the patients were in the age ranges 19-28 years (36.84%) followed by age range 29-38 years (21.05%) and 10-18 years and 39-48 years age range both were 18.42%. A study in India done by Saravanan et al.¹⁷ found that the mean age was 29.5 (± 7.0). This finding was consistent with our study. Another study in Indonesia conducted by Kurihara et al.²⁰ was found that the mean age was 26.7 years (SD ± 7.83) which was a beat below of our result.

In our study 55.3%% patients were female and 44.7% patients were male. In India a study conducted by Saravanan et al.¹⁷ found 46% were women and 54% were men. This result was close to our study. In this study 31.6% of the respondents were residing in urban areas and 68.4% were residing in the

rural areas. This finding was nearer to the finding of Saravanan et al.¹⁷ where they found 80% residing in the rural and 20% residing in the urban areas.

In this study majority of the patients believe in Islam (94.7%), only 5.3% believe in Sanatan, finding reflects the Muslim majority in the general population of Bangladesh. This finding was consistent with the finding of Bashar et al.²¹ where they found 94.1% were Muslim and 5.9% were Sanatan patients.

In our study, among the respondents level of education, very few patients were illiterate (7.9%). Highest percentage patients (36.8%) had Primary level followed by SSC (23.7%), Secondary (18.4%), Graduate (5.3%), Postgraduate (5.3%), and HSC (2.6%). This finding close to the study of Bashar et al.²¹ where they found illiterate (10.8%), highest percentage patients (23.5%) had Secondary level followed by Primary (19.6%), SSC (15.7%), Graduate (17.6%), Postgraduate (1%), and HSC (11.8%).

Regarding occupation, in this study we found housewife were more common (34.2%), then others were (31.6%), student were (18.4%), service holder were (7.9%), unemployed were (5.3%), and business man were (2.6%). In this study, among the respondents marital status, 52.6% were married and 47.4% were unmarried. This finding close to the study of Karim et al.²² where they found 37.12% were married and 54.54% were unmarried, 3.78% were widow, 3% were divorced and 1.51% were separated. In our study, among the patients family in relation to monthly income of the

family, 50% patient's family had income within the range of Tk. 10000 to 20000, 36.8% patients had family income within the range of Tk. 5000 to 10000, 2.6% patient's family less than Tk. 5000 and 10.5% patient's family had income above Tk. 20000.

In this prospective study we found that family history of mental illness was present in 36.8% and absent in 63.2% family. This study reveals that previous history of mental illness was present only in 5.3% patients and absent in 94.7% patients reflects that majority of the samples were first episode schizophrenia.

In our study we found that 50% patients were more than 1 year and 50% patients were less than 1 year duration of illness. Rabbani, MG¹³ found that mean duration of illness was 4.90 (SD±5.7) months which was nearer to our study.

This was a relatively short-term follow-up study due to time constrain of the researcher. The relatively small sample size was taken in this study due to short duration of thesis part of researcher and lack of manpower. The researcher used different type of drugs as different type of indication was faced.

The current study demonstrates that short-term treatment outcome of schizophrenia in Bangladesh is better like other less developed countries, so our hypothesis was accepted. A majority of schizophrenic patients were found in Bangladesh, if these schizophrenic patients treated by early and properly by the antipsychotic drugs they may be improved as the outcome is better in our country;

there would not be disease burden. It should be recommended to the policy makers that awareness programs on mental health should be developed in Bangladesh. Thereby family members and care givers would have the facilities for the treatment of schizophrenic patients from the available services and reducing the disease burden. Further research is needed in future to assess the outcome and predictors of outcome of schizophrenia in community based and multi-centered approach in long-term follow-up with a large sample size.

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